

**Appendix 1.1**  
Statement of Expertise



# Appendix 1.1: Statement of Expertise

Chapter	Organisation Responsible
<b>Chapter 1: Introduction</b> <b>Chapter 2: The Routeing Process and Design Strategy</b> <b>Chapter 3: Approach to the EIA</b> <b>Chapter 4: Development Description</b> <b>Chapter 5: Felling, Construction, Operational Maintenance and Decommissioning</b> (prepared by LUC)	<b>Kate Wigley BSc (Hons) MA MIEMA CEnv</b> is Associate Director of Environmental Planning at LUC. Kate is a Chartered Environmentalist and has over 15 years of professional experience, specialising in integrated environmental design and EIA of major infrastructure projects, including overhead transmission lines and onshore wind farms. In her lead role, Kate manages and co-ordinates the communication of information between environmental and technical teams to facilitate mitigation of impacts through the design and EIA processes. Kate has also undertaken a range of environmental planning related research commissions, a number of which have culminated in the preparation of good practice guidance.  <b>Jo Cottin BSc (Hons) MSc MIEMA CEnv</b> is an Associate Environmental Planner and Chartered Environmentalist with ten years of experience in EIA and project management. Jo has worked on a range of EIA and environmental planning projects and has project managed and assisted in managing several EIAs for energy related and mixed-use developments. Many of the projects Jo has been involved in have involved complex issues and involve multi-disciplinary teams.
<b>Chapter 6: Planning Policy Context</b> (prepared by LUC)	<b>Laura McGowan BA (Hons) MRTPI</b> is a Principal Planner at LUC. Laura has over 14 years town planning experience in all stages of the planning process, including the preparation of supporting planning statements which require the assessment of development proposals against the policies from National, Regional and Local levels. Laura has also been involved in the preparation of EIA screening and scoping requests, as well as planning policy chapters for inclusion in ESs/EIA Reports for a variety of development proposals including energy related development, and residential, mixed use, business and industry projects.
<b>Chapter 7: Landscape and Visual Amenity</b> (prepared by LUC)	<b>Dan Walker BSc (Hons) MLA CMLI</b> is an Associate Landscape Planner and Chartered Member of the Landscape Institute. Dan has over nine years of experience in landscape and visual impact assessment and landscape planning projects. Since joining LUC, Dan has built up substantial experience of working in multi-disciplinary teams to undertake landscape and visual impact assessment. Dan has been involved in the production of preliminary landscape and visual studies for numerous electricity transmission developments, such as the Llanbrynmair Wind Farm Grid Connection Assessment and Dogger Bank Wind Farm Onshore Grid Connection.
<b>Chapter 8: Forestry</b> (prepared by RTS)	<b>Norman O'Neill BSc (For) MICE CEnv</b> is the Managing Director and Senior Forestry Consultant of RTS Ltd, forestry management, timber harvesting and consultancy company. Norman has worked on a number of high profile EIA projects including major utility interconnectors and wind farm developments. Recent projects include Beaulieu Denny, South-West Scotland, and Inveraray-Port Ann overhead line projects. He has also worked with a range of conservation organisations on providing woodland related advice and project management across Scotland working with groups including the Royal Society for the Protection of Birds (RSPB) and the Woodland Trust. Norman has provided forestry advice in relation to the routeing of the KTR Project, the assessment, the implementation of works, delivery of mitigation and landowner discussions.
<b>Chapter 9: Geology, Hydrology, Hydrogeology, Water Resources and Peat</b> (prepared by Kaya Consulting, Fluid Environmental Consulting and East Point Geo)	<b>Dr Sally Stewart BSc (Hons) MSc PhD MCIWEM CWEM</b> is a Senior Environmental Scientist and Geomorphologist, with over 18 years of consulting and research experience in the UK, Canada and India. Sally has experience of EIA, water resource management, flood risk assessments and developing water management plans for mining projects and irrigation projects worldwide. She is also an experienced river and coastal geomorphologist who has advised on numerous riverine and coastal development projects. Sally has been responsible for carrying out the assessment and writing of hydrology chapters for many wind farm and linear project EIAs in the UK. She has also undertaken numerous flood assessments and coastal geomorphology studies.  <b>Duncan Saunders BSc (Hons) MSc CMWIEM CSci</b> is a Hydrogeologist and the Managing Director of Fluid Environmental Consulting. Duncan has over 20 years of consulting experience in hydrogeology, water resources and geology including peat, in particular for large scale mining projects and renewable projects. He has specialist experience in the development of complex hydrogeological conceptual models combining hydrological, meteorological, geological and hydrogeological data. He has been involved in numerous environmental assessments on infrastructure projects from scoping through to the provision of expert witness testimony at public inquiry. This includes baseline studies, impact assessments, conceptual model development, production of construction environmental management plans and monitoring along with quantification of the spatial distribution and type of peat and determination of options for its reuse.  <b>Dr Andy Mills BSc (Hons) MSc PhD FGS CGeol</b> has 20 years of experience in mapping and interpreting peat geomorphology and landslides in the UK and Ireland, including the specification and interpretation of ground investigations in peatlands. He was technical lead in preparation of the Best Practice Guide for the Scottish Government in relation to peat landslides, having drafted much of both the original guidance and the forthcoming second issue. Between 2007 and 2013 he acted as lead reviewer for the Scottish Government's contracted checking team for peat stability assessments submitted to the Energy Consents Unit as part of Section 36 applications for wind farm developments.
<b>Chapter 10: Ecology</b> (prepared by LUC)	<b>Steve Jackson-Matthews MSc (Hons) CEnv MIEEM MEECW</b> is a skilled ecologist with a track record in delivering innovative solutions to ecological challenges. Steve has worked extensively within the planning system for a wide range of proposed developments across the UK and Ireland. Steve routinely gains and implements protected species licences for his clients and has extensive experience in negotiating with Licencing Authorities. Steve is recognised for his work with badgers and is an Advisor to and Trustee of Scottish Badgers. Steve holds a licence to disturb roosting bats in England and Scotland. Steve has experience in a wide range of development types and is familiar with assessing potential ecological impacts on schemes including nationally-important transport projects such as new rail schemes and new road schemes.
<b>Chapter 11: Ornithology</b> (prepared by Natural Research Projects Limited)	<b>Fiona Leckie BSc (Hons)</b> has over 20 years' experience managing projects as an ornithologist in the energy and research sectors. Her work within NRP has been primarily within the energy and onshore wind sectors, and has included planning, managing and undertaking baseline field surveys, advising on development designs, undertaking impact assessments within relevant planning frameworks (EIA & Habitat Regulation Appraisals) and planning ecological mitigation strategies. Fiona has managed and undertaken field surveys at overhead line and onshore wind farm projects across Scotland and Northern Ireland. She has prepared and written numerous Technical Reports and ES/EIA Report Chapters and provided ornithological management advice at a number of developments.
<b>Chapter 12: Cultural Heritage</b> (prepared by CFA Archaeology Limited)	<b>Mhairi Hastie BSc (Hons) MSc FSA Scot MCIfA</b> is an experienced archaeologist with over 20 years' experience as an archaeologist and over ten years full-time experience of producing EIAs for renewable energy developments, and for other industrial and commercial development across the UK.
<b>Chapter 13: Traffic and Transport</b> (prepared by Mott MacDonald)	<b>Fabian Jahnke BSc (Hons), GMICE</b> is a Senior Transportation Engineer with more than 15 years' experience covering aspects of civil engineering and transport planning. Fabien has been involved in the Transport and Infrastructure assessments for numerous onshore wind farms and assessment reports for ESs and EIA Reports. Experience also include the production of transport access studies, traffic management plans, engineering feasibility studies and developing highway design schemes.
<b>Chapter 14: Noise</b> (prepared by Hoare Lea)	<b>Matthew Cand Dipl Eng PhD MIOA</b> has over 14 years' experience in the assessment of environmental acoustics. He has worked on numerous noise and vibration assessments to assist the design and planning process, for a wide range of construction schemes, including architectural acoustic design and large scale industrial and infrastructure projects. Matthew provided expert witness evidence on noise from wind farms at several planning hearings and inquiries and was centrally involved in key national research projects. Matthew is a full member of the Institute of Acoustics (IoA) and Hoare Lea LLP has corporate memberships of the Association of Noise Consultants (ANC) and Institute of Environmental Management and Assessment (IEMA).
<b>Chapter 15: Socio-economics, Tourism and Recreation</b> (prepared by Peter Brett Associates (PBA), now part of Stantec)	<b>Duncan Smart MA (Hons) MSc MRTPI</b> is an Associate Planner with over seven years' experience and with specific interests in infrastructure consenting, EIA and socio-economic assessment. He is PBA's Co-Lead for Socio-economic Assessment and has particular experience of providing socio-economic, tourism and recreation analysis to support onshore electricity infrastructure projects. Duncan is also an experienced multi-disciplinary project manager and has experience of both preparing evidence for and appearing at planning inquiries. His work is informed by an in-depth understanding of the inter-related legal, planning and environmental complexities, as well as design and viability considerations, which all need to be addressed in successful consenting applications for major development projects.
<b>Chapter 16: Other Issues</b> (prepared by LUC and National Grid)	<b>Kate Wigley BSc (Hons) MA MIEMA CEnv</b> and <b>Jo Cottin BSc (Hons) MSc MIEMA CEnv</b> As above.  <b>Dr Hayley Tripp BSc (Hons) PhD CSci MRSB MIET MIEnvSc</b> is a Senior Environmental Engineer, specialising in Electro Magnetic Fields (EMF), for National Grid. She has over 16 years' experience as a technical specialist on all aspects of electromagnetic fields including health, policy and compliance. Dr Tripp was involved in preparing the EMF assessment and holds a Ph.D. in neuroendocrinology, specialising in the effects of EMFs on the circadian system and a BSc. (Hons) in Biological Science. She sits on numerous European and International technical committees on the subject with specialisms including microshocks and active implanted medical devices (AIMDs).
<b>Chapter 17: Intra-Connection and Intra-KTR Effects</b> (Prepared by LUC)	<b>Kate Wigley BSc (Hons) MA MIEMA CEnv</b> and <b>Jo Cottin BSc (Hons) MSc MIEMA CEnv</b> As above.
<b>Chapter 18: Summary of Likely Significant Effects</b> (prepared by LUC)	<b>Kate Wigley BSc (Hons) MA MIEMA CEnv</b> and <b>Jo Cottin BSc (Hons) MSc MIEMA CEnv</b> As above.

## **Appendix 3.1**

### Summary of the KTR Project Scoping Opinion





Appendix 3.1: Summary of the KTR Project Scoping Opinion

Consultee	Date of response	Key Comments	Response / Action to be taken in the EIA Report
Scottish Government Energy and Consents Unit (ECU)	4/10/2017	<b>Environmental Impact Assessment (EIA) Report:</b>  An annex to the EIA report should be provided with references to the detailed sections of the EIA report, the likely significant effects of the proposed development on the factors set out in regulation 40 (2) (b) of the 2017 regulations; and the features of the development or measures envisioned to avoid, prevent or reduce any such effects.  The mitigation measures suggested for any significant environmental impacts identified should be presented as a conclusion to the chapter on each topic area.  Scottish Ministers are content with the proposal to carry out a single EIA to address the effects of the overhead line (OHL) proposals and the decommissioning and removal of N and R routes.  Whilst many topics for decommissioning can be scoped out, during the decommissioning works, it is possible that impacts on traffic management and transport, and noise could be affected. It is necessary that sufficient information be supplied in the application to explain the approach to these works.  The Scoping Report gives details of the proposed approach to reinstatement of foundations following decommissioning and specific details should be given in the EIA report on how the foundations will be reinstated particularly in areas where sensitive conditions exist.  Content with the proposed approach to assessing cumulative impacts of the development, with regard to the immediate and long-term impacts against existing infrastructure.  It is noted that the baseline assessments in the EIA for the Kendoon to Tongland 132 kilovolt (kV) Reinforcement Project ('the KTR Project') will take account of the presence of the existing OHLs.	<b>Chapter 18: Summary of Likely Significant Effects</b> of the EIA Report identifies all the significant effects for each topic chapter and the relevant mitigation measures to prevent or reduce any adverse effects.  The end of each topic chapter ( <b>Chapters 7 to 16</b> ) provides a section called 'Summary of Significant Effects' which summarises in tabular format the significance of effects, mitigation measures and residual effects.  Noted.  The noise and traffic and transport assessments for the decommissioning works can be found within <b>Chapters 13: Traffic and Transport</b> and <b>Chapter 14: Noise</b> respectively.  <b>Chapter 5: Felling, Construction and Operational Maintenance</b> provides a comprehensive explanation of reinstating the foundations during the decommissioning phase. The effects of these activities during the construction phase can be found in the topic assessment chapters ( <b>Chapters 9-18</b> ).  The removal of the N and R routes are being attached to Polquharity to Glenlee via Kendoon (P-G via K) and Glenlee to Tongland (G-T) connections as ancillary development as they do not have a separate section 37 mechanism. As such, their removal is included within the P-G via K and G-T connection assessment sections within <b>Chapters 7 to 16</b> .
		<b>Landscape and Visual Amenity:</b>  Scottish Ministers agree with Dumfries and Galloway Council (D&GC) with regard to Viewpoint 9 and would request that the Applicant add the suggested viewpoint from the Otter Pool and car park midway along the Raiders' Road to the list of proposed viewpoints for assessment.	<b>Chapter 7: Landscape and Visual Amenity</b> and <b>Figure 7.10</b> confirms the inclusion of the viewpoint from the Otter Pool and car park midway along the Raiders' Road in the Landscape and Visual Impact Assessment (LVIA).
		Ministers are content with the proposed approach to assessing cumulative impacts.	Noted. The assessment of potential cumulative effects considers developments located within 10km radius of the proposed route.
		In regard to the Study Area Ministers agree with the assessment by Scottish Natural Heritage (SNH) that there should be some assessment of the proximate landscape and visual effects of the reinstatement and restoration of N and R routes to identify opportunities for offsetting and positive enhancement through the EIA process.	<b>Chapter 7</b> assesses the effects of returning the land to its existing/former use and areas of landscape planting within the proposed wayleaves. Options for wider enhancement will also be considered but will not form part of the application for consent.
		Any effects through construction traffic accessing the route on minor roads or publicly accessible tracks should be considered.	The LVIA assessment does not consider potential visual effects of vehicle traffic movements on the public road network but does, where appropriate, consider the effects arising from the creation of permanent or long-term improvements to the public road network (e.g. widening of roads, introduction of passing places) and/or the introduction of permanent or long-term access tracks away from the public road network.
		<b>Assessment of Alternative Measures:</b>  The scoping request submitted by SP Energy Networks (SPEN) highlights that the greatest effects potentially arising from the OHL are likely to be landscape and visual and acknowledges that this has been mitigated through careful routeing. However, the EIA report should include information on alternative measures, including undergrounding, which have been considered to avoid, prevent or reduce and if possible offset the likely significant adverse landscape and visual effects where these have been identified through consultation feedback from affected communities or the routeing process e.g. 'pinch points' or cumulative effects on sensitive receptors.  The EIA report should consider any further 'non committed' mitigation measures to be implemented during the post consent period such as improvements to landscape amenity, together with those which have been discounted.	<b>Chapter 2: The Routeing Process and Design Strategy</b> documents key decisions made in relation to routeing – specifically, but not solely, in response to landscape and visual concerns. A separate undergrounding study was also published in July 2020.  As noted above, the EIA Report assesses the effects of returning the land to its existing/former use and areas of landscape planting within the proposed wayleaves. Options for wider enhancement will also be considered but will not form part of the application for consent.
		<b>Geology:</b>  Ministers are content with the guidance considered, and that the proposed targeted peat depth surveys are appropriate. The proposed list of effects is appropriate, as are the organisations the Applicant proposes to approach to inform the EIA.	Noted.
		<b>Ecology:</b>  Ministers are broadly content with the approach. The Applicant should consider, as requested by Marine Scotland Science (MSS), all fish of economic and conservation value throughout the course of the development, including construction and decommissioning stages.  The potential cumulative impacts on water quality and fish populations as a result of the proposal and on	Noted, all construction will strictly follow pollution prevention requirements as standard.  Standard mitigation approaches will ensure protection of watercourses and are detailed in the assessment. Electro-fishing surveys were undertaken by the Galloway Fisheries Trust and an assessment of effects on fish and this is included in <b>Chapter 10: Ecology</b> .

Consultee	Date of response	Key Comments	Response / Action to be taken in the EIA Report
		adjacent developments such as fish farms should be considered.	
		The Applicant should contact the Dee District Salmon Fishery Board to inform the EIA.	Throughout the KTR Project, the Galloway Fisheries Trust kept the Dee District Salmon Fishery Board up to date on the status of the project.
		<b>Ornithology:</b> Ministers are broadly content with the approach. The EIA should include thorough investigation of appropriate mitigation measures to minimise any potential impact to nightjar where nightjar is assessed as being at risk.	Noted – further surveys have been undertaken and <b>Chapter 11: Ornithology</b> assesses effects on nightjar.
		Mitigation measures should be considered to reduce the potential impact to red kite through consideration to micro siting and/or timing of works during the breeding season relating to active nest sites.	Noted.
		Ministers draw the Applicant's attention to the requirement highlighted by Royal Society for the Protection of Birds (RSPB) to ensure that survey methodology is suitable to properly assess abundance and distribution of nightjar and black grouse onsite. This would include pre-dawn lek surveys for black grouse and survey for churring male nightjars at dusk.	Noted; see comments on nightjar below.
		RSPB should be consulted along with SNH to determine the need for additional survey work after the collation of the first year's survey results.	The scope of surveys was agreed with SNH and RSPB.
		Ministers adopt RSPB's recommendation that baseline data is collated in relation to nightjar' flight activity for the routes that pose the highest risk for this species. This could be achieved through assessing the frequency of flights at risk height from vantage point watches.	Further surveys were undertaken and the approach was agreed with SNH and RSPB.
		<b>Cultural Heritage Impacts:</b> The Applicant should adopt the approach recommended by Historic Environment Scotland (HES) in respect of Dundegh Castle and Park, stone circle scheduled monuments.	See HES response below.
		Consideration should be given as to whether the proposed development could have significant impacts on these monuments and if so, wirelines or photomontages should be supplied to support the assessment. If these monuments are scoped out of the assessment reasoning should be provided.	See HES response below.
		In regard to cultural heritage viewpoints, D&GC have requested that a photomontage view from the A713 north of Polharrow Bridge would be helpful in addition to those proposed, and Ministers request that this is included.	See HES response below.
		Ministers are content with the organisations the Applicants propose to approach to inform the EIA.	Noted.
		<b>Traffic and Transport:</b> Ministers are content that it is acceptable to scope out the operational effects of traffic and transport. Ministers are content with the organisations the Applicant proposes to approach to inform the EIA.	Noted.
		<b>Construction Noise:</b> Ministers are content with the approach proposed by the Applicant in respect to construction noise and are content with the organisations proposed to be approached to inform the EIA in this respect.	Noted.
		<b>Forestry:</b> Ministers adopt the advice given by D&GC and RSPB in respect to forestry; where impacts are proposed on a site that is listed in the Inventory of Ancient Woodland, evidence should be presented to demonstrate that no alternative is possible, and a biodiversity impact assessment should be carried out on the affected site. Where there are potential impacts on habitat, it should be set out in detailed where mitigation measures have been considered, and reasoning given as to such measures being adopted or otherwise. Forestry Commission Scotland (FCS) have not commented on the proposed scope of the EIA but have forwarded comments made at pre-scoping stage for consideration. Ministers are content with the organisations the Applicants propose to approach to inform the EIA.	Concerns raised about Ancient Woodland Inventory are noted. The loss of Ancient Woodland has been discussed with the Woodland Trust and the assessment of effects can be found in <b>Chapter 8: Forestry</b> .
		<b>Socio Economics and Tourism:</b> Ministers note and welcome that the Applicant intends to carry out an assessment on the effects on recreational resource and tourism, which is necessary in the context of known community concerns.	Noted.
<b>Dumfries &amp; Galloway Council (D&amp;GC)</b>	03/08/2017	<b>Traffic and Transport:</b> Any future submission must include details of all works compounds and site access points on public roads.	Noted, details of accesses are provided in <b>Chapter 13</b> and shown on relevant figures.
		All access routes to be assessed in full and the extent of any accommodation to public roads and the potential impacts on utility services lying within the public road boundary are to be identified.	Noted.
		Proposals for all accommodation works should be supported by swept path.	Noted.
		All accesses and accommodation works on public roads must be designed and constructed to the	Noted.

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		satisfaction of the Planning Authority in consultation with the Roads Authority.	
		The developer will be held responsible for the immediate execution of any repairs and will be required to meet the cost of above average maintenance to the public road network arising from the concentration of heavy traffic associated with this development.	Noted.
		Where public road boundaries are altered for accommodation works, these should be reinstated in their original position at the conclusion of construction works (unless prior agreements have been secured with the Planning and Road Authorities).	Noted.
		Where an access route crosses bridges and culverts, the Applicant will be required to get approvals (in respect of those structures) from the D&GC's Design Bridges and Structures Unit.	D&GC Roads department and Bridges and Structures Unit were consulted throughout the EIA process, including in relation to the proposed use of Polharrow Bridge and this is outlined in <b>Chapter 13</b> .
		The EIA Report should include appropriate consultation with nearby forest managers and timber hauliers through the office of the South of Scotland Timber Transport Officer to co-ordinate timber haulage operations that may use the access routes during the construction period to minimise the cumulative impact on communities and road users.	Consultation with the South of Scotland Timber Transport Officer and forest managers was undertaken this is reported in <b>Chapter 8: Forestry</b> .
		A Traffic Management Plan (TMP) is to be agreed in writing with the Police and the Roads Authorities prior to any works commencing onsite. The TMP should include a programme of delivery types/numbers by month, details of all proposed mitigation measures, list of contacts, agreed access (and excluded) routes and details of measures that will be implemented to ensure that no stacking of delivery vehicles occur on any part of the public road network.	An outline TMP has been produced in consultation with D&GC and provided as <b>Appendix 13.1: Framework Construction Traffic Management Plan</b> .
		<b>Landscape and Visual Assessment:</b> Regional Scenic Areas Technical Paper 6 was updated and adopted as part of the Local Development Plan (LDP) in September 2014.	The updated technical paper has been referred to in <b>Chapter 7</b> .
		Additional/alternative viewpoints: Consider Otter Pool and Car park midway along the Raiders road as well as/instead of Viewpoint 11.	All viewpoints were agreed with the D&GC landscape architect and SNH. Additional viewpoints from Minor road west of Glenlee, Otter Pools along the Raiders Road (D&GC Landscape Architect) and A713 near Knocknalling (D&GC Archaeologist) and can be found in <b>Chapter 7</b> . See further detailed commentary on Non-Inventory Designated Landscape (NIDL) below.
		Viewpoints: suggest moving Viewpoint 9 to the point where the minor road exits forestry (GR 25860 57880) to capture potential impacts of both existing and proposed lines seen in combination.	All viewpoints were agreed with the D&G landscape architect and SNH. Additional viewpoint has been included in <b>Chapter 7</b> .
		The intention to use landscape character areas defined in the Dumfries and Galloway (D&G) Landscape Assessment (LUC/SNH 1998) rather than those used in the Dumfries and Galloway Wind Farm Landscape Capacity Study (DGWLCS) is noted and seems appropriate.	No action required.
		Additional sources of baseline information which should be used to inform the LVIA where relevant.	Noted regarding additional data/baseline sources.
		The proposed 5km Study Area is noted as being appropriate for the assessment of potentially significant landscape and visual effects.	Noted that the suggested Study Area accepted (5km radius from lines, 10km Study Area for schemes to include in the cumulative assessment).
		The DGWLCS was revised and updated this year. It forms Appendix C of 'the LDP Part 1 wind energy: Development management considerations Supplementary Guidance' and was adopted on 22 June 2017.	The updated capacity study and supplementary guidance has been referred to in <b>Chapter 7</b> .
		Decommissioning: review potential for replanting 'redundant' or part-redundant easements following removal of existing lines. This could form part of the mitigation measures for installation of new parallel lines.	As noted above, the EIA Report has assessed the effects of returning the land to its existing/former use and areas of landscape planting within the proposed wayleaves. Options for wider enhancement are also considered but do not form part of the application for consent.
		<b>Cultural Heritage:</b> The baseline data has been gathered in consultation with the D&GC's Historic Environment Record (HER) and with HES. In general terms the existing conditions as recorded are agreed.	Noted.
		The A-Listed Tongland Power Station (HES17126, MDG18513) falls within the 200m Study Area.	Noted.
		Given concerns raised by the landscape architect and archaeologist previously over the route through Knocknalling Non-Inventory Designed Landscape, it would be helpful to have a photomontage view from the A713 just north of Polharrow Bridge (NX 60344 84367) looking northwards to assess the setting impact on the designed landscape.	The requested viewpoint for Knocknalling NIDL has been included in the assessment (see <b>Chapter 12: Cultural Heritage</b> ) and is also considered within <b>Chapter 7</b> . Due to health and safety concerns (location on a busy road) the exact location specified could not be used. Instead, the photograph was taken from a viewpoint located at 260334, 584374 (c. 15m west of the grid co-ordinated proposed by D&GC Archaeologist) and immediately north of Polharrow Bridge.
		Dalry Fundamental Bench Mark can be scoped out as it is underground and not susceptible to setting issues.	Noted.
		Agree with the candidate heritage viewpoints listed in Table 9.2 [of the Scoping Report].	Noted.
		Agree that cultural heritage assessment for decommissioning and removal of the N and R routes can be scoped out.	Noted.
		Figure 9.1a [of the Scoping Report], showing existing cultural heritage conditions fails to include a group of assets to the south of Glenlee, on which information was provided to SPEN and their heritage consultants at last meeting. These should be included for the purposes of the EIA.	Noted.

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		The D&GC Archaeologist should continue to be consulted with regard to the project and the EIA; D&GC no longer have a Conservation Officer.	Noted.
		<b>Ecology:</b> The section on 'Likely Significant and Non-Significant Effects' should make it clear that the assessment of potential effects on habitats and species includes those of local importance as well as those protected/ designated/ classified at national or international level i.e. Local Priority Habitats and Local Priority Species as listed in the D&G local Biodiversity Action Plan (2009).	Noted.
		<b>Ornithology:</b> An appropriate assessment will be required in respect of the Loch Ken and River Dee Marshes Special Protection Area (SPA), but that appropriate assessment will not be undertaken in respect of other SPAs.	Noted. The data to inform the appropriate assessment of potential effects on the Loch Ken and River Dee marshes SPA is provided within <b>Chapter 11</b> .
		<b>Forestry:</b> The proposed transmission line route appears to cut through areas of forested land. It is likely that there will be accelerated felling and timber haulage associated with this proposal. It would be appropriate for all timber haulage traffic to follow agreed routes from the appropriate and approved forest plans.	<b>Chapter 13</b> includes consideration of the removal of timber required to be felled for construction of the KTR Project. Liaison with the Local Timber Transport Officer for South Scotland has been undertaken.
		Review potential for replanting 'redundant' or part redundant easements following removal of existing lines. This could form part of the mitigation measures for installation of new parallel lines.	The project cannot commit to undertaking the replanting of redundant lines as the land will revert to the landowner. In similar projects there has been a commitment to encourage this replanting however this is outwith SPEN's control.
		The avoidance of Ancient Semi-Natural Woodland (ASNW) is welcomed but it is noted that there is no commitment to avoid all such sites. Such sites are irreplaceable and no mitigation is possible.  Where an impact is proposed on a site that is listed in the Inventory of Ancient Woodland (either as Ancient or Long-established), it is recommend that, in line with LDP Policy NE7, evidence should be presented to the Council to demonstrate that no alternative is possible, and a biodiversity impact assessment should be carried out on the site affected.	It is not agreed that mitigation is impossible particularly when considering the effect on a regional basis and where possible, effects on ASNW have been limited.
		The proposed route crosses the Laurieston- Gatehouse road near Lochenbreck (approx. NX656651). Although not designated, there is a double avenue of Beech trees in this vicinity which is classified in the Inventory of Ancient Woodland as long established woodland. This avenue is known to be of at least local biodiversity value, especially for veteran trees and associated fungi. If the current proposal affects this avenue, it is recommended that consideration should be given to rerouting it. In the event that it can be demonstrated that no alternative is possible, a biodiversity assessment of the impact, including veteran trees and fungi, should be carried out.	The route crosses the Laurieston-Gatehouse road to the east of the avenue of Beech trees, none of which will be directly affected by the works.
Scottish Natural Heritage (SNH)	26/05/2017	<b>Hydrology:</b> Developer needs to manage surface runoff from the site during and after construction. Runoff should mimic that of existing conditions and not be increased. Developer should consider the rate of runoff into the watercourses which are located within the site. Any significant increase may increase the flood risk downstream.	Runoff and associated potential increase to flood risk have been addressed as part of the EIA and the findings presented in <b>Chapter 9: Geology, Hydrology, Hydrogeology, Water Resources and Peat</b> . The Flood Risk Management section of the council notes the need to manage surface water runoff from the site to mimic existing conditions and to not increase the flood risk downstream.
		SNH confirmed that there are no additional sources of baseline information, or additional guidance, which should be referred to inform the LVIA. The referenced guidance provides relevant context for the preparation of the visualisations.	Noted.
		SNH confirmed that the proposed 5km Study Area is appropriate for the assessment of potentially significant landscape effects. However it was noted that this excludes part of R route south of Parton.	All viewpoints were agreed with the D&G landscape architect and SNH.
		SNH confirmed they are no aware of any specific developments which should be considered in the cumulative assessment.	Noted.
		The removal of N and R routes are proposed to be scoped out of LVIA. However, SNH believe there should be some assessment of the proximate landscape and visual effects of the reinstatement and restoration of N and R routes.	The removal of N and R route have been considered in <b>Chapter 7</b> and the assessment focuses on the long term change from the removal of the towers and lines (which will ultimately be a positive/beneficial change). A number of the agreed viewpoints (predominantly located on the east side of Loch Ken) illustrate this change.  It is not expected that the decommissioning activities will result in significant adverse landscape or visual effects. Disturbance to, and loss of, landscape features such as mature trees, hedgerows, stone dykes etc. to facilitate access to the towers for removal, will be minimal and largely avoided along the whole route.
		SNH confirmed the list of proposed viewpoints is appropriate to inform the visual assessment, and no additional representative viewpoint locations should be considered to inform the visual assessment. SNH note that some of the viewpoints will be selected for illustration with photomontages and would welcome discussion of these.	All viewpoints were agreed with the D&G landscape architect and SNH.
		SNH has advised that the potential landscape and visual effects, including cumulative effects, proposed to be included within the assessment are acceptable.	Noted.



Consultee	Date of response	Key Comments	Response / Action to be taken in the EIA Report
		Written descriptions and figures would be helpful in explaining what is proposed in different sections of the route corridor, e.g. to show where tree felling will occur and the design approach taken with respect to minimising tower sky-lining.	Noted. Approach to routing and design is discussed in <b>Chapter 2</b> where key decisions made in relation to routing have been documented specifically, but not solely, in response to landscape and visual concerns.
		SNH confirmed that they do not hold any records of key species not already provided through Dumfries and Galloway Environmental Resources Centre (DGERC) which may require targeted survey or consideration.	Noted.
		The scope and methods are confirmed as appropriate and SNH are content with the approach regarding the review of an initial year's data.	Ongoing liaison has taken place with SNH.
		SNH confirmed that they are not aware of any other baseline information available which should be collated to allow an assessment to be undertaken.	Noted.
		SNH confirmed that there would be a requirement to provide data to allow the competent authority to undertake an appropriate assessment as part of an Habitat Risk Assessment (HRA), in respect of the Loch Ken and River Dee marshes SPA. Advise there is no need for a HRA with respect to any other SPAs.	<b>Chapter 11</b> and associated appendices provide the data to enable the competent authority to undertake the appropriate assessment.
<b>Scottish Environment Protection Agency (SEPA)</b>	25/05/2017	Content with the principle of the Scoping Document.  Note that it is likely that by the time that the scheme comes forward for construction that construction site licences will be required to be obtained under the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (CAR).  Recommended that discussions take place with SEPA in relation to this during the period of appointing a construction contractor, if not prior to this.	SEPA note that construction site licences will be required to be obtained under CAR. This will take place during the period of appointing a construction contractor (i.e. after the EIA).
		Scottish Environmental Protection Agency (SEPA) happy to provide updates at the relevant stakeholder meetings in the future.	SPEN/LUC continued to liaise with SEPA as part of the Statutory Stakeholder Liaison Group (SSLG) to inform the EIA.
<b>Historic Environment Scotland (HES)</b>	25/05/2017	Broadly content with the areas of search identified in the document, and as previously stated, consider it possible that there will be no significant impacts for HES interests.	Noted.
		Dundeugh Castle (Scheduled Monument (SM) 2476) was not identified in the Scoping Report, however note there is potential for vegetation to entirely screen the proposed OHL.	A site visit to the castle confirmed that there will be no effect on the setting of the castle from the proposed development; the castle ruins are now surrounded by woodland and there are no views out to the surrounding area.
		Park, stone circle (SM 1039) was not identified in the Scoping Report. As the OHL will be following the existing route the magnitude of change has potential to be negligible; however, it is noted that the monument lies just outside the proposed route option. HES would recommend a precautionary approach for both setting and direct impacts. Direct impacts should be avoided.	A site visit confirmed that the proposed OHL would be positioned further to the west from the stone circle than the existing OHL, and as HES note, the magnitude of change to the setting of the stone circle is likely to be negligible.
		Advise that consideration is given to the potential impacts on both SMs above, and that if they are scoped out of assessment, reasoning is provided for the decision. If significant impacts are expected wirelines or photomontages should be provided to support the assessment.	Given the close proximity of the proposed OHL to Park, stone circle and that the proposed tower (currently) stands in a slightly different position to the existing tower, a wireline of the view from the stone circle be has been included in <b>Chapter 12</b> .
<b>RSPB (Royal Society for the Protection of Birds)</b>	23/05/2017	It is advised that the EIA includes a thorough investigation of appropriate mitigation measures to minimise any potential impact to nightjar along the G-T connection of the 'preferred' route, and any other anywhere this species is assessed as being at risk.	See above regarding nightjar.
		For all route connections (with the exception of G-T) RSPB advises that mitigation measure are considered to reduce the potential impact to Annex 1 species (including red kite), through consideration to micro siting and / or timing of works during breeding season relating to active nest sites.	Noted.
		In general RSPB agrees that the level of survey work being undertaken, which includes targeted survey work for black grouse and nightjar is acceptable.  However, since the Scoping Report does not outline the detail of survey methodology, RSPB highlights the requirement to ensure that survey methodology is suitable to properly assess abundance and distribution of these species onsite. This would include pre-dawn lek surveys for black grouse and survey for churring male nightjars at dusk.	See above.
		In reference to the proposal to consult with SNH and others to determine the need for additional survey work after the collation of the first year's results, it is agreed that this would be the appropriate way in which to confirm the suitability of survey coverage and it is requested that RSPB Scotland is included in this consultation.	Ongoing liaison took place with RSPB in relation to the scope of the ornithology surveys.
		In reference to the level of baseline data being collated and consideration of any additional data, RSPB would recommend that baseline data is collated in relation to nightjar' flight activity for the routes that pose the highest risk for this species. This could be achieved through assessing the frequency of flights at risk height from vantage point watches.	See above.
		In reference to the requirement to provide data to allow the undertaking of an Appropriate Assessment as part of a HRA in respect of the Loch Ken and River Dee Marshes SPA, RSPB confirm that in [RSPB's view] there are likely significant effects on the SPA and that an appropriate assessment is required.  The information to inform the appropriate assessment should be included in/alongside the EIA Report at the application stage. RSPB confirms that an HRA will not be necessary for other SPA.	<b>Chapter 11</b> and associated appendices provide the data to enable the competent authority to undertake the appropriate assessment.

Consultee	Date of response	Key Comments	Response / Action to be taken in the EIA Report
		Regarding removal activities during the non-breeding season, RSPB agrees that decommissioning activities during this period should not cause significant risk to avian species. However, since the winter months are the period of activity for Greenland white-fronted geese, a qualifying feature of the SPA, the programming of works would need consider the potential impact to this species from these activities.	Noted.
		It is noted that ASNW sites have been avoided where possible through routing. RSPB would advise that impact to this habitat should be fully assessed and that the appropriate level of mitigation measures including micro siting is considered to minimise any predicted impact.	Noted. These comments are addressed within <b>Chapter 8</b> .
		It is noted that impact to broadleaf woodland including long-term ancient and semi-natural is likely through routing. RSPB would advise that impact to this habitat should be fully assessed and that the appropriate level of mitigation measures including micro siting is considered to minimise any predicted impact.	Noted. These comments are addressed within <b>Chapter 8</b> .
		In reference to any other organisation to be consulted to inform the EIA, RSPB would advise that RSPB Scotland and the D&G Raptor Study Group should be included in consultation where this relates to breeding birds unless this issue is covered as Consultees for Ornithology.	The Raptor Study Group was consulted.
<b>Marine Scotland Science (MSS)</b>	26/05/2017	The proposed route of the OHL is located within the Water of Ken / River Dee catchment. MSS advises the developer to consider all fish of economic and conservation value throughout the course of the development.	Noted. Electro-fishing surveys were undertaken by Galloway Fisheries Trust and the findings reported in <b>Chapter 10</b> .
		MSS's generic scoping guidelines should be consulted in relation to the potential impacts on water quality and fish populations associated with the proposed activities.	Noted, all construction will strictly follow pollution prevention requirements as standard. Standard mitigation approaches will ensure protection of watercourses is detailed in the assessment.
		The potential cumulative impacts on water quality and fish population as a result of the proposal and adjacent developments (including fish farms) should be considered.	Noted.
		The Dee District Salmon Fishery Board should be consulted.	The Galloway Fisheries Trust kept the Dee District Salmon Fishery Board up to date on the status of the project.
<b>Transport Scotland (TS)</b>	31/05/2017	It is noted that Transport Scotland (TS) (A75 Network Manager) will need to be consulted with regard to the methodology for the removal of the existing OHL above the trunk road and the installation of the new line.	Noted.
		Any trunk road access requirements will need to be to the agreement of TS, and details should be supplied within the EIA Report.	Noted.
		TS confirms that it is acceptable for operational effects on traffic to be scoped out of the EIA Report. However, works carried out on or near the trunk road will require to be discussed with TS and the Operating Company prior to work commencing.	Noted.
		It is noted that noise, and air quality / dust effects associated with temporary construction traffic are scoped out of the assessment. TS is in agreement with this approach.	Noted.
<b>Forestry Commission Scotland (FCS)</b>	13/12/2016	Much of the proposed routeing has been targeted towards woodland areas. This will result in significant woodland losses, compounding losses through the installations of new wayleaves associated with wind farm developments. Such losses act against the achievement of the Scottish Governments wider objectives around the expansion of Woodland cover in Scotland.	Noted. SPEN had ongoing discussions with the SF regarding the project.
		Wayleaves installed within woodlands generate significant long-term land use impacts, well beyond the footprint of the wayleave itself. They significantly restrict and compromise forest operational activity in close proximity to the wayleaves and also generate a significant H&S hazard. The result is that the "effective land take" in woodland areas is much more significant than the equivalent line in an open or agricultural context. Placing wayleaves within woodlands also presents potential landscaping impacts, with the woodlands effectively "framing" the wayleave corridor, making its presence more obvious in the wider landscape. The only practical mitigation for such scenarios is often to further landscape the associated woodland, resulting in additional losses in woodland area. Wayleaves within woodlands are also more vulnerable to resilience challenges.	All viewpoints were agreed with the D&G landscape architect and SNH and these were circulated to the FCS landscape architect.
		Recommended that SPEN liaise at an early stage with FCS and Woodland owners / managers to agree the best detailed alignments and associated infrastructure required. Such consideration should consider existing woodland boundaries and windfirm edges, existing roading infrastructure and existing long-term forest plans for the areas in question.	Discussions with FCS and landowners were ongoing.
<b>Scotways</b>	19/06/2017	Welcome that Figure 5.2 [of the Scoping Report] indicates that Core Paths Plans, prepared by local authorities as part of their duties under this Act, have been consulted. Note also that Figure 5.2 identifies the National Cycle Network and a number of other promoted routes.	Noted. Potential effects on views experienced from Core Paths, National Cycle Routes and other promoted routes are considered in <b>Chapter 7</b> .
		<b>Chapter 15: Socio Economics, Tourism and Recreation</b> of the Scoping Report includes a list of consultees approached for information to inform the EIA. Noted that ScotWays was not included.	ScotWays was consulted.
		The National Catalogue of Rights of Way shows a large number of rights of way and other recreational routes which appear to be affected by the proposed route as shown on Figure 1.2 [of the Scoping Report]. It is also worthy of note that as there is no definitive record of rights of way in Scotland, there may be routes that meet the criteria to be rights of way but have not been recorded as they have not yet come to Scotways notice.	Noted.

Consultee	Date of response	Key Comments	Response / Action to be taken in the EIA Report
<b>NATS (National Air Traffic Services)</b>	n/a	NATS anticipates no impact from the application and accordingly has no comments to make.	Noted.
<b>Civil Aviation Authority (CAA)</b>	24/05/2017	Proposal should be brought to the attention of the following organisations: <ul style="list-style-type: none"> <li>Low Flying ops Flight (LFOF) (based at RAF Wittering): <a href="mailto:swk-lfoflfbc@mod.gov.uk">swk-lfoflfbc@mod.gov.uk</a></li> <li>Ministry of Defence (MoD) Infrastructure Organisation, Safeguarding Department: <a href="mailto:dio-safeguarding-statutory@mod.uk">dio-safeguarding-statutory@mod.uk</a></li> <li>Defence Geographic Centre: <a href="mailto:dvof@mod.uk">dvof@mod.uk</a></li> </ul>	Noted. These organisations were consulted and will be consulted again on submission.
<b>Health and Safety Executive (HSE)</b>	12/05/2017	HSE's principal concerns are the health and safety of people affected by work activities. The EIA Report should not include measures which would conflict with the requirements of the Health and Safety at Work etc. Act 1974 and its relevant statutory provisions.	Noted.
<b>VisitScotland</b>	05/05/2017	Highlight scenery and the natural environment as important factors for visitors when choosing a holiday location.	Noted.
		The VisitScotland Visitor Experience Survey (2011/2012) should be considered.	Noted.
		It is also suggested that full consideration is given to the Scottish Government's 2008 research on the impact of wind farms on tourism. This research includes recommendations which could help to minimise any negative effects of wind farms on the tourism industry. The report also highlights a request, as part of the planning process, to provide a tourism impact statement as part of the Environmental Impact Analysis.	Tourism is considered in socio-economic assessment (see <b>Chapter 15</b> ).
		VisitScotland recommends any potential detrimental impact of the proposed development on tourism - whether visually, environmentally and economically - be identified and considered in full. This includes when taking decisions over turbine height and number.	Noted. It is assumed that the reference to turbines was made in error.
		VisitScotland agrees with the advice of the Scottish Government - the importance of tourism impact statements should not be diminished, and that, for each site considered, an independent tourism impact assessment should be carried out. This assessment should be geographically sensitive and should consider the potential impact on any tourism offerings in the vicinity.	Noted.
		VisitScotland would also urge consideration of the specific concerns raised above relating to the impact any perceived proliferation of developments may have on the local tourism industry, and therefore the local economy.	Noted.



**Appendix 5.1**  
Forestry Design Concept



## Appendix 5.1: Forest Design Concept - Approach to Mitigation and Enhancement

### Introduction

- 1.1 This Appendix sets out SP Energy Networks' (SPEN) approach to identifying areas proposed for removal of woodland required to construct and operate the Kendoon to Tongland 132 kilovolt (kV) Reinforcement Project ('the KTR Project'). It also sets out the objectives and processes to be applied to re-planting, both within and outside the wayleave corridor, to mitigate for potential direct and secondary adverse effects of the KTR Project. Opportunities for potential enhancement of the local woodland environment are also identified. These objectives and approaches collectively comprise the general approach to the 'Forest Design Concept' (FDC) to be applied to woodland blocks/areas affected by the KTR Project. The final 'forest and wayleave design plan' (FWDP) for each woodland block will be finalised post-consent, prior to any felling taking place, to reflect the findings of the pre-construction updated environmental surveys, ground investigations and any design modifications proposed within the infrastructure location allowance (ILA).
- 1.2 The approach to felling and mitigation/enhancement re-planting to be implemented through the FDC reflects the relevant policy and guidance, including the UK Forestry Standard (2017), Scottish Government Policy on the Control of Woodland Removal (2009) and associated implementation guidance (2019) and the Forestry and Land Management (Scotland) Act 2018 ("2018 Act") and associated regulations<sup>1</sup>.
- 1.3 It must be noted that SPEN's ability to deliver these measures, particularly for areas outside of the wayleave corridor, will be wholly reliant on collaboration and agreement with forest landowners as well as agreement with Scottish Forestry (SF) as the statutory authority with regard to forestry.
- 1.4 This Appendix should be read in conjunction with **Chapter 2: The Routeing Process and Design Strategy**, **Chapter 5: Felling, Construction, Operational Maintenance and Decommissioning**, **Chapter 7: Landscape and Visual Amenity**, **Chapter 8: Forestry**, **Chapter 10: Ecology** and **Chapter 11: Ornithology**.

### General Principles of Mitigation through Routeing and Design

- 1.5 As outlined in **Chapter 2**, taking cognisance of the Holford Rules, the overall routeing objective has been to minimise the extent of felling required to accommodate the KTR Project when balanced with other environmental and technical requirements. This is considered, on balance, to comprise the most effective form for avoiding potentially significant adverse effects on forestry. However, where avoiding forestry has not been possible, opportunities to minimise the amount of felling required were adopted as part of the detailed design process.
- 1.6 Specialist forestry input to the detailed design process included advice in relation to the re-location of towers/wood poles and/or the re-design of associated infrastructure components to further avoid/minimise the risk of windthrow to trees outwith the wayleave (the 'windthrow' area), or enable other forms of treatment for woodland blocks and individual trees (i.e. crowning) to be used instead of tree felling.
- 1.7 Further details in relation to the process adopted for identifying the form of woodland treatment required to accommodate the 'wayleave' corridor, for safety reasons, to ensure that trees do not fall onto the line, and for health and safety of forestry operatives, are presented below. Details in relation to the process adopted for the identification of areas of woodland outwith the wayleave proposed to be felled to reduce the risk of consequential windthrow are also set out below.

<sup>1</sup> The Felling (Scotland) Regulations 2019

- 1.8 It is recognised that the felling of a standard width wayleave corridor would create a linear feature within the forestry, inconsistent with the Forestry Commission Practice Guide *Design techniques for forest management planning* (2014)<sup>2</sup>. On this basis, as outlined in **Chapter 2**, a FDC is proposed to be developed for all forested areas affected by the KTR Project, further details of the FDC approach are set out below.

### Process for Identification of Wayleave Treatment

#### Introduction

- 1.9 The decision to fell an area of trees along the route of a proposed overhead line (OHL) is informed by an initial assessment of the site and the trees species present. That assessment will indicate whether the trees currently, or will in the future, present a risk to the safe construction and operation of the overhead line. **Figures A5.1.1(1-3)** detail the prescribed safety zone associated with 132kV and 400kV OHLs. This model is based on the trees growing into, or falling into (if impacted by windthrow), the vicinity of the safety zone of the conductors. The decision process takes into account the species of tree and the site condition which will determine the height at maturity for non-commercial (mainly broadleaf) trees, or the market based commercial height when coniferous trees would be expected to be felled. For commercial conifers the height used for the KTR Project, and generally accepted for major utility projects, is 25m.
- 1.10 **Figures A5.1.1(1-3)** demonstrate that the wayleave corridor width required for areas where the OHL passes through mature or semi-mature woodland is 70m for those connections on trident wood pole line and 80m for the steel tower connections.

#### Tree Treatment within the Wayleave

- 1.11 Within the prescribed 70m/80m wayleave corridor there is the opportunity to manage certain tree species to deliver biodiversity (ecological/ornithological) and/or landscape mitigation. This will primarily utilise lower growing or shrub tree species which by nature of their growing habit have a low mature height or grow at such a slow speed that their overall height can be controlled by regular site visits and crown reducing.
- 1.12 The retention or planting of suitable shrub tree species within the wayleave will be targeted at specific areas where there is deemed to be either; maximum environmental benefit in terms of creating suitable habitat for wildlife, or the planting will provide useful landscape mitigation by reducing the linear appearance of the OHL.

### Process for Identification of Windthrow Felling

- 1.13 In arriving at the decision as to whether to promote the felling of trees outwith the wayleave due to the risk of windthrow, the three main elements initially considered in that decision process are:
- the trees present;
  - the site conditions; and
  - location.
- 1.14 In relation to trees present, the assessment of the site considers:
- the species present;
  - the height of the trees (at the point of felling rather than at the time of assessment which may be several years ahead of the actual construction phase); and
  - the age of the trees.
- 1.15 In relation to site condition, the assessment considers:

<sup>2</sup> Forestry Commission: *Design techniques for forest management planning* (2014) (available at [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/689922/Design\\_techniques\\_for\\_forest\\_management\\_planning.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/689922/Design_techniques_for_forest_management_planning.pdf))

- soil type;
- root depth;
- current tree spacing; and
- management regime in terms of thinning undertaken or planned.

1.16 In relation to location, the assessment considers:

- elevation;
- topographic exposure; and
- wind zone.

1.17 The (then) Forestry Commission<sup>3</sup> research division has developed a programme using these criteria for assessing sites at risk of windthrow, called Forest Gales<sup>4</sup>. This system is used when there is a more marginal site and further assessment is required to arrive at the decision. However, in most cases the assessment as to whether the individual site is at risk of windthrow can be delivered using the professional experience of the forest surveyor. As all felling outwith the wayleave requires agreement of the landowner or their agent, there is also a secondary assessment of the risk of windthrow undertaken by the landowner or their agent. Where the landowner shows a preference to retain trees after being advised of the perceived risk then the trees will not be felled.

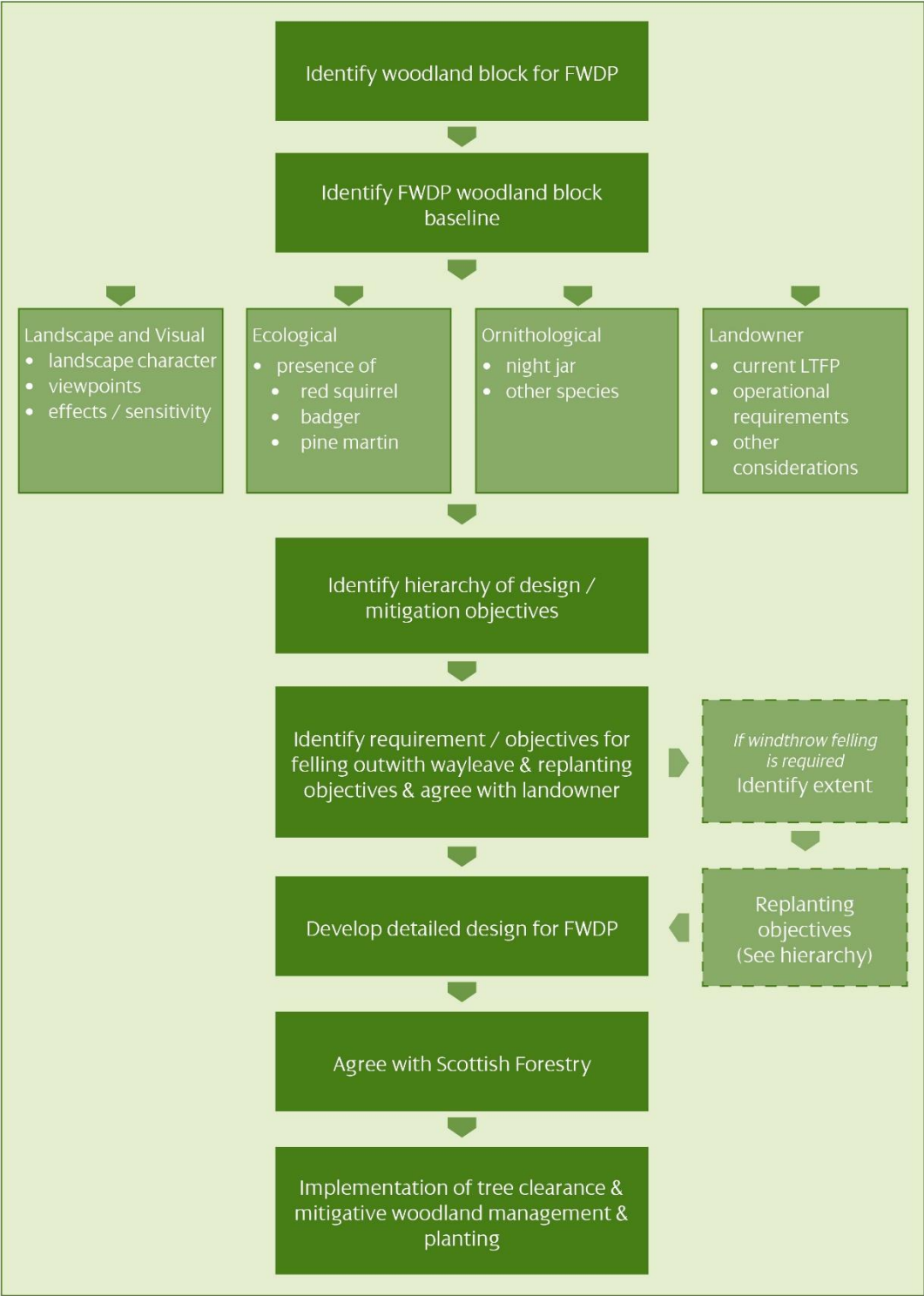
### The Forest Design Concept Approach

- 1.18 Post-consent, the FDC will be applied to all forested areas affected by the wayleave required as part of the KTR Project. The outcome of this process will be the production of FWDPs for each woodland area. The FDC will be developed by SPEN, and applied to the FWDPs by SPEN in collaboration with the landowners, who will be responsible for delivery of the final forest design for their respective woodland blocks. The FWDP will be incorporated into the landowner’s revised Long Term Forest Plan (LTFP) which will be submitted to SF for approval. SPEN will also collaborate with the forest landowners to encourage them to deliver the wider biodiversity and landscape enhancement objectives within the FDC through re-planting within the windthrow areas.
- 1.19 FWDPs will present a design for the wayleave in each specific forest or woodland affected by the proposed OHL. Each FWDP will be informed by site specific design objectives which will take account of the sensitivity of the specific woodland site in terms of existing landscape character, potential visual impact (e.g. presence of visual receptors (people) such as recreational users, residents etc.), and other sensitivities (e.g. natural heritage/biodiversity interests, cultural heritage etc.).
- 1.20 Design objectives will be developed for specific woodland areas to underpin the FWDP, informed by desk and field based baseline information gathered during the routeing, environmental assessment and post-consent phases of the project in combination with land management inputs from the landowner. The land management issues will specifically include the ongoing commercial and environmental objectives of the individual landowners. The FWDP will not seek to redesign the surrounding forest or woodland of the wider landscape; however it will take account of the principles of long term forest management plans and acknowledge that the forest landscape is dynamic and will change over time and be influenced by events that cannot necessarily be predicted or controlled by SPEN.
- 1.21 The objective of the FDC will be to analyse the landscape context and visual information for each area, to identify the key design factors that will influence the integration of the wayleave corridor into each forest landscape. The FDC approach will also need to balance ornithological and ecological objectives in areas of forestry where protected species are present to seek to maintain (and where possible, enhance) suitable habitat and connectivity for these species. The FDC will demonstrate how forest design principles will be applied to the shape and scale of the proposed wayleave corridor, with the FWDP output identifying a revised forest design, combining trees, shrubs and open ground which best meet, or ‘balance’ the ecological, ornithological and landscape and visual objectives.

<sup>3</sup> Now Scottish Forestry

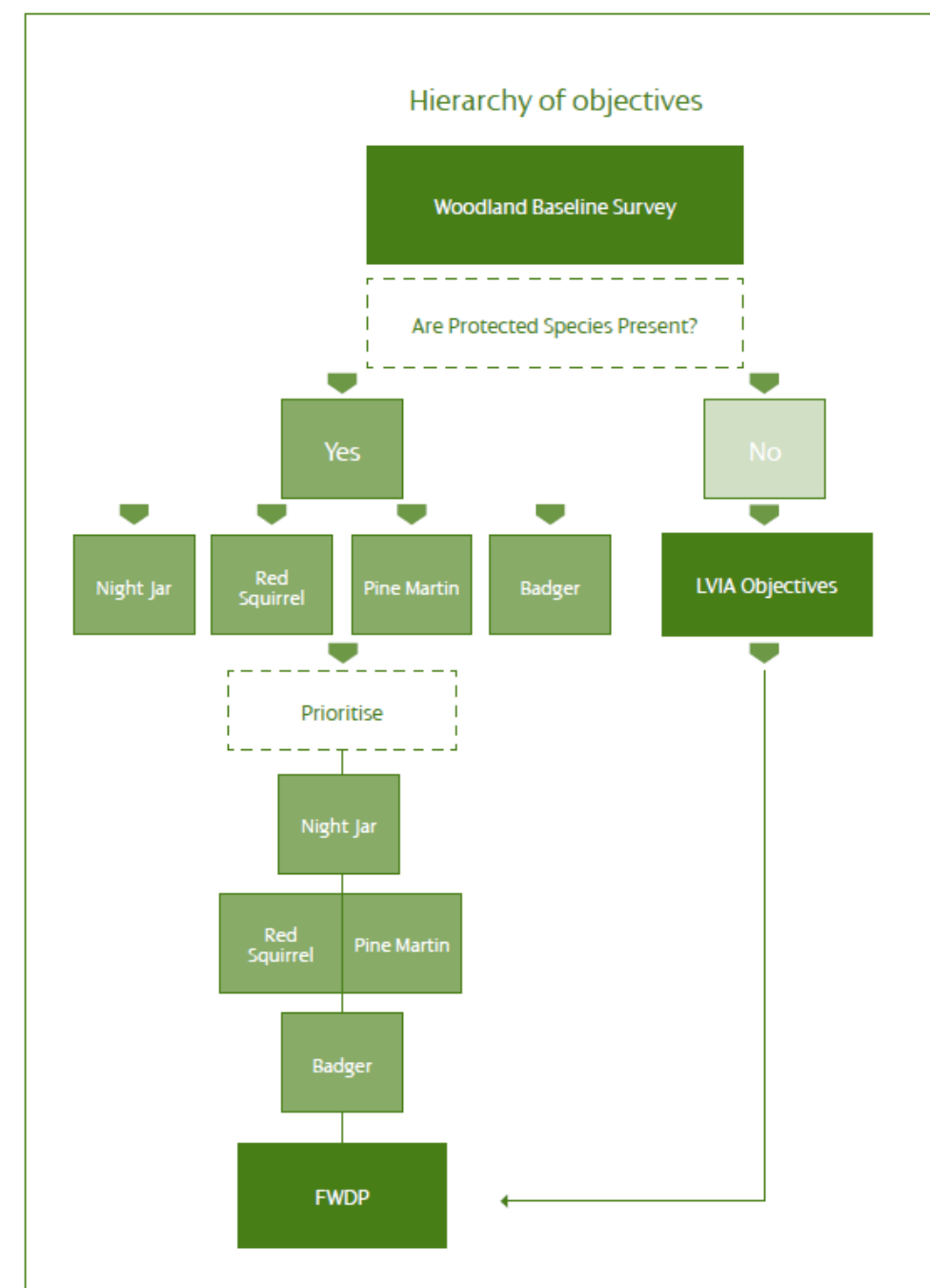
- 1.22 The FDC will adopt a generally hierarchical approach to devising the key design objectives which will influence the FWDP in each specific area, with a clear indication as to the primary design objective(s) which will shape the approach to the design.
- 1.23 An overview of the FDC methodology to be followed for each identified woodland block to inform the FWDP is described and shown in **Flowchart 1** below.

Flowchart 1: FDC Methodology Flow-Chart



<sup>4</sup> Forest Research, Forest Gales 2.5 model for predicting risk of windthrow; <https://www.forestryresearch.gov.uk/tools-and-resources/forest-planning-and-management-services/forestgales/latest-version-forestgales/>

- Identify woodland block baseline:
  - Landscape and visual*: assessment of the local landscape character and context, identification of important viewpoints for both static views (e.g. residential properties, promoted viewpoints, visitor attractions) and transient views (e.g. footpaths, cycle paths, roads), landscape appraisal of the possible effects of the proposed wayleave corridor from chosen viewpoints.
  - Biodiversity*: presence of protected species (nightjar, red squirrel, badger, pine martin).
  - Landowner land use*: land management plan, operational requirements, other land use/management.
- identification of hierarchy of design/mitigation/enhancement objectives for the landowner and onsite environmental characteristics (as shown in **Flowchart 2** below);
- development of a site-specific initial wayleave concept design;
- agreement with the landowner on any felling/planting outwith the 80m/70m wayleave corridor and replanting objectives;
- development of the detailed design (FWDP);
- agree FWDP with SF; and
- implementation of initial tree clearance and mitigatory woodland management/planting.

**Flowchart 2: Hierarchy of Objectives Flow Chart**

- 1.24 As outlined above, the first steps in applying the FDC approach, will comprise:
- 1) identification of the environmental and land-use baseline at the time of development of the FWDPs (i.e. post-consent/prior to construction); and
  - 2) appraisal of the hierarchy of objectives to inform the development of the FWDPs.
- 1.25 Informed by the findings of the environmental survey and assessment work undertaken as part of the EIA for the KTR Project, as well as ongoing consultation with both SF and also Forest and Land Scotland (as the major forest landowner), initial landscape and biodiversity (ecology and ornithology) mitigation objectives have been developed for the KTR Project. These are set out below and will be applied as part of the FDC approach in the development of each FWDP.



Mitigation Objectives for Wayleave Design

Biodiversity (ecology and ornithology)

Ecology

- 1.26
- In relation to biodiversity, the approach to mitigation reflects the biodiversity importance of the woodland areas i.e. the ‘importance’ of the site and significance of potential effects of the KTR Project. The approach to mitigating effects on biodiversity through the FDC, to be subsequently applied at a woodland area scale in defining the FWDPs (and outwith these areas, i.e. the windthrow areas, see below), is proposed at a strategic scale to reduce the effect of habitat fragmentation at an almost ‘landscape scale’.
- 1.27
- The importance of ensuring biodiversity is given appropriate weight in the FDC is due to the presence of highly mobile protected species comprising red squirrel and pine martin and less mobile species such as badger, as well as nightjar (see ornithology below).
- 1.28
- Surveys undertaken as part of the KTR Project combined with survey data provided by Forest Enterprise Scotland<sup>5</sup> (see **Chapter 10**), have identified the presence of red squirrel and pine martin ‘hot-spots’ within the forests, which are currently being managed as strongholds for these species across Dumfries and Galloway.
- 1.29
- As set out in **Chapter 10**, there are likely to be potentially significant effects (in Ecological Impact Assessment terms prior to mitigation (not in EIA terms)) on these species as a result of habitat loss and severance due to the felling of woodland (wayleave and windthrow areas in combination) to accommodate the KTR Project. On this basis, the FDC approach includes a process and proposals for replanting within the wayleave to mitigate these effects, and outwith the wayleave (in the windthrow areas) to also mitigate<sup>6</sup> for these effects. Opportunities for potential enhancement of habitats for these species are also outlined below.
- 1.30
- The main objective is to reconnect large areas of woodland habitat for all faunal species; however, the presence of these particular protected species places greater importance on certain woodlands which therefore form the basis for the biodiversity proposals as part of the FDC.
- 1.31
- In woodland areas where protected species are present, but woodland connectivity will be ‘severed’ by the KTR Project, SPEN proposes the planting of wildlife/vegetation ‘bridges’ within the wayleave to reconnect woodland blocks/coupes. The locations of the bridges will be dependent on several factors including, but not exclusively, landowner agreements and long-term strategy for their plantations (as part of their wider Forest/Land Management Plan) and KTR Project pre-construction works surveys to confirm the presence of protected species. The locations of these bridges will be determined by habitat rather than species, given the mobile nature of these species, especially over the lifetime of a woodland presence. Red squirrel populations fluctuate naturally, largely in response to food supply, and are capable of recovering quickly so this is the most critical aspect of stronghold conservation efforts.
- 1.32
- The proposed key FDC parameters for defining the ecological mitigation within the wayleave to be applied to individual FWDPs are as follows:

A wildlife/vegetation bridge will be required where there is severance between forest blocks.

Wildlife/vegetation bridges will be composed of appropriate tree/shrub species, when considered in the context of OHL safety clearance restrictions, and ecological requirements.

Wildlife/vegetation bridges will not be required if there is a hard boundary e.g. a road bisecting the nearest neighbouring coupe.

Wildlife/vegetation bridges must be placed where pre-works surveys have identified suitable habitat for protected species, but are not limited to these areas only.

Pine marten den boxes will be erected in neighbouring coupes that are to be retained on a long term basis.
- 1.33
- As a general rule, for every 500m of wayleave where there is either the existing presence of woodland or planned presence of woodland (i.e. potential suitable habitat for red squirrel and pine marten now or in future), there will be two wildlife/vegetation bridges, spanning 50m each. Planting will be in as natural a

formation as possible (constraints to this being from the safety clearance distances required for each of the OHL types).

- 1.34
- Planting will be undertaken so that there are irregular edges to the woodland i.e. ‘scalloping’ thus providing better cover for animals to cross into neighbouring coupes. A mix of species will be present in each ‘zone’. The proposed naturalistic planting will be of additional benefit to wildlife as it will offer greater biodiversity opportunity and provide benefits in the form of increased foraging resources.
- 1.35
- The exact location of the bridges will be determined by various factors including topography and distance from neighbouring coupes. It will largely be dependent on the future land management plans for the surrounding forest blocks and the specific safety clearances required for operation and maintenance of each of the steel tower/wood pole types being used throughout the KTR Project. The clearance heights required for each of the steel tower/wood pole structure types are depicted in **Figure A5.1.1(1-3)**. The figures as they stand, illustrate the main clearances/considerations, but there are further specific scenarios which will need to be considered as part of the FWDP on a case by case basis. For example, if there is to be an access track through the wayleave then there will be the need to plant this area within the specific clearance zones as dictated by SPEN.
- 1.36
- For the wildlife/vegetation bridges to be effective, they would have to re-connect severed forest blocks. There will therefore be a focus on implementing these bridges in areas where the current/future Forest/Land Management Plan includes proposals for long term retention of the forest.
- 1.37
- For example, within the Polquhanity to Glenlee (via Kendoon) (P-G via K) connection, in Area T4-T6 (see **Figure A5.1.2.1**), the 50m wildlife/vegetation bridge planting schedule set out in **Table 1** could be applied.

Table 1: Example Wildlife Bridge Planting Composition

Zone	Distance from tower leg (metres)	Description of planting*
1	0-7.5	No planting/ natural re-colonisation of scrub species.
2	7.5-15	Planting of scrub ‘islands’: mix of gorse heather and Dog-rose.
3	15-30	Inner most starting planting with Blackthorn, hawthorn, alder, aspen, mix.
4	30-40	Birch Species Crack/White willow nearer the hawthorn mix area. Scot’s pine and Juniper mix on the outermost areas.

\*The species and distance from towers are all approximate and should be decided in consultation with ecologists and landscape architects at the time of preparation of the FWDP.

Ornithology

- 1.38
- Forestry and Land Scotland (F&LS) currently manage an area of Bennan Forest for nightjar, which breed and feed in the area. A second area used by Nightjar is in the Laurieston Forest to the south. Nightjars are ground nesting birds which require (in Scotland) open clearings in woodland where they can hunt for moths. The presence of native species of tree and shrub around and within the open areas enhances the moth population and feeding opportunities for the birds.
- 1.39
- For nightjar, the proposed management of the wayleave associated with the Glenlee to Tongland (G-T) connection of the KTR Project is to follow the management which is currently being successfully undertaken within the ‘core’ nightjar area by F&LS. This can potentially be achieved in the wayleave by retaining heather, native grasses and herbs, and having small copses of, for example, willow, birch and other native trees.
- 1.40
- The proposed mitigation plans (wildlife/vegetation bridges) outlined above for red squirrel and pine marten correspond well with the requirements for management of woodland areas for nightjar. The proposals are for these to be planted in as natural a formation as possible with irregular edges to the woodland with a mix of species including heather, gorse and dog-rose, blackthorn, hawthorn, alder, aspen, birch, willow, and Scot’s pine.
- 1.41
- Therefore the proposal for the planting of wildlife / vegetation bridges would geographically extend the current nightjar management area, as the bridges will be applied outwith the area currently maintained

<sup>5</sup> Now Forestry and Land Scotland

<sup>6</sup> Note for the purposes of the EIA this is being treated as non-committed mitigation as SPEN has no direct control over implementation of planting outwith the wayleave.

as open ground by F&LS as the 'core' nightjar area, and will potentially create further areas of open ground with copses of native shrubs and trees. The length of the mitigation within the wayleave likely to benefit nightjar is approximately 4.6km in the Bennan Forest area, of which approximately 2.2km is within the F&LS 'core' nightjar management area<sup>7</sup>. The second area of wayleave management for the benefit of Nightjar is within the Laurieston Forest area and totals approximately 2.4km

- 1.42 As the 'core' nightjar area is understood to be currently a mix of scrubby regrowth and open ground, with a number of small (3-5m tall trees), the wayleave will be maintained to match this open ground by not replanting felled plantation conifer trees, and removing any regeneration of plantation conifer species. This will maintain a cover of heather, grasses and herbs. Where there are areas of the wayleave in the 'core' nightjar area which currently have plantation trees and are not suitable for connecting with wildlife bridges the wayleave will be kept open. If natural regeneration of native trees occurs in these areas then it can be managed in a way to ensure the maintenance of open areas with copses, as per the current F&LS management for the 'core' nightjar area, ensuring safety clearances are met.
- 1.43 Care will be taken to ensure that for the wider area surrounding the nightjar 'core' management area, the ground in between the bridges also maintains the greatest open area possible to ensure the open ground across the width of the wayleave will be available for the birds when in flight and they will not be 'channelled' directly under the conductors.
- 1.44 Provision of shaped woodland edges alongside the wayleave which is managed as above will also encourage moths by providing sheltered areas and could provide potential song posts for the birds.

#### *Landscape and Visual*

- 1.45 A number of landscape led design objectives will likely influence the FWDP in each area of woodland affected by the proposed overhead line and wayleave corridor. These reflect good practice forest landscape design principles as defined by the Forestry Commission Practice Guide *Design techniques for forest management planning* (2014). Although the design objectives will vary for each area, a number of common landscape and visual related design objectives will be considered:
  - The existing landscape character of the site and surrounding area should be reflected as far as practicable in the design of the wayleave. The existing underlying character, influenced by the existing topography, geology, landcover, land use, and vegetation/woodland should form the basis of the approach to the shape, form and character of the proposed wayleave design.
  - Where there is potential interaction between the wayleave and visual receptors (people) via core paths, promoted recreational assets or routes, and longer distance views towards the wayleave, the approach to design will seek to reduce the linear/geometric appearance of the wayleave and explore opportunities for localised screening or filtering of views of the overhead line.
  - As indicated on the accompanying sections (**Figures A5.1.1(1-3)**), the proposed approach to wayleave design/treatments will seek to create a more naturalistic design of the wayleave (and where feasible, areas directly adjoining the wayleave) through the creation of potential glades, rides, scalloped edges, habitat islands and feathered edges to upland slope sides through sensitive following of natural hollows and depressions within existing landform.
  - The design and management of the wayleave should seek to incorporate scalloping and softening of the wayleave edge where it meets neighbouring coniferous, mixed or broadleaf woodland, and integrate areas of open ground where necessary to meet particular biodiversity objectives. Such scalloping will require the agreement of the landowner in terms of the initial design and implementation and also the longer-term maintenance regime.
  - It is important that the landscape mitigation makes use of tree and shrub / scrub / hedgerow species that are indigenous to, and typical of, the area concerned, in order that these measures can eventually assimilate more effectively into the wider landscape and network of surrounding woodland coupes.

- Cyclic maintenance/management of trees and vegetation within the wayleave will be required to ensure necessary safety clearances are maintained whilst also seeking to ensure that the design objectives established at the outset of the forest wayleave design are maintained.

## Application of the FDC to develop a FWDP

- 1.46 Following the initial stages in the FDC methodology, whereby the extent of the woodland block subject to a FWDP is identified (see **Flowchart 1**) and the baseline and objectives are defined (see **Flowchart 2**), a site-specific initial wayleave design concept will be developed. At this stage, requirements for felling outwith the wayleave in adjacent woodland blocks will be identified and agreed with the landowner. If windthrow areas are identified for felling, the objectives for replanting these windthrow areas will be identified in consultation with the landowner, taking account of the hierarchy of objectives. These areas will be incorporated into the detailed design comprising the FWDP.
- 1.47 The following key principles will be considered in devising an appropriate landscape strategy to application of the FDC approach to forest wayleave design and management, and the replanting of areas of additional felling outwith the wayleave (i.e. the windthrow risk areas):
  - With regards to the design of the OHL wayleave corridor, OHL proposals will adhere to SPEN's Approach to Routeing (2015)<sup>8</sup> which states: "*There is also an ongoing requirement to ensure that any trees within the wayleave corridor do not impact on safety clearances*".
  - Good practice forest landscape design principles as defined by Forestry Commission Practice Guide *Design techniques for forest management planning* (2014)<sup>9</sup> and the preceding Forest Design Planning: A Guide to Good Practice (1998)<sup>10</sup> will be referenced, where relevant, in creating and managing new wind firm edges and the design of any areas of woodland replanting will also draw reference to the UKFS Guidelines on Forests and landscape (2017)<sup>11</sup>.
  - Any proposals for the design, management and/or maintenance of the wayleave, and areas of replanting will be agreed and brought forward in collaboration between SPEN and the landowner, and where necessary with input from appropriate statutory consultees (e.g. Dumfries and Galloway Council (D&GC), Scottish Natural Heritage (SNH), SF and Scottish Environmental Protection Agency (SEPA)).
  - Access to the operational corridor along the wayleave of OHLs will be required throughout their operation, and cyclic maintenance/management of trees and vegetation within the wayleave will be required to ensure necessary safety clearances are maintained.
  - Broadleaf and mixed planting will comprise native plant species of local provenance in accordance with seed zone 106 as described in *Seed Sources for Planting Native Trees and Shrubs in Scotland* (2006). This guidance note sets out (then) Forestry Commission Scotland policy for selecting suitable origins, provenances and categories of planting material for planting native species of trees and shrubs in Scotland.
- 1.48 In progressing the FDC to create a FWDP, account will be taken of the Forestry Commission's forest landscape design principles<sup>12</sup> as follows:
  - "*Shape: Shape has a powerful effect on how we see our surroundings. Lines at right angles to the contours appear unnatural because of the proportion of the landscape are predominantly horizontal. Diagonal, irregular, asymmetric shapes that relate to the landform are more pleasing and are an important component of corridor design in forests.*
  - "*Visual Force: The visual forces in landform draw the eye down convex slopes and up concave slopes. Forest shapes should be designed to follow these visual forces by rising up hollows and falling on spurs to create a well-unified relationship between the two. An appraisal of the local landform will identify the visual forces that influence forest shapes created along the corridor.*

<sup>7</sup> A map and/or tower numbers for this area has not been provided due to the confidential nature of the nightjar information (which is provided within Appendix 11.3: Confidential Ornithology Report).

<sup>8</sup> SP Energy Networks (2015) Major Electrical Infrastructure Projects Approach to Routeing and Environmental Impact Assessment

<sup>9</sup> Forestry Commission Scotland (2014) Practice Guide Design techniques for forest management planning

<sup>10</sup> Forestry Commission and Simon Bell (1998) Forest Design Planning: A Guide to Good Practice

<sup>11</sup> Forestry Commission (2017) The UK Forestry Standard The governments' approach to sustainable forestry

<sup>12</sup> *Forest Landscape Design Guidelines* 2<sup>nd</sup> Edition, 1994.

- *Scale: Scale is a matter of relative and absolute size and has a major effect on perception. The scale of the overhead line corridor should reflect the scale of the local landscape. In small-scale landscapes, with relatively short distance views and at lower elevations, the scale of the corridor should be controlled. In large-scale landscapes, at higher elevations and in long distance views, scale increases and corridors that are visually prominent in these landscapes should be designed at a broad scale.*
  - *Diversity: Diversity is the number and degree of different features in a landscape. In small-scale landscapes, the level of diversity is generally higher than in large scale, open landscapes. The level of diversity along the corridor should reflect diversity in the surroundings, but may be used to reduce scale where desirable.*
  - *Unity: Unity is an important objective in landscape design, combining shape, scale and the level of diversity to create a unified whole. Integrating local landscape features such as watercourses, rock outcrops and native woodland into the design of the corridor and creating interlocking shapes of open ground and woodland at forest margins will contribute to landscape unity.*
  - *Spirit of the Place: Unique character in certain places is an important asset and stimulus to good design, which should be conserved and if possible enhanced. It is easier to conserve special character where it exists than to create a-new, and this should be recognised in the design of the corridor. "*
- 1.49 It is important to note that, in accordance with the FISA Safety Guide<sup>13</sup> and the two Forestry Commission Practice Guide *Design techniques for forest management planning* (2014), the location of any trees and shrubs incorporated into the final woodland design must be devised to maintain a minimum horizontal distance of 10m and minimum vertical clearance of 3.6m from overhead conductors and maintain compliance with ENA43-8, ENA43-7 and GS6 guidance. Graphical representation of these technical requirements for each type of OHL structure (i.e. L7, L4 and Trident wood pole) is shown on **Figures A5.1.1(1-3)**.
- 1.50 In designing the FWDP, the wayleave corridors will be designed so that they seem to pass through a series of irregular spaces, with the forest appearing to meet across the open space in some places and therefore not splitting the forest completely. An even width of corridor is not obligatory as trees can be planted closer to the centre line opposite towers/poles than in mid-span, where conductors hang lower and may be subject to greater swing. Consideration will be given to the retention of smaller trees and shrubs closer still, as an extension of the forest edge towards the centre line in accordance with the hierarchy of objectives. The edges will also be designed with irregular tree heights, avoiding severe vertical edges, particularly of conifers. Exit points will be gently asymmetrical bell-mouths.
- 1.51 The final FWDPs will deliver corridors of varying character and width, swinging from one side of the line to the other, taking care to avoid irregular but parallel edges, or irregular but symmetrical space. The 'scalloped' appearance of the corridors will be designed to blend into the forest landscape without detracting greatly from the commercial and silvicultural constraints.
- 1.52 In addition to the positive incorporation of natural features, the introduction of different species along the edge of the corridor, using species chosen for their relative height growth (e.g. conifers, broadleaves, evergreen, deciduous, varieties of size and shape) will be considered to mitigate adverse visual effects as well as effects on protected species and Nightjar, although care will need to be taken to avoid emphasising changes in colour, canopy texture etc. Respacing, topping and coppicing techniques will also be considered as these are useful in promoting wind firmness and also have the advantage of reducing the visual effect of the edges of the corridor and increasing the value to wildlife.
- 1.53 The scope for using replanting to 'soften' the appearance of the wayleave corridors will be greater in larger areas of woodland, particularly in undulating topography. However, practical considerations such as site conditions, elevation and exposure, will restrict not only the variety of species, but the extent to which the concept of restructuring the woodland edges or the corridor can be implemented. In smaller woodland areas, improvements will be more restricted but may be possible through the use of scrub

species planted below the line and small trees such as hawthorn, willow and aspen, whilst always remaining compliant with the safety, operational and maintenance constraints of the OHL.

### Approach to Design of Windthrow Areas – Mitigation and Enhancement

- 1.54 It must be noted that SPEN's ability to deliver replanting within areas outside of the wayleave corridor, will be reliant on collaboration and agreement with the landowner as well as agreement with SF as the statutory authority with regard to forestry. However, in terms of the 2018 Act and associated regulations<sup>14</sup>, in making a decision on any felling application by a landowner, the Scottish Ministers acting through SF must have regard to their duty to promote sustainable forest management. In addition, SF are entitled to impose conditions in relation to the retention of, or increase in, woodland cover. SF normally expect an area which has been clear felled to be restocked and will normally attach what is referred to as a continuing condition to felling permissions to secure the restocking<sup>15</sup>. In addition, should a landowner not agree to pre-emptively fell woodland required to create a more windfirm edge and the trees subsequently suffer from windthrow, it is also within the control of SF to issue felling and restocking directions.
- Ecology*
- 1.55 The loss of woodland habitat within the windthrow areas will have a similar ecological effect as felling for the wayleave. With most of these areas comprising commercial forestry, mitigation opportunities are limited to the 'like-for-like' replacement of stock species using the powers available through the Forestry and 2018 Act and associated regulations<sup>16</sup> as noted above. The introduction of younger stock will provide foraging opportunities in years to come, ensuring a longer-term food supply, particularly for red squirrel.
- 1.56 In areas where there are significant (in Ecological Impact Assessment (EcIA) terms) effects on badgers and their setts, there will be strict mitigation in place that will follow standard forest operations guidance<sup>17</sup>. For these areas, licences will need to be sought and potentially sett exclusions in place prior to felling.
- 1.57 In addition to mitigation, where appropriate to do so, further enhancement may provide additional benefit for biodiversity. Enhancement opportunities include:
- Where landowners are satisfied that windthrow areas can be replanted with a mixture including more diverse conifer species suited to red squirrel, an opportunity exists to significantly improve their ecological value. To enhance these areas for red squirrel, they would be replanted with a variety of conifer species deemed suitable for the individual site (see **Figure A5.1.2.1 and 2**). The introduction of a more diverse age structure in areas of forestry identified to be of specific high value for red squirrel will be addressed as part of the Long-term Forest Plan, which under the UK forest Standards, requires the landowner to address biodiversity issues<sup>18</sup>.
  - Opportunities for the creation of pine marten dens will be explored. Pine marten boxes can be erected on suitable trees (see **Figure A5.1.2.2**). Boxes will require trees of substantial strength (boxes can be up to 20+kg) and den boxes should be placed at a min height of 4m from ground, with one or two boxes per 2km<sup>2</sup> being an accepted management plan for lowland plantation woodlands<sup>19</sup>.
  - In relation to windthrow areas that currently support badgers (i.e. north of Glenlee), in addition to the legal compliance measures described above, there is likely to be benefit in the sensitive restoration of mixed woodlands, which will provide cover and foraging opportunities for the species. These measures should be developed in consultation with ecologists.

### Landscape and Visual

- 1.58 A number of landscape led design objectives will also be devised to inform the approach to the design of replanting areas of additional felling outwith the wayleave (identified as being at risk of windthrow – see **Chapter 5** and **Chapter 8** for details of these areas), where applicable. As for the approach taken to the forest wayleave design, areas of replanting will be influenced by a number of site specific design objectives informed by the existing landscape character, potential visual impact (e.g. presence of visual

<sup>13</sup> Forest Industry Safety Accord (2013) Electricity at work: Forestry FISA Safety Guide 804

<sup>14</sup> The Felling (Scotland) Regulations 2019

<sup>15</sup> The position is detailed in SF's application form seeking felling permission.

<sup>16</sup> The Felling (Scotland) Regulations 2019

The Kendoon to Tongland 132kV Reinforcement Project

<sup>17</sup> Available at: <https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/licensing/species-licensing-z-guide/badgers-and-licensing/badgers-licences-land>

<sup>18</sup> Forestry Commission Scotland, (2012), Managing forests as red squirrel strongholds. Practice Note- FCPN102

<sup>19</sup> E. Croose, J.D.S. Birks & J. Martin / Conservation Evidence (2016) 13, 57-61



receptors such as recreational users, residents etc.) and other sensitivities (e.g. natural heritage/biodiversity interests, cultural heritage etc.).

- 1.59 Design objectives will be developed for specific areas of replanting, informed by desk and field-based baseline information gathered for the purposes of the routeing and environmental assessment phases of the project, and a landscape and visual appraisal to inform the design of the areas.
- 1.60 Although the design objectives will vary for each area, a number of common landscape and visual related design objectives will be considered:
- The underlying landscape character of the areas of additional felling (identified as being at risk of windthrow) and their immediate surrounding context (e.g. neighbouring forest coupes, areas of open ground etc.).
  - Access and recreational interests, in the context of National Planning Framework 3<sup>20</sup> (NPF3) which at paragraph 3.29 highlights that enhancements to the high voltage transmission network can provide an effective option to use mitigation corridors to “*promote green places and active travel networks*”. The potential for utilisation of the creation of a linear corridor through dense commercial forest is seen as an opportunity by SPEN to seek to meet the objectives of NPF3 through the creation/promotion of ‘green networks’ SPEN’s outline strategy for delivering green networks through the KTR Project is set out below.
  - In relation to visual effects, where areas of additional felling are anticipated which currently provide screening/containment or substantial filtering of views towards the existing and/or proposed transmission infrastructure, replanting of these areas should provide comparable long-term screening or filtering of views for key visual receptors (e.g. residential properties, key recreational routes or assets/facilities). Reference to both the potential effects arising from these additional areas of felling, and their subsequent replanting/, can be found within **Chapter 7** and including accompanying visualisations.
- 1.61 The form of woodland/forestry replanting would be developed in conjunction with landowners on the basis of one of two broad scenarios:
- 1) Replacement of areas of potential felling on a like for like basis (e.g. commercial coniferous plantation) to offer comparable long/medium-term visual mitigation (e.g. for a predicted cyclic period) ((non-committed mitigation at this stage but in absence of voluntary action is expected to be secured by SF through exercise of the powers in the 2018 Act and associated regulations)).
  - 2) Replacement of areas of potential felling with permanent woodland/forest which may be of coniferous, broadleaf or mixed composition as appropriate to the specific area, to provide long-term visual mitigation (enhancement) see example area on **Figure A5.1.2.1 and A5.1.2.3**.

#### Outline Approach to delivery of Green Networks

- 1.62 SPEN is supportive of the Scottish Government’s stated aim in NPF3 of promoting green places and active travel networks (“green networks”), via planned modernisation or reinforcement of the high voltage transmission network.
- 1.63 The approach to delivery of green networks for the KTR Project will require agreement with stakeholders once the applications for section 37 consent and deemed planning permission for the component parts of the KTR Project have been determined by the Scottish Ministers. However, based on SPEN’s previous experience of delivering green networks schemes for large scale infrastructure projects, an outline approach for delivery of these aims has been set out below.
- 1.64 The overall aim of the KTR Green Networks Scheme (GNS) will be to promote and secure additional schemes of environmental mitigation within the areas and communities effected by the OHLs. These will comprise areas within 1-2km of the proposed OHLs, where schemes can be expected to provide landscape mitigation linked to the KTR Project which maximises benefits for communities. SPEN will seek to work in partnership with stakeholders such as the Scottish Government, D&GC and local communities to identify and deliver on this aim.
- 1.65 The KTR GNS will form part of the entire KTR Project for which funding has been sought from Ofgem and, accordingly, the mechanism for funding and delivery of candidate schemes must be compliant with

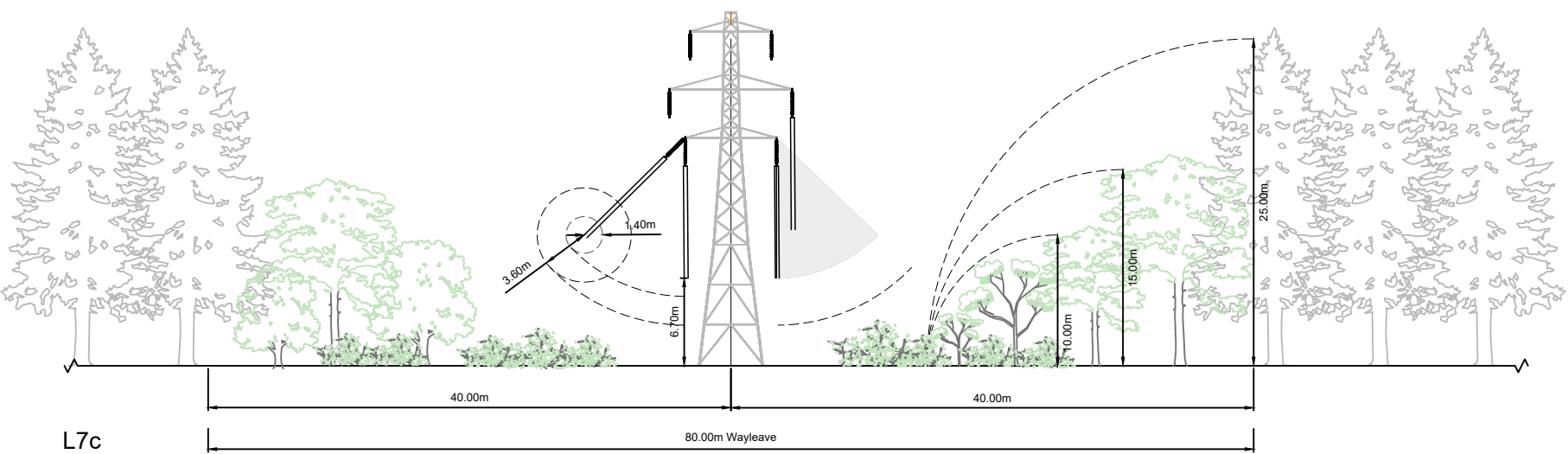
SPEN’s financial and regulatory obligations. Therefore, the KTR GNS will not be a ‘community fund’, a grant award process i.e. providing money to a range of projects and nor will it be a direct funding mechanism for which communities or groups could apply.

- 1.66 At the outset of this process, SPEN will work with stakeholders to establish a ‘Partnership Group’ which may consist of SPEN, D&GC and the Scottish Government. This Group will have overall responsibility for the governance of the KTR GNS. Once established, the Partnership Group will seek to:
- Set out and agree a clear mitigation strategy for the KTR Project area;
  - Agree a project funding structure to support mitigation schemes;
  - Agree on an appropriate scoring rationale for candidate schemes; and
  - Agree on a suitable management structure and mechanism to deliver and implement schemes.
- 1.67 The Partnership Group will then invite communities and local groups to submit ideas for mitigation schemes that ensure local issues are addressed. This will likely be achieved by a range of different mechanisms such as community drop-ins and more structured ‘workshop’ style events.
- 1.68 Schemes which focus on landscape and visual enhancement will be encouraged, such as:
- Additional forestry and woodland planting (hedgerows/shelterbelts/screening of the overhead lines);
  - Planting around and within settlements;
  - Integrated habitat networks; and
  - Greenspace improvements.
- Other types of scheme which may be considered include local access improvements (such as linking existing core paths) and signage of paths, nature trails, cycleways and other routes. All such schemes would need to strongly demonstrate a clear benefit to landscape enhancement.
- 1.69 Following receipt of candidate schemes, the Partnership Group would undertake an open and transparent process to collate and analyse each scheme against the agreed scoring rationale, likely based on the potential mitigation benefits, deliverability and location of the scheme relevant to the KTR Project overhead lines.
- 1.70 Once schemes have been approved through the Partnership Group, SPEN would seek to deliver these on the ground with the successful delivery of each being contingent on negotiation and agreement with communities and third-party landowners.

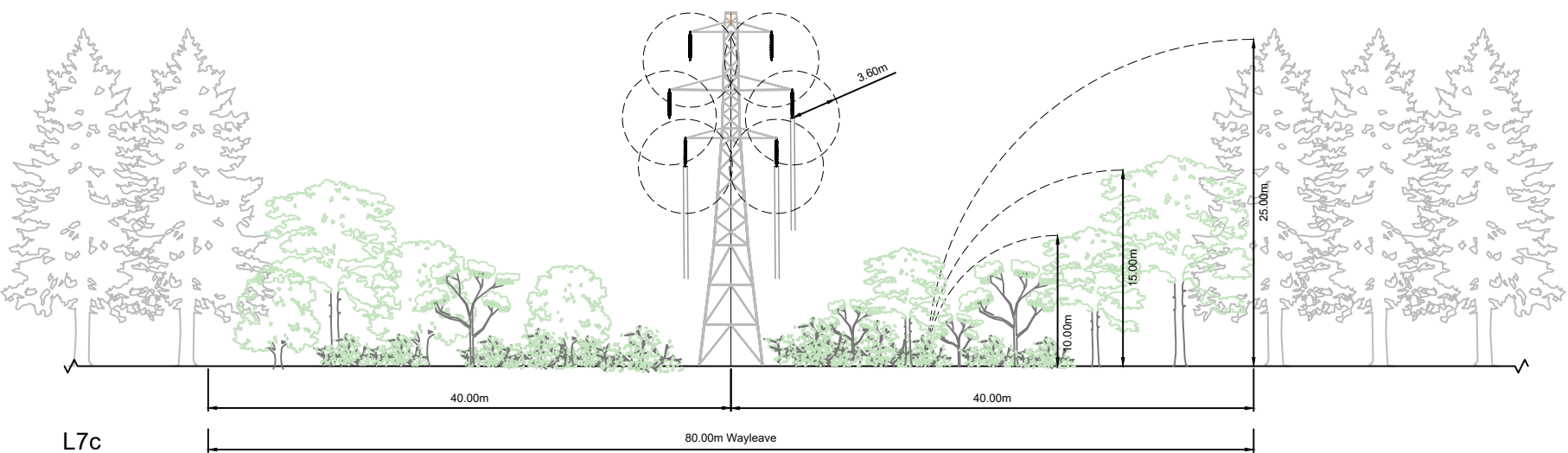
<sup>20</sup> The Scottish Government (2014) Scotland’s Third National Planning Framework at paragraph 3.29

<https://www.gov.scot/publications/national-planning-framework-3/>

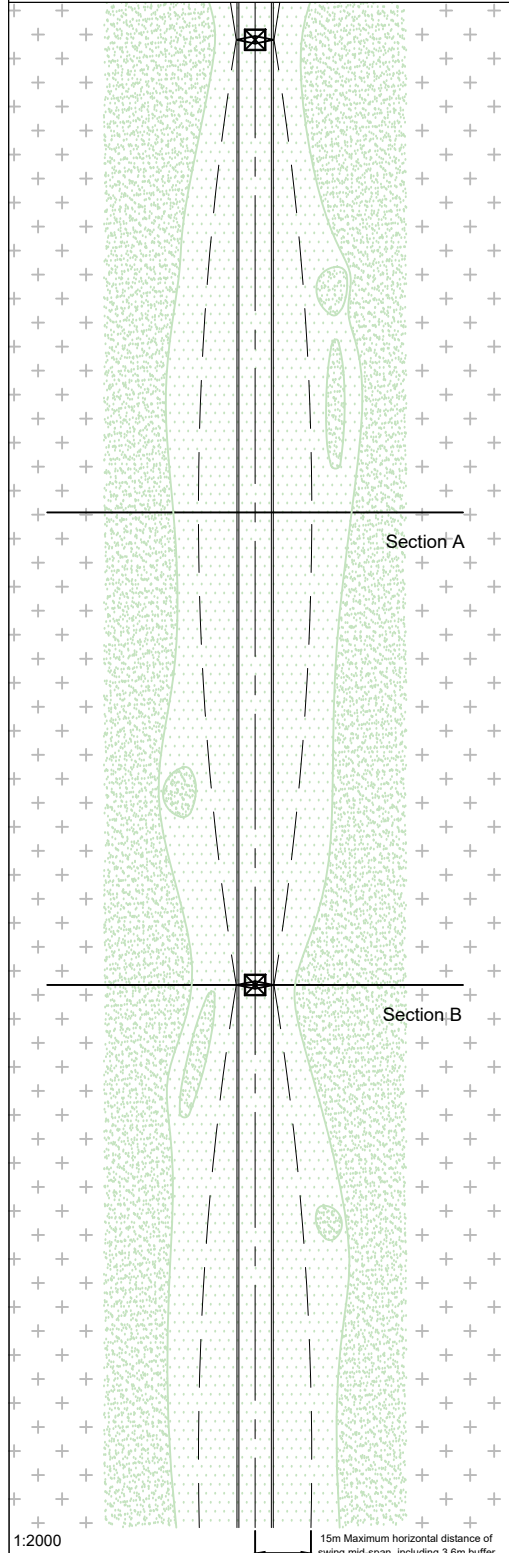
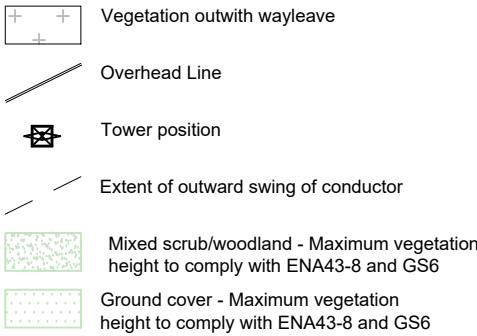
Section A : At Mid-Span



Section B : At Tower



Diagrammatic plan view of typical wayleave treatment



Appendix 5.1  
Figure 1.1

Wayleave Treatment Indicative Planting  
Structure - L7c

To be read in conjunction with accompanying text  
contained in **Appendix 5.1**

Notes

All works outwith the OHL to comply with  
ENA43-8 and GS6  
Maximum conductor swing under blowout is 45°

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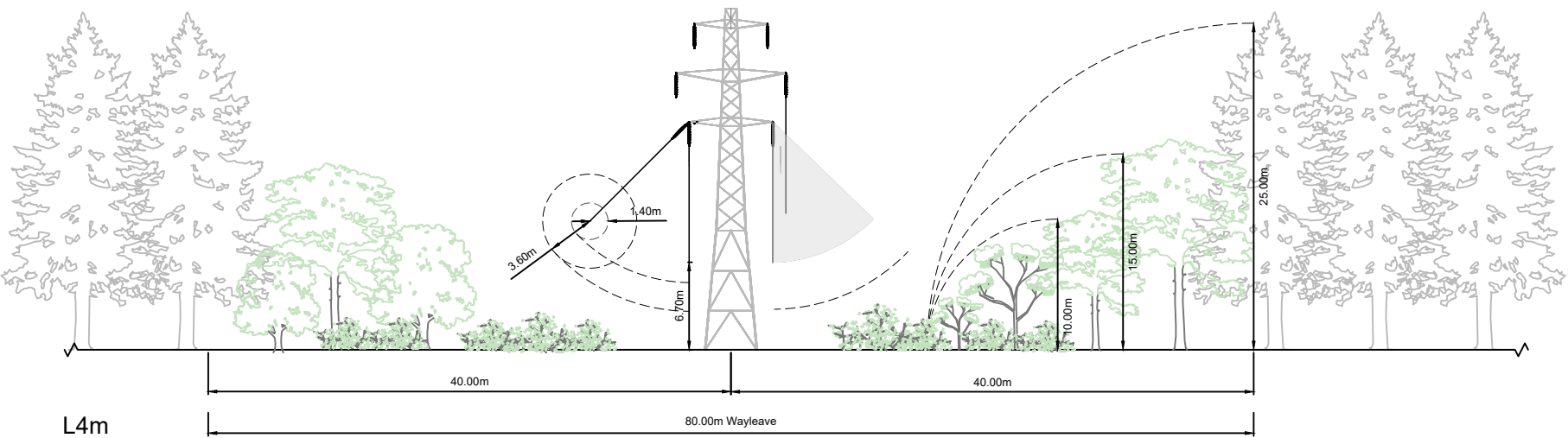
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Project  
KTR Project

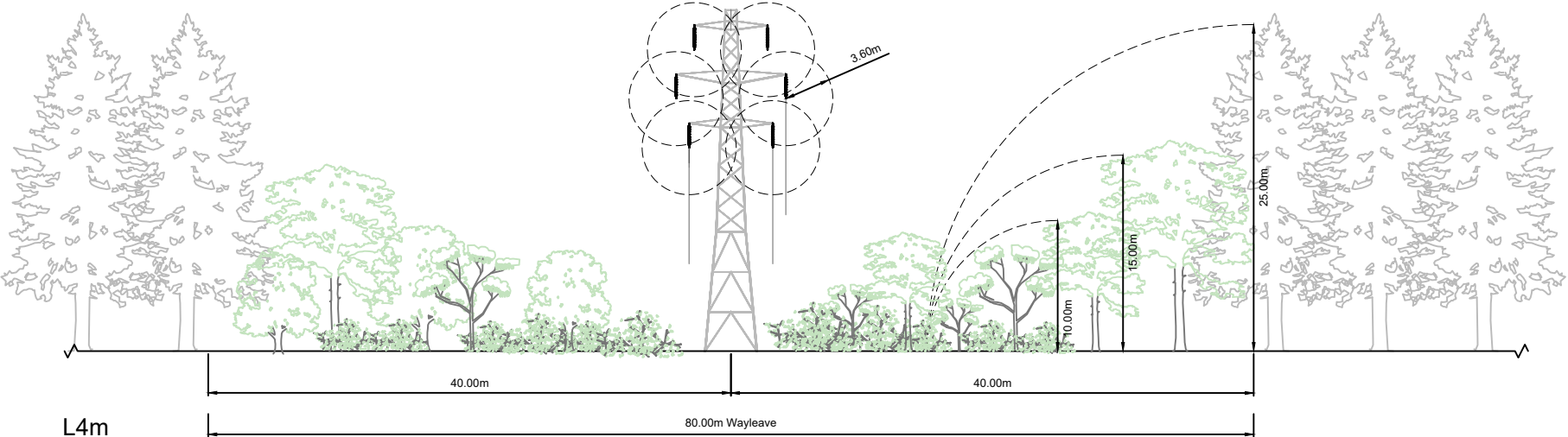
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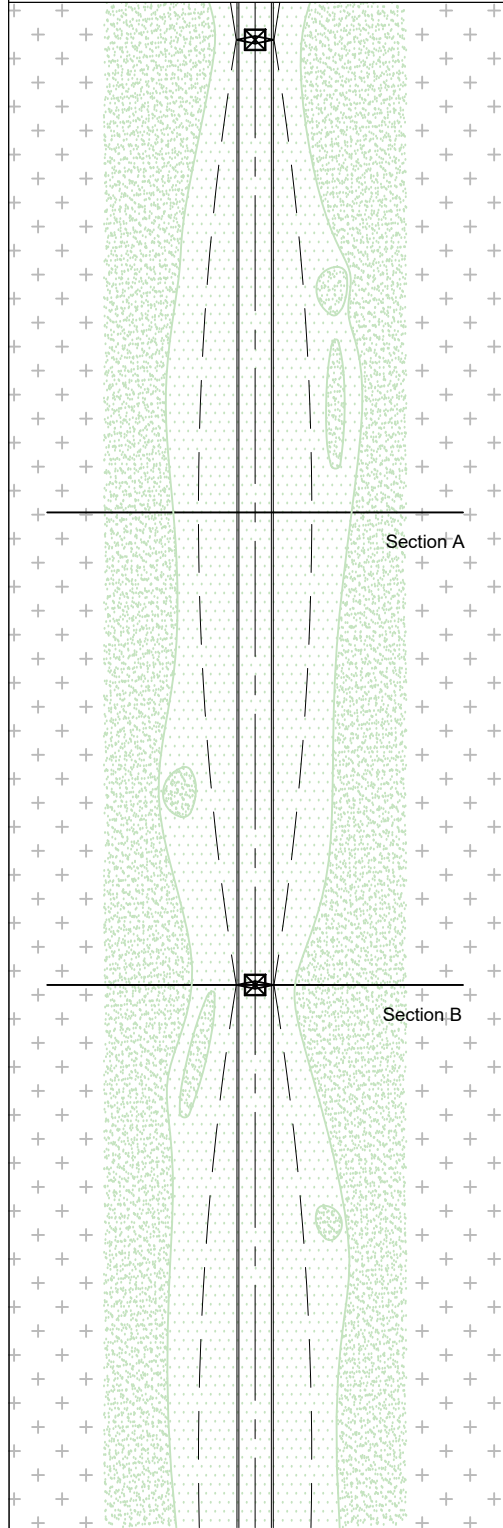
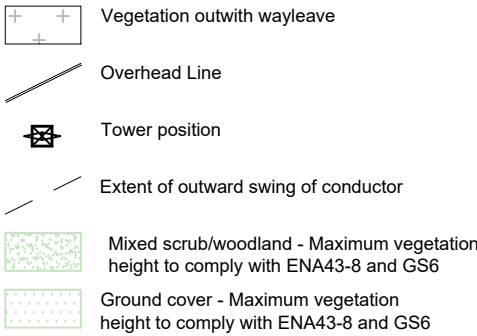
Section A : At Mid-Span



Section B : At Tower



Diagrammatic plan view of typical wayleave treatment



Appendix 5.1  
Figure 1.2  
**Wayleave Treatment Indicative Planting Structure - L4m**  
To be read in conjunction with accompanying text contained in **Appendix 5.1**

**Notes**

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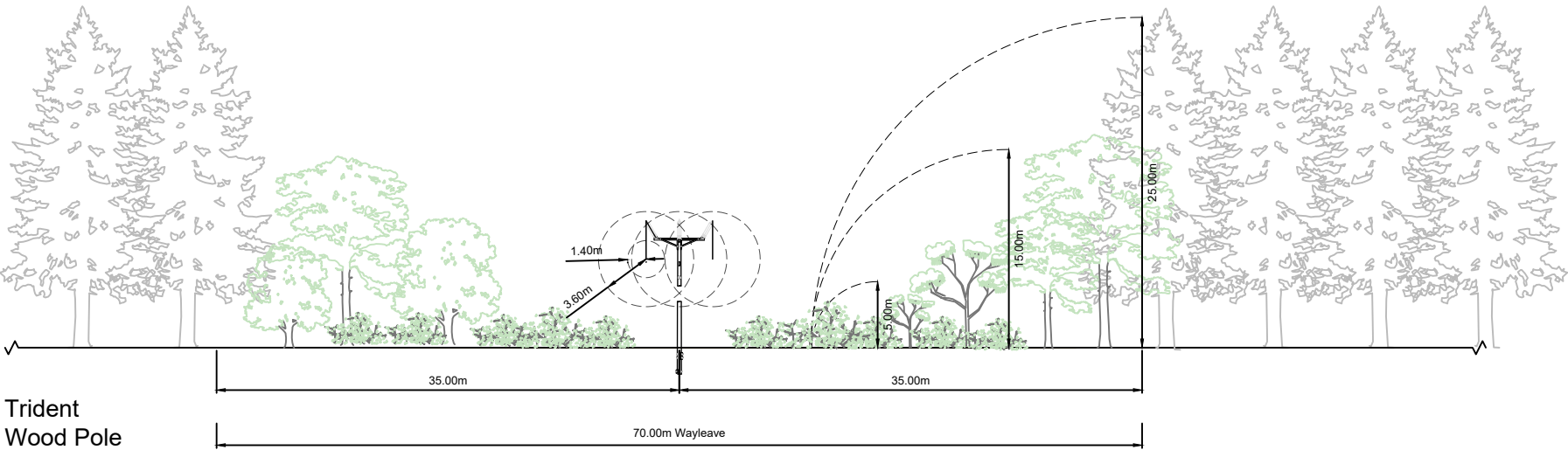
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KTR Project

Client  
ScottishPower Energy Networks

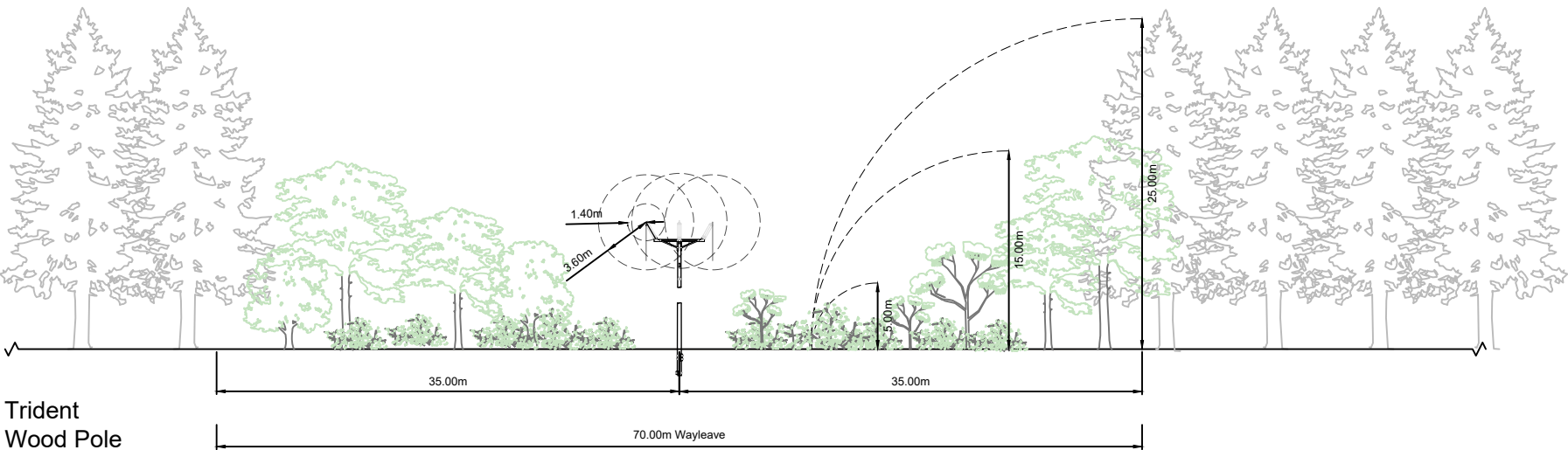
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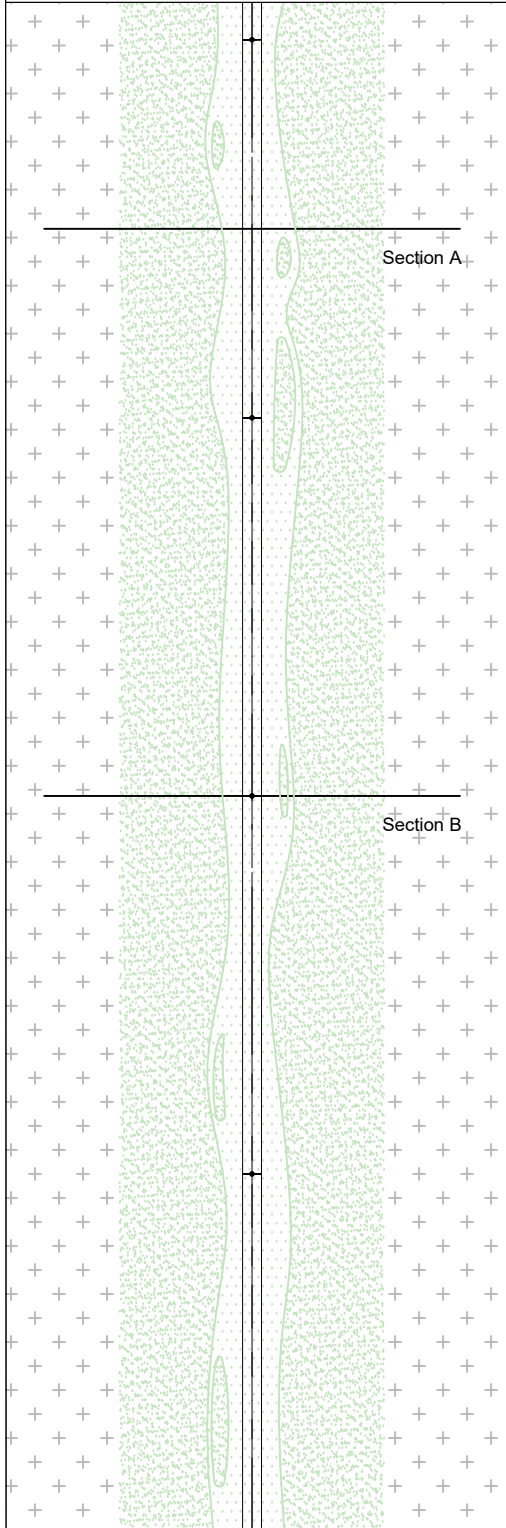
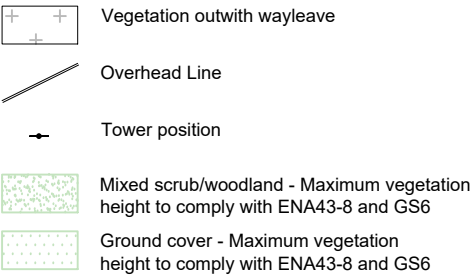
Section A : At Mid-Span



Section B : At Tower



Diagrammatic plan view of typical wayleave treatment



1:2000

70m Wayleave

Boundary of wayleave to be softened with an irregular, scalloped edge, graduated vegetation height and 'islands' of planting

Appendix 5.1  
Figure 1.3

**Wayleave Treatment Indicative Planting Structure - Trident Wood Pole**  
To be read in conjunction with accompanying text contained in **Appendix 5.1**

**Notes**

All works outwith the OHL to comply with ENA43-8 and GS6  
Maximum conductor swing under blowout is 45°

Do not scale from this drawing.  
All dimensions are drawn in millimetres.  
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Project  
KTR Project

Client  
ScottishPower Energy Networks

Scale @ A3  
1:500



Appendix 5.1

Figure 2.1: Example Mitigation and Enhancement - Objective Red Squirrel (and Landscape)

Overhead line infrastructure

- Polquhanity to Glenlee via Kendoon (steel lattice tower)
- Carsfad to Kendoon (wood pole)
- Existing tower for removal
- Existing 132kV overhead line to be removed (following construction of the KTR Project)
- Existing network

Access to proposed towers

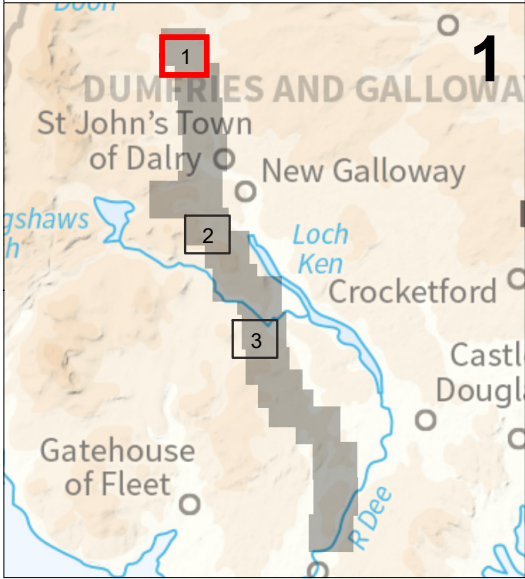
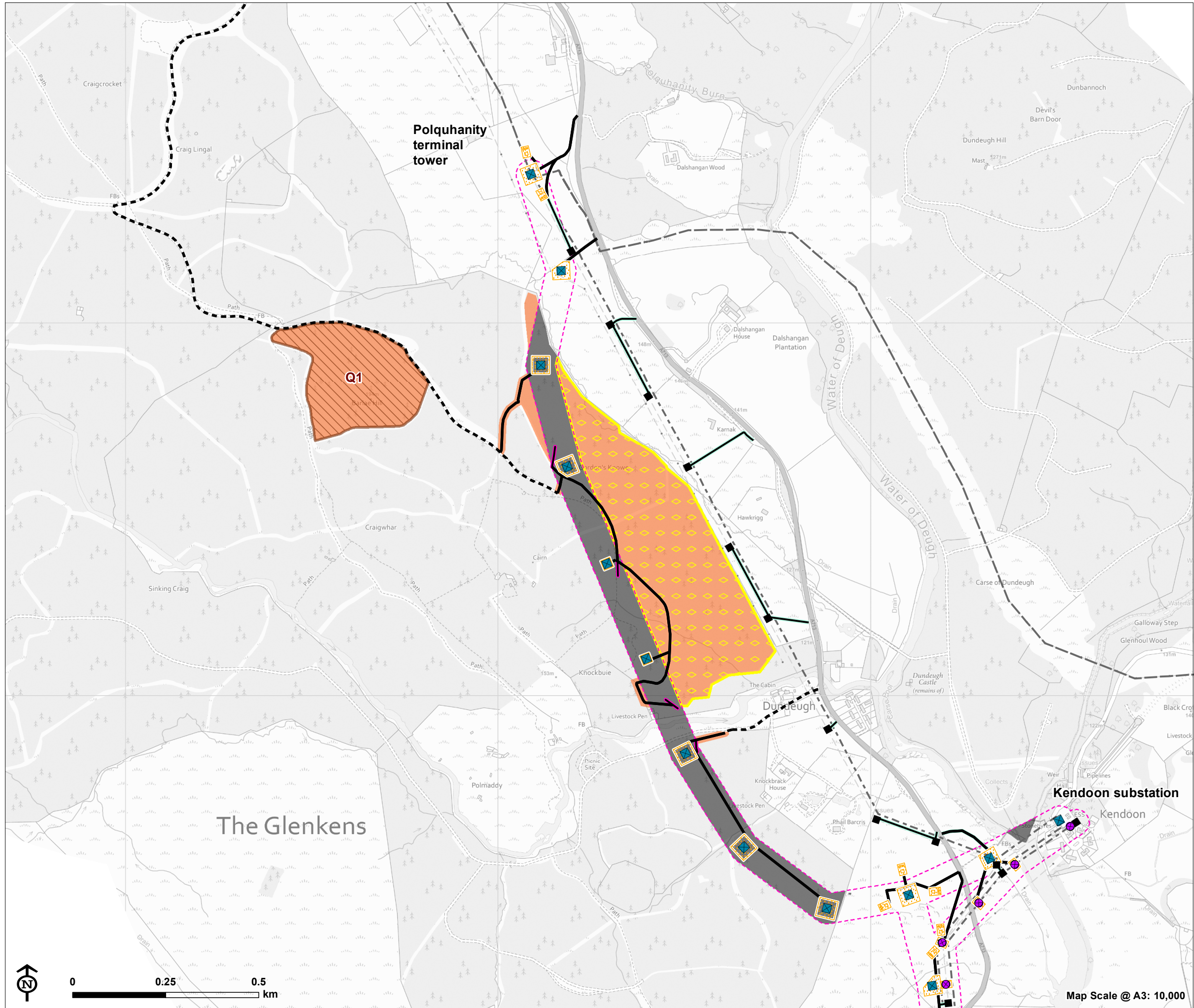
- Existing access
- New access
- Timber extraction spur

Access to towers for removal

- New access
- Working area
- Potential quarry working area
- Wayleave (80m steel tower, 70m wood pole)

Mitigation and Replanting

- Wayleave general plan
- Red Squirrels
- Long Term Retention





Appendix 5.1

Figure 2.2: Example Mitigation and Enhancement - Objective Pine Martin (and Red Squirrel)

Overhead line infrastructure

■ Glenlee to Tongland (steel lattice tower)

Access to proposed towers

--- Existing access

— New access

— Timber extraction spur

Working area

Construction compound

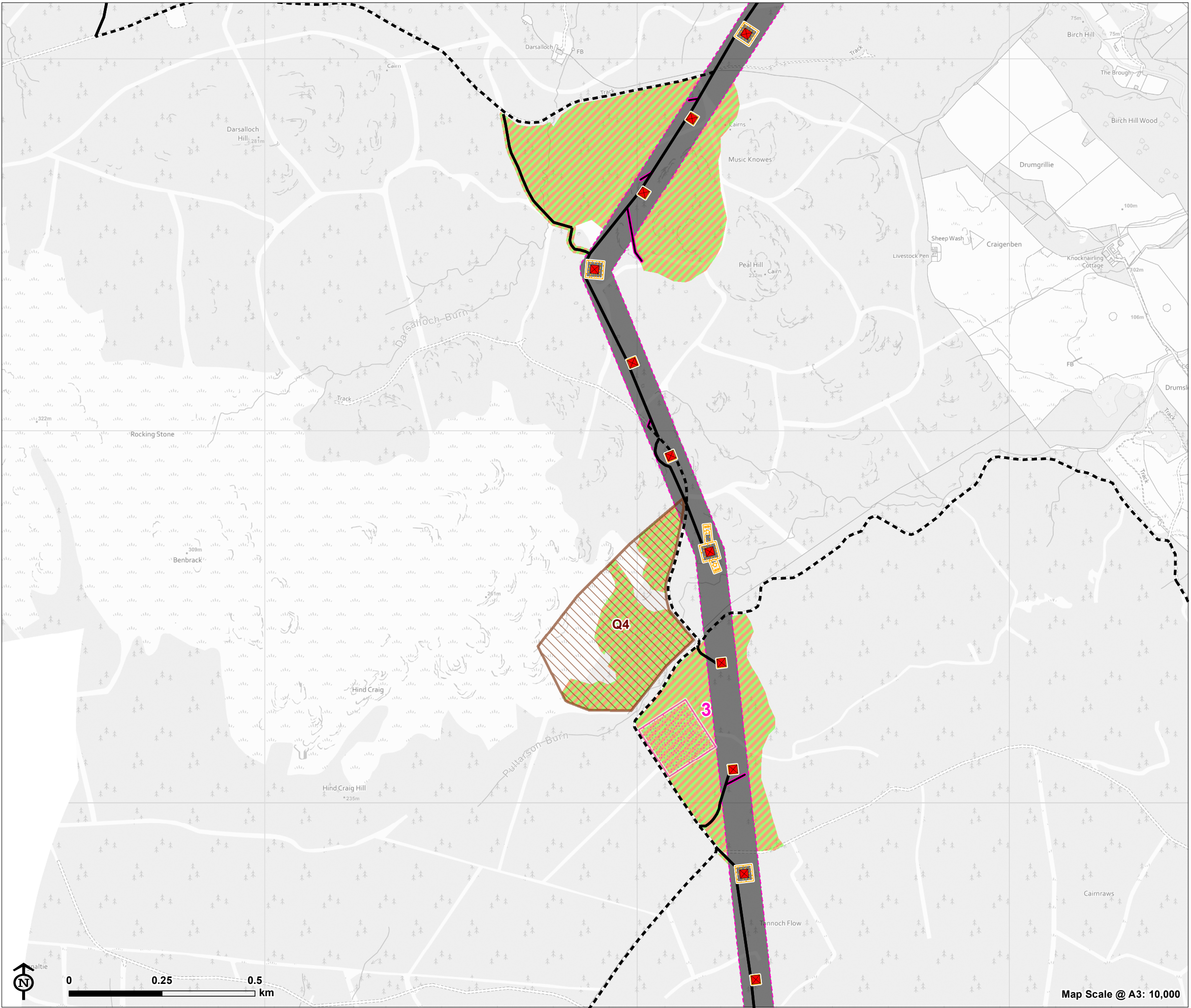
Potential quarry working area

Wayleave (80m steel tower, 70m wood pole)

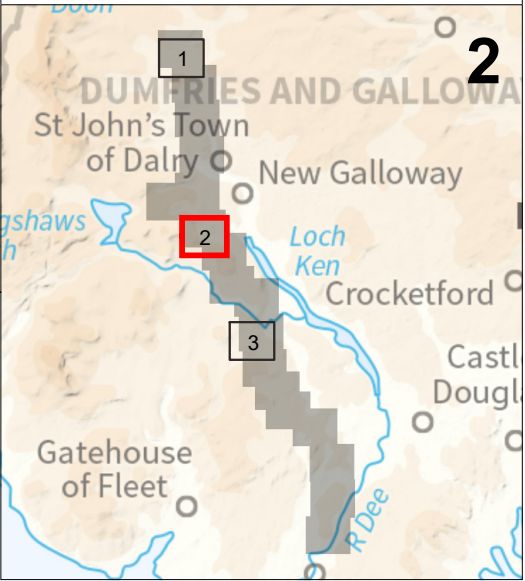
Mitigation and Replanting

Wayleave general plan

Red squirrels and pine martens



Map Scale @ A3: 10,000





Appendix 5.1

Figure 2.3: Example Mitigation and Enhancement - Objective Landscape (and Pine Martin)

Overhead line infrastructure

■ Glenlee to Tongland (steel lattice tower)

Access to proposed towers

--- Existing access

— New access

— Timber extraction spur

Working area

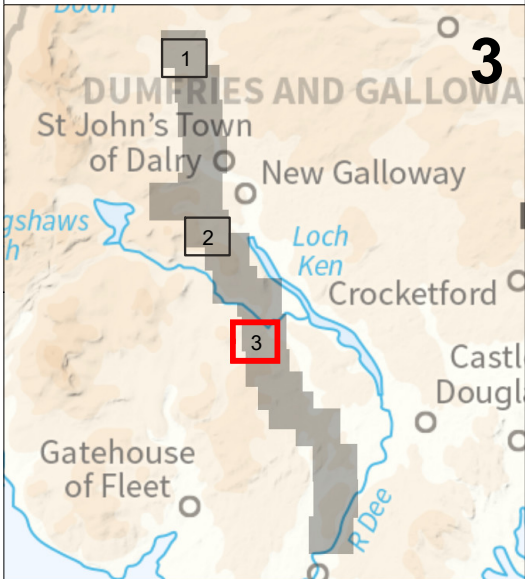
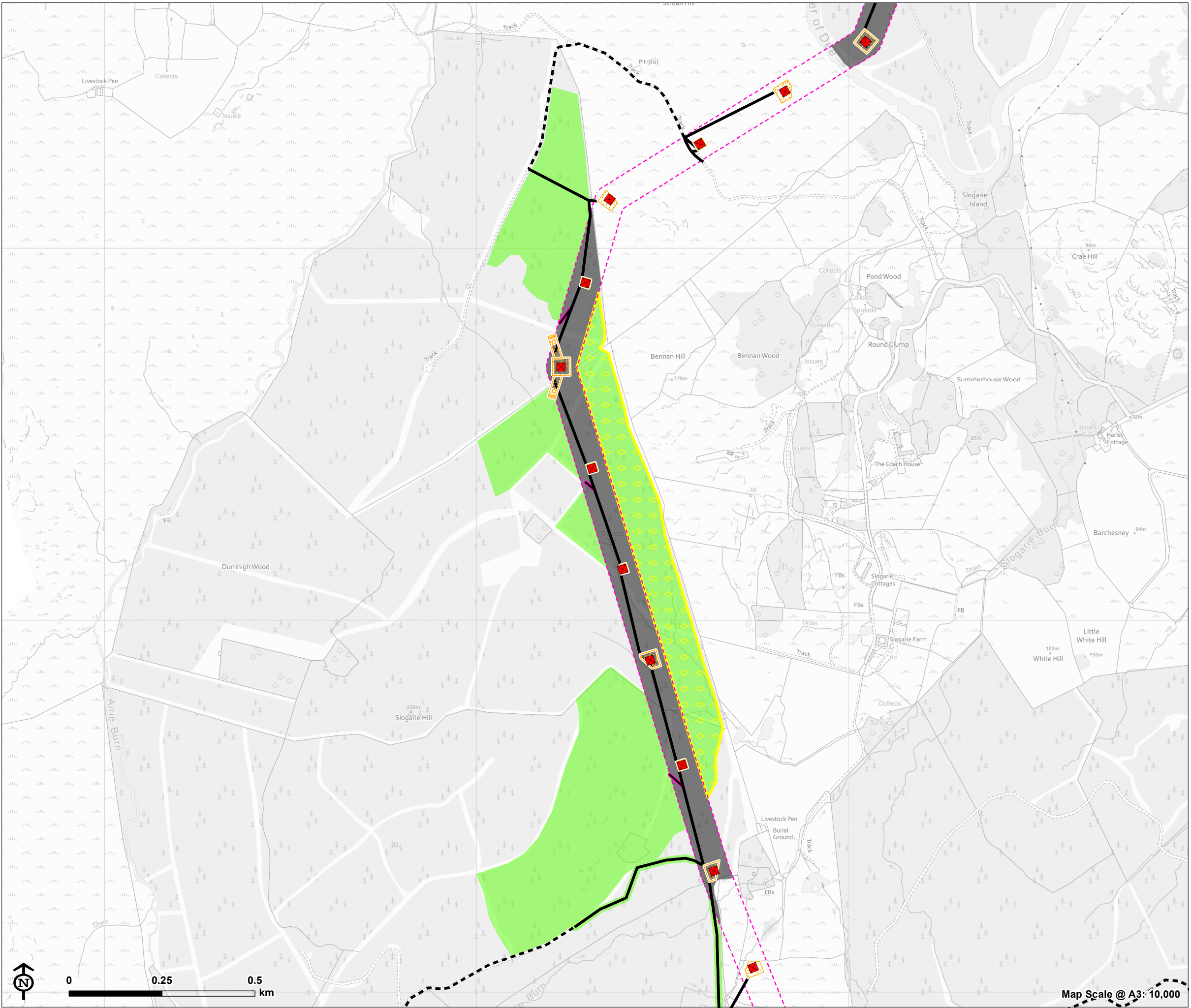
Wayleave (80m steel tower, 70m wood pole)

Mitigation and Replanting

Wayleave general plan

Pine Marten

Long Term Retention



**Appendix 5.2**

Embedded and Additional Mitigation and Monitoring Measures





## Appendix 5.2: Embedded and Additional Mitigation and Monitoring Measures

This appendix provides a consolidated list of the embedded and additional mitigation measures which have been identified in the Environmental Impact Assessment (EIA) Report. Monitoring measures which are proposed are also detailed. Measures are presented on a topic-by-topic basis, reflecting the chapters of the EIA Report. Where embedded mitigation measures listed below relate to standard construction practices which are considered to be good practice, these will also be detailed in the final Construction and Decommissioning Environmental Management Plan (an example of which is provided as **Appendix 5.4**). Further details in relation to the approach to mitigation and potential enhancement associated with re-planting within the wayleave and the windthrow areas is provided in **Appendix 5.1: Forest Design Concept**.

Topic	Embedded Mitigation	Additional Mitigation	Monitoring
Landscape and Visual Assessment (Chapter 7)	<p><b>Construction</b></p> <p>The following measures will be implemented throughout the construction phase of the Kendoon to Tongland 132 kilovolt (kV) Reinforcement Project ('the KTR Project') to ensure landscape and visual effects are avoided or reduced wherever possible, overseen by the appointed Environmental Clerk of Works (ECoW) with input where relevant from a suitably qualified and experienced Chartered Landscape Architect (CMLI).</p> <ul style="list-style-type: none"><li>Construction activities will be conducted in accordance with the Construction and Decommissioning Environmental Management Plan (CDEMP).</li><li>Existing hedgerows, woodland, tree belts and stone dyke field enclosures will be retained as far as practical.</li><li>Any disturbance to or temporary removal of existing field boundaries (e.g. hedgerows, stone dykes or fences) to facilitate construction access will follow identification and agreement with the appointed ECoW, and be undertaken sensitively to ensure successful reinstatement of these features following completion of construction activities.</li><li>Post-delivery of equipment for enabling works, construction vehicles will access working areas via site access tracks.</li><li>Construction vehicles will not track across undisturbed areas outside their defined working areas and access corridor.</li><li>Materials and machinery will be stored tidily during the works. Machinery will not be left in place for longer than required for construction purposes, in order to minimise effects on views and visual amenity.</li><li>Any contractors' compounds and storage areas will be located away from sensitive receptors as far as possible.</li><li>Construction works (e.g. construction working areas, access tracks) will be progressively restored during the construction phase of the project to restore and revegetate previously disturbed areas, which will not be affected by the operational phase of the project, including any redundant access tracks.</li><li>Topsoil, and the seedbank within it, will be carefully stripped from all construction areas, including construction working areas and will be stored in areas where it will not be disturbed or tracked upon, in low uncompacted mounds. Stored topsoil will be used for the progressive restoration of disturbed areas. Soft materials will be used to regrade slopes prior to promotion of natural recolonisation of vegetation.</li><li>Peat will be carefully extracted and moved from construction areas and stored in accordance with the Peat Management Plan (PMP).</li><li>Regular looking engineered profiles to tower bases and will be avoided where practical. Irregular concave and convex slopes mimicking existing contours, which match with the scale of the existing topography will be created as far as possible.</li><li>Localised grading of selected sections of track cutting slopes, embankments and sides will be undertaken. Scarred track sides, slopes and tie-ins will be rounded to concave or convex profiles, and where available, topsoil/turves will be placed upon them, to encourage regeneration of vegetation.</li><li>Seeding will be undertaken in agreement with landowners using locally native species of plants, and to tie in with adjacent vegetation types, where considered appropriate and essential to prevent erosion.</li><li>On completion of the construction phase, all equipment and temporary installations, buildings, etc. not required for future operational use will be dismantled and removed,</li></ul>	<p><b>Polquhanity to Glenlee (via Kendoon) (P-G via K)</b></p> <p>In addition to the embedded mitigation measures outlined, replanting of areas of windthrow felling will be implemented to mitigate effects associated with the following representative viewpoints and routes<sup>1</sup>:</p> <ul style="list-style-type: none"><li>Viewpoint 1: Layby on A713 near Polquhanity;</li><li>Viewpoint 10: A762 north of Glenlee;</li><li>P7: Karnak;</li><li>P8: Hawkkrigg;</li><li>A713 Galloway Tourist Route, Scottish Castle Route, Loch Ken and River Dee Biosphere Route); and</li><li>A762 (Scottish Castle Route, Loch Ken and River Dee Biosphere Route).</li></ul> <p><b>Carsfad to Kendoon (C-K)</b></p> <p>No additional mitigation measures are proposed.</p> <p><b>Earlstoun to Glenlee (E-G)</b></p> <p>In addition to the embedded mitigation measures outlined, replanting of areas of windthrow felling will be implemented to mitigate effects associated with the following representative viewpoint and route:</p> <ul style="list-style-type: none"><li>Viewpoint 10: A762 north of Glenlee; and</li><li>A762 – between Allangibbon Bridge and Tongland (part of the Scottish Castle Route, Loch Ken and River Dee Biosphere Route).</li></ul> <p><b>BG Deviation</b></p> <p>No additional mitigation measures are proposed.</p> <p><b>Glenlee to Tongland (G-T)</b></p> <p>In addition to the embedded mitigation measures outlined, replanting of areas of windthrow felling will be implemented to mitigate effects associated with the following representative viewpoints and routes:</p> <p>VP 14: A712, The Queen's Way;</p> <p>VP 29: Barstobrick; and</p> <p>A712 (Queens Way, Scottish Castle Route).</p>	No monitoring of landscape and visual effects or embedded mitigation measures is proposed.

<sup>1</sup> SP Energy Networks (SPEN) will engage with landowners to encourage them to pre-emptively fell woodland vulnerable to windthrow in order to secure a windfirm edge and then to replant/restock those areas. The felling would require a licence from Scottish Forestry (SF) and is anticipated that each felling licence would be granted subject to a condition that the felled woodland is replanted. While SPEN can't commit to undertaking the replanting, it can, if required be secured through powers available to Scottish Forestry. Further details are provided in Chapter 8: Forestry.

Topic	Embedded Mitigation	Additional Mitigation	Monitoring
	<p>including removal of construction waste and its appropriate disposal; filling and compacting hollows and excavation trenches with the appropriate stockpiled materials.</p> <ul style="list-style-type: none"><li>Slope regrading activities will be undertaken to provide sustainable and erosion resistant landforms compatible with the pre and post-construction land use and water management strategies.</li></ul> <p><b>Undergrounding of Distribution Infrastructure</b></p> <p>Existing distribution infrastructure (11kV and 33kV wood pole overhead lines (OHLs)) (between Polquhanity Terminal location and Glenlee Substation will be relocated as part of the enabling works to facilitate construction of the KTR Project. A number of these will be undergrounded permanently and the assessment assumes that this work, and any associated reinstatement, has been completed as part of the pre-enabling works for P-G via K prior to the main KTR Project construction activities commencing.</p>		
Forestry (Chapter 8)	<p>The design of the KTR Project sought to prevent or minimise effects on forestry where possible by avoiding areas of forestry unless there was 'no reasonable alternative'. However, due to the large scale and central position of the areas of commercial forestry in relation to the 'fixed' connection points (i.e. the substations), the avoidance of forestry had to be balanced against other technical and environmental considerations. Similarly, it has not been possible to avoid all areas listed in the Inventory of Ancient Woodland where these areas are affected by the KTR Project.</p> <p>In addition to the changes made through the design of the KTR Project, a series of good forest practice measures will be put in place through the CDEMP including:</p> <ul style="list-style-type: none"><li>Adherence to Forestry Industry Safety Accord (FISA) guidance during felling and extraction of forestry.</li><li>Adherence to Scottish Forestry (SF) Guidelines e.g. to ensure protection and enhancement of the water environment during felling and construction.</li><li>Implementation of tree harvesting and extraction methods to ensure minimisation of soil disturbance and compaction during felling and construction.</li><li>Restricting the width of the felling corridor to the minimum required for statutory safe clearances. This will predominately be delivered by the identification of any areas where the individual tree is of a species which can be deemed to be low growing to the extent that they can remain in parts of the wayleave corridor without conflicting with the safe construction and operation of the OHL within the wayleave corridor.</li><li>A further opportunity for restricting the width of the wayleave corridor will be implemented where individual trees within the corridor (which will be predominately be mature broadleaf trees) can be managed through crown reduction which thereby removes the need to fell the whole tree. This will be undertaken prior to felling as part of the pre-construction final design process.</li><li>SP Energy Networks (SPEN) will commit to working with the landowners through the construction period to facilitate ongoing forest management where possible within the constraints of safe working practices and the associated Construction, Design and Management (CDM) working.</li></ul>	<p><b>P-G via K</b></p> <p><b>Construction</b></p> <p>Subject to landowner agreement, SPEN will seek to replant certain sections of the wayleave and the wayleave corridor edge with low growing shrub species, sourced from local seed provenance, which are not deemed to put at risk the ongoing safe operation of the line. These areas of planting will be targeted to specific areas where issues of woodland linkage and habitat protection have been identified. As these require landowner agreement, they cannot be considered committed mitigation.</p> <p>It is proposed to reduce the wayleave from 80m to 65m in the areas of Broadleaves at Polharrow Burn to reduce the visual impact particularly from Viewpoint 6 (Layby on A713 near Knocknalling wood. Within the 65m wayleave there will be two separate areas:</p> <ul style="list-style-type: none"><li>12.5m either side of the line within which it is proposed that no trees or shrubs are planted as this is directly under the conductors where unrestricted access is required for maintenance; and</li><li>between 12.5-32m parts of the corridor would be planted with trees and shrubs up to 20m height which will be subject to ongoing maintenance.</li></ul> <p>SPEN will work with the landowners throughout the construction period to facilitate ongoing forest management where possible within the constraints of safe working practices and the associated CDM working.</p> <p>At Polmaddie forest there will be a requirement to construct suitable access points to allow forest machinery to pass safely under the OHL during and post construction.</p> <p><b>Operation</b></p> <p>The following measures will be put in place once the KTR Project is operational (subject to landowner agreement where indicated):</p> <ul style="list-style-type: none"><li>In areas where 'forwarding' underneath or adjacent to the proposed OHL is allowed, 'goal-posts' will be erected to determine and indicate the maximum safe working height.</li><li>Subject to landowner agreement opportunities to plant low-growing shrub species below the line and small trees such as rowan, gear, hazel, hawthorn and willow towards the edge of the OHL corridor will be considered and implemented. This planting will assist the woodland managers in their objective of increasing woodland diversity. The design and management of such planting will incorporate access routes required for maintenance of the line and comply with SPEN's safe working practices.</li><li>Soil disturbance and compaction will be minimised during maintenance by the use of low ground pressure tree harvesting and extraction methods.</li><li>Where appropriate, topping of trees will be restricted to removing a maximum of half of the live crown of trees so that some growth will continue and so disguise the felling line. This approach may not be suitable for older stands with shallow canopies for reasons of effectiveness – here coppicing will be considered if appropriate.</li><li>Local drainage systems will be maintained.</li><li>Tree clearance operations associated with maintaining clearance distance from the P-G via K connection within the wayleave will strictly adhere to the Forestry Commission publication 'Forest and Water Guidelines', version five, 2011.</li><li>Monitoring and removal of windthrown trees will be undertaken.</li></ul> <p>In addition to the measures above, SPEN will also implement the following measures where possible, subject to agreement with the landowners, both inside and outside the wayleave:</p>	<p><b>P-G via K</b></p> <p>Subject to landowner agreement, SPEN will monitor windthrow associated with the construction and operation of the P-G via K connection in relation to compensatory measures and tree removal.</p> <p>Subject to agreement with landowners, a programme of future vegetation management will be undertaken incorporating and assessment of tree and shrub growth within and immediately adjacent to the wayleave corridor to ensure the safe operation of the P-G via K connection.</p> <p>Post application design works to consider the benefits of additional tree felling to achieve more landscape sensitive and windfirm forest boundaries will be continued. This work will aim to reach agreement where necessary with the landowner to undertake works out with the 80m corridor as outlined in <b>Appendix 5.1</b>.</p> <p><b>C-K</b></p> <p>Subject to agreement with the landowners, a programme of future vegetation management will be undertaken incorporating an assessment of tree and shrub growth within and immediately adjacent to the wayleave corridor to ensure the safe operation of the C-K connection.</p> <p><b>E-G</b></p> <p>Subject to landowner agreement, SPEN will monitor windthrow associated with the construction and operation of the E-G connection in relation to compensatory measures and tree removal.</p> <p>Subject to agreement with landowners, a programme of future vegetation management will be undertaken incorporating and assessment of tree and shrub growth within and immediately adjacent to the wayleave corridor to ensure the safe operation of the E-G connection.</p> <p><b>BG Deviation</b></p> <p>Subject to landowner agreement, SPEN will monitor windthrow associated with the construction and operation of the BG Deviation connection in relation to compensatory measures and tree removal.</p> <p>Subject to agreement with landowners, a programme of future vegetation management will be undertaken incorporating and assessment of tree and shrub growth within and immediately adjacent to the wayleave corridor to ensure the safe operation of the BG Deviation.</p> <p><b>G-T</b></p>

Topic	Embedded Mitigation	Additional Mitigation	Monitoring
		<ul style="list-style-type: none"><li>• Opportunities to introduce different species (conifers, broadleaves, evergreen, deciduous, varieties of size and shape) will be taken where appropriate.</li><li>• New planting, restocking, and the management of natural regeneration will be undertaken in agreed designated areas, following negotiation with relevant landowners. This will target areas where maximum ecological advantage will be gained. This will include riparian areas and areas of existing biodiversity as set out in <b>Appendix 5.1</b>.</li><li>• In addition to monitoring and removal of windthrown trees, consideration will also be given to implementation of associated forest landscaping, including replanting.</li></ul> <p><b>C-K</b></p> <p><b>Construction</b></p> <p>Subject to landowner agreement, SPEN will seek to replant certain sections of the wayleave and the wayleave corridor edge with low growing shrub species, sourced from local seed provenance, which are not deemed to put at risk the ongoing safe operation of the line. These areas of planting will be targeted to specific areas where issues of woodland linkage and habitat protection have been identified. As these require landowner agreement, they cannot be considered committed mitigation.</p> <p>No additional location specific mitigation is proposed.</p> <p><b>E-G</b></p> <p><b>Construction</b></p> <p>Subject to landowner agreement, SPEN will seek to replant certain sections of the wayleave and the wayleave corridor edge with low growing shrub species, sourced from local seed provenance, which are not deemed to put at risk the ongoing safe operation of the line. These areas of planting will be targeted to specific areas where issues of woodland linkage and habitat protection have been identified. As these require landowner agreement, they cannot be considered committed mitigation.</p> <p>No additional location specific mitigation is proposed.</p> <p><b>BG Deviation</b></p> <p><b>Construction</b></p> <p>Subject to landowner agreement, SPEN will seek to replant certain sections of the wayleave and the wayleave corridor edge with low growing shrub species, sourced from local seed provenance, which are not deemed to put at risk the ongoing safe operation of the line. These areas of planting will be targeted to specific areas where issues of woodland linkage and habitat protection have been identified. As these require landowner agreement, they cannot be considered committed mitigation.</p> <p>No additional location specific mitigation is proposed.</p> <p><b>G-T</b></p> <p><b>Construction</b></p> <p>Subject to landowner agreement, SPEN will seek to replant certain sections of the wayleave and the wayleave corridor edge with low growing shrub species, sourced from local seed provenance, which are not deemed to put at risk the ongoing safe operation of the line. These areas of planting will be targeted to specific areas where issues of woodland linkage and habitat protection have been identified. As these require landowner agreement, they cannot be considered committed mitigation.</p> <p>No additional location specific mitigation is proposed.</p> <p>SPEN will work with the landowners throughout the construction period to facilitate ongoing forest management where possible within the constraints of safe working practices and the associated CDM working. This will include a requirement to construct suitable access points to allow forest machinery to pass safely under the line during and post construction in various sites throughout this section where commercial forest management will continue.</p> <p><b>Operation</b></p> <p>The following measures will be put in place once the KTR Project is operational (subject to landowner agreement where indicated):</p> <ul style="list-style-type: none"><li>• In areas where ‘forwarding’ underneath or adjacent to the proposed OHL is allowed, ‘goal-posts’ will be erected to determine and indicate the maximum safe working height.</li></ul>	<p>Subject to landowner agreement, SPEN will monitor windthrow associated with the construction and operation of the G-T connection in relation to compensatory measures and tree removal.</p> <p>Subject to agreement with landowners, a programme of future vegetation management will be undertaken incorporating and assessment of tree and shrub growth within and immediately adjacent to the wayleave corridor to ensure the safe operation of the G-T connection.</p> <p>Post application design works to consider the benefits of additional tree felling to achieve more landscape sensitive and windfirm forest boundaries will be continued. This work will aim to reach agreement where necessary with the landowner to undertake works out with the 80m corridor as outlined in <b>Appendix 5.1</b>.</p>

Topic	Embedded Mitigation	Additional Mitigation	Monitoring
		<ul style="list-style-type: none"><li>Subject to landowner agreement, opportunities to plant low-growing shrub species below the line and small trees such as rowan, gean, hazel, hawthorn and willow towards the edge of the OHL corridor will be considered and implemented. This planting will assist the woodland managers in their objective of increasing woodland diversity. The design and management of such planting will incorporate access routes required for maintenance of the line and comply with SPEN's safe working practices.</li><li>Soil disturbance and compaction will be minimised during maintenance by the use of low ground pressure tree harvesting and extraction methods.</li><li>Where appropriate, topping of trees will be restricted to removing a maximum of half of the live crown of trees so that some growth will continue and so disguise the felling line. This approach may not be suitable for older stands with shallow canopies for reasons of effectiveness – here coppicing will be considered if appropriate.</li><li>Local drainage systems will be maintained.</li><li>Tree clearance operations associated with maintaining clearance distance from the G-T connection within the wayleave will strictly adhere to the Forestry Commission publication 'Forest and Water Guidelines', version five, 2011.</li></ul> <p>In addition to the measures above, SPEN will also implement the following measures where possible, subject to the agreement of landowners, both inside and outside the wayleave:</p> <ul style="list-style-type: none"><li>Opportunities to introduce different species (conifers, broadleaves, evergreen, deciduous, varieties of size and shape) will be taken where appropriate.</li><li>New planting, restocking, and the management of natural regeneration will be undertaken in agreed designated areas, following negotiation with relevant landowners. This will target areas where maximum ecological advantage will be gained. This will include riparian areas and areas of existing biodiversity as set out in <b>Appendix 5.1</b>.</li><li>In addition to monitoring and removal of windthrown trees, consideration will also be given to implementation of associated forest landscaping, including replanting.</li></ul>	
Geology, Hydrology, Hydrogeology, Water Resources and Peat (Chapter 9)	<p><b>Flood Risk and Increased Run-off</b></p> <p>In accordance with the Risk Framework within Scottish Planning Policy (SPP), new development should be limited to areas outside the medium risk 200-year (0.5% Annual Probability (AP)) functional floodplain. Floodplains were avoided as far as practicable during the early and detailed routeing process of the KTR Project.</p> <p>The KTR Project is 'essential infrastructure' under the Scottish Environment Protection Agency (SEPA) Flood Risk and Land Use Vulnerability Guidance and essential infrastructure can be in medium to high risk flood areas (i.e. &gt;0.5% AP) if a flood risk location is required for operational reasons and an alternative lower-risk location is not available. In the few situations where a tower is located within the 200-year floodplain, it will be designed and constructed to be operational during floods (i.e. the 0.5% AP event), and to not impede water flow.</p> <p>The risk of flooding and pollution of the water environment will be minimised by the remediation of the construction corridor and access tracks as the works progress, limiting the time that bare ground is exposed, or watercourses are being crossed. Much will depend on weather conditions during construction, with a risk of flooding only if construction activities coincide with heavy rainfall in the catchment. Daily weather reports for the construction site will be made available with further mitigation measures put in place if extreme weather conditions are forecast (e.g. the removal of temporary crossings and stoppage of work in advance of extreme rainfall).</p> <p>Embedded mitigation measures to deal with increased surface runoff and potential alterations to drainage patterns will include:</p> <ul style="list-style-type: none"><li>Access tracks will be designed to avoid existing surface flow pathways. If this is not possible, drainage measures will be incorporated including adequately sized culverts that do not restrict flow and allow small watercourses, intercepted field drains and ephemeral streams/surface water flow to pass under the tracks.</li><li>Existing field drains will be identified in advance of construction and will be considered when planning the construction of access tracks. If field drains are crossed, appropriately sized temporary culverts will be installed to allow the field drains to pass under the access tracks. SEPA have highlighted past issues with field drains discharging directly onto temporary access tracks leading to flooding and pollution issues; this will be avoided.</li><li>Drains servicing the access tracks will have adequate capacity to reduce the chance of water overtopping into open ground.</li></ul>	<p><b>P-G via K</b></p> <p><b>Construction</b></p> <p>Details of mitigation measures will be set out in detail prior to construction in the Pollution Prevention Plan (PPP), CDEMP and construction method statements. The PPP will require approval by SEPA to obtain a Controlled Activities Regulation (CAR) construction site licence (CSL). The PPP will also contain details of the location specific mitigation for relevant infrastructure comprising the connection and the contractor will be legally obliged to comply with the pollution control and drainage measures agreed in the PPP and CSL.</p> <p>Parts of the KTR Project that are up-gradient of sensitive receptors (e.g. Private Water Supply (PWS), watercourses) have been identified based on analysis of flow paths and additional areas for SUDS will be incorporated within the project design to mitigate any potential effects. In addition, further investigation of the location of PWS pipework and infrastructure will be carried out prior to construction and micro-siting of the P-G via K infrastructure within the Infrastructure Location Allowance (ILA) will be undertaken where necessary to avoid damaging any PWS pipework/infrastructure.</p> <p>Dewatering and physical cut-offs will be avoided where possible and not undertaken close to water supplies and drainage measures will be designed to minimise the effect on the lowering of the groundwater table. Permanent physical cut-offs will be avoided with the exception of routeing groundwater flows around the proposed quarry areas.</p> <p>Mitigation measures to maintain baseline subsurface flows towards the Groundwater Dependent Terrestrial Ecosystems (GWDTE) habitat identified west of towers PG1 and PG2 will be put in place during construction. Excavated material during tower base construction will be replaced without compaction. In addition, the new temporary access track will be designed with suitable drainage under the track to ensure subsurface flows are maintained.</p> <p>Mitigation measures to maintain baseline subsurface flows towards the Groundwater Dependent Terrestrial Ecosystems (GWDTE) habitat identified west of towers PG1 and PG2 will be put in place during construction. Excavated material during tower base and UGC trench construction will be replaced without compaction and the final design of the UGC route will aim to avoid the GWDTE habitat as far as possible during construction. In addition, the new temporary access track will be designed with suitable drainage under the track to allow subsurface flows to be maintained.</p> <p>Any excavated peat will be stored appropriately nearby and re-used as soon as possible for reinstatement. Further ground investigation will be undertaken for the foundation and</p>	<p><b>P-G via K</b></p> <p>Monitoring of water quality of the following PWS will be undertaken before, during and after construction to ensure no contamination of the supply. Monitoring will be undertaken by an ECoW and monitoring locations will be identified in the CDEMP:</p> <ul style="list-style-type: none"><li>High Carminnows PWS;</li><li>Phail Barcris PWS (if required - will depend on the confirmed location of the borehole, which will be clarified at pre-construction stage);</li><li>Carsfad Cottage PWS;</li><li>Inverharrow PWS; and</li><li>Waterside PWS.</li></ul> <p>If the water quality deteriorates during construction (e.g. discoloured, high sediment content, hydrocarbons) an alternative water supply will be installed at the PWS property, such as portable bowzers, to ensure minimal disruption of supply. The contractors will have a supply of bowzers ready to deploy to affected PWS, if required.</p> <p>Monitoring will be put in place to assess the quantitative and chemical effect of the infrastructure to ensure that the groundwater flow and quality to the GWDTE are not statistically significantly changed post construction. Monitoring will be carried out based on SEPA guidance and will comprise a representative number of hand-driven groundwater monitoring wells. Pre-construction monitoring will commence at least six months before construction commences. Monitoring reports will be prepared, and remedial actions identified if statistically significant changes to the groundwater</p>



Topic	Embedded Mitigation	Additional Mitigation	Monitoring
	<ul style="list-style-type: none"><li>Areas of impermeable and hard standing will be kept to a minimum through strategic construction management and staged working where possible. Where possible, proposed surfaces will comprise of compacted granular materials which are inherently permeable.</li><li>All surface water drainage systems will incorporate the appropriate level of treatment with all Sustainable Urban Drainage Systems (SUDS) and drainage features designed taking account of measures published by the appropriate body i.e. SEPA, Construction Industry Research and Information Association (CIRIA), etc.</li><li>Where possible, drain lengths will be limited to reduce increased discharge rates associated with artificial drains.</li><li>Discharge of attenuated surface water runoff from the working areas and hardstanding into the watercourses will be limited to greenfield runoff rates entering each watercourse from the site at present.</li></ul> <p><b>Sedimentation and Erosion</b></p> <p>All runoff from site work areas during construction will be treated and attenuated using SUDS. Whilst constructing in areas close to sensitive receptors, and where high volumes of excavation are required, two levels of treatment will be incorporated to attenuate the site runoff and to reduce the risk of contaminants reaching the adjacent watercourses. Treated water will be discharged to the receiving watercourse of the original catchment. Watercourse catchments will not be altered.</p> <p>Any surface water that can enter a working area from upslope will be captured by a drainage ditch or similar and diverted around the working area to reduce washout of aggregate.</p> <p>Runoff from hardstanding areas will be treated and attenuated to levels relative to the area of use. Further treatment may be required from areas subject to high pollution risk i.e. fuelling areas.</p> <p>Constructing in areas of sloping land can lead to silt laden surface water runoff from the construction area. This runoff will be captured and directed within a temporary swale structure or similar, located downslope of the construction site boundary. Silt fences will be employed when working close to watercourse crossings where the use of swale features is not practical.</p> <p>Larger swales (i.e. 2m base channel width) will be used for areas that are upstream of sensitive receptors (e.g. PWS and/or watercourses). This wider flow/settlement area will allow additional attenuation and settling of silt/pollutants before discharge. In these areas a total width of approximately 20m alongside access track is set aside for SUDS to allow embedded mitigation to be put in place (e.g. check dams, silt fences and settlement ponds in sequence.</p> <p>A minimum buffer zone of at least 10m between the construction working areas and access tracks and watercourses has been incorporated into project design. Larger watercourses will have a larger buffer zone.</p> <p>Other embedded design mitigation measures to control the release of sediment and reduce the risk of soil erosion and mobilisation of contaminants during construction are as follows:</p> <ul style="list-style-type: none"><li>Access tracks will be prevented from discharging loose material to the local water environment. For example, drainage discharging from access tracks will be directed away from watercourses and towards a silt trap or SUDS pond. During times of dry weather, any ruts generated from tyre tracks will be smoothed.</li><li>Temporary tracks will be constructed with enough cross-falls to reduce sediment leaving the track.</li><li>Exposed soil slopes adjacent to watercourses will be minimised and seeded as soon as possible to reduce the risk of instability and sediment runoff to watercourses as well as minimising disturbance to riparian habitat.</li><li>SUDS including temporary silt traps, settlement lagoons and storage lagoons will be constructed at key locations (i.e. upstream of watercourses and PWS and at surface water discharge points) to intercept and contain sediment and to attenuate surface water runoff to greenfield rates. These are discussed further in <b>Chapter 9</b> and <b>Appendix 9.2: Catchment Areas Draining to Access Tracks and Initial SUDS Sizing</b>.</li><li>The extent of exposed topsoil will be kept to a minimum, by phasing vegetation removal and earthworks so that soil exposure and areas of open excavation are minimised and can be managed appropriately.</li></ul>	<p>temporary track locations to determine the most suitable foundation and temporary track type so that the volumes of excavated peat can be reduced further.</p> <p><b>Operation</b></p> <p>No specific mitigation is proposed during operation other than the use of temporary matting or low pressure vehicles to access tower locations during any operational maintenance.</p> <p><b>C-K</b></p> <p><b>Construction</b></p> <p>Details of mitigation measures will be set out in detail prior to construction in the PPP, CDEMP and construction method statements. The PPP will require approval by SEPA to obtain a CAR CSL. The PPP will also contain details of the location specific mitigation for relevant infrastructure comprising the connection and the contractor will be legally obliged to comply with the pollution control and drainage measures agreed in the PPP and CSL.</p> <p>Parts of the KTR Project that are up-gradient of sensitive receptors (e.g. PWS, watercourses) have been identified based on analysis of flow paths and additional areas for SUDS will be incorporated within the project design to mitigate any potential effects. In addition, further investigation of the location of PWS pipework and infrastructure will be carried out prior to construction and micrositing of the C-K infrastructure within the ILA will be undertaken where necessary to avoid damaging any PWS pipework/infrastructure.</p> <p>Dewatering and physical cut-offs will be avoided where possible and not undertaken close to water supplies and drainage measures will be designed to minimise the effect on the lowering of the groundwater table. Permanent physical cut-offs will be avoided.</p> <p>The construction effects on peat are direct loss by peat excavation and indirect loss by temporary infrastructure located on the peat. The peat volume calculations use a worst-case scenario that all the peat is excavated, where present, from existing track widening, new temporary track, construction compound and working areas. The reality is that there is very little peat present in this connection and all of the temporary sections located on peat will be reinstated with excavated peat at the earliest opportunity. Therefore, there will be a net balance for peat excavation and peat reuse for this connection route.</p> <p>Any excavated peat will be stored appropriately nearby and re-used as soon as possible for reinstatement. Further ground investigation should be undertaken for the foundation and temporary track locations to determine the most suitable foundation and temporary track type so that the volumes of excavated peat can be reduced further.</p> <p><b>Operation</b></p> <p>No specific mitigation is proposed during operation.</p> <p><b>E-G</b></p> <p><b>Construction</b></p> <p>Details of mitigation measures will be set out in detail prior to construction in the PPP, CDEMP and construction method statements. The PPP will require approval by SEPA to obtain a CAR CSL. The PPP will also contain details of the location specific mitigation for relevant infrastructure comprising the connection and the contractor will be legally obliged to comply with the pollution control and drainage measures agreed in the PPP and CSL.</p> <p>Parts of the KTR Project that are upgradient of sensitive receptors (e.g. PWS, watercourses) have been identified based on analysis of flow paths and additional areas for SUDS will be incorporated within the project design to mitigate any potential effects. In addition, further investigation of the location of PWS pipework and infrastructure will be carried out prior to construction and micrositing of the E-G infrastructure within the ILA will be undertaken where necessary to avoid damaging any PWS pipework/infrastructure.</p> <p>The minor watercourse which impinges on the working area south-west of EG0014 will either be avoided during micrositing or diverted around the working area to avoid potential pollution/silt entering the water environment.</p> <p>Dewatering and physical cut-offs will be avoided where possible and not undertaken close to water supplies and drainage measures will be designed to minimise the effect on the lowering of the groundwater table. Permanent physical cut-offs will be avoided.</p> <p>The construction effects on peat include direct loss by peat excavation and indirect loss by temporary infrastructure located on the peat. The peat volume calculations use a worst-case scenario that all the peat is excavated, where present, from existing track widening, new temporary track, construction compounds and working areas. The reality is that there is very little peat present in this connection route and all of the temporary sections located on peat will be reinstated with excavated peat at the earliest opportunity.</p>	<p>flow or chemistries to sensitive receptors are identified.</p> <p>An ECoW will be onsite throughout construction to monitor the effectiveness of the SUDS and pollution control measures.</p> <p><b>C-K</b></p> <p>Monitoring of water quality of Carsfad Cottage PWS will be undertaken before, during and after construction to ensure no contamination of the supply. Monitoring will be undertaken by an ECoW and monitoring locations will be identified in the CDEMP.</p> <p>If the water quality deteriorates during construction (e.g. discoloured, high sediment content, hydrocarbons) an alternative water supply will be installed at the PWS property, such as portable bowsters, to ensure minimal disruption of supply. The contractors will have a supply of bowsters ready to deploy to affected PWS, if required.</p> <p>An ECoW will be onsite throughout construction to monitor the effectiveness of the SUDS and pollution control measures.</p> <p><b>E-G</b></p> <p>Monitoring of water quality of the Waterside PWS will be undertaken before, during and after construction to ensure no contamination of the supply. Monitoring will be undertaken by an ECoW (or equivalent) and monitoring locations will be identified in the CDEMP.</p> <p>If the water quality deteriorates during construction (e.g. discoloured, high sediment content, hydrocarbons) an alternative water supply will be installed at the PWS property, such as portable bowsters, to ensure minimal disruption of supply. The contractors will have a supply of bowsters ready to deploy to affected PWS, if required.</p> <p>An ECoW will be onsite throughout construction to monitor the effectiveness of the SUDS and pollution control measures.</p> <p><b>BG Deviation</b></p> <p>Monitoring of water quality of the Glenlee PWS will be undertaken before, during and after construction to ensure no contamination of the supply. Monitoring will be undertaken by an ECoW and monitoring locations will be identified in the CDEMP.</p> <p>If the water quality deteriorates during construction (e.g. discoloured, high sediment content, hydrocarbons) an alternative water supply will be installed at the PWS property, such as portable bowsters, to ensure minimal disruption of supply. The contractors will have a supply of bowsters ready to deploy to affected PWS, if required.</p> <p>An ECoW will be onsite throughout construction to monitor the effectiveness of the SUDS and pollution control measures.</p> <p><b>G-T</b></p> <p>Monitoring of water quality of the following PWS will be undertaken before, during and after construction to ensure no contamination of the</p>

Topic	Embedded Mitigation	Additional Mitigation	Monitoring
	<ul style="list-style-type: none"><li>Temporary silt fences will be installed to protect exposed topsoil from erosion and runoff.</li><li>During forestry felling damage to soils will be minimised by the use of ‘brash mats’ consisting of branches and treetops with no commercial value. During felling and delimbing, the timber will be placed in a separate zone to the brash. A proportion of the brash will be formed into mats on the access and extraction routes upon which the harvesters and forwarders travel within harvesting areas. This increases considerably the ground bearing capacity of the soil.</li></ul> <p><b>Pollution and Accidental Spillage</b></p> <p>The following mitigation measures will be implemented to reduce the chance of pollution from plant and machinery and the risk of a spillage occurring:</p> <ul style="list-style-type: none"><li>Concrete pouring and washout activities will be closely controlled and will not take place close to a watercourse.</li><li>Good construction practices will ensure that all harmful substances including fuel, oil, etc. would be safely stored on the working areas using the recommended storage facilities recommended in SEPA guidance and the relevant general binding rules (GBRs).</li><li>All machinery will be checked regularly to identify leakages, and during winter, de-icing of plant machinery kept to a minimum.</li><li>Spill kits, absorbent materials, and full training on their appropriate use will be available on the site to limit the potential impact of any accidental spillages.</li><li>Except for emergency repairs, all maintenance and repair for vehicles will be undertaken offsite.</li></ul> <p><b>Watercourse Crossings</b></p> <p>During routeing and design iterations, the number of watercourse crossings of the OHL routes and access tracks was minimised as far as possible.</p> <p>During construction, temporary construction SUDS will be put in place at each watercourse crossing to ensure no sedimentation from construction works or pollution from plant or machinery can enter the watercourse. This could be a series of settlement ponds or settlement tanks and silt fences. An area of 20m width either side of the watercourse and 20m upstream and downstream of the crossing (i.e. 40m x 40m) will allow for sufficient temporary SUDS to be put in place during construction as embedded mitigation. This will be sufficient for all crossings and is likely to be an over-estimate of the area required for small watercourses and will allow the contractor space to incorporate the amount of SUDS/settlement ponds required at each location, even in an emergency situation. It will also allow an area to be set aside should SUDS measures be required at the discharge location of swales into watercourses during permanent operation of the drainage system.</p> <p>Engineering activities on minor watercourses (with the exception of culverting for land gain, dredging and permanent diversions/realignments) do not normally require authorisation under the CAR Regulations. SEPA defines minor watercourses as those <b>not</b> shown on the 1:50,000 scale Ordnance Survey maps)</p> <p>Under the CAR Regulations, the majority of the KTR Project crossings are either minor or temporary over small watercourses and fall under general binding rules six and nine. These do not require registration or licence under CAR, however the works must comply with the conditions of the GBR, as follows.</p> <p><b>General Binding Rule Six (GBR6):</b> Construction and maintenance of: a minor bridge (with no construction on the bed or banks) over a river, burn or ditch; or a temporary bridge over a river, burn or ditch that has a channel width of less than 5m.</p> <ul style="list-style-type: none"><li>Vegetation may be removed from the banks only if the works cannot otherwise be reasonably carried out.</li><li>Vegetation that is removed must not be disposed of into the channel.</li><li>The works must not prevent the free passage of migratory fish.</li><li>The works must not result in the narrowing of the channel width or the heightening of any bank.</li><li>Work in the channel must not be carried out when fish are likely to be spawning in the affected surface water, or in the period between spawning and the subsequent emergence of juvenile fish.</li></ul>	<p>Therefore, there will be a net balance for peat excavation and peat reuse for this connection.</p> <p>Any excavated peat will be stored appropriately nearby and re-used as soon as possible for reinstatement. Further ground investigation should be undertaken for the foundation and temporary track locations to determine the most suitable foundation and temporary track type so that the volumes of excavated peat can be reduced further.</p> <p><b>Operation</b></p> <p>No specific mitigation is proposed during operation.</p> <p><b>BG Deviation</b></p> <p><b>Construction</b></p> <p>Details of the mitigation measures will be set out in detail prior to construction in the PPP, CDEMP and construction method statements. The PPP will require approval by SEPA to obtain a CAR CSL. The PPP will also contain details of the location specific mitigation for relevant infrastructure comprising the connection and the contractor will be legally obliged to comply with the pollution control and drainage measures agreed in the PPP and CSL.</p> <p>Parts of the KTR Project that are upgradient of sensitive receptors (e.g. PWS, watercourses) will be identified based on analysis of flow paths and additional areas for SUDS have been incorporated within the project design to mitigate any potential effects. In addition, further investigation of the location of PWS pipework and infrastructure, including identifying the source location for the Glenlee Kennels PWS, will be carried out prior to construction and micrositng of the BG Deviation infrastructure within the ILA will be undertaken where necessary to avoid damaging any PWS pipework/infrastructure.</p> <p>The minor watercourse which impinges on the proposed working area south of BG097 will either be avoided during micrositng or diverted around the working area to avoid potential pollution/silt entering the water environment.</p> <p>Dewatering and physical cut-offs will be avoided where possible and not undertaken close to water supplies and drainage measures will be designed to minimise the effect on the lowering of the groundwater table. Permanent physical cut-offs will be avoided.</p> <p><b>Operation</b></p> <p>No specific mitigation is proposed during operation.</p> <p><b>G-T</b></p> <p><b>Construction</b></p> <p>Parts of the KTR Project that are up-gradient of sensitive receptors (e.g. PWS, watercourses) have been identified based on analysis of flow paths and additional areas for SUDS will be incorporated within the project design to mitigate any potential effects. In addition, further investigation of the location of PWS pipework and infrastructure will be carried out prior to construction and micrositng of the G-T infrastructure within the ILA will be undertaken where necessary to avoid damaging any PWS pipework/infrastructure.</p> <p>Additional SUDS (e.g. silt fences, settlement ponds) will be put in place during the construction of Tower GT13 to reduce the risk of sediment/silt run-off to the nearby Knocknairling Burn watercourse.</p> <p>The timber extraction spur/timber stacking area south of Tower GT68 will be set back by at least 10m from the Kenick Burn and no working will be undertaken within 10m of the burn.</p> <p>Mitigation (including silt fences, settlement ponds, sensitive drainage design) will be put in place during the construction of the new access track between towers GT55 and GT58 where it runs parallel to two small watercourses. In places the access track is within 5m of the watercourse and the above mitigation measures will be required during construction to avoid pollution/siltation of the watercourses.</p> <p>A buffer of at least 25m from the Pultarson Burn will be maintained for the working quarry area at Hind Craig Quarry.</p> <p>The minor watercourses which impinge on the proposed working areas of Tower G86 and Construction Compound 3 will either be avoided during micrositng or diverted around the working area to avoid potential pollution/silt entering the water environment.</p> <p>The route of the culverted reach of the watercourse close to towers GT97, GT98 and GT99 will confirmed prior to construction and the towers will be micrositd to avoid the culvert, if necessary.</p> <p>Dewatering and physical cut-offs will be avoided where possible and not undertaken close to water supplies and drainage measures will be designed to minimise the effect on the</p>	<p>supply. Monitoring will be undertaken by an ECoW and monitoring locations will be identified in the CDEMP:</p> <ul style="list-style-type: none"><li>Glenlee PWS;</li><li>Airie Cottage PWS;</li><li>Darsalloch PWS;</li><li>Cullenoch PWS;</li><li>Bargatton PWS;</li><li>Parklea PWS; and</li><li>Babershall PWS (R route south).</li></ul> <p>If the water quality deteriorates during construction (e.g. discoloured, high sediment content, hydrocarbons) an emergency water supply will be installed at the PWS property, such as portable bowsers, to ensure minimal disruption of supply. The contractors will have an emergency supply of bowsers ready to deploy to impacted PWS, if required.</p> <p>Monitoring will be put in place to assess the quantitative and chemical effect of the infrastructure to ensure that the groundwater flow and quality to the two GWDTEs are not statistically significantly changed post construction. Monitoring will be carried out based on SEPA guidance and will comprise a representative number of hand-driven groundwater monitoring wells. Pre-construction monitoring will commence at least six months before construction commences. Monitoring reports will be prepared, and remedial actions identified if statistically significant changes to the groundwater flow or chemistries to sensitive receptors are identified.</p> <p>Monitoring of the excavation, appropriate storage and reuse of peat will be undertaken.</p> <p>Installation of temporary catch fences and the monitoring of ground conditions above Knocknairling Burn during construction of Access 40 (in relation to peat slide risk).</p> <p>An ECoW will be onsite throughout the construction to monitor the effectiveness of the SUDS and pollution control measures.</p>



Topic	Embedded Mitigation	Additional Mitigation	Monitoring
	<ul style="list-style-type: none"><li>• If necessary, a temporary culvert extending no more than 10m along the length of the river, burn or ditch may be installed to facilitate the works and any such culvert must be removed on completion of the works.</li><li>• All reasonable steps must be taken to ensure that the works do not result in increased erosion of the bed and banks.</li><li>• As far as reasonably practicable, within 12 months of the work starting, the bed and banks of the river, burn or ditch must be reinstated at least to their condition before the works started.</li><li>• As far as reasonably practicable, within 12 months of removal of a temporary bridge, the bed and banks must be reinstated at least to their condition before the works started.</li><li>• The activity must not result in pollution of the water environment.</li></ul> <p><b>General Binding Rule Nine (GBR9):</b> Operating any vehicle, plant or other equipment (machinery) in or near any surface water or wetland for the purpose of undertaking any other GBR activity.</p> <ul style="list-style-type: none"><li>• Machinery should only operate in water where it is impracticable for it to operate on dry land.</li><li>• Refuelling must take place at least 10m away from any surface water.</li><li>• Any static plant or equipment used within 10m of surface water must be positioned on a suitable drip tray with capacity for 110% of the fuel tank supplying the static plant or equipment.</li><li>• Machinery used in or near surface water must not leak any oil.</li><li>• Washing of any machinery must take place at least 10m away from any surface water and the washings must not be allowed to enter any surface water.</li><li>• Machinery must not be operated in rivers, burns and ditches when fish are likely to be spawning in the affected surface water, or in the period between spawning and the subsequent emergence of juvenile fish.</li><li>• Machinery must not be operated in rivers, burns and ditches if there is a reasonable likelihood that there are freshwater pearl mussels within 50m of such operation.</li><li>• Machinery must not be operated in rivers, burns and ditches during forestry operations.</li><li>• Following the operation of the machinery, any damage caused by the operation to the bed and banks of the surface water must be repaired, including re-establishing vegetation on any areas of bare earth on the banks resulting from the operation, either by covering the area with grass turfs or lining them with a biodegradable geotextile and seeding.</li></ul> <p>All other watercourse crossing structures that are either not on minor watercourses or covered under GBR6 will either require registration or a simple licence under CAR and will require specific mitigation measures. In general, SEPA recommends that bridging solutions or bottomless or arched culverts which do not affect the bed and banks of watercourses should be used. Fording will be avoided. Further guidance on the design and implementation of crossings can be found in SEPA (2010) Engineering in the Water Environment Good Practice Guide – River Crossings.</p> <p>Undergrounding the existing distribution lines requires crossing eight watercourses via either directional drilling or isolated open-cut techniques. Embedded mitigation measures to control sedimentation, erosion, pollution and accidental spillage will be put in place as described above for both techniques. Directional drilling techniques fall under general binding rules seven and nine (see GBR9 above) and do not require registration or licence under CAR, however the works must comply with the conditions of the GBR, as follows:</p> <p><b>General Binding Rule Seven (GBR7):</b> Pipeline or cable laying by boring underneath a watercourse.</p> <ul style="list-style-type: none"><li>• The works must not result in any alterations to the bed and banks of the watercourse, except as permitted in rule (b) and (d) below.</li><li>• Vegetation may be removed from the banks only if the works cannot otherwise be reasonably carried out.</li><li>• Vegetation that is removed must not be disposed of into the channel.</li><li>• As far as reasonably practicable, within 12 months of the works starting, the bed and banks must be reinstated at least to their condition before the works started.</li></ul>	<p>lowering of the groundwater table. Permanent physical cut-offs will be avoided with the exception of routeing groundwater flows around the proposed quarry areas.</p> <p>Additional mitigation measures to maintain baseline subsurface flows towards the GWDTE habitats identified around towers GT8 and GT10 will be put in place during construction. The mitigation will include excavated material during tower base construction to be replaced without compaction. In addition, the new temporary access track will be designed with suitable drainage under the track to ensure subsurface flows are maintained. Monitoring will be put in place to assess groundwater flow and quality to the GWDTEs, as per SEPA guidance. Details of proposed monitoring is described in the adjacent column.</p> <p>It is assumed that in most cases where deep peat (i.e. &gt;1m) is present that floated infrastructure will be used so that no peat will be excavated. Where deep peat is present and floated infrastructure is not possible then piled foundations will be used which will reduce the peat that will be excavated and eliminate the issues of peat reinstatement in very deep peat areas (i.e. &gt;2m). These construction methods will eliminate or substantially reduce the impact on deep peat.</p> <p>The construction effects on peat are direct loss due to peat excavation and indirect loss due to temporary infrastructure located on peat. The peat volumes are based on a worst-case scenario that assumes that all of the peat is excavated, where present, in the construction of widening existing tracks, new temporary track, construction compounds, quarries and working areas. All temporary sections of infrastructure located on peat will however be reinstated with excavated peat at the earliest opportunity and the excess peat in areas where foundations are permanent will be reinstated in the Craigelwhan West Quarry to extend the peat habitat that currently is present. There will therefore be a net balance of excavated and re-used peat on this connection.</p> <p>Any excavated peat will be stored appropriately nearby and re-used as soon as possible for reinstatement. Further ground investigation should be undertaken for the foundation and temporary track locations to determine the most suitable foundation and temporary track type so that the volumes of excavated peat can be reduced further.</p> <p>Review of the depth of peat in this area and consideration of the factors driving the Moderate likelihood of failure indicate that landslide likelihood will be reduced to Low through good engineering practice, primarily through careful drainage management, work phasing (e.g. working downslope if excavating or upslope if floating tracks) and installation of temporary catch-fences at the toe of the slope during construction.</p> <p><b>Removal of Existing R Route (south) 132kV Overhead Line</b></p> <p>Additional SUDS and pollution control mitigation will be put in place during construction of temporary watercourse and marsh crossings and during removal of Tower R94 close to Babershall PWS. Monitoring of the Babershall PWS during tower removal will be undertaken, with an emergency supply of temporary bowzers of tanks in place and ready to be brought in if the supply becomes contaminated.</p> <p>The following mitigation will be put in place at sensitive areas, including marsh/watercourse crossings as follows:</p> <ul style="list-style-type: none"><li>• Towers R58 to R60: the area is marshland and traversed by small watercourses and there are no formal crossings. Temporary roads and crossings will be necessary to pass through this area. Ground investigation and reconnaissance on foot prior to vehicular access will be undertaken.</li><li>• Towers R63 to R64: requires crossing two watercourses at existing ford crossing locations (on farm tracks). Temporary crossings are recommended in these locations to mitigate against the risk of erosion, as fording is not recommended. There are also some small areas of marshland after crossing the watercourses. Temporary crossings/roads will be used in these areas. There is also an area of wet ground/ marshy area on the access to R64 which will be avoided if possible.</li><li>• Towers R69 to R71: will require temporary crossings at three watercourse crossings; all of which are existing fords. While there are some areas of marsh nearby, most of these will be avoidable if the existing farm track is followed.</li><li>• Towers R75 and R76: there is an existing watercourse crossing allowing access to R75 and R76. Existing farm tracks will be followed where possible as there were some short stretches of marshland. Temporary roads/crossings may be required in these areas, where applicable.</li><li>• Tower R81: access to R81 will require a temporary crossing over a small unnamed watercourse.</li><li>• Tower R83: there is currently a ford crossing across the watercourse. Ideally, a new temporary crossing will be required in this location.</li></ul>	



Topic	Embedded Mitigation	Additional Mitigation	Monitoring
	<p>Isolated open-cut techniques require a trench to be excavated across the bed of the watercourse and the area of working to be isolated (kept dry) using methods involving over-pumping and gravity fed pipes. Isolated open-cut will require registration under CAR and the contractor will adhere to the following:</p> <ul style="list-style-type: none"> <li>The pipeline or cable will be laid beneath the existing bed of the watercourse.</li> <li>The bed and banks of the watercourse shall be re-established to at least their condition prior to the commencement of the activity.</li> <li>The activity will not be undertaken during periods in which fish are likely to be spawning in the watercourse nor in the period between any such spawning and the subsequent emergence of the juvenile fish.</li> </ul> <p><b>Peat Management</b></p> <p>An Outline Peat Management Plan is provided as <b>Appendix 9.5</b> of the EIA Report. This sets out a number of measures in relation to the management of peat during construction, including in relation to peat excavation, temporary storage, and the reuse of peat:</p> <ul style="list-style-type: none"> <li>Disturbance of peat during construction of all infrastructure will be minimised as far as practicably possible, taking into account other known constraints, to reduce peat excavation volumes, minimize any peat waste, and minimise potential carbon losses from the peat excavation process.</li> <li>As far as possible, appropriate handling and storage of excavated peat materials will be undertaken such that their integrity and subsequent reuse is not jeopardised.</li> <li>Therefore, the ECoW will work with the site with engineers before construction commences to identify areas of sensitive habitat where impact can be reduced by minor movement of infrastructure within the Infrastructure Location Allowance (ILA). The ECoW will also ensure that any microsinning within the ILA does not lead to movements into more sensitive habitats.</li> <li>Further measures to minimise peat disturbance will be incorporated where possible. The following principles will be adhered to: avoid and/or minimise production of excavated peat; reuse, where possible, excavated peat in restoration of temporary works, in landscaping and re-profiling works, to minimise visual impacts and facilitate habitat, ecological and hydrogeological restoration, improvement and enhancement; and avoid waste peat being sent for disposal, recovery and/or reuse offsite.</li> <li>All contractors will be made aware of the sensitivity of peat and wetland habitats and the ECoW will clearly mark sensitive habitats near to construction areas.</li> <li>Contractors will be required to work within the narrowest practical construction corridor when working in or near areas of peat.</li> <li>In most cases where deep peat is present floated infrastructure will be used so that no peat will be excavated. Where deep peat is present and floated infrastructure is not possible then piled foundations will be used which will reduce the peat that will be excavated and eliminate the issues of peat reinstatement in very deep peat areas. These construction methods will eliminate or substantially reduce the impact on deep peat.</li> </ul>	<ul style="list-style-type: none"> <li>Tower R100A: there is no route to access this tower without crossing marshland. It will be necessary to choose a route across the marshland using temporary crossings, based on ground inspections prior to the works.</li> <li>Tower R112: access is not possible without the use of temporary crossings. The surrounding area is marshy and a number of water features drain this boggy area. There is a poorly maintained existing crossing on the proposed route, but this has subsided and is now only around 1.2m in width and a second crossing would also be required to reach the tower. The majority of the area is marshy meaning temporary roads/crossings will be required to minimise the impact on this area. The exact route and need for temporary crossings should be based on ground inspections prior to the works.</li> </ul> <p>Removal works will not take place at towers 31R-36R and towers 98R-101R when the river is in flood. The contractor will sign up to SEPA Floodline which provides advance warning for flooding in the Dumfries and Galloway, including the Water of Ken/River Dee.</p> <p>Additional pollution control measures will be put in place during the removal of Towers 99R to 100AR, as these are located within the Loch Ken and River Dee Marshes Special Protection Area (SPA) and Wetlands of International Importance (RAMSAR) site. Towers 98R and 101R are located just outside the designated site and will also require additional mitigation to ensure no impacts to the designated sites. Discussions with SNH will take place to plan appropriate mitigation for the removal of the towers within and close to the designated site and timing of the removal will be scheduled to avoid any effects on the SPA interest for birds.</p> <p><b>Operation</b></p> <p>No specific mitigation is proposed during operation.</p>	
Ecology (Chapter 10)	<p>The following measures are part of the embedded mitigation of the KTR Project:</p> <ul style="list-style-type: none"> <li>Adherence to Guidelines on Pollution Prevention (GPPs), which will significantly reduce the likelihood and severity of pollution events.</li> <li>The application of appropriate buffers around watercourses, which will protect riparian habitat while reducing disturbance and the likelihood of pollution events. This, together with adherence to GPPs, will also address any biosecurity concerns around aquatic invasive non-native species, such as North American Signal Crayfish (NASC).</li> <li>The adoption of the Forest Design Concept (FDC), detailed in <b>Appendix 5.1</b> in determining future landscaping of both wayleave and, where possible, windthrow areas. The FDC includes a decision flow chart that allows the development of species-specific restoration/enhancement planting in areas of highest ecological importance. While it will not be possible to vegetate the entire wayleave, for technical reasons, the FDC introduces the concept of a 'wildlife bridge' which will allow the re-connection of several habitats in key locations, for example where evidence of red squirrel or pine marten has been recorded.</li> <li>The development and application of a CDEMP will set out guidance on compliance with nature conservation legislation and policy.</li> <li>The use of temporary roads and bog matting where appropriate, particularly peatland habitats.</li> </ul>	<p><b>General Site-Wide Mitigation</b></p> <p>Preparation of Species Protection Plans for felling and construction phases, as part of the Project's wider CDEMP. The Species Protection plans will set out measures to protect all species covered by legislation in the UK.</p> <p>An ECoW will be present during all operations to provide ongoing support and monitoring. The ECoW role will be developed in accordance with current good practice guidelines.</p> <p><b>P-G via K</b></p> <p><b>Designated Sites</b></p> <ul style="list-style-type: none"> <li>Vegetation removal will be limited to trees. Shrub and field layers will be retained.</li> </ul> <p><b>Habitats</b></p> <ul style="list-style-type: none"> <li>Application of the FDC in identifying areas in the wayleave where replanting can achieve biodiverse mixed scrub/woodland through the re-planting of connecting wildlife bridges (see <b>Appendix 5.1</b>).</li> </ul> <p><b>Pine Marten and Red Squirrel</b></p> <ul style="list-style-type: none"> <li>Pre-construction surveys, no more than six months prior to felling, to identify changes in baseline. To be carried out as part of the ECoW role.</li> </ul>	<p><b>KTR Project as a Whole</b></p> <p>Monitoring will include pre-construction surveys. These will form part of the ECoW role, which will be appointed and developed at an early stage and in consultation with relevant stakeholders. Additionally, the ECoW will be responsible for ongoing monitoring during construction, to support and report on compliance with mitigation measures and legislative compliance.</p>

Topic	Embedded Mitigation	Additional Mitigation	Monitoring
	<ul style="list-style-type: none"><li>The appointment of an ECoW to advise, monitor and report on compliance with relevant legislation policy and project specific mitigation during construction.</li></ul>	<ul style="list-style-type: none"><li>Species licensing route where surveys suggest presence of resting sites.</li><li>Sensitive timing of felling works to avoid breeding season (March to July).</li><li>Replacement habitat in the form of pine marten den boxes (and ongoing maintenance). Total number to be determined by pre-construction surveys.</li><li>Toolbox talks for all site contractors.</li></ul> <p><b>Badger</b></p> <ul style="list-style-type: none"><li>Retention of shrub and field layer structure within 'location 2' where possible.</li><li>Pre-construction surveys, no more than six months prior to felling, to identify changes in baseline (part of the ECoW role).</li><li>Species licensing route (and full sett closure ahead of works). This approach may require the construction of new setts.</li><li>Sensitive timing of works to avoid breeding season (November to June).</li><li>Toolbox talks for all site contractors.</li><li>Adoption of FDC principles in 'location 2' through future discussions with landowner (see <b>Appendix 5.1</b>).</li></ul> <p><b>Bats</b></p> <ul style="list-style-type: none"><li>Retention of all trees with bat roosting potential (BRP) where possible.</li><li>Pre-construction surveys, no more than six months prior to felling, to identify changes in baseline. Surveys may include climb-and-inspect approach or activity surveys on individual trees. To be carried out as part of the ECoW role.</li><li>Sensitive timing of felling works to avoid breeding season (April to September).</li><li>Installation (and ongoing maintenance) of bat roosting boxes. Total number to be determined by detailed pre-construction surveys.</li><li>Toolbox talks for all site contractors.</li></ul> <p><b>C-K</b></p> <p><b>Pine Marten and Red Squirrel</b></p> <ul style="list-style-type: none"><li>Pre-construction surveys, no more than 6 months prior to felling, to identify changes in baseline (part of ECoW role).</li><li>Species licensing route where surveys suggest presence of resting sites.</li><li>Sensitive timing of felling works to avoid breeding season (March to July).</li><li>Replacement habitat in the form of pine marten den boxes (and ongoing maintenance). Total number to be determined by pre-construction surveys.</li><li>Toolbox talks for all site contractors.</li></ul> <p><b>Bats</b></p> <ul style="list-style-type: none"><li>Retention of trees with BRP where possible.</li><li>Pre-construction surveys, no more than six months prior to felling, to identify changes in baseline. Surveys may include climb-and-inspect approach or activity surveys of individual trees. To be carried out as part of ECoW role.</li><li>Sensitive timing of felling works to avoid breeding season (April to September)</li><li>Installation (and ongoing maintenance) of bat roosting boxes. Total number to be determined by detailed pre-construction surveys.</li><li>Toolbox talk for all site contractors.</li></ul> <p><b>E-G</b></p> <p><b>Designated Sites</b></p> <ul style="list-style-type: none"><li>Vegetation removal will be limited to trees. Shrub and field layers will be retained.</li></ul> <p><b>Badger</b></p> <ul style="list-style-type: none"><li>Retention of shrub and field layer structure within 'location 2' where possible.</li><li>Pre-construction surveys, no more than six months prior to felling, to identify changes in baseline to be carried out as part of the ECoW role.</li></ul>	

Topic	Embedded Mitigation	Additional Mitigation	Monitoring
		<ul style="list-style-type: none"> <li>Species licensing route (and full sett closure ahead of works). This approach may require the construction of new setts.</li> <li>Sensitive timing of works to avoid breeding season (November to June).</li> <li>Toolbox talks for all site contractors.</li> </ul> <p><b>Bats</b></p> <ul style="list-style-type: none"> <li>Retention of trees with BRP where possible.</li> <li>Pre-construction surveys, no more than six months prior to felling, to identify changes in baseline. Surveys may include climb-and-inspect approach or activity surveys of individual trees. To be carried out as part of ECoW role.</li> <li>Sensitive timing of felling works to avoid breeding season (April to September).</li> <li>Installation (and ongoing maintenance) of bat roosting boxes. Total number to be determined by detailed pre-construction surveys.</li> <li>Toolbox talk for all site contractors.</li> </ul> <p><b>BG Deviation</b></p> <p>No additional mitigation measures are proposed.</p> <p><b>G-T</b></p> <p><b>Designated Sites</b></p> <ul style="list-style-type: none"> <li>Vegetation removal will be limited to trees. Shrub and field layers will be retained.</li> </ul> <p><b>Pine Marten and Red Squirrel</b></p> <ul style="list-style-type: none"> <li>Pre-construction surveys, no more than six months prior to felling, to identify changes in baseline. To be carried out as part of the ECoW role.</li> <li>Species licensing route where surveys suggest presence of resting sites.</li> <li>Sensitive timing of felling works to avoid breeding season (March to July).</li> <li>Replacement habitat in form of pine marten den boxes (and ongoing maintenance). Total number to be determined by pre-construction surveys.</li> <li>Adoption of FDC principles to create 'wildlife bridges' during restoration works.</li> <li>Toolbox talks for all site contractors.</li> </ul> <p><b>Badger</b></p> <ul style="list-style-type: none"> <li>Pre-construction surveys, no more than six months prior to felling, to identify changes in baseline (part of the ECoW role).</li> <li>Retention of shrub and field layer vegetation around retained setts where possible.</li> <li>Species licensing route (and full sett closure ahead of works). This approach may require the construction of new setts in appropriate locations.</li> <li>Sensitive timing of works to avoid breeding season (November to June).</li> <li>Toolbox talks for all site contractors.</li> </ul> <p><b>Bats</b></p> <ul style="list-style-type: none"> <li>Retention of all trees with BRP where possible.</li> <li>Pre-construction surveys, no more than six months prior to felling, to identify changes in baseline. Surveys may include climb-and-inspect approach or activity surveys on individual trees. To be carried out as part of the ECoW role.</li> <li>Sensitive timing of felling works to avoid breeding season (April to September).</li> <li>Installation (and ongoing maintenance) of bat roosting boxes. Total number to be determined by detailed pre-construction surveys.</li> <li>Toolbox talks for all site contractors.</li> </ul>	
Ornithology (Chapter 11)	<p>To conform with the Wildlife and Countryside Act 1981 (WCA), surveys within a 500m buffer to locate nests of birds listed in Schedule 1 of the WCA and Annex 1 of the Birds Directive will be undertaken prior to forestry and construction operations during the breeding period as part of a Birds Protection Plan which will be overseen by an ECoW.</p> <p>To complement this, surveys of roosts of birds within a 500m buffer listed on Schedule 1A of the WCA will be undertaken during the non-breeding period. If it is judged that these activities are likely to disturb breeding attempts or roosting behaviour then appropriate</p>	No additional mitigation measures are proposed.	<p><b>G-T (and KTR as a Whole)</b></p> <p>Enhancement of the wayleave corridor outlined in <b>Appendix 5.1</b> includes habitat enhancement suitable for nightjar, which should increase their foraging habitat in an area beyond the current Forestry and Land Scotland (FLS) core nightjar management area.</p>

Topic	Embedded Mitigation	Additional Mitigation	Monitoring
	<p>exclusion zones or other mitigation procedures will be agreed with SNH prior to recommencing works. This will also apply for decommissioning operations on the N and R routes to be removed.</p> <p>All nests of species listed on Schedule 1 and Annex 1, and other bird species of NCI will be identified and protected from disturbance during the construction and decommissioning period.</p> <p>To avoid disturbances to geese (Greenland white-fronted goose and greylag goose) which are qualifying interests of the Loch Ken and River Dee Marshes SPA (and Ramsar site), any decommissioning activities within the SPA (and Ramsar site) and a 500m buffer will occur outside of the months when the qualifying species are present. There are 13 towers of the existing R route (south) located within 500m of the LKRDM (SPA and Ramsar), towers 46-48 and towers 95 to 103 (of which towers 99, 100 and 100A are within the SPA (and the component Parton to Crossmichael SSSI). These towers will be removed between 1<sup>st</sup> August and 15<sup>th</sup> October, commencing with towers 99, 100 and 100A.</p> <p>For golden eagle, no construction activity will be undertaken within 1.5km of the active nesting site during January to September.</p> <p>As part of the embedded mitigation for nightjar, all construction within the core nightjar management area on the G-T connection, defined by FLS, will be avoided between May and September when nightjar are present.</p> <p>Standard forestry guidance will be followed in the case of tree felling operations.</p>		<p>The Dumfries and Galloway Nightjar Group will continue to monitor nightjar populations in the core management area. SPEN will discuss with the group an approach where they can pass the results to SPEN.</p> <p>A programme of monitoring will also be discussed with SNH, FLS and the Royal Society for the Protection of Birds (RSPB) for the nightjar in the core management area post construction where their use of the area will be investigated.</p>
Cultural Heritage (Chapter 12)	<p>All works will be conducted by a professional archaeological organisation (ACoW), and the scope of works will be detailed in on or more Written Scheme(s) of Investigation (WSI) developed in consultation (subject to agreement) with the Dumfries and Galloway Council Archaeology Service (DGCAS), acting on behalf of the council.</p> <p><b>Preservation in Situ</b></p> <p>Final tower positions and access tracks, which lie in close proximity to heritage assets will be micrositied where possible away from the heritage assets in their vicinity.</p> <p>The locations of construction working areas, ground-breaking works are proposed tower locations, proposed access track routes, at proposed quarry areas and compound areas will be designed to avoid known cultural heritage assets as far reasonably practicable. Procedures will include the exclusion of heritage assets from working areas and avoidance of assets when preparing detailed designs for access routes for construction areas. Where possible the following heritage assets will be marked off and avoided for the duration of the construction works: Assets 4, 19, 21, 31b, 33, 55, 56, 58, 59, 76, 84, 106, 121, 123, 126, 132, 134, 168, 171, 204 and 211.</p> <p>Locations where there are known to be visible archaeological remains, will not be used for storage of materials, timber stacking or as parking areas for vehicles or machinery.</p> <p>Where linear heritage assets survive as upstanding built features (principally field banks and drystone walls), access tracks will be routed through any existing gates or through broken or less well-preserved sections of banks or walls wherever possible.</p> <p>Where breaches of existing drystone wall cannot be avoided, these will be reinstated or consolidated, as appropriate, by a professional drystone wall builder upon completion of the construction works. Disturbance to the following heritage assets (i.e. field banks, field walls and trackways) will be kept to a minimum: Assets 2, 5, 15, 20, 22, 31, 32, 45, 47, 49, 50, 61, 84, 89, 91, 92, 94, 95, 101, 104, 106, 111, 132, 136, 140, 142, 169 and 179.</p> <p>Where sensitive heritage assets survive in areas proposed for felling, tree felling will be carried out by hand to avoid disturbance to the heritage assets: including Assets 21, 37, 87 and 106.</p> <p>Application for Listed Building Consent will be sought from DGC prior to any upgrading works of Category B Listed Polharrow Bridge (37) to facilitate its use for access during the construction of the P-G connection.</p> <p><b>Additional Field Survey</b></p> <p>Where it has not been possible to conduct detailed walkover surveys in sensitive areas, an additional phase of pre-construction survey will be carried out in sensitive areas.</p> <p>The locations where additional survey effort will be required are identified in the relevant route alignment sections.</p> <p>.Where dense vegetation and commercial forestry plantation hampered initial field survey post-felling survey will be carried out to record the absence/presence and current baseline condition of the following heritage assets: Assets 3, 96, 97, 99, 102 and 113.</p> <p><b>Archaeological Investigations (Watching Brief(s)/Excavations)</b></p>	<p><b>P-G via K</b></p> <p><b>Construction</b></p> <p><b>Preservation in situ</b></p> <p>If remains of the former hay ree (3) are identified following post-felling survey these will be marked off and avoided for the duration of the construction period.</p> <p><b>Additional Field Survey</b></p> <p>Pre-construction walkover surveys will be carried out in the following areas:</p> <ul style="list-style-type: none"><li>• Within the ILA between Towers 13-14 and Towers 58-60 which could not be accessed during the field survey;</li><li>• Within the ILA between Towers 10-18 and Towers 21-32 where previous survey was hampered by high bracken;</li><li>• Within the ILA between Towers 2-3, Towers 21-23 and Towers 24-26 which, following a design iteration fall outwith the area covered by the field survey;</li><li>• Along the route of the existing 11kV OHL that is to be removed as part of the development where the OHL route falls outwith the Field Survey Area;</li><li>• Along small sections of proposed new access track routes that lie outwith the Field Survey Area; and</li><li>• Targeted field survey of specific locations for upgrading works along the existing tracks once these are known.</li></ul> <p>The objectives of these field surveys will be to provide information on the presence / absence, character and condition of the cultural heritage assets recorded from desk-based resources and to inform further mitigation measures, if required, to mitigate any predicted significant adverse effects on these assets.</p> <p>No field survey is recommended for the proposed Compound Area 1 which is located within an arable field and there are no heritage sites recorded in this area, or for the proposed Compound Area 2 which will utilise a former quarry (23a) recorded through the field survey and no further recording of this asset is recommended.</p> <p>Proposed Quarry Area 1 is located within an area of commercial forestry and taking into account the effects of pre-forestry ploughing, drainage and planting activities, the likelihood of any previously unrecorded heritage assets surviving undisturbed in this area is negligible and no further field survey of this Quarry Area is recommended.</p> <p><b>Archaeological Investigations (Watching Brief(s) / Excavations)</b></p> <p>The scope of any watching brief(s) will be agreed in advance of development with the DGCAS and set out in the WSI(s). Various elements of the P-G via K connection cross or pass close to a number of areas of potential high sensitivity for buried remains, and in order to ensure that any surviving buried remains are properly identified, and recorded watching briefs will be carried out at the following locations:</p>	<p><b>KTR Project as a Whole</b></p> <p>No further survey or monitoring is proposed beyond the measures outlined in the adjacent columns.</p>



Topic	Embedded Mitigation	Additional Mitigation	Monitoring
	<p>Where upstanding heritage assets, or areas of identified sensitivity, cannot be avoided during construction, the assets or the sensitive areas will be investigated archaeologically prior to construction works being carried out, to a specification and standard to be agreed in writing with Dumfries and Galloway Council (D&amp;GC). Specific locations where further archaeological investigations will be required are identified in the relevant route alignment sections.</p> <p>Various elements of the KTR Project cross or pass close to a number of areas of potential high sensitivity for buried remains, and in order to ensure that any surviving buried remains are properly identified, and recorded watching briefs will be carried out at the following locations:</p> <ul style="list-style-type: none"> <li>Find spots (7, 159 and 182);</li> <li>Farmstead (21);</li> <li>Site of former building (38);</li> <li>Stroan Township (106);</li> <li>Burnt mound (126);</li> <li>Site of cairn (190); and</li> <li>Park of Tongland Stone Circle (192 – SM1039).</li> </ul> <p>The Scope of any watching brief (s) will be agreed in advance of development with DGCAS and set out in the WSI(s) for the relevant route section.</p> <p><b>Construction Guidelines</b></p> <p>Written guidelines will be issued for use by all construction contractors, outlining the need to avoid causing unnecessary damage to known heritage assets. These will be contained within the CDEMP and 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. The guidance will make clear the legal responsibilities placed upon those who disturb artefacts or human remains.</p> <p>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 to be passed onto the ACoW for further assessment. Any discoveries made me require further mitigation. The scope of which will be agreed in consultation with the DGCAS.</p> <p><b>Post Excavation</b></p> <p>If notable new discoveries are made during archaeological investigations, such as during archaeological watching briefs and/or excavations, provision will be made for post excavation processing, analysis and reporting on the findings of the archaeological work. Any finds of artefacts will be subject to the Scots laws of Treasure Trove and Bona Vacantia and will be reported to the Crown Agent for disposal/allocation to a museum; appropriate conservation of artefacts will take place before deposition. The results of the work will be published in an academic journal/public forum where appropriate and widely disseminated. Archiving of the results of the work, including disposal of artefacts, will be carried out in line with Historic Environment Scotland (HES) standards and Chartered Institute for Archaeologists (CIFA) Guidelines.</p>	<ul style="list-style-type: none"> <li>Findspots (7 and 182);</li> <li>Former Farmstead (21); and,</li> <li>Site of former building (38).</li> </ul> <p>If significant discoveries are made during archaeological investigations provision will be made for the excavation, where necessary, of any archaeological remains encountered. The mitigation works will include the consequent production of written reports on the findings of the archaeological work conducted, with post-excavation analyses, publication and archiving of the results of the work where appropriate</p> <p><b>C-K</b></p> <p><b>Construction</b></p> <p><b><i>Additional Field Survey</i></b></p> <p>Pre-construction walkover survey will be carried out in the following areas:</p> <ul style="list-style-type: none"> <li>Within the ILA between Wood Poles R003R-R008R, R010R-R012R and R014R-R023R where previous survey was hampered by high bracken;</li> <li>Along small sections of proposed new access track routes that lie outwith the Field Survey Area; and,</li> <li>Targeted field survey of specific locations for upgrading works along the existing tracks once these are known.</li> </ul> <p>The objectives of these field surveys will be to provide information on the presence / absence, character and condition of the cultural heritage assets recorded from desk-based resources and to inform further mitigation measures, if required, to mitigate any predicted significant adverse effects on these assets.</p> <p><b><i>Archaeological Investigations (Watching Brief(s) / Excavations)</i></b></p> <p>The scope of any watching brief(s) will be agreed in advance of development with the DGCAS and set out in the WSI(s). Various elements of the C-K connection cross or pass close to a number of areas of potential high sensitivity for buried remains, and in order to ensure that any surviving buried remains are properly identified, and recorded watching briefs will be carried out at the following locations:</p> <ul style="list-style-type: none"> <li>Findspot (7); and,</li> <li>Former Farmstead (21).</li> </ul> <p>If significant discoveries are made during archaeological investigations provision will be made for the excavation, where necessary, of any archaeological remains encountered. The mitigation works will include the consequent production of written reports on the findings of the archaeological work conducted, with post-excavation analyses, publication and archiving of the results of the work where appropriate</p> <p><b>E-G</b></p> <p><b>Construction</b></p> <p><b><i>Additional Field Survey</i></b></p> <p>Pre-construction walkover surveys will be carried out in the following areas:</p> <ul style="list-style-type: none"> <li>Within the ILA between Wood Poles EG0012-EG006 which, following a design iteration fall outwith the area covered by the field survey;</li> <li>Along small sections of proposed new access track routes that lie outwith the Field Survey Area; and,</li> <li>Targeted field survey of specific locations for upgrading works along the existing tracks once these are known.</li> </ul> <p>The objective of these field surveys will be to provide information on the presence / absence, character and condition of the cultural heritage assets recorded from desk-based resources and to inform further mitigation measures, if required, to mitigate any predicted significant adverse effects on these assets.</p> <p><b><i>Archaeological Investigations (Watching Brief(s) / Excavations)</i></b></p> <p>One area of archaeological sensitivity has been identified that requires further archaeological investigation, a possible bloomery / metal working site (66). A grid of hand-dug test-pits will be excavated across the area around the possible bloomery in order to establish if any remains survive and to record the possible extent of the site. Its presence should be detectable through spreads of iron slag and / or charcoal within the topsoil and any buried soil deposits. If metal slag or any other archaeological material is</p>	

Topic	Embedded Mitigation	Additional Mitigation	Monitoring
		<p>recovered during test pitting, rapid analysis of the material will be carried out to confirm the type of activities that have taken place and the potential (broad) date of the site. Provision will then be made, through consultation with the DGCAS, for further excavation, sampling and analysis of significant deposits encountered.</p> <p>The scope of any watching brief will be agreed in advance of development with DGCAS and set out in the WSI(s). Various elements of the E-G connection cross or pass close to a number of areas of potential high sensitivity for buried remains, and in order to ensure that any surviving buried remains are properly identified, and recorded watching briefs will be carried out at the following locations:</p> <ul style="list-style-type: none"><li>Findspot (182)</li></ul> <p>If significant discoveries are made during archaeological investigations, provision will be made for the excavation, where necessary, of any archaeological remains encountered. The mitigation works will include the consequent production of written reports on the findings of the archaeological work conducted, with post-excavation analyses, publication and archiving of the results of the work where appropriate.</p> <p><b>BG Deviation</b></p> <p><b>Construction</b></p> <p><b><i>Archaeological Investigations (Watching Brief(s) / Excavations)</i></b></p> <p>One area of archaeological sensitivity has been identified that requires further archaeological investigation, a possible bloomery / metal working site (66). A grid of hand-dug test-pits will be excavated across the area around the possible bloomery in order to establish if any remains survive and to record the possible extent of the site. Its presence should be detectable through spreads of iron slag and / or charcoal within the topsoil and any buried soil deposits. If metal slag or any other archaeological material is recovered during test pitting, rapid analysis of the material will be carried out to confirm the type of activities that have taken place and the potential (broad) date of the site. Provision will then be made, through consultation with the DGCAS, for further excavation, sampling and analysis of significant deposits encountered.</p> <p><b>G-T</b></p> <p><b>Construction</b></p> <p><b><i>Preservation in situ</i></b></p> <p>If remains of a former enclosure (96), three field systems (97, 99 and 102) and field boundary (113 are identified following post-felling survey these will be marked off and avoided for the duration of the construction period.</p> <p><b><i>Additional Field Survey</i></b></p> <p>Pre-construction walkover surveys will be carried out in the following areas:</p> <ul style="list-style-type: none"><li>Within the ILA between Towers 11-14, Towers 53-54, Towers 94-97 and Towers 100-101 which, following a design iteration fall ouwith the area covered by the field survey;</li><li>Along small sections of proposed new access track routes that lie outwith the Field Survey Area;</li><li>Within the proposed Quarry Areas 2 and 4, which lie within areas of rough moorland and which were not covered by the field survey; and,</li><li>Targeted field survey of specific locations for upgrading works along the existing tracks once these are known.</li></ul> <p>The objectives of these field surveys will be to provide information on the presence / absence, character and condition of the cultural heritage assets recorded from desk-based resources and to inform further mitigation measures, if required, to mitigate any predicted significant adverse effects on these assets.</p> <p>Other areas that lie outwith the area covered by the field survey, between Towers 18-27, 32-34 and 46-49, lie in areas of commercial forestry and no known heritage assets are recorded in these areas. Taking into account the effects of pre-forestry ploughing, drainage and planting activities, the likelihood of any previously unrecorded heritage assets surviving undisturbed in these areas is negligible and no further field survey in these locations is recommended.</p> <p>No field survey is recommended for the Proposed Compound Areas 3-6 and Quarry Areas 3 and 5-7 that lie outwith the Field Survey Area.</p> <ul style="list-style-type: none"><li>Proposed Compounds 3 and 4, and Quarry Areas 3 and 5-7 are all located in areas of commercial forestry. Taking into account the effects of pre-forestry ploughing,</li></ul>	



Topic	Embedded Mitigation	Additional Mitigation	Monitoring
		<p>drainage and planting activities, the likelihood of any previously unrecorded heritage assets surviving undisturbed in these areas is negligible and no further field survey is recommended in these locations.</p> <ul style="list-style-type: none"><li>Proposed Compound Areas 5 and 6 will be located within modern quarries and there are no heritage sites recorded in these areas there no field survey of the Compound locations is recommended.</li></ul> <p><b>Archaeological Investigations (Watching Briefs(s) / Excavations</b></p> <p>One area of archaeological sensitivity has been identified that requires further archaeological investigation, a possible bloomery / metal working site (66). A grid of hand-dug test-pits will be excavated across the area around the possible bloomery in order to establish if any remains survive and to record the possible extent of the site. Its presence should be detectable through spreads of iron slag and / or charcoal within the topsoil and any buried soil deposits. If metal slag or any other archaeological material is recovered during test pitting, rapid analysis of the material will be carried out to confirm the type of activities that have taken place and the potential (broad) date of the site. Provision will then be made, through consultation with the DGCAS, for further excavation, sampling and analysis of significant deposits encountered.</p> <p>The Scope of any watching brief(s) will be agreed in advance of development with the DGCAS and set out in the WSI(s). Various elements of the G-T connection crosses or passes close to a number of areas of potential high sensitivity for buried remains, and in order to ensure that any surviving buried remains are properly identified, and recorded watching briefs will be carried out at the following locations:</p> <ul style="list-style-type: none"><li>Stroan Township (106);</li><li>Burnt mound (126);</li><li>Findspot (159);</li><li>Site of burial cairn (190); and,</li><li>Park of Tongland Stone Circle (192).</li></ul> <p>If significant discoveries are made during archaeological investigations provision will be made for the excavation, where necessary, of any archaeological remains encountered. The mitigation works will include the consequent production of written reports on the findings of the archaeological work conducted, with post-excavation analyses, publication and archiving of the results of the work where appropriate</p>	
Traffic and Transport (Chapter 13)	<p><b>Construction Traffic Management Plan (CTMP)</b></p> <p>The temporary effects of felling and construction (whether assessed as significant or otherwise) will be mitigated through adoption of a regulated and approved CTMP. A framework CTMP is provided in <b>Appendix 13.1: Framework Construction Traffic Management Plan</b> and the assessment has been undertaken on the assumption that this, and the embedded measures set out within it, will be in place.</p> <p>SPEN will agree temporary traffic management measures then adopt and monitor an appropriate way of working in consultation with D&amp;GC Roads Department, Ayrshire Roads Alliance, Transport Scotland and/or their Agent and the Police as appropriate. Felling and construction activity generated vehicles (with the exception of site personnel in cars and vans) will travel on pre-defined routes to and from the relevant sites to reduce effects on existing local traffic.</p> <p>Timing and frequency of vehicle movements will be managed to ensure, where practical, that vehicle movements are spaced adequately to reduce disruption and coincide (if/where applicable) with existing/current local forestry operations.</p> <p>The framework CTMP has been developed in consultation with relevant Roads Authorities and will be further developed as necessary in consultation with Roads Authorities and the Police prior to construction commencing. The CTMP will document outline measures to promote the efficient transportation of components and materials to site, whilst reducing congestion and disruption which might impact negatively on local communities or general traffic and in particular the emergency services. The CTMP should be considered a 'live' document that includes:</p> <ul style="list-style-type: none"><li>a programme of delivery types/numbers by month;</li><li>a statement of which public roads are to be used by felling and construction traffic;</li><li>a statement of which public roads are not to be used by felling and construction traffic;</li><li>a statement of which local towns and villages are to be avoided (completely or on stated days and times);</li></ul>	<p><b>KTR Project as a Whole</b></p> <p>If another development, such as the wind farms considered in the cumulative assessment appears likely to undergo construction at the same time as the KTR Project, SPEN will liaise with the other developer regarding the scheduling of deliveries and potential means of reducing the impact of combined construction.</p> <p><b>P-G via K</b></p> <p>No additional mitigation is proposed.</p> <p><b>C-K</b></p> <p>No additional mitigation is proposed.</p> <p><b>E-G</b></p> <p>No additional mitigation is proposed.</p> <p><b>BG Deviation</b></p> <p>Localised widening of strategic sections of the U3s (between the A712 and worksite access reference 37) will be implemented to ease access to the worksites for HGV construction traffic and general traffic sharing this route section notably including upgraded passing places.</p> <p><b>G-T</b></p> <p>Localised widening of strategic sections of C45s, C13s, U3s (between the junction of the A712 and worksite access reference 37) and U43s will be implemented to ease access to the worksites for HGV construction traffic and general traffic sharing these route sections notably including upgraded passing places.</p>	<p><b>KTR Project as a Whole</b></p> <p>The requirement for construction monitoring will be agreed with SPEN, Roads Authority representatives and other relevant stakeholders prior to commencement of works.</p> <p>If deemed necessary, SPEN will enter into a legal agreement under Section 96 of the Roads (Scotland) Act 1984 to formalise an inspection and maintenance regime with the Roads Authority to contribute to maintenance of those roads impacted by HGV movements.</p>

Topic	Embedded Mitigation	Additional Mitigation	Monitoring
	<ul style="list-style-type: none"> <li>details of all proposed mitigation measures, list of contacts, and details of measures that will be implemented to limit the potential of vehicle stacking on any part of the public road network;</li> <li>if appropriate, details of speed restrictions through sensitive areas and procedures to ensure pedestrian safety adjacent to worksites; and</li> <li>details of temporary signage to be installed at defined locations.</li> </ul> <p>As far as reasonably practicable, deliveries will be scheduled outwith school opening and closing times.</p> <p>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, including due to traffic. A telephone number will be provided and persons with appropriate authority to respond to calls and resolve or escalate any problems arising will be available.</p> <p>It will be mandated through the CTMP that HGV traffic:</p> <ul style="list-style-type: none"> <li>must not travel through New Galloway via the A762; this is to reduce the impact of construction traffic on New Galloway;</li> <li>must not travel through Moniaive via the A702; this is to reduce the impact of construction traffic on Moniaive;</li> <li>must not travel through Gatehouse of Fleet via the C13s; this is to reduce the impact of construction traffic on Gatehouse of Fleet; and</li> <li>must not travel through central Dalmellington; this is to reduce impact of construction traffic on the Dalmellington historic centre.</li> </ul> <p>Furthermore, it will be mandated through the CTMP that construction generated traffic (i.e. HGVs and LGVs):</p> <ul style="list-style-type: none"> <li>Must not travel on the U3s road section between the U2s and Bucks Linn Bridge; this is to reduce the impact of construction traffic on the residential properties situated along the U3s.</li> </ul> <p><b>Infrastructure Upgrades</b></p> <p>As part of the Glenlee Substation Extension development, it is proposed to locally widen strategic sections of the A762 (between the A713 and U2s) and the U2s to provide passing places. Details and locations of proposed widening to accommodate passing places are included in the Framework CTMP (<b>Appendix 13.1</b>). It is assumed that the newly constructed passing places will remain for the duration of the KTR Project construction phase.</p> <p>Works to culverts and bridges over watercourses will be agreed with the SEPA and the contractor would be required to adhere to SEPA's Special Requirements. All relevant mitigation measures presented in <b>Chapter 9</b>, for the protection of watercourses during felling and construction activities (particularly those relating to access tracks) will apply.</p>		
Noise (Chapter 14)	<p><b>Construction</b></p> <p>The following measures are part of the embedded mitigation of the KTR Project:</p> <ul style="list-style-type: none"> <li>All construction activities to be undertaken in accordance with good practice set out in BS 5228-1.</li> <li>A site contact number for local residents will be provided for further information.</li> <li>All equipment will be maintained in good working order and will be fitted with appropriate noise control at all times (e.g. silencers, mufflers and acoustic hoods).</li> <li>All site employees to be advised of the noise sensitive nature of the area and be informed to adopt the quietest work practices, where practicable.</li> <li>Site terrain, material stockpiles and suitable work locations will be used so as to screen work locations and maximise the distance between work activities and receptors.</li> </ul> <p>Unless otherwise agreed with D&amp;GC, for example due to large separation distance with neighbouring sensitive receptors, the potential noise and vibration effects of blasting operations will be reduced according to the guidance set out in BS 5228-2 and Planning Advice Note (PAN) 50 Annex D. Specifically:</p> <ul style="list-style-type: none"> <li>Blasting should take place under strictly controlled condition with the agreement of the relevant authorities, at regular times within the working week i.e. Mondays to Fridays</li> </ul>	<p><b>P-G via K</b></p> <p><b>Construction</b></p> <p>Noise-generating works associated with the construction of the temporary Site Compound 1 within 200m of High Carminnows, felling within 100m of properties adjacent to the Kendoon Substation, tower removal within 100m of Afric and access track construction within 150m of Karnak will be limited during weekends to the hours 08:00 to 13:00 on Saturdays, with no work on Sundays. Activities that are unlikely to give rise to noise audible at sensitive receptors may continue outside of the stated hours.</p> <p><b>Operation</b></p> <p>No specific mitigation is required during operation.</p> <p><b>C-K</b></p> <p>Noise-generating works associated with felling within 100m of Carsfad Cottage, Stonebyres or Kinross will be limited during weekends to the hours 08:00 to 13:00 on Saturdays, with no work on Sundays. Activities that are unlikely to give rise to noise audible at sensitive receptors may continue outside of the stated hours.</p> <p><b>Operation</b></p> <p>No specific mitigation is required during operation.</p> <p><b>E-G</b></p>	<p><b>KTR Project as a whole</b></p> <p>No monitoring of noise effects is proposed.</p>

Topic	Embedded Mitigation	Additional Mitigation	Monitoring
	<p>between the hours of 10:00 and 16:00. Blasting on Saturday morning should be a matter for negotiation between the contractor and D&amp;GC.</p> <ul style="list-style-type: none"> <li>Vibration levels at the nearest sensitive properties are best controlled through onsite testing processes carried out in consultation with DGC. This site testing-based process would include the use of progressively increased minor charges to gauge ground conditions both in terms of propagation characteristics and the level of charge needed to release the requisite material. The use of onsite monitoring at neighbouring sensitive locations during the course of this preliminary testing can then be used to define upper final charge values that will ensure vibration levels remain within the criteria set out in PAN50 annex D.</li> <li>Blasting operations shall adhere to good practice as set out in BS 5228 2, and in PAN50, Annex D in order to control air overpressure.</li> </ul> <p><b>Operation</b></p> <p>SPEN will follow recommendations for the conductor manufacturer/supplier in terms of handling transport, installation and maintenance of the OHLs, to minimise surface features that could enhance corona discharge. The experience and practice of SPEN will be applied to the KTR Project and will help minimise the production of audible noise from the OHLs.</p>	<p><b>Construction</b></p> <p>Noise-generating works associated with the laying of underground cable to the Glenlee Substation within 100m of properties (such as Carville and Dunston) will be limited during weekends to the hours 08:00 to 13:00 on Saturdays, with no work on Sundays. Activities that are unlikely to give rise to noise audible at sensitive receptors may continue outside of the stated hours.</p> <p><b>Operation</b></p> <p>No specific mitigation is required during operation.</p> <p><b>BG Deviation</b></p> <p>No additional mitigation measures are proposed during construction or operation.</p> <p><b>G-T</b></p> <p><b>Construction (including removal of existing R route towers)</b></p> <p>Noise-generating works associated with the construction of working areas within 50m of properties (Carville, Dunston, Ken Tor and The Upper Cottage (Argrennan Mains)) and construction of access tracks (if required) within 150m of Woodlands and Brennan Cottage, within 70m of Ken Tor and within 40m of Boatknowe, Mosscroft, Craigend and Glentoo Farm/Cottage will be limited during weekends to the hours of 08:00 to 13:00 on Saturdays, with no work on Sundays. Activities that are unlikely to give rise to noise audible at sensitive receptors may continue outside of the stated hours.</p> <p><b>Operation</b></p> <p>No specific mitigation is required during operation.</p>	
Socioeconomics, Tourism and Recreation (Chapter 15)	<p><b>Construction</b></p> <p>SPEN (and appointed contractors) will continue ongoing work with DGC and the education sector (primary, secondary and tertiary) within the Wider Socio-economic Study Area to maximise local employment, educational and training opportunities during the construction of the KTR Project.</p> <p>Construction activities will be conducted in accordance with the CDEMP and a CTMP to minimise temporary primary effects on public access, visual amenity and landscape character during construction.</p> <p>Localised diversions and managed crossing points will be put in place where proposed temporary construction access tracks intersect with existing Core Paths and other recreational routes. It is envisaged that any required localised diversions would be formed within the immediate vicinity of the existing affected route by stripping vegetation to create a passable surface on similar topography, with the length of any required diversions or crossing points kept to a minimum.</p> <p>Signage, way markers and, if required, banksmen will be deployed to assist walkers using any localised diversion or crossing points during intensive periods of construction activity.</p> <p><b>Operation</b></p> <p>Restocking areas of forestry lost due to windthrow in line with the Scottish Government Forestry and Land Management (Scotland) Act 2018.</p> <p>The distance of the KTR Project route from businesses and properties will be maximised, wherever possible.</p> <p>Existing distribution infrastructure wood pole OHLs within close proximity of the KTR Project route will be undergrounded.</p>	<p><b>KTR Project as a Whole</b></p> <p>No additional mitigation measures are proposed or considered necessary to address likely socio-economic, tourism and recreation effects from the KTR Project.</p>	<p><b>KTR Project as a whole</b></p> <p>No monitoring of the socio-economic, tourism and recreation effects is proposed.</p>
Other Issues (Chapter 16)	<p><b>Electric Magnetic Fields (EMF)</b></p> <p>The KTR Project will comply with current EMF exposure limits and the policy on phasing.</p> <p><b>Dust</b></p> <p>The following embedded good practice measures will be implemented during all dust emitting activities:</p> <ul style="list-style-type: none"> <li>Ensuring all loads which enter the site are covered where practicable.</li> <li>Enforcing an appropriate speed limit.</li> <li>Making use of netting screen for construction activities within 200m of both receptors.</li> </ul> <p>In addition, liaison with potentially affected residents will be undertaken by SPEN and the appointed contractors, and a telephone number will be made available for members of the public to report any disturbance or issues.</p>	<p><b>KTR Project as a Whole</b></p> <p>No additional mitigation measures are proposed.</p>	<p><b>KTR Project as a whole</b></p> <p>No further monitoring of effects relating to dust or EMF is proposed.</p>

## **Appendix 5.3**

### Example Toolbox Talk





## 5. Archaeology

### WHAT?

Archaeological sites are the physical remains of our past. Many such remains relating to early human communities are either on, or close to, the surface, although they may be buried in peat. Once an archaeological site has been destroyed it is gone forever. Once uncovered, it is important that, archaeological remains are expertly examined and, where appropriate, protected. The perception that archaeological finds on construction sites will cause major delays to a programme is widespread but incorrect. If addressed at the right time and in the right way, finds may not necessarily affect the progress of works. It is not just buildings and their foundations, but also artefacts, such as jewellery, pottery and coins, as well as bones and skeletons, that need expert examination before removal

### WHY?

**Avoid Prosecution:** It is illegal to damage some protected monuments, archaeological structures and human remains. Contractors are not expected to be archaeological experts, but we all have legal obligations relating to archaeology and cultural heritage.

**Avoid Environmental Harm:** Archaeology is an important part of our heritage and valuable and irreplaceable remains can easily be damaged on construction sites through:

- excavation of foundations
- driving heavy vehicles over buried sites, which can cause erosion
- allowing vehicles to bog down and make deep ruts which can destroy the buried parts of sites undertaking works which may affect the setting of monuments or listed buildings

### Do

- ✓ **Protect** any known archaeological features in accordance with contract and planning conditions
- ✓ **Be** prepared for unexpected finds whether or not known archaeological or historical features have been identified on your site
- ✓ **Look** out for burned or blackened material, brick or tile fragments, coins, pottery or bone fragments, skeletons, timber joists or post hole, brick or stone foundations and in-filled ditches
- ✓ **Stop** work and inform your team leader/ site manager if you think you have discovered archaeological features
- ✓ **Protect** the site by fencing it off
- ✓ **Take** the advice provided by any appointed archaeologist
- ✓ **Ensure** all of the required consents are in place before working in or near designated monuments

### Do Not

- ✗ **Assume** that any artefacts or features discovered are unimportant
- ✗ **Remove** any 'finds' such as coins, pottery, or bones from the site. This is illegal
- ✗ **Undertake** any work adjacent to areas of archaeological importance without considering the risk that damage may be caused. For example:
  - vibration may cause cracking
  - dewatering may cause a preserved feature to settle and crack
- ✗ **Drive** vehicles through protected sites
- ✗ **Work** in sites without necessary consents in place
- ✗ **Plant** in designated areas without consulting with Historic Environment Scotland



**Appendix 5.4**

Example Environmental Management Plan



## 1. SCOPE

This Environmental Management Plan (EMP) details the legal and contractual environmental requirements for all projects within SP Energy Networks (SPEN). All contractors working on behalf of SPEN must comply with this document during the course of the works.

This EMP will remain a live document and the implementation of its provisions will be monitored by SPEN. Please ensure compliance to the Glenlee Pre-Enabling Works Environmental Technical Specification which refers and clarifies SPEN's expectations of all contractors (Appendix 1).

SPEN will update, review, revise and refine the Environmental Management Plan throughout the project so that it continues to be compliant with the company systems and current legislation, and to ensure the plan remains an effective tool for managing Environmental matters.

This is to ensure the construction phase is planned, managed and monitored in a way which enables works to be carried out with full awareness of the associated environmental risks. The benefit of effective forward planning should vastly reduce or where possible eliminate risk to the environment, in accordance with the SPEN Policy (Appendix 2).

Any revisions to the documents shall be uploaded by SPEN into Document Management System Projectwise and communicated to all interested parties in line with the SPEN document management procedure.

## 2. ISSUE RECORD

It is your responsibility to ensure you work to the current version.

Issue Date DD/MM/YYYY	Issue No.	Author	Amendment Details
23/05/2019	01	Steven Parker	All pages

## 3. ISSUE AUTHORITY

Prepared	Reviewed	Approved
Name: Steven Parker Title: Environmental Advisor Digitally signed by: sparker@spenergy networks.co.uk DN: CN = sparker@spenergy networks.co.uk Date: 2019.05.29 16:48:14 Z	Name: James Elliott Title: Environmental Advisor Digitally signed by: James Elliott Date: 2019.05.30 09:29:08 Z	Name: Antonio Fuentes Barrientos Title: Project Manager Date: ..... Digitally signed by: Antonio Fuentes DN: CN = Antonio Fuentes Barrientos fuentes@spenergynetwo rks.co.uk C = GB O = Customer Delivery PUM2 Date: 2019.05.30 11:38: 19 Z

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**5. DESCRIPTION OF PROJECT**

The pre-enabling works required at Glenlee Substation will allow the existing Newton Stewart/Glenluce No 2 circuit to be deviated ahead of the main enabling and civil works.

The re-location of this circuit will allow space to be created on the south east elevation of the substation that will permit future construction access to be taken to the rear of the site without infringing safety clearances to the electrical plant.

The pre-enabling works will include demolition and removal of existing electrical plant along with associated infrastructure including foundations, 132kV cables, multicore and fibre optic cables, ducting and fencing.

Construction works will include the excavation and installation of new foundations, cable ducts, concrete trenching, palisade fencing and re-surfacing.

The majority of this work will be undertaken within the live 132kV compound and safe systems of work shall be agreed with the Scottish Power Senior Authorised Person (SAP) before work is allowed to commence.

This stage of the pre-enabling includes the installation of one set of cable sealing ends and associated bases and steel support structures at the end internal to the substation fence. The other end of the cable, external to the substation fence, shall be made safe by providing suitable (water tight) end caps, suitable earthing arrangements and being direct buried and backfilled by the Cable contractor, awaiting the new substation platform to be built.

This summary provides only a general overview of the pre-enabling works and does not detail every element of construction or demolition required to complete this phase of the project.

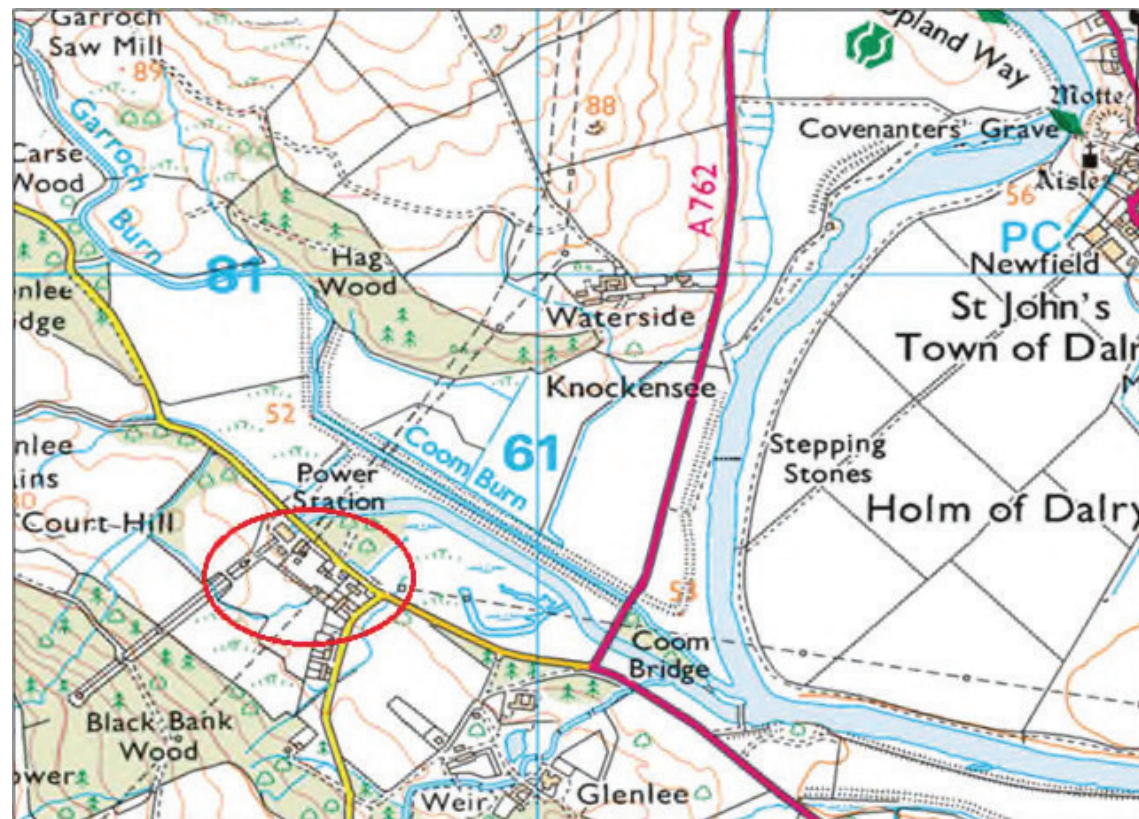
It should also be noted that this 'pre-enabling works' Environmental Management Plan (EMP) is a separate document from the main enabling and civils works EMP and has been created only for the 'pre-enabling works' summarised above.



## 5.1 Location of site

Glenlee 132kV Substation is positioned next to Glenlee Hydro Electric Power Station, situated to the south west of St. John's Town of Dalry in Dumfries and Galloway. The existing substation, which can be accessed from the A762/U2S, sits on sloping ground that rises to the south and is bounded on one side by residential cottages and the power station on the other.

Figure 1. – Glenlee Substation Extension



## Issued Environmental Documents

The EMP requires the contractor to understand and implement the requirements of the documents listed below. SPEN expect a high standard of environmental performance (over and above industry best practice) from all contractors. These can be seen at Appendices 1 - 7 of this document.

1. SPEN Technical Specification;
2. SPEN Environmental Policy;
3. ENDS Compliance Legal Register Report;
4. Pollution Prevention Plan Template;
5. Ecology Survey Calendar;
6. Survey Reports.
7. SPEN Environmental handbook (example TBT's)

This document should be read in conjunction with the above and all other documents issued with the tender pack.

## 6. COMMUNICATIONS

Regular communication between all parties will be essential for environmental management to be successful. There are a variety of communication channels and methods. In the first instance any communication at a site level should be done through the SP Energy Networks Site/ Construction Manager or SP Energy Networks Environmental Advisor. The SPEN Site/ Construction Manager or SPEN Environmental Advisor will then distribute the information to the relevant parties. All communications with regulators such as SEPA/SNH must also be communicated to SPEN and uploaded to Projectwise.

General communication shall take place on site daily to ensure the project is managed effectively

Direct actions taken by SP Energy Networks to communicate with the contractors:

Communication Tool	Details
Site Induction	All contractors attending site shall receive a site specific induction that addresses the site environmental risks, contact details and any site specific processes or procedures. Site Induction suitability will be inspected by SPEN environmental advisor.
Weekly Meetings	The site construction team will attend a weekly site meeting with all contractors. The minutes shall be recorded and distributed to all the contractors involved in the works. Environmental actions will be captured, discussed and closed out.
SORs (Environmental)	Safety Observation Reports shall include observations related to both good and bad environmental practice witnessed on site, a copy will be provided to the contractor and a copy will be held by SPEN. SORs will be discussed at the weekly meetings.
Email	SPEN must be included in all communications with stakeholders and regulators bodies, all communication must be uploaded to Projectwise. All emails that have a contractual implication shall be saved on Projectwise.
Site Noticeboard	Allocated space on a site noticeboard should be given to relevant environmental aspects. The notice board should include SPEN's environmental policy, any environmental alerts and a site plan detailing environmental controls. Besides that, the notice board shall include an organigram and emergency response team contacts. (See Table 2 below).
Environmental Folders on Projectwise	Up to date electronic copy or hard copy shall be available to reference by site staff and for inspection purposes.

Direct actions taken by Contractors to communicate with operatives and sub- contractors:

Communication Tool	Details
Site Induction	All contractors attending site shall receive a site specific induction that addresses the site environmental risks, contact details, and any site specific processes or procedures. Site Induction suitability will be inspected by SPEN environmental advisor.
Weekly Meetings	The site construction team will attend a weekly site meeting with all contractors. The minutes shall be recorded and distributed to all the contractors involved in the works. Environmental actions will be captured, discussed and closed out.
SORs (Environmental) or contractors equivalent	Reports shall include observations related to both good and bad environmental practice witnessed on site, a copy will be provided to the SPEN and shall be uploaded to Projectwise. SORs will be discussed at the weekly meetings.
TBTs	Site and task specific environmental toolbox talks shall be delivered once a week or a frequency otherwise agreed with the SPEN Environmental Advisor.
Daily Briefings	To communicate relevant sensitivities for the planned works on any day which should take account of seasonality, weather and also unexpected findings/required changes in working methods.
Environmental Notice Board	In a public area on site such as staff canteen. Contractors should display relevant environmental information for the site: <ul style="list-style-type: none"> <li>Ecological information;</li> <li>SNH/SEPA Licences or registrations;</li> <li>Refuelling procedure;</li> <li>Spill response;</li> <li>Emergency response plan and contacts including 24hour spill response contractor; and</li> <li>Site layout showing designated refuelling areas, COSHH storage, waste storage/skips/spill kits.</li> </ul>
Site signage	Indicating exclusion areas where ecological/archaeological/Private and Public water supplies/sensitive watercourses have been identified.

### 6.1 Environmental Objectives

SP Energy Networks have established a number of objectives which should enable project delivery, the actions required shall be completed by the SP Energy Networks construction team and the contractors on site. SP Energy Networks will monitor the actions during site Inspections and Audits.

Objective Type	Objective Details	Action required to meet the objective
Training	Raise awareness of Environmental Issues	<ul style="list-style-type: none"> <li>Provide an on-site environmental notice board displaying information on site ecology, pollution prevention, Emergency/ Spill response, Consents and/ or licenses (SEPA/ SNH etc.)</li> <li>Carry out relevant Environmental Toolbox Talks related to work activities and</li> </ul>

		<p>identified risks.</p> <ul style="list-style-type: none"> <li>Site specific briefings of site conditions and licences if required.</li> <li>General housekeeping including good waste segregation.</li> <li>Use/ storage of fuels, oils, chemicals etc. and spill prevention measures.</li> <li>Environmental risks associated with working in proximity of watercourses/ drains etc.</li> <li>Be aware of ecological factors such as bird nesting season (March – August inclusive)</li> <li>Take account of effects of weather such as heavy rain and wind (dust issues).</li> <li>Potential for noise and/or dust issues.</li> </ul>
Compliance with SEPA guidance	Pollution prevention	<ul style="list-style-type: none"> <li>Ensure storage of fuel on site is in excess of 30m from any waterbody (spill kits placed on site – labelled with easy access) all plant to have spill kits kept within them.</li> <li>Drainage/ surface water run off needs to be managed using sumps/ silt fencing to attenuate flow reaching local burns/ ditches/ watercourses.</li> <li>Understanding of and compliance with SEPA CAR regulations (where appropriate).</li> <li>Understanding of and compliance with SEPA pollution prevention guidelines.</li> </ul>
Compliance with UK/ EU environmental legislation	Species and Habitat Protection	<ul style="list-style-type: none"> <li>Ensure sufficient ecological/ ornithological survey works have been undertaken to ensure legal compliance.</li> </ul>
Compliance with UK/ EU Waste Regulations	Record all waste movements on the via an agreed SWMP (Site Waste Management Plan) template	<ul style="list-style-type: none"> <li>Update the SWMP monthly</li> <li>Contractor should demonstrate a proactive approach to waste management, making use of the waste hierarchy (Section 10.2).</li> <li>Reuse and recycling of materials must be considered for each waste stream.</li> <li>Special consideration needed for any hazardous waste.</li> </ul>

### 6.2 Project Inputs

All works should be carried out in accordance with the contract documentation.



### 6.3 Community Liaison

All community liaisons are managed by the client on any network project. Contractors must collaborate with the SP Energy Networks Community Liaison Officer in relation to matters that will have an impact on the local community. All correspondence for issue to the public must have prior approval of the SP Energy Networks Community Liaison Officer.

## 7. RESPONSIBILITIES

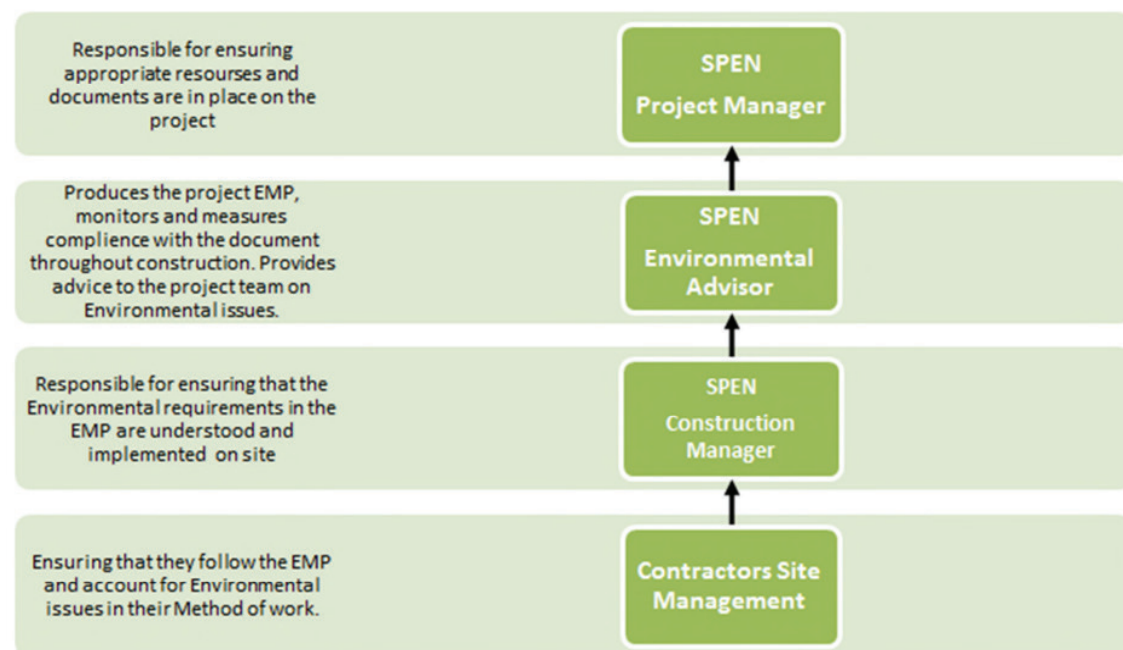
The environmental detailed responsibilities for SP Energy Networks are:

SP Energy Networks are responsible for the transmission and distribution networks within defined licence areas across the UK. Under such licences they are required under The Electricity Act 1989 (The Act) to “develop and maintain an efficient, co-ordinated and economical supply of electricity transmission”.

In doing so it is the responsibility of SPEN to obtain consent, in accordance with relevant legislation, from local or national government for the development of infrastructure. Under ‘The Act’ it is SPEN’s duty to consider the possible environmental impacts of the proposals and state what can ‘reasonably’ be done to mitigate any identified adverse environmental impacts.

SPEN will ensure that all projects are delivered in accordance with requirements of ‘The Act’ together with the relevant consent, conditions of that consent; and committed mitigation relevant to the proposals.

In terms of Environmental Management the organisation chart for the project is;



The environmental detailed responsibilities for SPEN Projects are:

Name/ Title	Responsibility
<b>SPEN Projects Construction/ Site Manager</b>	<ul style="list-style-type: none"> <li>i. Regular liaisons between all parties on site to ensure adequate precautions are taken to minimise the impact on the environment.</li> <li>ii. Ensure the Environmental Management Plan is implemented and monitored by the Contractors.</li> <li>iii. Ensuring that all environmental incidents are reported and investigated where appropriate.</li> <li>iv. Ensuring site environmental inspections are performed and all issues raised are addressed promptly.</li> <li>v. Conducts regular site meetings and discusses any Environmental issues appropriate.</li> <li>vi. Ensure all the following factors are considered and appropriately actioned; <ul style="list-style-type: none"> <li>a. The most appropriate order and method of working</li> <li>b. Allocation of responsibilities between personnel, and other organisations on site.</li> <li>c. The SPEN EMP is prepared and issued in a controlled way to all sites</li> <li>d. The protection of the environment, waste generation is minimised and all waste is disposed of in a safe and responsible manner, and is detailed in the Site Waste Management Plan (SWMP)</li> </ul> </li> </ul>
<b>Environmental Advisor</b>	<ul style="list-style-type: none"> <li>i. Inputs into the preparation of the SPEN Environmental Management Plan assisted by the Construction Manager and Project Manager.</li> <li>ii. Reviews site inductions and provides information regarding site specific Environmental Aspects</li> <li>iii. Reviews Contractors’ Environmental documentation with particular emphasis environmental regulations and requirements.</li> <li>iv. Carries out regular inspections of the construction site.</li> <li>v. Advise the Construction Management Team on compliance with the statutory Environmental requirements.</li> <li>vi. Attends progress and coordination meetings.</li> </ul>
<b>SPEN Projects Document Controller</b>	<ul style="list-style-type: none"> <li>i. Ensure all SPEN Projects documentation is on Projectwise for all contractors to access</li> <li>ii. Manage permissions to Projectwise</li> <li>iii. Attend KOM to instruct/train Contractors in Projectwise (Upon PM request)</li> <li>iv. Set up and maintain folder structure on Projectwise</li> </ul>

The environmental detailed responsibilities for the Contractor are:

Contractor Role	Responsibilities
<b>Project Manager</b>	<ul style="list-style-type: none"> <li>i. Oversee the project to ensure compliance with the SPEN Environmental Management.</li> <li>ii. Ensure the Construction Manager/ Site Manager are aware of the requirements of the SPEN Environmental Management Plan and these requirements are carried out.</li> </ul>
<b>Construction/ Site Manager</b>	<ul style="list-style-type: none"> <li>i. Duty to ensure the compliance and implementation of EMP.</li> <li>ii. To ensure that the workforce is made aware of environmental risks relating to the Project.</li> <li>iii. To ensure that environmental incidents are reported to the company Helpline and client in expected timescales.</li> <li>iv. To ensure that environmental issues are included in site management meetings.</li> <li>v. To ensure that site environmental controls are regularly monitored and recorded.</li> <li>vi. To ensure environmental risk assessments are up to date and changes to the construction site posing environmental risk are recorded on the risk assessment.</li> <li>vii. To report environmental incidents to the helpline and Client (SPEN).</li> </ul>
<b>Engineers/ Site Supervisors</b>	<ul style="list-style-type: none"> <li>i. Duty to ensure the compliance and implementation of EMP.</li> <li>ii. To ensure that the workforce is made aware of environmental risks relating to the Project.</li> <li>iii. To ensure that environmental incidents are reported to the company Helpline and client (SPEN).</li> <li>iv. To ensure that environmental issues are included in site management meetings.</li> <li>v. To ensure that site environmental controls are regularly monitored and recorded.</li> <li>vi. To ensure environmental risk assessments are up to date and changes to the construction site posing environmental risk are recorded on the risk assessment.</li> </ul>
<b>HSE Manager</b>	<ul style="list-style-type: none"> <li>i. To provide guidance and advice regarding environmental controls and legislation.</li> <li>ii. To assist the Project as required by the Construction or Site Manager.</li> <li>iii. To investigate any environmental incidents that occur on the Project.</li> </ul>

<b>Environment Advisor/ ECoW (Environmental Clerk of Works)</b>	<ul style="list-style-type: none"> <li>i. To provide proactive, specialist guidance and advice regarding environmental controls, constraints and legislation specific to the project, in the form of Environmental Risk Assessment, Constraints planning, procedures, standard forms, site briefings and toolbox talks.</li> <li>ii. To comply with the SPEN Environmental Management Plan.</li> <li>iii. To provide additional technical support and solutions to the Project as required.</li> <li>iv. To organise, co-ordinate and manage pre-construction surveys in-line with advice from the Ecological/ Archaeological Survey reports provided by the client.</li> <li>v. To organise, co-ordinate and manage specialist consultants on site by providing a scope of works relevant to operations and in-line with programme.</li> <li>vi. To be fully aware of the project conditions/ commitments agreed by the client, facilitate adherence to all elements, and report activities in relation to conditions and constraints to SPEN Projects on a monthly basis.</li> <li>vii. To effectively communicate the environmental constraints/ risks specific to site, provide briefings/ TBTs relevant to works and in-line with ecological/ archaeological/ hydrological (and any other) recommendations.</li> <li>viii. To consult directly with regulators/ stakeholders (such as, but not limited to: SNH, RSPB, SEPA, Local Authorities) regarding situations that may require the acquisition of consents/ licences/ authorisations/ permissions/ comments, this includes applications and continued reporting to regulators throughout the project. All consultation with regulators will inform an SPEN Projects Environmental Advisor throughout the process and all types of contact with regulators must be documented/ evidenced and copies sent to SPEN Projects.</li> <li>ix. To organise and co-ordinate environmental mitigations on site in line with programme, ensuring inclusion of these activities in monthly report to SPEN Projects.</li> <li>x. To attend project meetings and effectively contribute to project discussions by indicating site sensitivities and management required.</li> <li>xi. To ensure environmental training of project team is current and training records are up to date.</li> <li>xii. To ensure the Emergency response plan is updated at least every 6 months or dynamically should issues arise, this should include details of an Environmental Response sub-contractor should an site emergency occur.</li> <li>xiii. To ensure the Site Waste Management Plan is updated and reviewed, including the legal compliance of Waste Transfer Notes and Consignment Notes from contractors/ sub-contractors</li> <li>xiv. To ensure that care is taken not to damage trees (including roots) and</li> </ul>
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	<p>ensure TPO, Bat/ Red Squirrel/ bird and any other potential protected species have been checked prior to works and RPA (Root Protection Areas) are understood, communicated and British Standards are followed. Diseased trees are now common, Larch and Ash particularly. Any works close or requiring removal of a diseased tree will require specific mitigations to be in place and waste regulations adhered to. In addition any works close to or requiring removal of invasive weeds needs to be managed in accordance with legal requirements.</p>
xv.	To ensure the reinstatement and restoration of sites is fully understood, planned into programme and documented.
xvi.	To ensure site water management is planned ahead of operations to prevent pollution and in line with SEPA CAR Practical Guide.
xvii.	To conduct weekly inspections of sites pre-construction, during construction and post construction, ensure all inspections are documented; actions should be agreed with a timescale and upon completion signed off.
xviii.	To be available to organise and facilitate joint inspections/ audits with the client.
xix.	To investigate environmental incidents that occur on the Project, report findings and actions required including (if required) comments from regulators, lessons learnt from incidents should be briefed following investigations. Please ensure all incident investigations are sent to SPEN Projects.
xx.	Any other environmental issue not mentioned specifically above.

## 8. ENVIRONMENTAL MANAGEMENT

### 8.1 Regulatory Agencies and Interested Parties

The following regulatory agencies and interested parties have been identified as key stakeholders; this list is not exhaustive, with interests in the activities being undertaken in conjunction with the development of this site:

Regulator/ Interested Party	Responsibility
<p>SEPA's Pollution Hotline – 0800 80 70 60 (24 hour service)</p> <p>SEPA's Floodline service – 0845 988 1188 (24 hour service)</p> <p>SEPA Dumfries Office Rivers House, Irongray Road, Dumfries DG2 0JE</p>	<p>Environmental Regulator. Issue Waste Management Licenses and Exemptions from Waste Management Licensing, CAR Authorisations. Will use enforcement tools to ensure compliance with authorisation conditions issued by them and all other relevant environmental regulation.</p>

Tel: 01387 720502	
Scottish Natural Heritage Tel: 01387 720502	Issuing any protected species or protected area (e.g. SSSI / SPA /SAC) licences required for the project.
Dumfries and Galloway Council Tel: 0303 333 3000	Local Authority
Galloway Fisheries Trust Tel: 01671 403 011	Fisheries Information

### 8.2 Site Environmental Obligations

<b>Client Obligations</b>	Comply with the SPEN Environmental Management Plan.
<b>Contractual Obligations</b>	<p>All future surveys and licences to be arranged organised and managed by the contractor.</p> <p>Comply with the SPEN Environmental Management Plan.</p> <p>Provide a Pollution Prevention Plan for the works.</p> <p>Update the SWMP monthly.</p> <p>Report Environmental Incidents to SPEN Projects Environmental Advisor initially within 30 minutes of the incident with a follow up notification as soon as is reasonably practicable within 24hours.</p> <p>Provide an Environmental Risk Assessment for all works, make reference to site specific environmental management issues (including: ecology, surface water management, seasonal constraints).</p>
<b>Specific Legal Requirements (for example, authorisations, consents and licences)</b>	<p>NB - The contractor is responsible for preconstruction surveys and arranging any relevant licences (e.g. ecological, archaeological, or SEPA authorisations) or mitigation measures for the works.</p> <p>Ensure compliance with UK legislation regarding protected species and habitats prior to and during construction.</p> <p>Ensure all appropriate SEPA CAR Licences for required works are in place. For example:</p> <ul style="list-style-type: none"> <li>Abstraction works (water abstraction for welfare facilities/ engineering activities such as concrete production or drilling);</li> <li>Engineering works (culverts, bridges, temporary diversions/ impoundments); and</li> <li>Bank works such as grey bank works (all hard landscaping/bank support).</li> </ul>
<b>Previous studies/ reports, e.g. EIA, etc.</b>	<ul style="list-style-type: none"> <li>Ecological Constraints Report – LUC.</li> </ul>

Ongoing Studies	The contractor is responsible for any further surveys, licences, authorisations, consents upon contract award.
Contractors Obligations	<p>Reassess and evaluate mitigation measures for all environmental constraints with any changes to programme or working methods.</p> <p>Information provided from SPEN needs to be constantly reassessed and re-evaluated by the contractor, for all environmental constraints/ mitigation measures in line with any changes to programme or working methods. This process will be documented and available for inspection and SPEN environmental advisor informed.</p> <p>The Contractor's Environmental Advisor/ project team will provide the SPEN Environmental Advisor with a two week look ahead of working activities and:</p> <ul style="list-style-type: none"> <li>• Provision of a forecast of site wastes</li> <li>• Provision of all environmental method statements/ briefings/ TBTs with attendance sheets.</li> <li>• Provision of an Environmental Emergency Response Plan</li> <li>• Emergency Spillage Contractor</li> <li>• Provision of fuel records for all plant/machinery/generators used on site listing: fuel type, volume (litres), period and comments.</li> </ul> <p>Stone/Spoil– the removal of any stone/Spoil will meet all Waste Legislation criteria/ waste duty of care/ waste hierarchy. Any agreements with landowners must have the relevant SEPA exemptions in place prior to any movements of stone, all movements of waste must have a legally compliant waste transfer note/ consignment note.</p>

### 8.3 Pollution Prevention Plan (PPP)

The contractor will be required to provide at tender stage a Pollution Prevention Plan. This will detail how the associated environmental risks will be controlled and mitigated. There is a template/example to use as reference at Appendix 9.

This PPP needs to be written in accordance with this SPEN EMP and relevant construction industry/ regulator guidance as shown in sections 8.5.1-4 below.

Where it is not possible to be specific at this stage the contractor must provide examples of good practice used on other projects.

The PPP should be seen as a live document and therefore should be monitored/ reviewed continually.

The contractor will be responsible to ensure that the Plan is kept up to date and complied with.

The purpose of the PPP is to make sure that steps are taken to prevent potential for pollution arising from the site, the potential impacts of that pollution, and methods (and alternative methods) of preventing environmental harm occurring has been adequately considered.

#### 8.3.1 Construction Aggregates

Provision of detail on the sourcing of suitable construction aggregates which must comply with SEPA GBR22 (see below).

**No material that will or is likely to result in metallic, sulphide rich or strongly acidic polluted water run-off from such roads or tracks may be used in the carrying out of the activity.**

Chosen aggregates should be free of excessive amounts of fines/clays. Mitigation for suspended solids should be provided.

### 8.4 Regulatory Bodies and Construction Industry Guidance

In addition to legal frameworks there are a number of good practice guidelines which are published by the construction industry (CIRIA) and regulatory bodies (SEPA) for construction projects. In January 2017 updated versions of some key SEPA PPGs for the construction industry were issued. All works carried out as part of this project should be carried out with reference to these. Please see the current, relevant SEPA guidance provided at NetRegs ([www.netregs.org.uk](http://www.netregs.org.uk)).

#### 8.4.1 SEPA Supporting Guidance Documents

- WAT-RM-08: Regulation of Sustainable Urban Drainage Systems (SUDS)
- WAT-RM-12: Regulation of Discharges from Water Treatment Works
- WAT-SG-12: General Binding Rules for Surface Water Drainage Systems
- WAT-SG-23: Engineering in the water environment – Temporary construction methods
- WAT-SG-75: Sector-specific guidance - Construction sites
- WAT-TEMP-10: Multiple Water Use Licence Template
- WAT-TEMP-21: Construction Site Licence

#### 8.4.2 SEPA Pollution Prevention Guidance (PPGs)

- Pollution Prevention Guidance (PPG) NetRegs.([netregs.org.uk](http://netregs.org.uk)) [and replacement series (GPP) – see PPG/GPP explanation]
- PPG 1: Understanding your environmental responsibilities - good environmental practices
- GPP 2: Above ground oil storage tanks
- GPP 5: Works and maintenance in or near water
- PPG 6: Working at construction and demolition sites
- GPP 13 Vehicle washing and cleaning
- GPP 21: Pollution incident response planning
- PPG 22: Incident response - dealing with spills
- PPG 27 Installation, decommissioning and removal of underground storage tanks

#### 8.4.3 Construction Industry Research and Information Association (CIRIA) Manuals

- Control of water pollution from construction sites. Guidance for consultants and contractors (C532)
- Control of water pollution from linear construction projects. Technical Guidance (C648)
- Control of water pollution from linear construction projects. Site guide (C649)
- Drainage of development sites - a guide (X108)
- Guidance on the Construction of SUDS (C768)

- Site handbook for the construction of SUDS (C698)
- Sustainable Drainage Systems - Hydraulic, structural and water quality advice
- The SuDS Manual (C753)

8.4.4 Published by CREW – Scotland’s Centre of Expertise for Waters

- Rural Sustainable Drainage Systems: A Practical Design and Build Guide for Scotland’s Farmers and Landowners.

## 8.5 ENDS Compliance Legal Register

SPEN have produced a compliance legal register which lists all of the legislation which may pertain to the project before, during and post construction. This can be seen at Appendix 3.

## 8.6 Main Aspects

The table below details the known key environmental constraints/ aspects associated with the project. All contractors will use this as a live document, review regularly and update with progress and further constraints. The mitigation and management controls detailed are not exhaustive and should be used as a baseline rather than a complete control plan.

The main aspects are detailed below.

Significant Environmental Aspect	Mitigation & Management Controls
Vegetation Clearance	Vegetation clearance should take place before end of February (nesting season) - ecology survey/SNH licence/guidance may be required. The contractor is responsible for preconstruction surveys and arranging any relevant licences or mitigation measures for the works. Any clearance undertaken during months of March to September (nesting season) must be done under the supervision of an Ecological Clerk of Works, this may result in programme delays if protected species are found.  Relevant TBT to be issued to all on site – attendance sheet signed.
Archaeology	There are currently no Archaeological issues within the grounds of the substation. Maintain vigilance when new or unexpected excavations become necessary, especially when required on previously undisturbed ground.  Stop work and inform your team leader/site manager if you think you have discovered archaeological features. Protect the site by fencing it off.
Soil Storage/ Stockpiling	Follow all identified mitigation requirements for the location to be stripped. Strip, segregate top soil from sub-soils and store within the identified site working areas for reuse. Locate soil storage bunds away from watercourses (30m). Form bunds of no more than 1.5m and design to shed water.  Check the need for measures to reduce dust and potential nuisance Return soils to their original location.  Please reference Tool Box Talk.

Concrete	The washing out of any concrete mixer & associated chute, tools or equipment should be carried out in a designated area away from drains and watercourses. Delivery drivers should be made aware of the requirement on arrival at site.  Wash down activities will take place in designated areas which may have different set-ups at different sites –use of an RCW Skip, lined skip or lined pit. Relevant TBT to be issued to all on site – attendance sheet signed.  Please refer to SPEN Environmental Handbook.
Surface Water Management	The following guidelines should also be adhered to:  The potential pollution of drainage systems, watercourses and groundwater is to be prevented during the contract. Surface water drains and the foul water systems are to be clearly identified on the site prior to any works being carried out. <ul style="list-style-type: none"> <li>• Training will be given to key employees in the use of spillage containment. This includes the locations of the equipment, and the means by which they are to be disposed of following use; and</li> <li>• Silt fencing/ hydro dams, cut off ditches or settlement ponds are to be used to prevent water pollution entering watercourses/ and surface water drains</li> </ul> Please consult SEPA CAR Practical Guide at all times when working near a watercourse as authorisations may be required – it is the contractors’ responsibility to consult with SEPA and apply for authorisation where required. General Binding Rules (GBR 10, 16, 9) should be consulted as a minimum for all sites near a watercourse:  SEPA GBR 10: Discharge of surface water runoff from a surface water drainage system to the water environment from construction sites, buildings, roads, yards and any other built up areas.  SEPA GBR 16: Direct Discharges of pollutants into groundwater as a result of construction or maintenance works in or on the ground, which come into contact with groundwater.  It is recommended in the CAR guidance that when undertaking SEPA GBR 10, GBR 9 should also be followed.  GBR 9: Operating any vehicle, plant or equipment (machinery) when undertaking GBR 10 (and others).  All watercourse crossings will be considered against the CAR Practical Guide and level of authorisation justified. SPEN Projects will require a watercourse crossing schedule update on a monthly basis.  SPEN Projects will be informed of any consultation with SEPA and included in any correspondence.
Water or Ground contamination	The potential pollution of drainage systems, watercourses and groundwater is to be prevented during the contract by adhering to the following guidelines:



from Spillage or Mud/ Silt	<ul style="list-style-type: none"> <li>All works in and within 10m of water course will be carried out within SEPA guideline and guidance. The banks of watercourses are to be protected from damage and contamination using; silt fencing, cut off ditches, sumps etc.</li> <li>Machine operators will carry out daily checks this is to include Hydraulic lines;</li> <li>A spill kit of reasonable capacity is kept close to the work;</li> <li>A boom could be placed across the watercourse as a preventative measure at appropriate times; and</li> <li>Abstraction/ de-watering of excavations should be in excess of 10m from a watercourse (if highly sensitive or prone to flooding this distance may need to increase. The de-watering exercise should be through a silt protection capture layer such as a siltsock, siltbuster, sump/ silt fencing – grassy area with landowner permission to pump. It is the contractors' responsibility to assess the volume discharged is in line with SEPA guidance GBR 15 and Abstraction Licence parameters are adhered to.</li> </ul> <p>Please refer to <b>Land Use Planning System SEPA Guidance Note 31</b>: Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems.</p> <p>Relevant TBT to be issued to all on site – attendance sheet signed.</p>
Access Installation	<p>Provision of access road design to include and take account of installation of cut of ditches, hydro dams, sumps, silt fencing to manage flow pathways and control silt run off at all times during construction, this includes monitoring the effectiveness of the prevention measures and adapting to changes in flow rate and disturbance.</p> <p>All aggregate or stone removed from access tracks are regarded as waste. This must be removed from site via a licenced waste carrier. Disposal/reuse/ recycling can only take place at a licenced or exempt facility and all documentation (waste transfer note, valid exemption/ licence for a relevant activity) must be in place prior to removal from site and recorded in the Site Waste Management Plan (SWMP).</p>
Reptile potential	<p>No reptiles were incidentally observed during the survey and no hibernacula were located.</p> <p>Further survey for reptiles following standard guidance is recommended for all dry stone wall dismantling works. These surveys should utilise artificial refugia, and take place between March and October (ideally September).</p> <p>The contractor is responsible for any further pre-construction surveys and arranging any relevant licences or mitigation measures for the works.</p> <p>Scrub to be progressively cut, trimmed and chipped to remove cover. Clear areas are to be left for at least 24 hours prior to soil stripping.</p> <p>Any area of rocks, brick rubble or other debris that have been present for over six months are to be destructively searched before the start of construction in</p>

	<p>that area.</p> <p>Relevant TBT to be issued to all on site – attendance sheet signed. Please refer to SPEN Environmental Handbook</p>
Invasive Non-native Species	<p>No invasive non-native species were recorded during the course of the survey. Please refer to Appendix 6 - Ecological Constraints Survey for further details.</p> <p>However, if invasive non-native species are encountered during works Stop all work within 7m of the invasive and contact your team leader/site manager for instructions. Fence an area 7m from the nearest plant to prevent access.</p> <p>Chemical control of giant hogweed is most effective – spraying can start on plants above 1 metre high from March and throughout summer. More than one application is needed and follow up spraying will be required to kill seedlings in subsequent years.</p> <p>Do not: Move soil that may contain seeds or other plant material without specific instructions; Store any removed plant materials within 30m of a watercourse.</p>
Bat potential	<p>Trees recorded in the south and west of the substation were considered to have some level of bat roost suitability. Further surveys will be required on those which will be affected by the development.</p> <p>A potential bat roost was recorded in the eastern building located behind an external light figure with bat droppings recorded beneath this.</p> <p>If any of the areas highlighted with bat roost potential are to be impacted by the works, then the environmental advisor and an ecologist should be notified. The trees should be inspected by an ecologist prior to removal. In the event that a bat or bat roost is found or suspected, the work must stop immediately and an ecologist contacted.</p> <p>The contractor is responsible for any further pre-construction surveys and arranging any relevant licences or mitigation measures for the works.</p> <p>Relevant TBT to be issued to all on site – attendance sheet signed. Refer to SPEN Environmental Handbook.</p>
Tree Root Protection	<p>All working activity close to trees should follow NJUG guidelines – root protection areas should be demarcated and any excavations close to a tree or under tree canopy should assess the methodology prior to construction.</p> <p>Ensure Tree Preservation Orders have been checked with the Local Authority and consent granted if required.</p> <p>Please see Root Protection TBT.</p>
Nesting Birds	<p>Nesting birds habitat is found adjacent to the proposed works. A number of common lowland species were recorded singing and holding territories.</p> <p>Preconstruction breeding bird surveys are recommended prior to any works commencing in the bird breeding season of March to August.</p> <p>The contractor is responsible for pre-construction surveys and arranging any relevant licence or mitigation measures for the works.</p> <p>Specific guidelines/ risk assessments/ licences and consultation with SNH and specialist ornithological support may be required.</p>



	<p><b>All wild birds are protected by law under the WCA. Recent and significant changes have been made to the protection of wild birds in Scotland by The Nature Conservation (Scotland) Act 2004. It is an offence to intentionally or recklessly disturb any wild bird listed while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.</b></p> <p>The nesting season is designated March to August inclusive and all nesting birds are protected. If any nests are identified at any time works should stop immediately and contact should be made with the Environmental Advisor.</p> <p>Scrub, Hedgerows &amp; Trees should be removed out with the nesting season. If it is required to remove them within the nesting season then this can only be done following a survey to confirm the absence of nesting birds. Consultation and acquisition of licences from Scottish National Heritage SNH to disturb or relocate protected species may be required.</p> <p>Relevant TBT to be issued to all on site – attendance sheet signed.</p> <p>Please refer to SPEN Environmental Handbook.</p>
Dust Management	<p>The following measures should be taken to minimize dust generation:</p> <ul style="list-style-type: none"> <li>• Material discharge heights will be kept to a minimum;</li> <li>• Haul roads will be damped down during dry and windy conditions;</li> <li>• Vehicle speeds will be restricted; and</li> <li>• Keep stockpile levels less than 2 metres.</li> </ul> <p>Relevant TBT to be issued to all on site – attendance sheet signed. Please refer to SPEN Environmental Handbook.</p>
Re-fuelling	<p>Refuelling should be considered prior to works commencing to prevent refuelling during access track construction and possible spillage into nearby habitat and water courses.</p> <p>Standard practice:</p> <ul style="list-style-type: none"> <li>• No generators or similar plant and machinery shall be used within 30 metres from appropriate watercourses and water bodies;</li> <li>• Machines will be refuelled minimum of 30 metres away from water courses. Outside edge of all permanent non-mobile storage facilities for oil, fuel, etc. shall be at least 100m away from appropriate watercourses and water bodies;</li> <li>• Records to be kept of all fuel consumption; and</li> <li>• All plant will have a spill kit and plant nappy.</li> </ul>
Excavations and dewatering	<p>Ensure that excavations are managed, especially where the potential for encountering groundwater has been identified. Strategies to deal with water, either groundwater or ingress of water due to heavy rain, should be in place. Sufficient equipment (e.g. pumps) and mitigation (e.g. silt mitigation/fencing) should be on hand to deal with dewatering. Any strategy should also deal with where water will be pumped to. Water considered to be contaminated with silt/oils etc. CANNOT be pumped straight into the environment without primary and potentially secondary treatment.</p> <p>Relevant TBT to be carried out on site – attendance sheet signed and uploaded to Projectwise.</p>

The contractor must ensure they have adequate measures in place to effectively manage all of the aspects detailed in the register, and any additional aspects that they may bring to site via their method of work. This is not an exhaustive list constraints need to be re-evaluated throughout the project.

## 9. TRAINING REQUIREMENTS

SPEN expect the contractors to utilise their electronic document management System Projectwise during the works. All contractors shall request any training on this database via the SPEN construction manager if required.

Records of specific environmental training shall be maintained at the main site office. Task specific environmental training will be given when required.

### 1.1 Environmental Toolbox Talks (TBTs)

A variety of environmental issues are anticipated on the project, these are area and task specific. Toolbox talks associated to each anticipated issue should be read by staff before work on site commences. Environmental TBTs MUST be provided once a month as a minimum but more frequently when task/sensitivity of location require it. Attendance records must be kept on site and maintained and uploaded to Projectwise. Please provide a list of TBTs which is anticipated will be delivered.

Please reference SPEN Environmental Handbook and Tool Box Talks in all instances.

## 10. WASTE MANAGEMENT

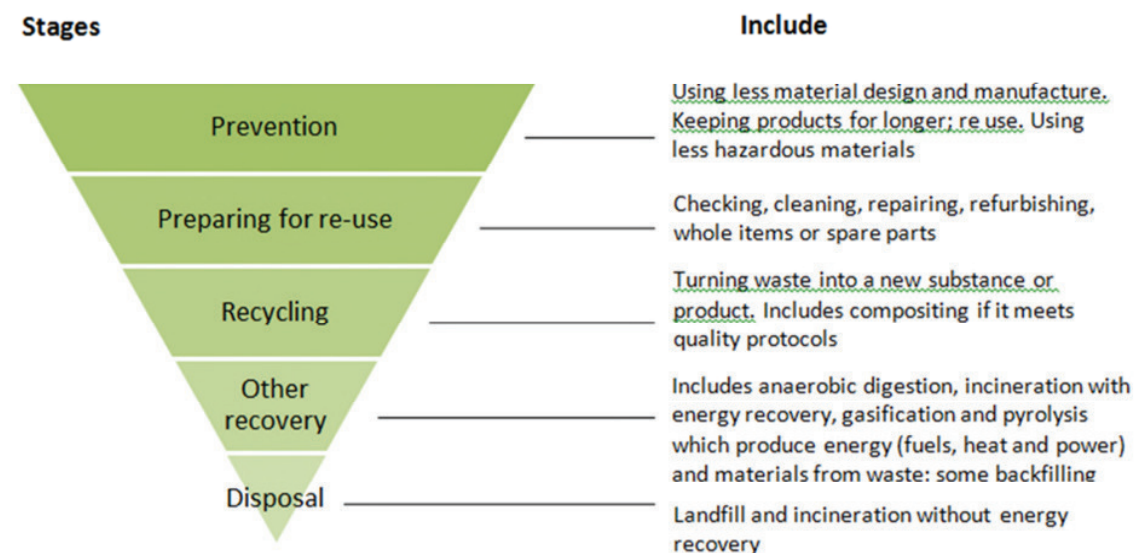
### 10.1 Duty of care

The Environmental Protection Act 1990 states that all producers of waste have a legal responsibility to ensure that all waste is produced, stored, transported and disposed of without harming the environment. This is called your 'Duty of Care'.

In accordance with the SPEN Environmental Management System and to ensure compliance with the 'Duty of Care', a Site Waste Management Plan shall be completed by each contractor and submitted for review. Each contractor working on an SPEN project must provide a site waste recording form and update all waste information on a monthly basis.

### 10.2 Waste hierarchy

The waste hierarchy ranks waste management options according to what is best for the environment. Top priority is given to preventing waste in the first place. When waste production is unavoidable priority is then given to preparing it for re-use, then recycling, then recovery. When all other disposal routes have been exhausted disposal of waste to landfill is the final option.



The waste hierarchy should be implemented as part of the (site waste management plan) SWMP to plan the management and disposal of waste produced on site.

### 10.3 Site waste management plan (SWMP)

A SWMP must be put in place by each contractor on each SPEN project. This can be done using the SPEN format or the contractor can use their own. The SWMP is in 2 parts:

- Waste Forecasting; and
- Waste Recording.

The SWMP is an annual recording system and therefore a new waste forecast and recording sheet will be required for each year of the project. All waste records must be uploaded to ProjectWise with the SWMP updated and uploaded on a monthly basis.

In every case the SWMP must capture the following information:

- An annual waste forecast;
- Waste type i.e. Inert, Non-hazardous, Hazardous;
- Description e.g. soil and stone, toilet water etc.;
- Action to be taken to minimise waste (volumes reused, recycled, landfilled);
- The correct European Waste Code (EWC) provided;
- Date removed from site;
- Weight in tonnes; and
- Name of waste carrier, waste facility and their regulators registration numbers.

#### 10.3.1 Waste Monitoring and Minimisation

The site waste management plan is in place to target, monitor and report against waste arising's on a monthly basis. Waste will be segregated where a viable waste stream is identified. Efficient

procurement of materials and services will reduce the volume of waste that will be generated by the project. Subcontractors and their suppliers will be consulted on methods to reduce potential waste sources before they are brought on to site.

### 10.4 Waste Transfer Notes (WTNs)

All movements of waste off site must be accompanied by a WTN. This is a legal document stating the type and quantity of waste being removed, the waste carrier's information and the intended end destination. The WTN must include a European Waste Code (EWC), a six digit code for each waste stream, a Standard Industrial Classification (SIC) code to classify the business type producing the waste, and note that the waste hierarchy has been considered. It must also be signed by both the haulage driver and the contractor to whom the waste belongs. A copy of the WTN must be kept for a minimum of 2 years.

### 10.5 Consignment Note

A Consignment Note is a type of WTN that is used for the movement of Special Waste. A Consignment Note contains all the same information as a WTN but has an additional section that must be completed by the receiving waste management facility on receipt of the waste. 'Pre-notification' of the first movement of waste must be provided to SEPA at least 3 working days before the 'expected removal date'. A copy of the fully completed Consignment Note must be kept for a minimum of 3 years.

### 10.6 Licences and Exemptions

There are several licences and exemptions that are required to be in place prior to waste being removed from site. The documents required will vary depending on the type of waste and activity being undertaken.

Waste Carriers Licence – any organisation that transports waste as part of its business must be registered as a Waste carrier. This includes any form of waste being removed from site to be disposed of elsewhere, including packaging.

Waste Management Licence/Permit/Exemption – a waste management licence, permit or exemption must be in place for the facility that the waste material is going to. This documentation verifies that the facility can legally accept the waste being removed from site. This documentation must be in place and validated prior to any waste removal from site.

### 10.7 Site specific requirements

Waste	Management	Documentation
Spoil	Cut and fill exercise undertaken by site team to allow for reuse of excavation material on site.	N/A – all stockpiles kept within site boundary.
Aggregate	All aggregate or stone from access tracks is regarded as waste after its removal. This must be removed from site via a licenced waste carrier. Disposal/reuse can only take	The receiver of any waste product must have a SEPA waste exemption/licence prior to taking ownership. This includes utilisation of previous access road

	place at a licenced or exempt facility and all documentation must be in place prior to removal from site and recorded in the SWMP.	materials for other purposes by the landowner or any other organisation/ or landowner.
Packaging	Timber and cardboard packing materials. To be disposed of off-site to a recycle facility.	Record on waste record sheet and with WTN upload to Projectwise monthly.
Hazardous waste	Excavated material from spills of oil/fuel/chemical. Suitable spill prevention measures to reduce this.	Consignment note showing removal to specialist waste carrier/disposal facility. Record on waste record sheet and with CN upload to Projectwise monthly.

## 11. INCIDENT MANAGEMENT

SPEN Projects Incident Management Programme will be implemented on this project if required. The Incident Manager shall in all cases be the SPEN Projects Construction Manager.

The Construction Manager shall ensure that the duties identified in the Incident Management Programme documentation are carried out by an incident investigation team that has been identified for the project.

This documentation can be used by SPEN Projects contractors and SPEN Projects Construction Management team.

## 12. MONITORING AND MEASURING

### 12.1 Site Inspections

The SPEN Projects Environmental Advisor for the project will carry out regular inspections against the procedures and specifications used during the works. The frequency of the Environmental Inspection will vary depending on the number of contractors present at the site and the risks involved in the activities. The Contractor's Environmental Advisor will provide the SPEN Projects Environmental Advisor with a two week look ahead of working activities. Joint inspections of the site will be agreed to by SPEN Projects and the contractors Environmental Advisor during the site start up meeting.

The findings of site inspections will be communicated at the site and then via Projectwise on return to the office.

Contractors will be responsible for carrying out their own Environmental inspections during the course of the works, and uploading the findings to Projectwise.

### 12.2 Audits

SPEN Projects have the right to audit the contractor at any time during the course of the works. All contractors will be given at least 10 workings days' notice when a formal audit will be carried out. All contractors are expected to provide suitable resources to assist with the audit.

Contractors are expected to carry out audits in line with the level of environmental risk of project work activities and management system commitments. Contractors will inform SPEN Projects of their audit schedule upon contract award.

ISO 14001 Accreditation audits/certificates to be communicated to SPEN Projects.

## 13. ENVIRONMENTAL EMERGENCY RESPONSE PLAN (ERP)

The CPP will detail the Contractor responsible for producing the ERP.

The Contractor shall prepare and submit to SPEN Projects Environmental Advisor an Emergency Response Plan (if they are required in the CPP) which details the management arrangements for potential environmental emergencies. The following environmental emergency response procedures (13.2 to 13.5 are examples) should be used as a basis for the development of the contractors Emergency Response Plan. The contractors' emergency response plan should provide more detail relating to types of incidents, hazards, response procedures and emergency contact telephone numbers.

A drill shall be carried out by the Contractor that produced the ERP for each potential emergency situation that can have a major impact on the environment. The details of the drill shall be recorded an Emergency Response Plan and submitted to SPEN Projects.

All Contractors must ensure they are aware of the ERP requirements and that the requirements are communicated to all their staff on site.

The emergency response plan should include the details of the emergency contacts including that of a 24 hour emergency spill contractor that is available throughout the course of the works and equipped to deal with the incidents identified in the Emergency response Plan.

Contractors should complete the table below specific to the project:

Name	Address	Number
Police Scotland		
Scottish Fire and Rescue Service		
Scottish Water		
The Scottish Environmental Protection Agency (SEPA)		Hotline number 0800 80 70 60
Local Council		
Waste Contractor		
Spill Contractor (emergency 24 hr)		
The Scottish Society for the Prevention of Cruelty to Animals (SSPCA)		
Scottish Natural Heritage (SNH)		

### 13.1 Environmental Yard Plan

The emergency response plan should include a marked up drawing indicating surface, foul and combined drains, along with any watercourses within the yard. A marked up drawing should also be in place for works taking place near sensitive areas such as watercourses and should indicate drainage, silt/pollution prevention measures and location of spill kits. This drawing shall be briefed to all works staff during pollution prevention training to make them aware of at risk areas.

### 13.2 Emergency pollution Event to Air

- LOCATE the source of the air pollution
- If safe to do so, **STOP** the source of the pollution for example by turning off faulty equipment. Do not expose yourself to any dust or vapours without the appropriate PPE.



- **STOP** any works which are in the vicinity of the pollution event and make sure all site staff and members of public are diverted away from the pollution event.
- **SUPPRESS** particulate air pollution with water but only if you can control the run off such that the water will not enter any drains or watercourses.
- **REPORT** the incident to the works manager and site engineer who will then determine if the event is serious enough to require notification to the Local Authority. Report the incident to the SPEN Projects Environmental Advisor.
- **REVIEW** the cause of the pollution event to determine any actions required to prevent the incident from recurring. Review the effectiveness of the response plan and make any changes necessary.

### 13.3 Emergency Pollution Event to Land or Water

No discharges can be made to land or water without a discharge consent in place. In the event of a fuel or chemical spillage the following procedure must be employed:

- **ASSESS** the situation. Determine the source, composition and approximate quantity of the spill and determine whether you have the appropriate equipment, PPE and training to tackle the spill.
- Get the HELP you require to deal with the spill safely. Inform the Works Manager/ site engineer of the spill. They will contact a spill contractor if required.
- If the spill is located adjacent to the site on one of the roads/pathways used by members of the public, **PREVENT** pedestrians and traffic passing through the spill. Contact police headquarters if the spill prevents a risk to traffic.
- **STOP** the source of the spill.
- **CONTAIN** the spillage using either a spill kit or a suitable inert material e.g. sand. DO NOT allow the spill to enter the local drainage system or watercourses. Cover any drains, and use spill socks to prevent run off to watercourses
- **REMOVE** the spillage. Small spills can be removed using spill mats and/or granules; larger spills may require a pump from a specialist contractor.
- **DISPOSE** of the waste material. Used spill kit should be placed in a designated bin separate from all other types of waste. Do not put used spill kit material in any of the skips. Material which has been pumped may be stored in empty oil drums or other suitable container prior to removal by a registered special waste contractor.
- **REPORT** the incident. Complete an Incident Report Form and provide a copy to the SPEN Projects Environmental Advisor. SEPA must be informed in the event of pollution to a surface water drain; Scottish Water and the Local Authority must be contacted should pollution from site enter the surface water or foul drainage system.
- **REVIEW** event to determine any actions required to prevent the incident from recurring. Review the effectiveness of the response plan and make any changes necessary.

### 13.4 Silting of Watercourses

It is the contractor's responsibility to ensure all watercourses visible on a 1:50,000 OS map have been identified at the planning stage and mitigation measures have been considered and implemented, such as, but not limited to silt fencing, Hydro dams, cut off ditches. Reference should be made to SEPA CAR Practical Guide and Pollution Prevention Guideline PPG5.

- **CHECK** watercourses during periods of high rainfall or construction activities with potential for significant run-off.
- Get the HELP you require to deal with the situation safely and inform Site Manager of the silting.
- Implement mitigation measures immediately. **TRACE** back to the source where possible. Consider whether the site activity should be halted.
- **PREVENT** further spread of sediment downstream by implementing straw bales, silt screens etc. to help control sediment immediately. If already in place check for signs of damage.
- **MONITOR** the effectiveness of protection measures daily and re-plan as necessary.
- **MAINTAIN** straw bales/screens etc. regularly so they do not make problems worse.
- **REPORT** the incident within 24 hours to the SPEN Projects Environmental Advisor. SEPA must be informed in the event of pollution to a surface water drain; Scottish Water and the Local Authority must be contacted should pollution from site enter the surface water or foul drainage system. SPEN Projects must be informed as soon as is reasonably practicable if a regulatory body has been informed of an incident.
- **REVIEW** event to determine any actions required to prevent the incident from recurring. Review the effectiveness of the response plan and make any changes necessary.

### 13.5 Injured Animal

- **DO NOT APPROACH** the injured animal. It may be aggressive or be harbouring disease
- **STOP** works in the immediate vicinity of the injured animal
- **CONTACT** the SSPCA and follow their advice.
- The incident should be recorded and reported to the SPEN Projects Environmental Advisor.



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## **Appendix 1: SPEN Environmental Technical Specification**

Attached separately as a PDF

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## **Appendix 2: SPEN Environmental Policy**

Attached separately as a PDF

### Appendix 3: ENDS Legal Compliance Register

Attached separately as a PDF

### Appendix 4: Pollution Prevention Plan – Example

As a minimum the Pollution Prevention Plans will be site specific and should address the following:

#### Description of the Project

Location of this land within the construction site as a whole (if the plan covers only part of the site)	Provide maps/drawings
Location of watercourses (inc. culverted watercourses, land drains etc.), ponds, wetlands, estuaries and coast on the construction site	Provide maps/drawings

#### Description of the Works being undertaken

Type of construction work that will be carried on the land to which this plan applies (e.g. metaled roads; water bound roads; etc.)	
Scale of the construction work (e.g. Road length; etc.).	

#### Who is the point of contact in relation to this plan?

Person(s) acting as normal contact with SPEN about this plan	
Person(s) acting as 24 hour contact with SPEN in an emergency (i.e. if there is an imminent risk of pollution or where pollution is occurring)	

#### What pollution risks will be managed under this plan?

Potential pollutant sources during the phase of construction covered by this plan, including exposed soil, fuel storage areas, concrete washouts, wheel washes etc.	
Routes by which pollutants (including soil) could reach the water environment from these sources, e.g. overland flow, field drains, unauthorised pumping	<include map or maps of existing site drainage, watercourses, field drains etc., including how this may change over the period covered by the plan>
Parts of the water environment that the pollutants could reach and any particularly sensitive features (e.g.	<include map or maps of the parts of the water environment, including how these might change (eg as a result of ground works) over the period

salmon, freshwater pearl mussels,)	covered by the plan>
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### What will be done to prevent pollution?

<b>How the contractor will manage risks at source, including alternative methods if required.</b>
Source 1 management Source 2 management Source 3 management  Add more as required

### How we will manage water run-off

Details of minimisation of exposed soil
<b>Drainage system 1</b>

<Map of area drained>			
<Maximum water run-off rate likely from drained area>	<Soil/sediment settlement rate>	<Capacity of drainage system>	<Discharge location>
<Details of the drainage systems that will be installed to intercept and trap/treat contaminated water run-off>			
<Steps to prevent drainage system being bypassed>			
<b>Drainage system 2</b>			
<Map of area drained>			
<Maximum water run-off rate likely from drained area>	<Soil/sediment settlement rate>	<Capacity of drainage system>	<Discharge location>

<Details of the drainage systems that will be installed to intercept and trap/treat contaminated water run-off>			
<Steps to prevent drainage system being bypassed>			
<b>Drainage system 3</b>			
<Map of area drained>			
<Maximum water run-off rate likely from drained area>	<Soil/sediment settlement rate>	<Capacity of drainage system>	<Discharge location>
<Details of the drainage systems that will be installed to intercept and trap/treat contaminated water run-off>			

<Steps to prevent drainage system being bypassed>
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### What will we do if something goes wrong?

Rapid response actions that will be taken to try to prevent pollutants reaching the water environment	
Rapid response actions that will be taken in the case of pollution occurring	
Rapid response actions that will be taken in the case of site characteristics changing (e.g. soil types)	

### How will we ensure that the plan is effective?

Maintenance programme that will be undertaken in relation to vehicles, plant and any infrastructure used to avoid, intercept or trap/treat pollutants	
Inspection programme that will be carried out to check the correct operation and effectiveness of the actions in this plan	

Management programme that will be used to ensure all workers on the site and anyone visiting the site are aware of, and doing, what is required of them in relation to this plan	
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**Who is in charge of making sure this plan is implemented?**

Person(s) with overall responsibility for ensuring this plan is implemented on a day-to-day basis	
Person(s) responsible for the maintenance programme (if different)	
Person(s) responsible for the inspection programme (if different)	
Person(s) responsible for ensuring appropriate rapid response to prevent or minimise pollution if something goes wrong	

**Appendix 5: Ecological Survey Calendar**

Protected Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Habitats & Vegetation	Recommended time to surveys mosses and lichens only			Recommended time to undertake Phase 1 habitat surveys			Recommended time to surveys mosses and lichens only					
Badgers	Best time for field surveys			Surveys possible, but sub-optimal			Best time for field surveys					
Bats	Inspection of hibernation, tree and building roosts			Activity surveys only; invasive surveys to be avoided			Activity surveys and inspection of building roosts. Emergence counts.			Activity surveys only; invasive surveys to be avoided		
Birds	Winter birds			Breeding birds/migrant species			Breeding birds			Breeding birds/migrant species		
Otters	Year round surveying, though wet weather can limit visibility.			Survey for breeding dens			Optimal survey period is spring to summer			Surveys can be carried out at any time of year, though better in spring and summer		
Pine marten	Surveys can be carried out at any time of year, though better in spring and summer			Survey for breeding females			Survey at any time of year, breeding females			Survey at any time of year		
Red squirrels	Survey at any time of year, breeding females			Initial surveys			Reduced WV activity			Breeding females		
Water voles	Reduced WV activity			Initial surveys			Reduced WV activity			Initial surveys		



Great Crested Newt	No surveys as newts in hibernation	Pond Surveys for adults: mid-March to mid-June. Surveys must include visits undertaken between mid-April and mid-May. Egg surveys April to min-June. Larvae surveys from mid-May Terrestrial habitat surveys	Larvae surveys to mid-August Terrestrial habitat surveys	Terrestrial habitat surveys	No Surveys – newts in hibernation
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Appendix 6: Survey Reports

Attached separately as a PDF

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## Appendix 7: SPEN Environmental Handbook (example TBTs)

Attached separately as a PDF