BLACKCRAIG & MARGREE WINDFARMS
132KV GRID CONNECTION

Environmental Statement [FEBRUARY 2011]

VOLUME 1

CHAPTERS 1 - 7 & NTS

SP TRANSMISSION

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0.0 Non-Technical Summary

0.1 Preface

1 This document provides a non-technical summary of the Environmental Statement which has been prepared in support of the applications for the development of a grid connection for the proposed windfarms at Blackcraig and Margree and associated changes to the grid network in this area.

2 The Environmental Statement comprises the following documents:

- The Environmental Statement (principal document)
- Non-Technical Summary
- Technical Appendix (single document)

3 Further copies of all these documents may be obtained, and will be available for viewing, from:

ScottishPower EnergyNetworks
New Alderstone House
Dove Wynd
Strathclyde Business Park
Bellshill
ML4 3FF
Tel: 01698 413270

4 The Non-Technical Summary is available free of charge, a copy of the Environmental Statement & Technical Appendices (principal document including figures) for £350. In addition all documents are available (as a PDF for screen viewing only) on a DVD for £25. Copies of all documents are also available at www.spenergynetworks.com/publicinformation/performance.asp.

5 Any representations to the application should be made directly to the Scottish Government Energy Consents Unit at the following email

representations@scotland.gsi.go.uk
OR
By post to The Scottish Government, Energy Consents Unit, Scottish Government, 4th Floor, 5 Atlantic Quay, 150 Broomielaw, Glasgow, G2 8LU

6 Copies of the documents will be available for public viewing at the following Council departments and Libraries:

East Ayrshire Council Offices
Planning Development & Building Standards
6 Croft Street
Kilmarnock
KA1 1JB

Dumfries & Galloway Council
Area Planning Office
4 Market Street
Castle Douglas
DG7 1BE

Scottish Government Library
Saughton House
Broomhouse Drive
Edinburgh
EH11 3XD

Dalry Community Library
Main Street
St John's Town of Dalry
Castle Douglas
DG7 3UP

Cumnock Community Library
25-27 Ayr Road
Cumnock
East Ayrshire
KA18 1EA

Dalmellington Community Library
Townhead
Dalmellington
East Ayrshire
KA6 7QZ

0.2 Introduction

1 This Non-Technical Summary forms part of the Environmental Statement prepared under The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 on behalf of ScottishPower Transmission Ltd, a wholly owned subsidiary of ScottishPower and subsequently referred to as SPT.

2 SPT is the Transmission Licence holder for the south of Scotland and is required under the Electricity Act 1989 and under the terms of its Electricity Supply Licence "to develop and maintain an efficient, co-ordinated and economical system of electricity transmission". SPT is obliged to provide electrical connections from various proposed windfarm developments to the existing grid network.

3 Applications to install and operate larger overhead lines are made to the Scottish Ministers through Section 37 of the Electricity Act 1989 rather than to the local planning authority. The local planning authority is however consulted in their determination.

4 The Environmental Statement has been prepared in support of three applications under Section 37 of the Electricity Act 1989 for:

- A single circuit overhead (wood pole) line between the Blackcraig and Margree substations (carrying the Blackcraig Windfarm circuit);
- A single circuit overhead (wood pole/tower) line between Margree and Meikle Hill substations (carrying the windfarm circuits); and
- A single circuit overhead (tower) line between Kendoon and Meikle Hill substation (carrying the existing Galloway Hydro circuit).

5 As part of the Section 37 applications, SPT are also seeking that the Scottish Ministers issue a direction that deemed planning permission be granted under Section 57 (2) of the Town & Country (Scotland) Planning Act for the overhead lines and the ancillary development of the windfarm substations at Blackcraig and Margree.

6 The Environmental Statement sets out the background to the route identification process, the relevant planning and other issues. It presents details of the proposed development, and the results of specific studies undertaken to assess the likely significant environmental effects of the proposal.

7 The connection is required in this location as the locations of the Blackcraig and Margree Windfarms and Meikle Hill are fixed end points for this connection.

8 In identifying the proposed route, SPT has sought to combine sensitive routeing with appropriate mitigation measures to avoid and reduce environmental effects on both the immediate and wider environment. In addition the project has sought to use the requirement for this new connection to provide an opportunity to replace elements of the existing ageing grid infrastructure which will be removed following completion and energisation of the new connections.

9 At all stages of the project, SPT has consulted widely with all of the relevant local, regional and national bodies. In addition to this project information was made available to the public in order to gauge and respond to public concerns regarding the proposal.

10 This proposal for the grid connections is made whilst the applications for the windfarms remain undetermined to ensure that if consented, any time lag to achieving a grid connection is minimised. The grid connection would only be developed (if consented) if the windfarms were consented.

0.3 Legal and Policy Framework

1 Whilst the application for these grid connections will be made to the Scottish Ministers under Section 37 of the Electricity Act 1989, they lie within the administrative areas of East Ayrshire Council and Dumfries and Galloway Council, and the applications will be considered not only in the context of the Electricity Act but Scottish Government Planning Policy (SPP) and the development plans for these areas.

2 SPT have accepted that an Environmental Impact Assessment (EIA) is required for this grid connection and have prepared this Environmental Statement to report the findings of this EIA. The process of EIA seeks to identify the likely significant effects of the proposal.

0.4 Route Selection, Community Consultation and Scoping

1 This grid connection is located in this area to provide a connection between the fixed points of the Blackcraig and Margree Windfarms and Meikle Hill.

2 In identifying the proposed route and form of this grid connection SPT, whilst being obliged to provide a grid connection, have been mindful of their dual obligations under the Electricity Act 1989 to develop and maintain an efficient co-ordinated and economical system of electricity transmission and also to preserve the environment.

3 On the basis of the fixed points for the connection, extensive studies have been undertaken to identify the most suitable alignment and technical form for the grid connection. This has been undertaken sequentially through the process of EIA to allow the balance of technical and environmental issues to be fully understood.

4 The routeing exercise was initially undertaken on the basis of well established industry rules and was subsequently modified to reflect the growing understanding of the specific local constraints identified through the EIA process.

5 The principal issues to which the routeing needed to respond were the:

- Requirement to minimise the number and extent of overhead lines within the environment;

- The requirement to adopt accepted principles of routeing;
- The need to identify and use forms of overhead line most suited to the local environment; and
- To avoid where possible identified environmental and other constraints both at a broad and more local scale.

6 Whilst it has not been possible to avoid all constraints, the route identified is considered to provide the most appropriate balance in the light of SPT's dual obligations described previously.

7 The grid connection was initially developed through a number of options to a stage known as the "Preferred Route" which represented SPT's understanding of the most appropriate way to provide a grid connection based on the environmental work and consultation undertaken to that point.

8 This Preferred Route was described within the following documents:

- Consultation Document (April 2009) (Issued to a wide range of consultees to seek their opinions on the proposal);
- An exhibition of the material within the Consultation Document which was held on four consecutive days 27th to 30th April 2009, two days in Dalmellington Community Hall and two days in Lagwyne Hall, Carsphairn to allow members of the public to view the developing proposal and to comment on it. These exhibitions were attended by SPT (and their consultants) for one day in each location, with the exhibitions open but unattended on the other day.

9 In addition SPT undertook a series of consultation meetings with East Ayrshire Council, Dumfries and Galloway Council, Scottish Natural Heritage, Forestry Commission, Royal Society for the Protection of Birds and others.

10 Following this round of consultation the comments of those responding to the proposal were considered and the grid connection was subject to revision to reflect a number of these.

11 These comments and the results of further environmental studies allowed the development of the "Proposed Route" which is the subject of these applications.

12 This proposed route was described in the Scoping Request (September 2009) issued to the Scottish Ministers (who will determine the application) to allow them to identify the issues that should be considered within the EIA).

13 In response, the Scottish Ministers provided a Scoping Opinion – their view as to what should be considered within the EIA. The EIA and the Environmental Statement have been undertaken on this basis. It should be noted that no Scoping Response was received from East Ayrshire Council.

0.5 The Grid Connection

1 The proposed grid connections provide the link between the windfarms at Blackcraig and Margree and the substation at Meikle Hill. (The Meikle Hill substation (and associated overhead lines) is the subject of an existing undetermined Section 37 application to the Scottish Ministers.) The substation at Meikle Hill will, when consented, provide a link to the wider grid in southern Scotland.

2 The grid connection required to accommodate the combined capacity of these two windfarms will be a single circuit at 132kV. This voltage will be stepped up at the Meikle Hill substation to 400kV for onward transmission to the grid.

3 The connections between the windfarms and their substations will be at 33kV and this voltage will be stepped up to 132kV within the substations.

4 Typically 132kV connections take the form of overhead lines carried on steel lattice towers with an average height of 29m. In recognition of the sensitive nature of some of the local landscapes, SPT identified from the outset that the connection could be provided on a wood pole structure of up to 16m height rather than the more typical steel lattice towers.

5 The wood pole structures generally comprise twin poles with steel work above supporting the insulators and 3 conductors and the earth wire. See Figure NTS.01.

6 The strategy adopted for the connection to limit the extent of overhead lines within the landscape and to provide an opportunity to replace and reinforce the existing ageing network in this area requires that part of the connection be combined with the replacement for the existing single circuit 132kV Galloway Hydro circuit.

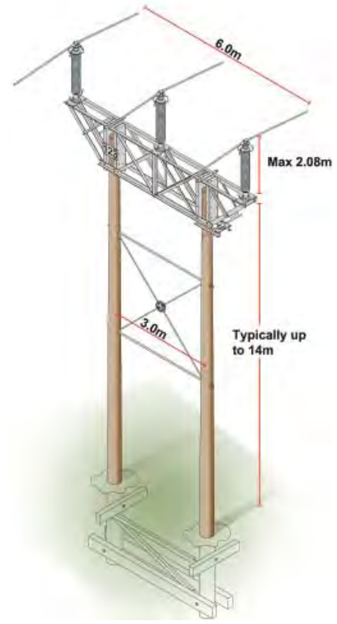
7 This resulted in much of the route comprising two 132kV circuits (one from the windfarms and one replacement for the existing Galloway Hydro Circuit) combined and being supported on a steel lattice tower structure. See Figure NTS.02.

8 On this basis the proposal was developed to provide a route between the substations which both minimised the required length and also respected the environmental constraints.

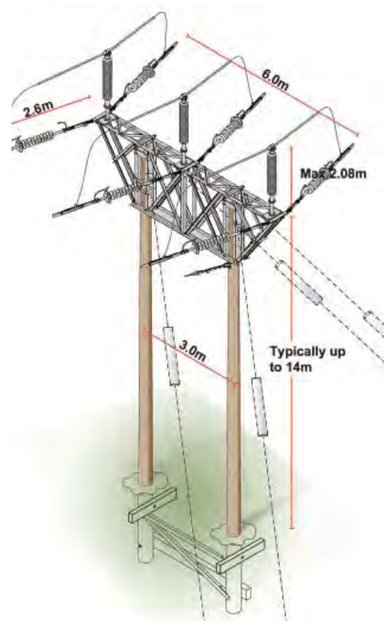
9 The proposed grid connection therefore comprises the following (See Figure NTS.03):

- 2.7km of underground cable (33kV) from the windfarm at Blackcraig to its substation;
- 1.8km of single circuit overhead line (132kV) on wood poles running west to the substation at Margree;
- 10.4km of single circuit overhead line (132kV) overhead line on wood poles running west from the substation at Margree to a point west of the A713 to the north of Polmaddie;
- 440m of underground cable (132kV) between the wood pole line and the L7 tower line; and
- 24.3km of twin circuit overhead line (132kV) overhead line on steel lattice towers running north from a point west of the A713 to the north of Polmaddie to the substation at Meikle Hill.

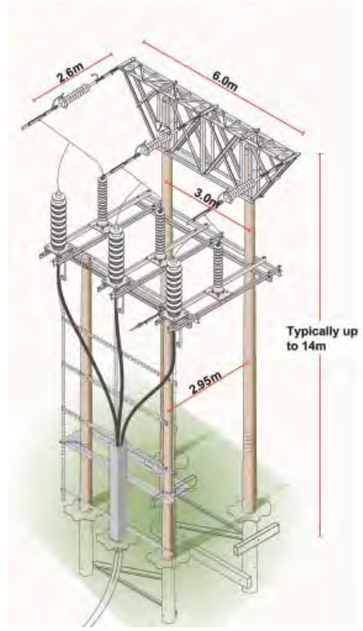
Figure NTS.01 - Wood pole types/supports



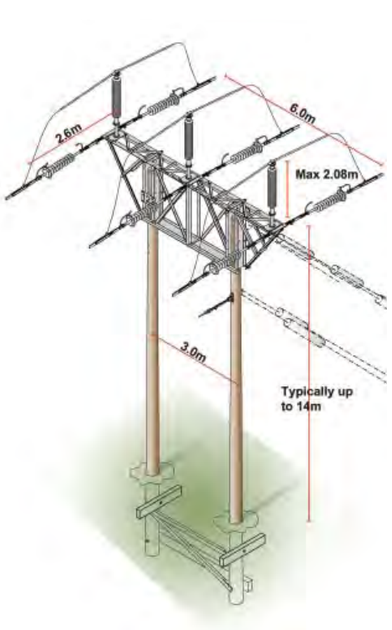
Straight line Wood pole



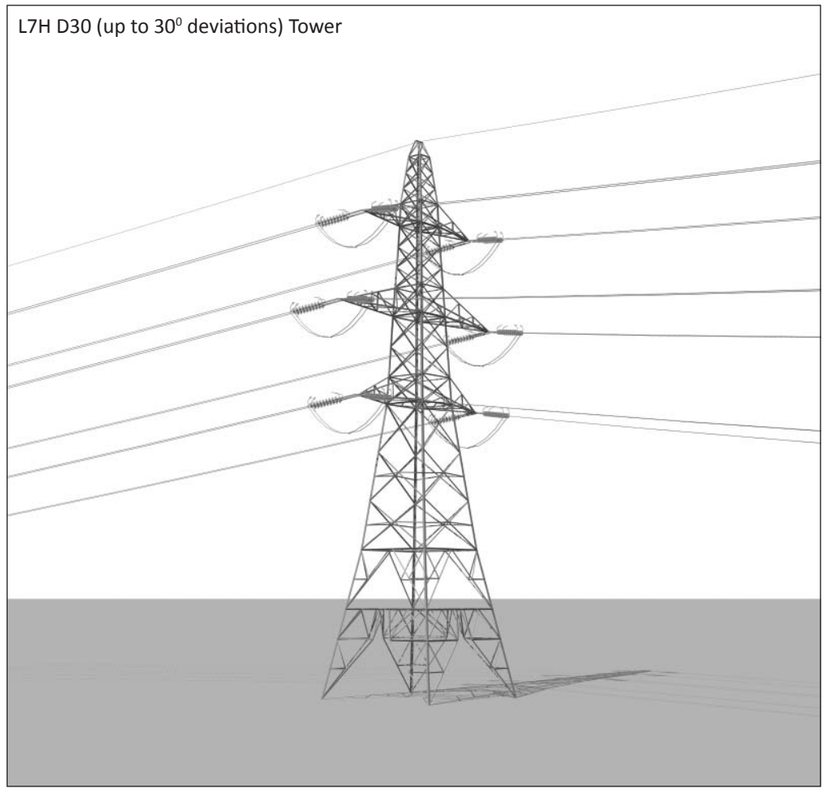
Angle Wood pole

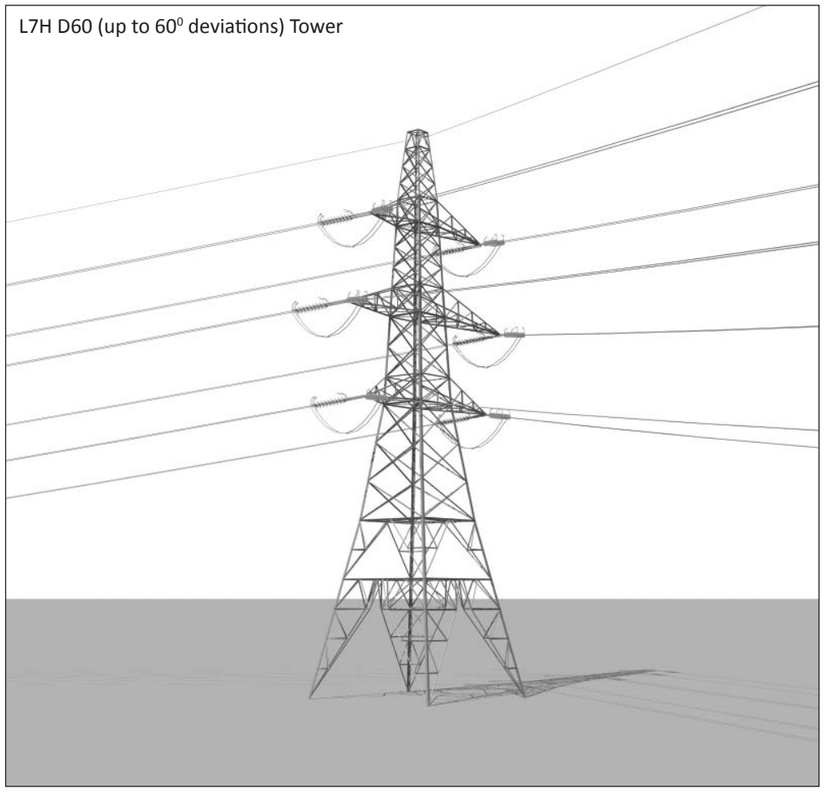


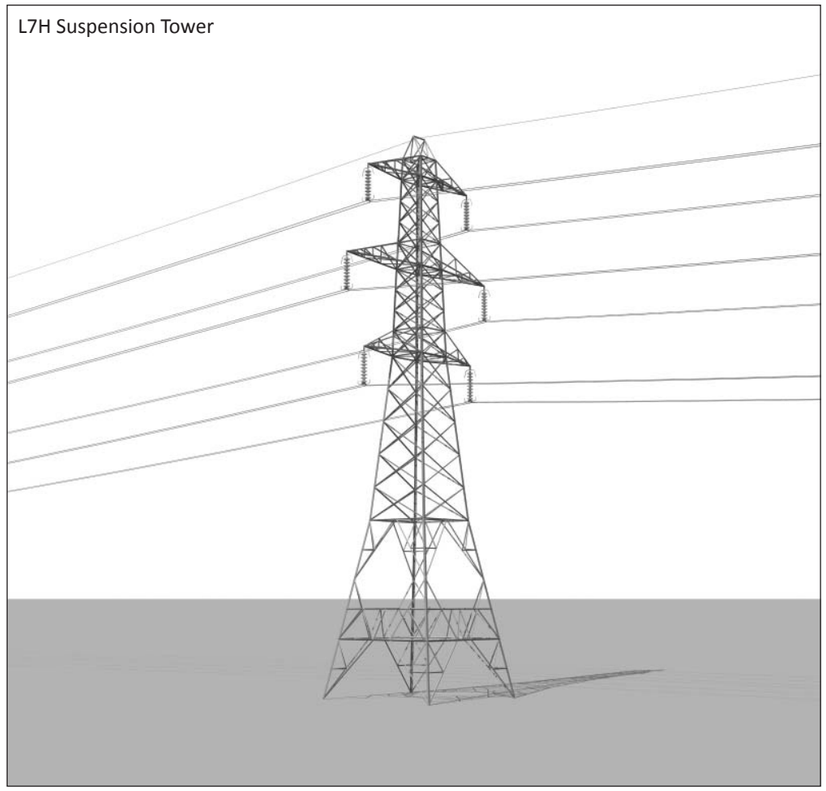
Termination Wood pole



Section Wood pole







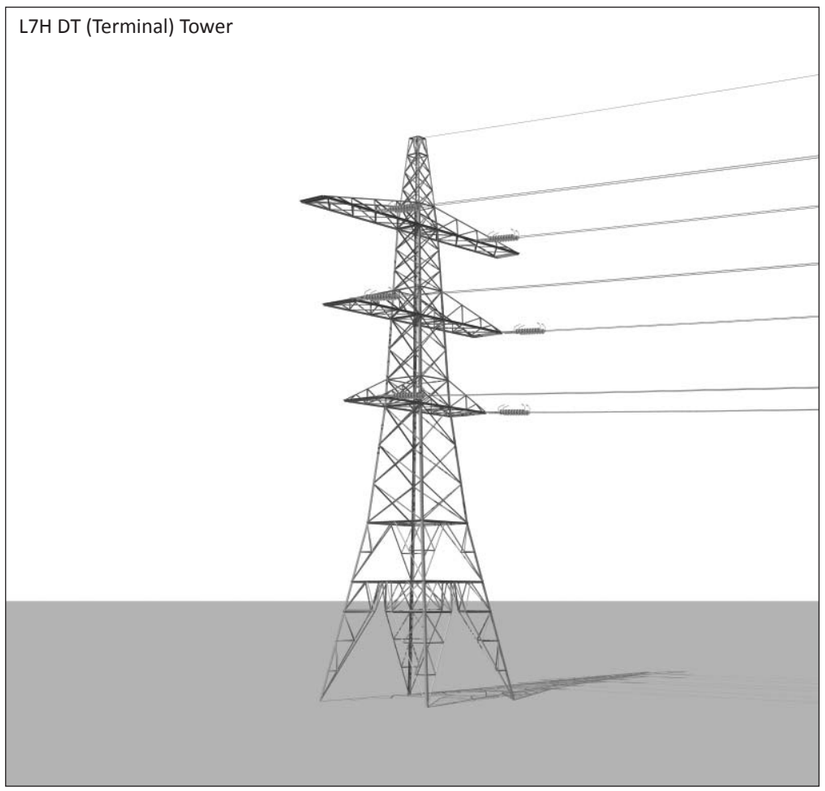
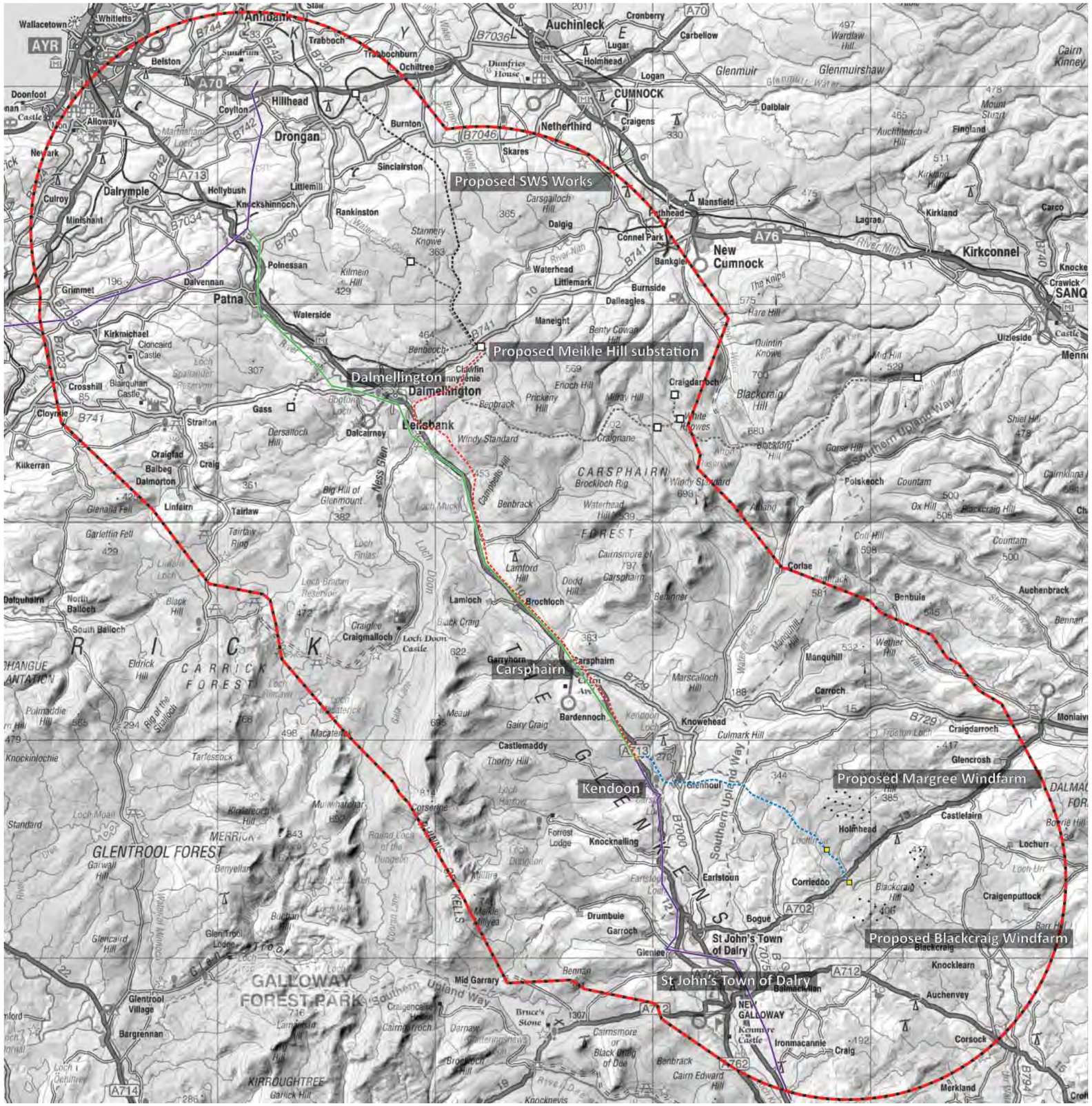


Figure NTS.02 - L7H Tower types



Legend

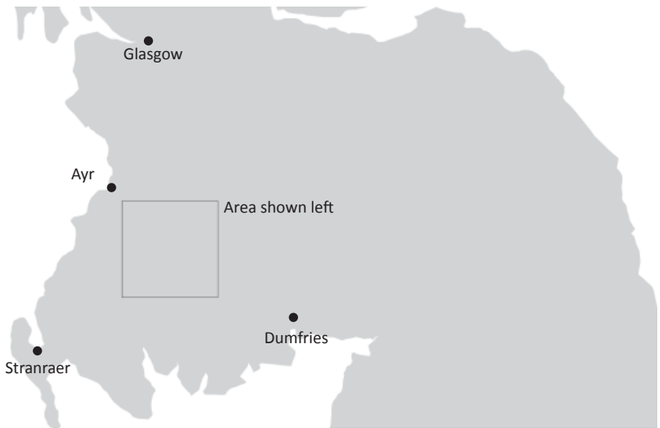
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood pole line
- Proposed L7 Tower line (combining the windfarm circuit and the refurbished N-Route circuit
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km study area boundary

Components of South West Scotland Renewables Connection Project

- 400kV line
- 132kV line
- Substation

Location Plan



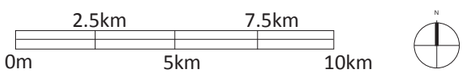


Figure NTS.03 - Site Context & elements of the grid connection

10 Following construction and energisation of the new overhead lines, the redundant parts of the existing 132kV single circuit N-Route (32km from a point west of the A713 to the north of Polmaddie to 12km north of Dalmellington) will be dismantled and removed under Permitted Development Rights.

0.6 Environmental Effects

1 The process of EIA has been undertaken to identify the likely significant effects of the proposed grid connection and these are described in the following sections. The effects may result either from the construction of the connection or through its operation over the period of its life.

2 Through the process of the EIA, SPT has sought to limit the effects of the proposed grid connection. This has been undertaken through a process known as mitigation. Where likely significant environmental effects are identified, the proposal may be amended to avoid these, or measures developed to reduce these or offset them.

3 Much of the routeing process was undertaken to avoid potential environmental issues.

0.6.1 Forestry

1 The construction of the grid connection will require a number of changes to the pattern of woodland along its length.

2 Within the overall length of the proposed grid connection, 21.7km of this lies within areas of woodland. This woodland is divided between Forestry Commission Scotland and a number of private owners.

3 The woodland is predominantly commercial coniferous plantation, although with limited areas of broad leaved woodlands.

4 The proposal has been developed to reduce the area of felling required whilst being mindful of the need to achieve:

- A layout which does not unduly compromise forestry activities;
- A corridor within the forest which respects best practice forest design; and
- Avoids areas of sensitive habitat.

5 Mitigation of the effects on forests and woodlands is proposed through a combination of routeing, detailing of the overhead line structures and crown reduction and other arboricultural measures.

6 The proposal requires the felling of approximately 111ha of woodland within the 80m corridor for the overhead line. The effect of this felling is such that an additional area of 106 ha is thought likely to be liable to windthrow. It is the intention of SPT to seek to agree with the relevant landowners to manage this area liable to windthrow in accordance with best practice to the nearest practical windfirm edge taking account of forest landscape design principles.

7 Most of this 217ha of woodland is commercial conifers and would anyway therefore be felled at some stage in the future.

8 There are limited areas of Ancient Semi-Natural Woodland along the route of the proposed overhead line, notably at the Carse of Dundeugh and Greenwell of Scotland. These amount to 614m in length, and if felled to the full 80m corridor width would require 4.77ha of felling.

9 The detail of the overhead line in these areas has however been developed such that the requirement for felling in these areas has been limited to only a very limited number of mature broad leaved trees, with others dealt with through limited crown reduction or other arboricultural management.

10 The effect of felling of 217ha of commercial (largely) coniferous woodland is considered significant. The effect of the very limited change to the Ancient Semi-Natural Woodland is considered not significant.

0.6.2 Landscape and Visual Impact Assessment

1 The proposed grid connection has been developed as far as possible to mitigate the potential landscape and visual effects that might result from such development.

2 The detailed route, and the forms of the overhead lines, in responding to the underlying landscape form and pattern, have limited the extent, nature and scale of effects.

3 Notwithstanding the mitigation provided by the routeing and detailed design of the OHL route, a number of significant effects on the landscape resource and visual amenity will result from the proposed grid connection.

4 Local significant effects upon the landscape character occur along the length of the route within all of the landscape units through which it passes, except within the Foothills landscape unit to the south of Dalmellington. These effects are variously both beneficial and adverse in nature, depending on the elements of the grid connection being considered. Beneficial effects generally occur to the north of Dalmellington, where the existing N-Route will be removed from the landscape without replacement.

5 Significant adverse effects particularly occur within the landscapes currently not containing infrastructure of this type and where this constitutes an appreciable change such as that between Butterhole Bridge and Dalshangan.

6 Where the proposed OHL essentially replaces the existing N-Route, along the A713 valley, the effects upon the landscape resource are not significant.

7 Significant effects upon the landscape resource for other specific receptors are limited to a small number of the roads that run through the Study Area, part of the Southern Upland Way near to Butterhole Bridge and the Loch Doon Valley Sensitive Landscape Area.

8 The significant effects upon the A713 are adverse where the proposed OHL route passes closer to, or forms a more conspicuous element of the view, from this important tourist route, but are beneficial as the road corridor runs northwards from Glen Muck, and the existing N-Route is removed from within views from the road. Elsewhere, significant adverse effects are found from parts of the B7000 and the minor roads between Milnmark, Cuckoostone Cottage and Auchenstroan Craig, where the wood pole OHL route runs in close proximity to the road.

9 Significant effects on the visual amenity extend along much of the local landscape occupied by the OHL and in close proximity to it. In some cases these effects are adverse, although locally in Glen Muck and northward there are beneficial effects from the removal of the N-Route.

10 These significant adverse effects upon visual amenity result from the OHL either becoming a new or more prominent element of the view (relative to the existing N-Route OHL) than is currently the case.

11 The effects on visual amenity diminish rapidly with increasing distance from the OHL (particularly the wood pole elements) especially where it is viewed backclothed by landscape or woodland, such that within much of the wider landscape it will be either unseen or not perceptible.

0.6.3 Terrestrial Ecology

1 The study area for the OHL includes a range of habitats, statutory designated sites, flora and fauna. The dominant habitats are commercial conifer plantation, moorland habitat mosaics, improved enclosed pasture, and scattered areas of semi-improved species-rich neutral / calcareous grassland.

2 Important ecological constraints (protected/sensitive sites, habitats and species of national conservation concern), along with other environmental constraints, were carefully considered during the determination of the proposed route for the OHL. This has appreciably avoided and reduced potential adverse effects from this OHL on sensitive ecological receptors.

3 Local information concerning the ecology of the area has been obtained from relevant statutory and non-statutory consultees. These include Scottish Natural Heritage, Scottish Wildlife Trust, Scottish Environment Protection Agency, Ayrshire and Galloway Rivers Trust. Desk study information was also obtained from the local biological record centres, Botanical Society of the British Isles local recorder, Forestry Commission Scotland, local badger and bat groups, Red Squirrel Group, and information from the East Ayrshire and Dumfries & Galloway Biodiversity Officers.

4 Field surveys were carried out including an extended Phase 1 habitat survey and a range of protected species surveys (i.e. water vole, otter, red squirrel, badger and bats).

5 The nature conservation value of habitats and flora ranged from High (e.g. Bogton Loch SSSI, Dalmellington Moss SSSI, main watercourses), Medium (e.g. broadleaved semi-nature woodland, blanket bog, semi-improved species-rich grasslands) to Low (e.g. conifer plantation woodland). All fauna identified as Medium or Local High nature conservation value apart from fresh water pearl mussels which were assessed as High.

6 Potentially significant effects on habitats as a result of the proposed OHL, were identified for:

- blanket bog;
- marsh;
- marshy grassland;
- semi-improved grasslands; and
- wet dwarf shrub heath.

7 Potentially significant effects on were also identified as a result of the dismantling of the N-Route for:

- Dalmellington Moss SSSI;
- blanket bog; and
- raised bog.

8 Potentially significant effects were identified, principally in relation to pollution risk during construction works on:

- Watercourses;
- salmonid fish;
- Bogton Loch SSSI;
- Loch Doon SSSI; and
- standing waters.

9 Potentially significant effects during the construction, dismantling and operational phase were identified for:

- bat species;
- otter;
- red squirrel; and
- fresh water pearl mussel.

10 A range of mitigation measures have been developed to address these effects and are included within the proposal. They include pre-works surveys/assessments (followed by appropriate measures where necessary to prevent significant adverse effects on any protected species), ecological micro-siting of all works, use of best practice pollution control measures, and habitat management of the wayleave corridor to address adverse effects on species and habitats.

11 Implementation of the proposed mitigation measures will result in the overall effects on habitats and species of conservation interest being not significant in the long-term.

0.6.4 Ornithology

1 The bird populations of the study area have been determined through the collation of relevant available baseline data, desk study and field survey. Field survey has included extensive flight activity surveys (>4,000 hours of observations between October 2007 and May 2009), wintering wildfowl surveys, woodland breeding bird surveys, moorland breeding bird surveys, breeding raptor surveys, black grouse lek surveys, forest owl surveys, breeding nightjar survey, and hen harrier roost survey.

2 Species present in the study area identified as important for the assessment of the proposed OHL include species listed on Schedule 1 to the Wildlife & Countryside Act 1981 and/or Annex 1 of the EC Birds Directive, such as:

- red kite;
- goshawk;
- merlin;
- peregrine;
- hen harrier;
- barn owl;
- nightjar; and
- whooper swan.

3 Also a number of UK Red List and/or UK BAP priority species are present such as:

- black grouse;
- lapwing;
- cuckoo;
- skylark; and
- tree pipit.

4 Local information concerning the ornithological interest of the area has been obtained from relevant statutory and non-statutory consultees. These include Scottish Natural Heritage and Royal Society for the Protection of Birds, Scottish Ornithological Society, British Trust for Ornithology, and the Dumfries & Galloway Raptor Study Group.

5 Important ornithological constraints such as protected/sensitive sites, breeding/roosting sites of species of high conservation concern, were considered during the determination of the proposed route for the OHL to avoid and/or reduce potential adverse effects on sensitive ornithological receptors.

6 Calculations based on the bird flight activity survey data were undertaken to assess collision risk for species of high conservation concern considered to at particular risk of collision with overhead lines (e.g. whooper swan, greylag and pink-footed geese, Schedule 1 raptor species and black grouse).

7 38 species of conservation concern (i.e. Schedule 1 / Annex 1 species, species listed on the UK amber or red lists) were confirmed or suspected of breeding within the OHL survey area.

8 The survey area was found to support breeding bird assemblages typically associated with the dominant habitats.

9 Eight raptor/owl species were recorded as breeding with 2km of the proposed OHL route.

10 Five wader species were recorded as breeding in the survey area.

11 Occasional black grouse flight activity was recorded however; no lekking activity or evidence of breeding activity was recorded.

12 A total of 20 songbird species were confirmed as breeding within the survey area.

13 Potentially significant effects, were identified for the construction phase for several species including:

- red kite;
- hen harrier;
- goshawk;
- black grouse;
- barn owl; and
- nightjar.

14 A similar range of potentially significant effects were also identified during the proposed dismantling works.

15 For whooper swan and greylag goose the overall effect of the installation of the proposed OHL and removal of the existing line on annual collision mortality is considered to be beneficial.

16 Peregrine is the only species that is considered to be subject to a potentially significant effect from collision risk in the long-term, in relation to the local-regional population.

17 Potentially significant effects were identified for goshawk, black grouse and nightjar during operation maintenance or emergency works.

18 Additional mitigation measures are proposed to address potentially significant effects. These include pre-construction bird surveys, felling of trees outwith the breeding season and use of bird flight diverters on the conductors and earthwires to reduce collision risk along a number of defined sections of the OHL. Implementation of these measures will ensure that there are no significant effects.

0.6.5 Archaeology

1 An assessment has been undertaken of the likely effects on cultural heritage assets of the proposed construction and operation of the Blackcraig and Margree OHL and substations at the two wind farms, including the dismantling of a length of the existing N-Route overhead line. Desk-based assessment and reconnaissance field survey were carried out to identify the cultural heritage baseline within and surrounding the proposed works. The baseline survey identified more than 300 relevant cultural heritage sites, monuments, features and areas of interest, ranging in date from early prehistoric findspots to the remains of 20th century military installations and

industrial monuments. These cultural heritage assets are testament to the long and continuous history of occupation and exploitation of the landscape crossed by the proposed and existing overhead lines, since early prehistoric times.

2 The assessment identifies the likely construction, operational, secondary and cumulative effects of the proposed works on cultural heritage assets. Likely felling and construction effects (i.e. physical effects on cultural heritage assets) have been identified in relation to 47 cultural heritage features and potentially on presently unrecorded archaeological remains. A range of mitigation measures are identified that will variously prevent, reduce or offset these likely effects. Taking this mitigation into account, the assessment does not identify any significant residual construction and felling effect.

3 The assessment of operational effects identifies that two cultural heritage assets are likely to experience significant beneficial effects on their settings as a result of the implementation of the proposals. These are the designed landscape at Craigengillan; and a listed lodge within the designed landscape and they will be enhanced, with the removal of the existing N-Route overhead line that presently crosses the northern part of the designed landscape. There are a number of not significant effects on the settings of a number of receptors. These not significant effects include both adverse and beneficial effects.

4 No significant adverse operational effects are identified as a result of the proposals on cultural heritage receptors. A small number of not significant secondary effects on cultural heritage assets are identified, on heritage walks and as a result of potential disturbance caused by windthrown trees consequent upon forestry felling.

5 Cumulative operational effects are identified in relation to seven specific cultural heritage receptors; in all cases the Blackcraig and Margree proposals are found to provide a beneficial contribution to the identified cumulative operational effect, through the removal of a length of the existing N-Route overhead line.

6 Overall, the assessment concludes that the proposed works will have a minor, adverse and not significant effect on cultural heritage assets and the historic environment, principally as a result of the likely physical effects of construction and felling operations upon archaeological remains. However, it identifies positive outcomes of the proposed works, specifically resulting from the removal of a length of the existing N-Route overhead line, which will be beneficial and significant.

0.6.6 Hydrology and Hydrogeology

1 An assessment has been carried out of the likely effects of the proposed grid connection on the hydrological and hydrogeological environments. The assessment has considered site preparation, construction and operation of the grid connection, together with removal and decommissioning of part of the existing N-Route.

2 The potential effects on the surface waters, groundwaters, peat and soils, and public and private water supplies that have been considered are:

- Pollution incident;
- Erosion and sedimentation;
- Changes to water resources, i.e. public and private water supplies;
- Modification to surface water and groundwater flows;
- Modification of natural drainage patterns;
- Impediments to flows and flood risk; and
- Compaction of soils.

3 The principal potential effects relate to the construction phase of the OHL as a result of disturbance to soils and the use of plant and chemicals within the hydrological environment.

4 A number of layout, design and construction proposals have been identified that will minimise, mitigate or offset these potential effects.

5 It is concluded that, with the proposed mitigation in place, the effects on the hydrological and hydrogeological environments will not be significant.

0.6.7 Traffic and Transport

1 The operation of the proposed OHL will not give rise to any significant effects, with vehicle movements related to this limited to occasional visits for routine repairs and wayleave maintenance and exceptionally for emergency maintenance if required.

2 The construction of the substations and to a lesser extent the overhead lines themselves will require appreciable vehicle movements during the construction period.

3 The total number of vehicle movements have been identified for the various stages and elements of the construction works.

4 These vehicle movements include both light vehicles and HGVs. There will only be very limited requirements for abnormal vehicle movements with these limited to a single transformer movement for each substation.

5 The routes likely to be used for these vehicle movements have been identified and the vehicle numbers assigned to these routes to provide an assessment based on a comparison between the existing traffic flows and those attributable with this project.

6 Typically in assessments, a ≥30% increase in traffic is considered to result in significant effects. This level of change (significant) is predicted on the following roads during some part of the construction programme:

- A712 – east of B7-75 junction;
- A702 - east of B7-75 junction;
- B729 – from A713 junction to A702 at Moniaive;
- B7000 – north of St John's Town of Dalry;
- B7075 – between A702 and A712 junctions;
- C51 – all; and
- U141 – all.

7 There are not significant effects (≤30% increase in traffic) on the:

- A713 – Patna to Dalmellington;
- A713 – south of B741 junction; and
- B741 – Dalmellington to New Cumnock.

8 Although the normal assessment criteria (≥30% increase) identify a number of significant effects, these need to be considered in the light of the existing capacities of these roads. In all cases, although there are appreciable increases in terms of percentages, these increases in many cases reflect the low baseline traffic flows.

9 The assessment particularly considers the temporary traffic movements associated with the construction of the OHL and substations and the percentage thresholds are normally applicable to permanent traffic increases as a result of development.

10 Despite the sizeable percentage increases on a number of the roads, these temporary additional traffic movements arising from the construction process remain appreciably within the capacities of the roads.

0.6.8 Tourism and Recreation

1 An assessment of the likely significant effects of the proposed grid connection on the Tourism and Recreation baseline of the area within which the development is proposed has been undertaken. This assessment considered a broad range of potential receptors as identified below:

- Settlements;
- Tourist Routes;
- Walking Routes;
- Estates;
- Events;
- Visitor Attractions;
- Activity Centres; and
- Accommodation
- Rights of Way;
- Core Paths;
- Bridleways;
- Climbing Routes;
- Cycling Routes;
- Golf;
- Fishing – Rivers and Lochs;
- Forest Parks/Nature Reserves;

2 The assessment draws on an understanding of the potential effects of development of this type to the receptors identified.

3 The assessment identified that there would only be significant effects on a limited number of the potential receptors identified above. In most cases these are adverse effects, however in a number of cases there are also beneficial effects. Beneficial effects largely result from the removal of the N-Route north of Dalmellington. Significant effects of both types are set out below in Table NTS.01:

Table NTS.01 - Schedule of Significant Effects on Tourism & Recreation

Significant Adverse Effects	Significant Beneficial Effects
Settlements (9 no) None	Settlements (9 no) (4 of 9) - Bellsbank, Burnfoot, Patna and Straiton
Tourist Routes (5 no) (2 of 5) - A713 and B7000	Tourist Routes (5 no) (1 of 5) - A713
Walking Routes (25 no) (1 of 25) - Carsphairn Trail	Walking Routes (2 of 25) – Dalmellington Town Trail and Patna Walk
Rights of Way (67 no) (12 of 67) Rights of Way	Rights of Way (67 no) (12 of 67) Rights of Way
Core Paths (101 no) (19 of 101) Core Paths	Core Paths (101 no) (4 of 101) Core Paths
Bridleways None	Bridleways None
Climbing Routes (10 no) None	Climbing Routes (10 no) None
Cycling Routes (6 no) (3 of 6) – Carsphairn Loop to Moniaive and Dalry, St John's Town of Dalry to Drumlanrig Castle and The National Byway	Cycling Routes (6 no) None
Golf (1 no) None	Golf (1 no) (1 of 1) - Doon Valley Golf Course
Fishing – Rivers and Lochs (20 no) (2 of 20) – Water of Deugh and Water of Ken	Fishing – Rivers and Lochs (20 no) (1 of 20) – River Doon
Forest Parks/Nature Reserves (8 no) (1 of 8) – Dundeugh Hill Woodland	Forest Parks/Nature Reserves (8 no) (1 of 8) – Bellsbank Plantation
Estates (2 no) None	Estates (2 no) (1 of 2) - Craigengillan Estate
Events (5 no) None	Events (5 no) None
Visitor Attractions (7 no) (2 of 7) – Carricks of Carsphairn and Carsphairn Heritage Centre	Visitor Attractions (7 no) (1 of 6) – Cathcartson Visitor Centre/ Doon Valley Museum
Activity Centres (1 no) None	Activity Centres (1 no) None
Accommodation (17 no) (1 of 17) – Kendoon Youth Hostel.	Accommodation (17 no) (1 of 17) – Carskeoch Caravan Park.

4 In addition to these significant effects there are a number of minor (not significant effects) on a number of the receptors.

0.6.9 Other issues

1 A range of other issues were considered and found not to give rise to any significant effects.

2 The issues considered included:

- Noise;
- EMF Radiation;
- Waste Management; and
- Land use.

0.7 Summary

1 The routeing, forms of the overhead line and its support structures, the combination and integration with the existing and proposed grid network and the proposed mitigation have served to limit and/or avoid potential effects.

2 This reduction of effects has resulted in a proposal that only gives rise to significant effects as outlined in Table NTS.02 below. These effects are illustrated diagramatically, and in the context of the route, on Table NTS.03.

Table NTS.02 - Categories of Significant Effect

Discipline	Effect
Forestry	Locally significant adverse effects as a result of the felling (111 ha) and potential windthrow (106 ha);
Landscape resource	Local changes to the landscape units and other receptors in close proximity to the overhead (principally adverse, although some beneficial effects where the existing overhead line is removed and not replaced)
Visual amenity	Local changes to views and visual amenity in close proximity to the overhead (principally adverse, although some beneficial effects where the existing overhead line is removed and not replaced)
Archaeology	Significant beneficial effects on the settings of the designed landscape at Craigengillan and a lodge building within the estate result from the removal of part of the existing overhead line north of Dalmellington
Traffic and Transport	Locally significant adverse effects on the immediate road network (although within the capacity of these roads)
Tourism and Recreation	Locally a range of significant effects, (both adverse and beneficial)

3 These effects are generally in close proximity to the overhead line and as such there is limited additional mitigation that could be applied to these to further reduce them.

4 The location of the significant adverse effects is generally outwith the areas considered most sensitive.

5 The limited number of significant effects (most of which cannot be avoided with a development of this nature) indicates that SPT have complied with their obligations in providing a technically feasible and economically viable grid connection which causes the minimum disturbance to people and the environment.

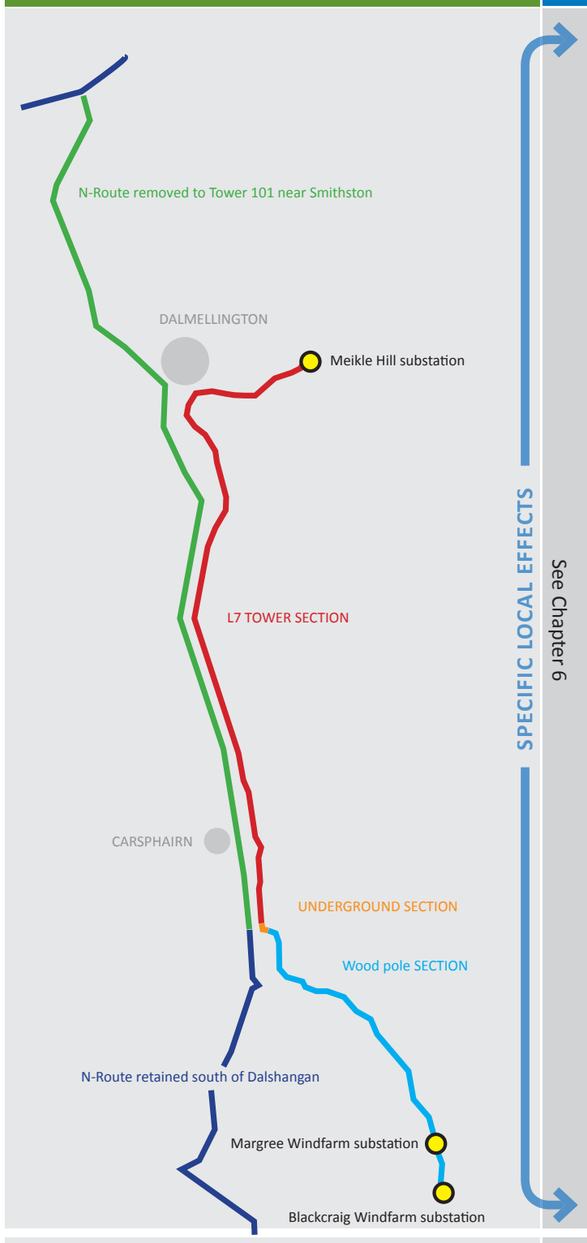
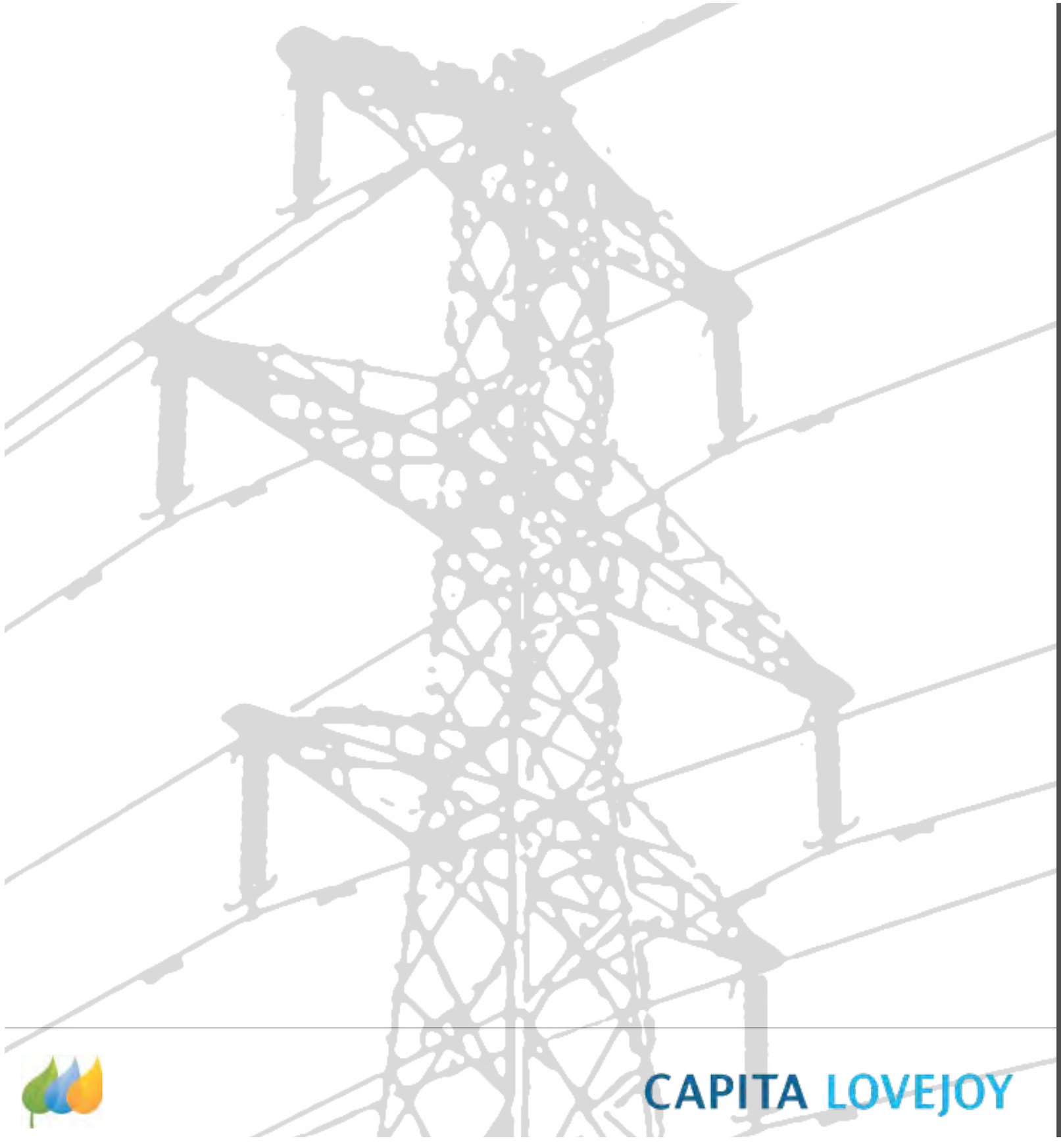
Schematic Route plan	Significant Effects									
	Forestry	Landscape Resource	Perception of landscape resource	Visual Amenity	Ecology	Ornithology	Archaeology	Hydrology	Traffic & Transport	Tourism & recreation
	SPECIFIC LOCAL EFFECTS See Chapter 6 No Significant Effects	Upland River Valley LCA 17a Southern Upland with Forest LCA 8a Upland River Valley LCA 17a Upper Dale LCA 10a Foothills with Forest LCA 12a	A713 A713 B7000 B729 Southern Upland Way	VP33 Dalmellington VP24 Mossdale VP23 Court Knowes VP22 Glenmuck VP16 North Liggat VP13 Linnfraig VP29 Dundeugh Hill VP07 Blackwater Valley VP05 Hog Hill VP36 Knockman Hill VP02 A702	See Chapter 8 No Significant Effects	See Chapter 9 No Significant Effects	Setting of Craigengillan GDL Setting of Craigengillan Lodge	See Chapter 11 No Significant Effects	A713 B7000 U141 B729 C51 A702 B7075 A712	Straiton Doon Valley Golf Course Patna Patna Walk Burnfoot Bellsbank A713 A713 A713 Tourist Route Carricks of Carsphairn Carsphairn Heritage Centre Carsphairn Trail Fishing on Water of Deugh and Water of Ken B7000 Tourist Route Forest Park at Dundeugh Hill Kendoon Youth Hostel
Legend Significant Adverse Effects Significant Beneficial Effects	EXTENDED EFFECTS			Potential for significant beneficial effects from viewpoints within circa 1km of N-Route removed north of Dalmellington Potential for significant adverse effects from viewpoints within circa 1km of the proposed OHL						12 Rights of Way and 4 Core Paths would be subject to significant beneficial effects 12 Rights of Way and 19 Core Paths would be subject to significant adverse effects

Table NTS.03 - Summary of Significant Effects table



01

Introduction

Blackcraig and Margree Windfarms
Grid Connection
Environmental Statement

CAPITA LOVEJOY

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1.0 Introduction

1.1 Introduction

1 This Environmental Statement (ES) has been provided in support of the Section 37 (S37) Applications to the Scottish Ministers for the construction and operation of a 132kV overhead line (OHL) linking the proposed windfarms at Blackcraig and Margree to the proposed (as part of a separate S37 Application) 400kV substation at Meikle Hill and the associated changes to the existing grid network in this area. The proposed substation at Meikle Hill will provide the connection to the wider transmission grid.

2 Concurrently with the S37 applications, SPT will also be seeking that the Scottish Ministers issue a direction under Section 57 (2) of the Town and Country Planning (Scotland) Act 1997 that deemed planning permission be granted for the OHLs and the ancillary development of the windfarm substations at Blackcraig and Margree. The effects of these substations are considered alongside the OHLs within this ES.

3 This Environmental Statement has been prepared under the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 (amended 2008) (The Regulations) and it reports the Environmental Impact Assessment undertaken in connection with this proposal.

1.2 The Need for the Project

1 ScottishPower Transmission Ltd (SPT) is the Transmission Licence holder for the south of Scotland and is required under the Electricity Act 1989 (The Act) "to develop and maintain an efficient, co-ordinated and economical system of electricity transmission". SPT is contractually obliged to provide electrical connections from proposed windfarm developments that have applied for a connection to the transmission grid network.

2 In addition to its obligation to provide electrical connections, SPT is required under Schedule 9 of the Act to both preserve the environment and to provide mitigation for potential effects on the environment. These obligations are set out in Chapter 2.

3 In the light of applications for grid connections for the two proposed windfarms in close proximity to one another in Dumfries and Galloway, SPT have developed a strategy to provide the required grid connections. In the absence of any transmission grid infrastructure with sufficient capacity in close proximity to the windfarms, this strategy requires connection into the proposed Meikle Hill substation some 29.7km to the north.

4 The installed capacity of the windfarms requires that the grid connections will be made at 132kV. As a result of the need for these connections and the existing presence of the ageing 132kV Galloway Hydro circuit along much of the corridor of the proposed grid connection, it is proposed to combine the required windfarm connections with the partial replacement of the Galloway Hydro circuit carried on the N-Route towers. The available capacity at the proposed Meikle Hill substation will allow the northward connection of both the windfarm circuit and the Galloway Hydro circuit to be routed through it and thus the N-Route from its connection with the windfarm circuits (north of Kendoon) to a point 12km north of Dalmellington can be removed once the new OHL is in place and energised. The different elements of the strategy can be seen on Figure 1.01.

5 This strategy requires a number of different elements and this ES considers the environmental effects of the full programme of these works.

6 The other elements outwith but related to this connection strategy are the subject of different consenting regimes:

- The proposed windfarm at Blackcraig (with an installed capacity of up to 69MW) is the subject of an application under Section 36 (of the Act) application;
- The proposed windfarm at Margree (with an installed capacity of up to 42.5MW) is the subject of a planning application under the Town and Country Planning (Scotland) Act 1997; and
- The proposed substation at Meikle Hill and most of the associated grid connections are the subject of applications under Section 37 (of the Act).

1.3 Grid Connection Development & The Consents Procedure

1.3.1 The Electricity Act

1 Consent is required from the Scottish Ministers under Section 37 of the Act and deemed planning consent under Section 57 (2) of the Town and Country Planning (Scotland) Act 1997, for an electric line (and ancillary development) to be installed or kept installed above ground as described above.

2 Three separate S37 applications, and deemed permiission under S57 (2), are envisaged as follows:

- Single circuit overhead (wood pole) line between Blackcraig and Margree substations (S37);
- Single circuit overhead (wood pole/Tower) line between Margree and Meikle Hill substations (carrying the windfarm circuits) (S37);
- Single circuit overhead (Tower) line between Kendoon and Meikle Hill substations (carrying the Galloway Hydro Circuit) (S37); and
- Substations and associated underground cable routes at Blackcraig & Margree Windfarms (S57).

3 Following the construction and energisation of the new OHLs, the removal of the redundant parts of the N-Route will be undertaken under Permitted Development Rights.

1.3.2 Wayleave Agreements

1 In order to facilitate the development of the OHL, rights over a corridor of land extending over the full length of the connection will need to be secured. This is normally achieved through a wayleave agreement.

2 A wayleave agreement between two parties gives certain rights over land affected by equipment including associated maintenance requirements, but it does not confer any rights of ownership. To secure rights to place an electricity transmission line on, over or under land, SPT will generally seek to negotiate voluntary wayleaves with landowners. However if this cannot be achieved, a necessary wayleave can be sought under the Act.

1.3.3 The Environmental Impact Assessment Regulations

1 The Regulations implement Council Directive 85/337/EEC as amended by Council Directive 97/11/EC on the assessment of the effects of certain public and private projects on the environment, insofar as it relates to applications for consent to install or keep installed overhead electricity lines under Sections 37 of the Act. Guidance on the Regulations is also contained in "Guidance on The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000" (the 'Guidance Note').

2 Under the Regulations, Section 37 development that is considered likely to have significant effects on the environment must be subject to EIA and an Environmental Statement (ES) must be submitted with the Section 37 application.

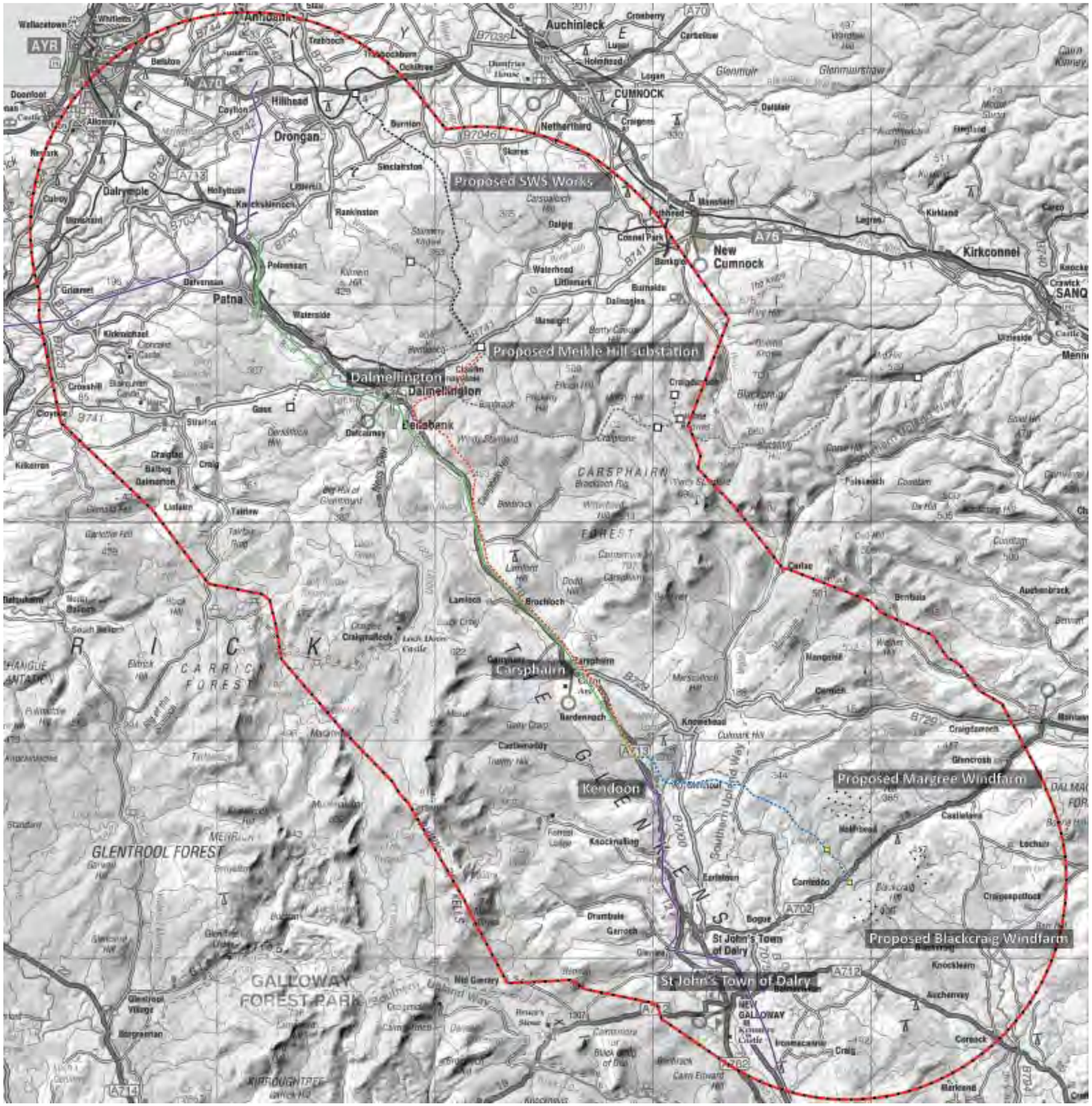
3 Schedule 1 of the Regulations lists those developments for which EIA is mandatory, whilst Schedule 2 describes projects for which the need for EIA is judged by the Scottish Ministers on a case-by-case basis. Schedule 3 describes the criteria to be used by the Scottish Ministers to determine if a development is 'EIA development'.

4 Where EIA is required, environmental information must be provided by the developer in an Environmental Statement. Schedule 4 specifies the information that must or may be provided in such a Statement.

5 The Regulations prohibit the Scottish Ministers from granting consent for an EIA development without taking into account an Environmental Statement, together with any associated environmental information.

6 The proposed overhead grid connection is classed as Schedule 2 development: "*(4) an electric line installed above ground with a voltage of 132 kilovolts or more, the installation of which (or the keeping installed of which) will require a Section 37 consent but which is not Schedule 1 development.*" If therefore it is likely to have significant environmental effects because of factors such as its nature, size or location, it is 'EIA development', and a formal EIA is required. SPT has taken the view that no screening process was required and that proposed OHL connection should be subject to EIA.

7 It is this EIA which has given rise to this ES.



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line (combining the windfarm circuit and the refurbished N-Route circuit
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km Study Area boundary

Components of South West Scotland Renewables Connection Project

- 400kV line
- 132kV line
- Substation

Location Plan

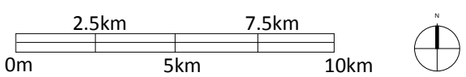


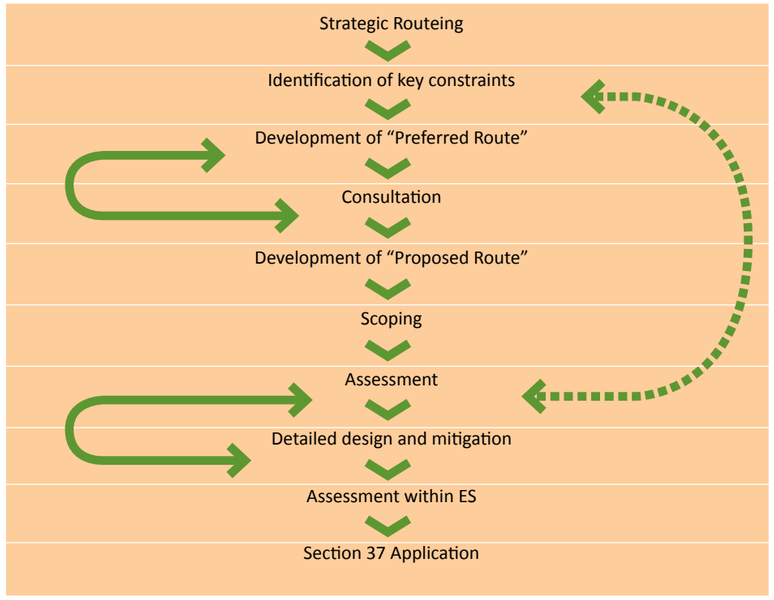
Figure 1.01 - Site Context & elements of the grid connection

1.4 Process of Project Development and Assessment

1 SPT, through their experience in developing OHLs have established an approach to this which responds to both the statutory requirements of projects such as these and also the need to achieve wide ranging consultation throughout the EIA process.

2 This process is set out as a linear progression from strategic routeing, through route identification, and to assessment, however in reality there are a number of elements within this which are cyclical. Where any stage raises issues it is possible to review the previous stages cyclically to ensure that the emerging proposal is appropriately considered in terms of both its technical attributes and potential effects on the environment.

3 The stages are as follows:



4 The different stages of this approach are set out within the following chapters, but are included here to provide an overview of the process of project development.

1.5 Project Team

1 The assessment of environmental effects has been undertaken by a team of environmental consultants who have wide experience of the development of proposals for overhead grid connections and the assessment of their likely significant effects. The Project Team is shown in Figure 1.02.

1.6 The Environmental Statement

1 This Environmental Statement contains the environmental information required by the Regulations and comprises a number of elements:

- **A Non-Technical Summary.** This is a separate document (although also included within the principal document). It summarises in non-technical language the findings of the EIA as reported in the Environmental Statement.
- **The Environmental Statement** (this principal document)**.** This contains two parts. Part 1 describes the project and the legal and policy framework within which it will be determined. This includes details of how the project was selected and how the design and layout has evolved through the environmental impact assessment process and to mitigate potential effects. Part 2 contains the individual assessments undertaken for the identified environmental issues. The complete assessment of the likely significant effects of the proposed OHL is contained within this principal document. The contents of the Environmental Statement are listed below.
- **Technical Appendix.** This is a single document providing additional supporting information for the EIA.

2 The contents of these documents are listed below.

Table 1.01 - Environmental Statement Contents

Environmental Statement		
	Non Technical Summary	
PART 1	**THE PROJECT**	
	Chapter 1	Introduction
	Chapter 2	Environmental Impact Assessment
	Chapter 3	Route Selection & Alternatives
	Chapter 4	Legal and Policy Framework
	Chapter 5	Project Description
PART 2	**THE ASSESSMENT**	
	Chapter 6	Forestry
	Chapter 7	Landscape & Visual
	Chapter 8	Ecology
	Chapter 9	Ornithology
	Chapter 10	Archaeology & Cultural Heritage
	Chapter 11	Hydrology and Hydrogeology
	Chapter 12	Tourism and Recreation
	Chapter 13	Traffic & Transport
	Chapter 14	Other Issues
	Chapter 15	Effects Summary

Table 1.02 - Technical Appendix Contents

Technical Appendix	
Appendix A	Mitigation
Appendix B	Forestry
Appendix C	Ecology
Appendix D	Ornithology
Appendix E	Archaeology & Cultural Heritage
Appendix F	Hydrology & Hydrogeology
Appendix G	Tourism & Recreation
Appendix H	Traffic & Transport
Appendix i	Noise & EMF

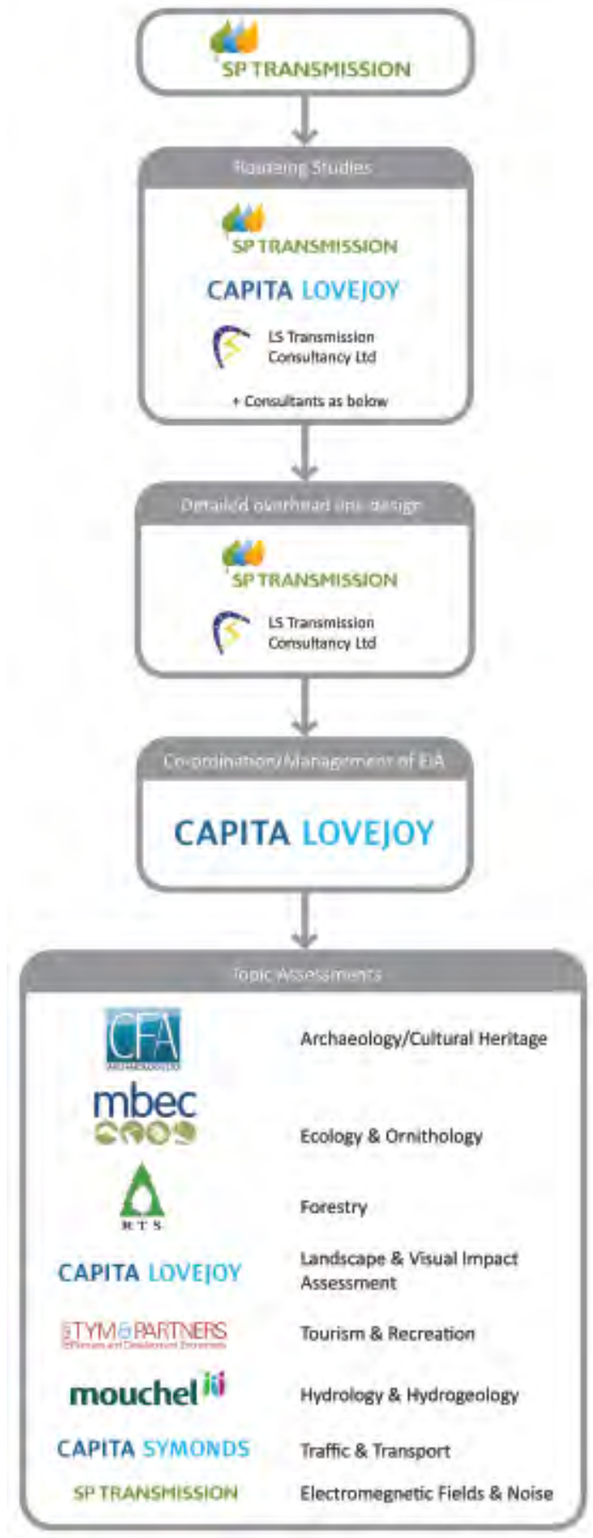


Figure 1.02 - Project team

1.7 Terminology

1 Table 1.03 below sets out the terms employed throughout this ES to define the OHL development.

Table 1.03 – Terminology used

Terminology	Definition
Angle Pole/Tower	A pole/tower erected to allow for a change in direction of the line
Conductor	The name given to the metallic wires strung from tower to tower (or pole to pole) to carry electric current. These are generally made of aluminium.
Earth Conductor/Earth Wire	A wire erected above the topmost conductor at the tower peak or under slung on a wood pole. These are used for protection against lightning strikes but can also contain fibre optic cores for communication purposes.
Insulators	Materials that are very poor conductors of electricity. Air exists as natural insulation around conductors, but at supports, an insulator string (or strings) is required to prevent live contact with the tower or wood pole body. Glass, polymeric or porcelain insulators can be used.
Insulator Strings	Insulator units assembled in articulated strings between the poles, steelwork and conductors.
Kilovolt (kV)	1,000 volts
Locality	Surrounding geographical area to the OHL route.
Megawatt (MW)	1,000,000 watts
Meikle Hill Substation	This is the 400kV substation which is proposed under the existing S37 Applications for the South West Scotland Renewables Connection Project. Although it is referred to as proposed it is not part of the proposals the effects of which are assessed within this ES.
National Grid	The electricity transmission network of the UK
Overhead Line	The overhead line, or overhead line route, refers to both the conductors and all supporting (steel lattice and wood poles) and ancillary structures provided to carry electricity from the Blackcraig Windfarm substation to the Meikle Hill substation.
Steel Lattice Towers	Steel lattice towers are widely used to support OHLs of over 100kV. They can be upwards of 30m in height, but for 132kV lines typically vary between 21 and 30m in height.
Study Area	The Study Area is defined for each discipline of the Environmental Impact Assessment to reflect the geographical spread of likely significant effects on the existing baseline condition. In some cases this extends beyond the OHL route itself to allow a comprehensive baseline to be established and is often prefixed by the discipline e.g. landscape & visual Study Area, ecology Study Area, forestry Study Area etc. to identify individual Study Areas which may not be the same.
Substation	Controls the flow and voltage of power by means of transformers and switchgear, with facilities for control, fault protection and communications
Undergrounding	Where running the transmission line over-head is not possible due to specific on-site conditions or other limitations such as other, existing transmission lines, it may be necessary to run the conductors underground. This is referred to within this document as undergrounding.
Volts	The international system unit of electric potential and electromotive force
Watt	The unit of electric power
132kV wood pole Line	The 132kV wood pole Line is a new wood-pole based electrical transmission structure for single circuit 132kV OHLs. This has been developed to provide an alternative design which may be more suitable in certain areas then the more commonly employed steel lattice towers. It comprises a twin wood-pole (occasionally single) with steelwork supporting the insulators, conductors and earth wire. These structures are typically up to 16m tall.

02

Environmental Impact Assessment

Blackcraig and Margree Windfarms
Grid Connection
Environmental Statement

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2.0 Environmental Impact Assessment

2.1 Consultation

1 As part of the process of project development and assessment described in Chapter 1, preliminary consultations with a number of key stakeholders was undertaken from the inception of this project in 2007 in order to inform and guide the initial development of the project.

2 Following extensive studies and routeing a Consultation Document was developed and issued in April 2009. This document provided details of:

- the initial stages of work undertaken to establish an appropriate approach to the provision of the grid connections;
- the key constraints identified;
- the routeing options considered;
- the suggested form of the overhead lines (OHLs); and
- the 'preferred route'.

3 The Consultation Document was issued to key stakeholders, and provided an opportunity to comment on the project prior to the identification of the 'proposed route'. This document was also made available on an SPT website www.spenergynetworks.com/publicinformation/performance.asp to allow widespread access to this. The document was based on the work undertaken and information available at that date.

4 In order to seek greater public engagement with the consultation process, all of the landowners along the preferred route were contacted and provided with a leaflet containing the key information from the Consultation Document. This leaflet also provided details of the public exhibitions to be held, identified the presence of the Consultation Document on the web and provided a contact postal and email address to obtain a copy of the Consultation Document.

5 Public Exhibitions were held at:

- 27th April 2009 – Dalmellington Community Centre – 1200-2000 hrs
- 28th April 2009 – Carsphairn Village Hall – 1200-2000 hrs
- 29th April 2009 – Dalmellington Community Centre – 1200-2000 hrs
- 30th April 2009 – Carsphairn Village Hall – 1200-2000 hrs

6 SPT staff and their consultants were present at the exhibitions on 29th April in Dalmellington and 30th April in Carsphairn, whilst on the 27th and 28th the exhibitions were available for viewing but were unmanned.

7 During the exhibitions, and via independent communication since, a number of members of the public provided information and expressed comment about the preferred route. These comments have been considered and in part the changes between the 'preferred' and 'proposed' route reflect these.

8 Table 2.01 lists those organisations formally consulted during this exercise and the key issues which were raised.

Table 2.01 – Consultation Responses

	No Comment	No response received	No issues raised/objections	Cumulative effects	Woodland Clearance	Landscape & Visual	Ecology	Ornithology	Forest clearance	Fisheries	Hydrology/Geology	Recreation	Archaeology	Land use	Policy considerations	Water supplies	Operational works	Waste management
Architecture & Design Scotland		✓																
Association for the Protection of Rural Scotland		✓																
Ayrshire Bat Group		✓																
Ayrshire Archaeological and Natural History Society		✓																
Ayrshire Rivers Trust							✓		✓	✓	✓							
Biological Records Centre			✓															
Black Grouse Officer								✓						✓				
British Horse Society		✓																
BTO			✓															
Carsphairn Heritage Group		✓																
Civil Aviation Authority																	✓	
Coal Authority		✓																
Crown Estate																		
Defence Estate			✓															
Dumfries & Galloway Tourist Board		✓																
Dumfries and Galloway Bat Group		✓																
Dumfries and Galloway Council (planning)			✓			✓						✓	✓					
Dumfries and Galloway Council (archaeology)													✓					
Dumfries and Galloway Environmental Resources Centre	✓		✓															
Dumfries and Galloway Raptor Study Group	✓																	
East Ayrshire (Environmental Health)											✓							
East Ayrshire Planning Dept		✓																
Farming and Wildlife Advisory Group		✓																
Forestry Commission				✓	✓	✓	✓		✓				✓					
Galloway Fisheries Trust							✓		✓	✓	✓							
Game and Wildlife Conservation Trust		✓																
Historic Scotland						✓							✓		✓			
HSE	✓																	
Marine Scotland							✓		✓	✓	✓							
Mountaineering Council of Scotland		✓																
National Trust for Scotland		✓																
NATS		✓																
NFU		✓																
OfCom		✓																
Paths for All Partnership		✓																
Ramblers Association Scotland												✓						
Red Squirrels in South Scotland		✓					✓											
Rivers & Fisheries Trusts for Scotland		✓																
RSPB				✓			✓	✓	✓						✓			
Salmon Fishery Board		✓																
Scottish Badgers	✓		✓															

	No Comment	No response received	No issues raised/objections	Cumulative effects	Woodland Clearance	Landscape & Visual	Ecology	Ornithology	Forest clearance	Fisheries	Hydrology/Geology	Recreation	Archaeology	Land use	Policy considerations	Water supplies	Operational works	Waste management
Scottish Countryside Access Network		✓																
Scottish Countryside Rangers Association		✓																
Scottish Enterprise Dumfries & Galloway		✓																
Scottish Natural Heritage				✓	✓	✓	✓	✓	✓		✓				✓			
Scottish Ornithologist's Club	✓		✓															
Scottish Rights of Way Society		✓																
Scottish Uplands Partnership		✓																
Scottish Water		✓																
Scottish Wildlife Trust					✓		✓	✓			✓							
Scotways												✓			✓			
SEPA											✓							✓
Sustrans Scotland		✓																
UPM-Tilhill									✓									
Transco	✓																	
Visit Scotland						✓						✓						
Woodland Trust Scotland		✓																
WoSAS													✓					
Local landowners & residents					✓	✓			✓		✓	✓		✓			✓	

Local landowners & residents include all those consulted throughout the EIA process

2.2 Scoping

2.2.1 Introduction

1 SPT have accepted that the proposed development should be subject to EIA, and on this basis has treated this development as an 'EIA development' and have complied with the requirements of the Regulations on this basis.

2 Under Regulation 7, (of the Regulations) the developer of an EIA development may ask the Scottish Ministers, before submitting an application for a Section 37 consent under the Act, to state in writing their opinion as to the information to be provided in the Environmental Statement. This request is known as a Scoping Request. The Guidance on the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 states that this provision allows the developer to be clear about what the Scottish Ministers consider the main effects of the development are likely to be and therefore the topics on which the Environmental Statement should focus.

3 SPT prepared a Scoping Request in accordance with the Regulations in order to identify which aspects of the scheme are likely to give rise to environmental effects, and to determine the work and studies required for the EIA.

4 The Scoping Request (as identified by the Regulations) provided an outline description of the proposed development and its location, and set out the anticipated likely environmental effects that could result from an OHL development in this area, and the assessment process by which these effects would be assessed. Figure 1.01 (in Chapter 1) shows the proposed development area included in the Scoping Request.

5 In responding to the request for a Scoping Opinion, the Scottish Ministers are required to consult and obtain the views of the Consultative Bodies (the Planning Authorities of the area in which the development is planned, Scottish Natural Heritage (SNH) and the Scottish Environment Protection Agency (SEPA), the developer and other organisations (as they see fit).

6 When the Scottish Ministers issue a Scoping Opinion, they must state what information should be included in the Environmental Statement, giving their reasons why. The Regulations also require the Scottish Ministers to make available to the public, via the Planning Authorities, their Scoping Opinion.

7 SPT sought a Scoping Opinion from the Scottish Ministers in September 2009. To date no formal Scoping Opinion has been received however the Scottish Government Energy Consents Unit provided all individual consultee responses received with the exception of East Ayrshire Council (EAC). At the time of printing, no response has been received from EAC.

8 Although the complete Scoping Opinion was not available to the project team, the EIA was undertaken on the basis of agreed best practice and in the light of extensive consultation with a wide range of consultees, many of whom are contributors to the Scoping Opinion.

9 The aim of consultation and scoping was to identify any key issues of concern as early as possible and to allow these to be considered through the EIA process.

10 Specific consultees were consulted by the environmental consultants to agree the level of assessment, survey area and survey timings as well as the preferred method of presenting information. Further details on consultations are included within specific chapters and within the technical appendices where relevant.

11 The key issues identified in the Scoping responses received for particular consideration within the ES were:

Description of the development;	Planning Policy Background and Guidance;
Design;	Impacts on Population;
Ecology;	Cultural Heritage;
Recreation Access and Tourism;	Planning and Development;
Landscape and Visual Assessment;	Cumulative Impact Assessment; and
Fisheries;	Transport Traffic and Roads.
Mitigation;	Survey Methodologies
Habitat Management	Noise impacts
Designated Sites	Forestry & Woodland Removal

2.3 The Environmental Impact Assessment Regulations

1 The Regulations require that an Environmental Statement should include;

- *at least the information referred to in Part II Schedule 4, and*
- *such of the information referred to in Part I of Schedule 4 as is reasonably required to assess the environmental effects of the development and which having regard in particular to current knowledge and methods of assessment, the applicant can reasonably be required to compile taking into account the terms of any scoping opinion given.*

2 Parts I and II of Schedule 4 are set out as follows:

SCHEDULE 4. PART I

Description of the development, including in particular-

a description of the physical characteristics of the whole development and the land-use requirements during the construction and operational phases;

a description of the main characteristics of the production processes, for instance, nature and quality of the materials used;

an estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed development.

A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climactic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the above factors.

A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development, resulting from-

the existence of the development;

the use of natural resources;

the emission of pollutants, the creation of nuisances and the elimination of waste,

and the description by the applicant of the forecasting methods used to assess the effects on the environment.

A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.

A non-technical summary of the information provided under paragraphs 1 to 4 of this Part.

An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information.

SCHEDULE 4. PART II

A description of the development comprising information on the site, design and size of the development.

A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects.

The data required to identify and assess the main effects which the development is likely to have on the environment.

The main alternatives studied by the applicant and the main reasons for his choice, taking into account the environmental effects.

A non-technical summary of the information provided under paragraphs 1 to 4 of this Part.

Additional guidance on the assessment procedures is provided within the Guidance Note and other "best practice" guidance relevant to each discipline and these documents are identified within the relevant chapters of this document.

2.4 Methodology

1 The Regulations require *"a description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development".*

2 Unless qualified elsewhere, the following interpretation is applied with regard to effects:

- Short-term effects are those which extend over a short period only and, in the context of the OHL, are typically those associated with the construction or other limited period.
- Other temporary effects which persist for less than the life of the OHL are described as medium-term, with those extending to the full lifetime of the OHL described as long-term.
- Any effects which persist beyond the life of the OHL are considered permanent.
- Effects with a duration up to long term are considered reversible, whereas those permanent effects are considered irreversible.

3 Where any effect is identified, its duration is described.

4 Assessment criteria are required in order to evaluate environmental effects. Significance is generally determined through a combination of the sensitivity of a receptor to an effect and the magnitude of the change. This approach does not however apply to all disciplines addressed in the EIA as noted at paragraph 2.4 (7) below.

5 Environmental sensitivity may be categorised by a multitude of factors such as legal status, designations, importance to users, physical state and condition, integrity, rarity and fragility. It has been important, therefore, that the initial assessment, consultation and scoping phases have helped identify these issues. In the assessment of each effect, the sensitivity is described.

6 The magnitude of an effect can vary from a fundamental change to a location, environment or species through to an unquantifiably small change to such a receptor. The change is considered in terms of the existing 'baseline condition' and the degree of alteration that will occur.

7 In the assessment of some effects a third consideration is the likelihood of its occurrence. This is particularly the case with hydrology, and where this is a determining feature of the assessment this is made explicit.

8 The combined consideration of these factors results in the determination of the effect of the proposed development upon each receptor. In order to provide a consistent approach through the assessment of the different topics, the effects will be categorised as follows:

- **None** – no detectable change to the environment;
- **Minor** – a detectable but non-material change to the environment;
- **Moderate** – a material but non-fundamental change to the environment; and
- **Major** – a fundamental change to the environment.

9 Any effect of the proposed OHL assessed as major or moderate in terms of the criteria is considered to be significant within the terms of the EIA Regulations. Other effects are considered to be not significant.

10 Where any effects are assessed as uncertain they are highlighted and an explanation provided as to why their significance cannot be determined.

11 In addition to identifying the significance of all effects the assessment considers whether the nature of the effect is beneficial, neutral or adverse in terms of the receptor.

12 The Study Area for each discipline is defined individually to reflect the likely effects on that discipline and the existing baseline. In many cases these areas extend beyond the OHL route to allow a comprehensive baseline to be established.

2.5 Mitigation

1 SPT are required under Section 38 and schedule 9 of the 1989 Electricity Act to have regard to the natural and built environment and to undertake reasonable mitigation.

2 Schedule 9 (para 1), requires that the holder:

"shall have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiological features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and

shall do what (s)he reasonably can to mitigate any effect that the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects".

3 Through the evolution of the development proposals, SPT have been mindful of their obligation under the Act and have sought to implement mitigation measures and strategies within the OHL proposal which both measurably and more subtly reduce the effects of it upon the landscape and expected receptors.

4 Mitigation is defined here as "*measures envisaged through the consideration of alternatives, physical design, project management or operation to prevent, reduce and where possible offset any significant adverse effects on the environment.*"

5 Mitigation has been considered as an integral part of the overall design strategy of the OHL, not just 'add-on' measures to ameliorate significant environmental effects. SPT has attempted to adopt a positive and pro-active approach whereby mitigation has been assessed and considered at all stages of the project (environmental constraints, routeing strategy, initial & ongoing design, predicted construction method, predicted operation method, likely decommissioning pattern). The proposed route of the OHL has therefore evolved over the project development cycle as described, systematically being optimised in response to increasing knowledge of the site and potential environmental effects. This process of evolution of the design has seen the proposed route evolve from an original alignment through a number of revisions in response to concerns expressed by consultees and the studies being undertaken for the environmental assessment.

6 The hierarchical approach toward mitigation (prevent, reduce, offset) has been first to avoid any significant effects through the overall design of the OHL and disposition of its elements, and, subsequently will be mitigated (on-site) through careful micro-routeing of the OHL route and its required infrastructure.

7 In addition, SPT has sought to reduce any identified effects, or where this has not been possible to mitigate the effect. This has been achieved by measures to minimise effects at source (i.e. altering and refining the proposed routeing), abatement (i.e. by removing the site infrastructure away from sensitive species and habitats through micrositing) and through the use of appropriate construction methods.

8 The mitigation proposals are broadly described in the project description chapter (Chapter 5), and more specifically within each of the assessment chapters, and are comprehensively contained within Technical Appendix A.

2.6 Consideration of Cumulatives

1 The regulations require the consideration of the likely significant effects of the proposed development. The assessment of these requires consideration of such plans or projects as might result in any cumulative effects.

2 In the context of this OHL, the principal projects which should be considered are the Blackcraig and Margree Windfarms (and their substations). These are however considered as part of the baseline for the assessment as it is their presence within the landscape which will give rise to the need for this OHL.

3 In the light of this, the baseline conditions for all of the assessments assume the presence of these windfarms (even though they are not currently present within the landscape).

4 The northern connection point of the proposed OHLs is the proposed substation at Meikle Hill. This 400kV substation is proposed as part of the 'South West Scotland Renewables Connection Project' (SWS Project). The presence of this substation is fundamental to this proposed OHL and therefore the presence of the substation at Meikle Hill is considered as part of the baseline even though it is as yet not consented. Other elements of the SWS Project are considered to be part of the baseline as these either connect the substation at Meikle Hill to Coylton in the north or to windfarms that are consented. These include SWS Part A (the 400kV connection from Meikle Hill northward) and Part B the L7 connection southwards. Parts D2 and C are not considered as part of the baseline as these provide overhead links to unconsented windfarms, they are however considered as part of the cumulative assessment.

5 The consideration of cumulatives is represented within the landscape and visual impact assessment at Chapter 7 as set out below.

6 There are a number of windfarm proposals within the area of the proposed OHL. Those windfarms that are already built will inevitably form part of the baseline and are visible in the photography where relevant. These will however be included on the wirelines for clarity.

7 Blackcraig and Margree Windfarms although not yet consented will be included on the photomontages as they are the reason for the proposed grid connections which would not exist in their absence. Similarly the windfarm at Torrs Hill which is under construction/completed is included on the photomontages.

8 The potential cumulative effects of windfarms that are the subject of undetermined applications will be considered within the assessment, however they will not be considered as part of the baseline. (These will be included on the wirelines (with their sataus identified by the colour of the turbines), but will not be included within the photomontages.) The windfarms within the wider 20km Study Area, and their status, is as follows, and can be seen on Figure 7.07 within Chapter 7:

- Dersalloch (Application Stage)
- Windy Standard Extension (Brockloch Rig) (Consented)
- Windy Standard (Operational)
- Torrs Hill (Consented)
- Wether Hill (Operational)
- Pencloe (Scoping Stage)
- Afton (Application Stage)
- Knoweside (Application Stage)
- Ulzieside (Application Stage)
- Hare Hill (Operational)
- Hare Hill Phase 2 (Application Stage)
- Whiteside Hill (Consented)
- Blackcraig (Application Stage)
- Margree (Application Stage)

9 Similarly the elements of the SWS Project that are considered as baseline, and those identified as part of the cumulative study are separately identified on the wireline diagrams.

2.7 Removal of existing N-Route

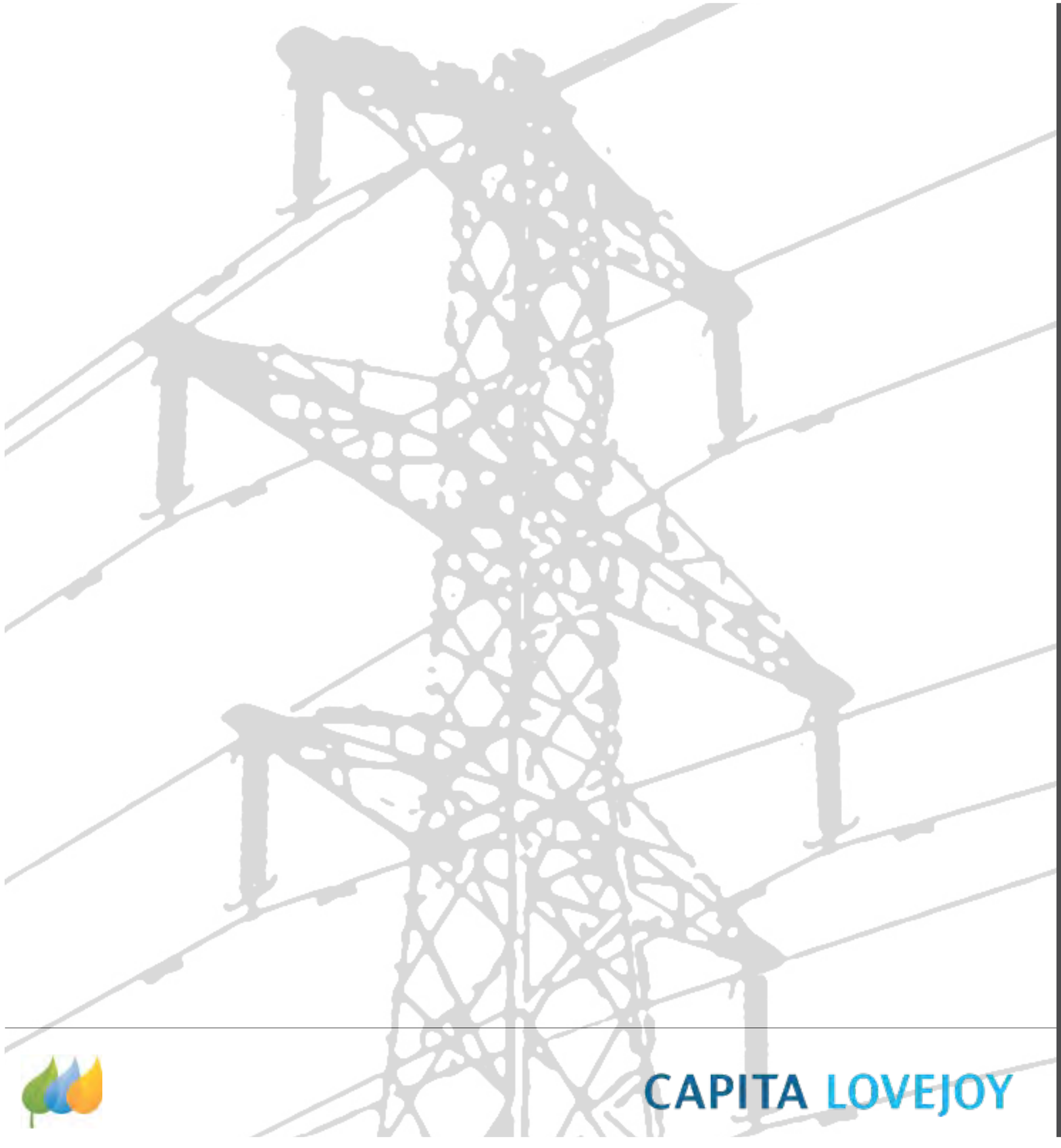
1 As identified at 1.3.1, following the development of the proposed OHL, the redundant parts of the N-Route will be removed (circa 32km).

2 This removal can be undertaken under permitted development rights and does therefore not technically require to be part of the proposals and EIA.

3 Notwithstanding this the removal of the existing N-Route will follow the completion of the proposed OHL and this needs to be considered within the assessment. Given the close proximity of the existing and proposed OHLs over much of this length, the effects of the removal of the N-Route have been considered and assessed along with the proposed OHL on the basis of the baseline information.

4 Where the existing N-Route (north of Glenmuck) diverges from the proposed OHL, the assessment has been undertaken on the basis of information available from desk survey only, and informed by the EIA specific surveys and mitigation strategies from the wider project.

5 It is considered that this is an acceptable approach given the largely beneficial effects of this removal of circa 12km additional length of existing OHLs.



03

Route Selection & Alternatives

Blackcraig and Margree Windfarms
Grid Connection
Environmental Statement

CAPITA LOVEJOY

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3.0 Route selection, substation locations and route alternatives

3.1 Introduction

1 As described previously, this overhead line (OHL) is proposed in response to the Grid Connection applications to SPT from the developers of the Blackcraig and Margree Windfarms.

2 SPT as the transmission licence holder is under a statutory duty to develop and maintain an efficient, co-ordinated and economical system of electricity transmission under section 9 of the Electricity Act 1989. SPT is also contractually obliged to provide electrical connections from proposed windfarm developments to the existing grid within its network area under the terms of its transmission licence.

3 In addition, SPT as a Transmission Licence holder is also required by Schedule 9 of the Act to:

"have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features or special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and

do what he reasonably can to mitigate any effects which the proposals would have on the natural beauty of the countryside or any such flora, fauna, features, sites, buildings or objects."

4 In the light of its dual obligations set out above, SPT has sought to balance the technical, economic and environmental issues as part of the process of developing a proposed route for the OHLs.

5 This chapter details the process that has been carried out in order to identify the OHL route which is the subject of the Section 37 applications, and describes the key elements and considerations that have led to the development of this proposed OHL. Details regarding the location of the two substations at Blackcraig & Margree Windfarms are provided at Section 3.5.

6 The process of achieving the balance between technical requirements and environmental issues for the routeing of this proposed OHL has been undertaken through a series of well established step-by-step principles. There is a hierarchy of stages in the identification of the proposed route.

- The initial stage in the definition of the route was to identify a broad strategy for the provision of these connections. This strategy was developed in the light of both the technical requirements of the connections and the principal environmental constraints relevant to the area within which these are located;
- Once the broad strategy for these connections had been established it was necessary to identify which one of two principal options would provide the most appropriate OHL routeing in technical and environmental; and
- Once the key routeing strategy elements had been resolved, the different sections of the route were explored in detail to identify the constraints and opportunities for line routeing in order to determine the proposed route.

7 The process of route identification has been undertaken alongside a continuing review of the technical requirements and opportunities for this OHL and the environmental constraints relevant to this.

8 The routeing process has been undertaken in the light of the technical, environmental and economic constraints and, on the basis of the hierarchy of stages and accepted routeing processes including 'The Holford Rules' and other supplementary guidance.

9 In summary the principal objective of the route selection process undertaken has been to identify a technically feasible and economically viable OHL route between the substations at Blackcraig and Margree Windfarms and the substation at Meikle Hill which causes the least disturbance to people and the environment.

3.2 Project Context

1 The broad baseline environment of the Study Area for the OHL is described below, both in terms of the OHL route itself and its wider local context in order to provide a broad overview and to allow the description of the development of the proposed OHL to be understood in its context.

2 The proposed OHL runs through parts of the administrative areas of Dumfries and Galloway and East Ayrshire in south-west Scotland. It connects the proposed Blackcraig Windfarm between St John's Town of Dalry and Moniaive via the adjacent Margree Windfarm to the substation at Meikle Hill - between Dalmellington and Cumnock.

3 The area containing the proposed OHLs contains a landscape of appreciable topographical diversity including the foothills of the Southern Uplands in the south, the broad upland valley of the Water of Deugh (contained between the elevated landscapes of the Southern Uplands to the east and the Galloway Uplands to the west) and its headwaters, to the narrow incised valley of Glenmuck and the elevated landscapes of the Southern Uplands to the north-east.

4 Much of the elevated landscape including the upland valley comprises a mixture of commercial coniferous forest and areas of moorland and rough grazing. Within the valley landscape there are however limited areas of improved pasture associated with the scattered farms, and some areas of linear riparian woodland along water courses.

5 The broad upland valley landscape of the Water of Deugh separates the two adjacent areas of more remote upland landscape. This valley, whilst still elevated contains much of the limited development within the area, with the settlements of Carsphairn, Dalmellington and St John's Town of Dalry and a number of smaller settlements and individual houses along the A713 and the minor roads adjoining it. The valley provides the transport link and tourist route between Castle Douglas and Ayr. The middle and southern part of the valley contains parts of the Galloway Hydro scheme and the impoundments and modified watercourses associated with this. The existing OHLs connecting these also broadly follow the line of the A713.

6 Aside from the roads there are limited defined routes within the landscape, although the areas of forest owned by the Forestry Commission does contain a number of routes and areas of visitor interest including Dundeugh Hill and Polmaddy, and are open to more general access. In addition the Southern Upland Way crosses the area from St John's Town of Dalry north-eastwards.

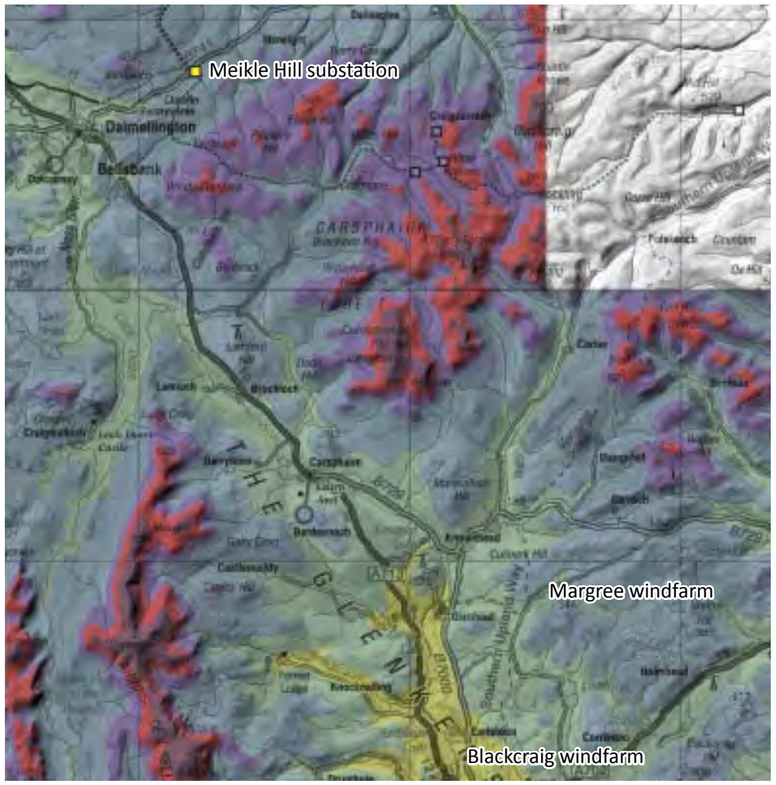
7 At a regional scale the area is largely contained within the 'Galloway Uplands and the West Southern Uplands' regional landscape character area, with the core of the area forming the division between these upland areas. The more northerly part of the area forms part of the 'Ayrshire Rim and Carrick Hills and Valleys' regional landscape character area.

8 Visibility within the area is largely defined by the local topography although somewhat modified by the areas of overlying forest cover. Typically within the foothills landscape there is extensive visibility from the highpoints of the hills to the surrounding landscapes. Within the valleys separating the hills however the visibility is often appreciably more limited and the winding courses of the valleys often prevent any extended views. From the edges of these areas however there is often extensive visibility across the upland valley landscape which forms the core of the Study Area.

9 Within the upland valley landscape there is locally extensive visibility both across the broad form of the valley and along its length. This visibility is contained to either side by the viewsheds formed by the high ground of the Galloway Uplands to the west and the Southern Uplands to the east.

10 Within the elevated landscapes, the summits of the hills (in their different forms) provide panoramic views. Most importantly in the context of the proposed OHL they provide extensive views into the upland valley landscape, albeit at some distance from this.

11 The broad constraints for the routeing within this area can be seen on Figure 3.01 (Topography) and Figure 3.02 (Constraints).



Legend

End points of this proposed grid connection

- Meikle Hill substation
- Proposed windfarms at Blackcraig & Margree

Lowest — Highest

5km 15km
0m 10km 20km

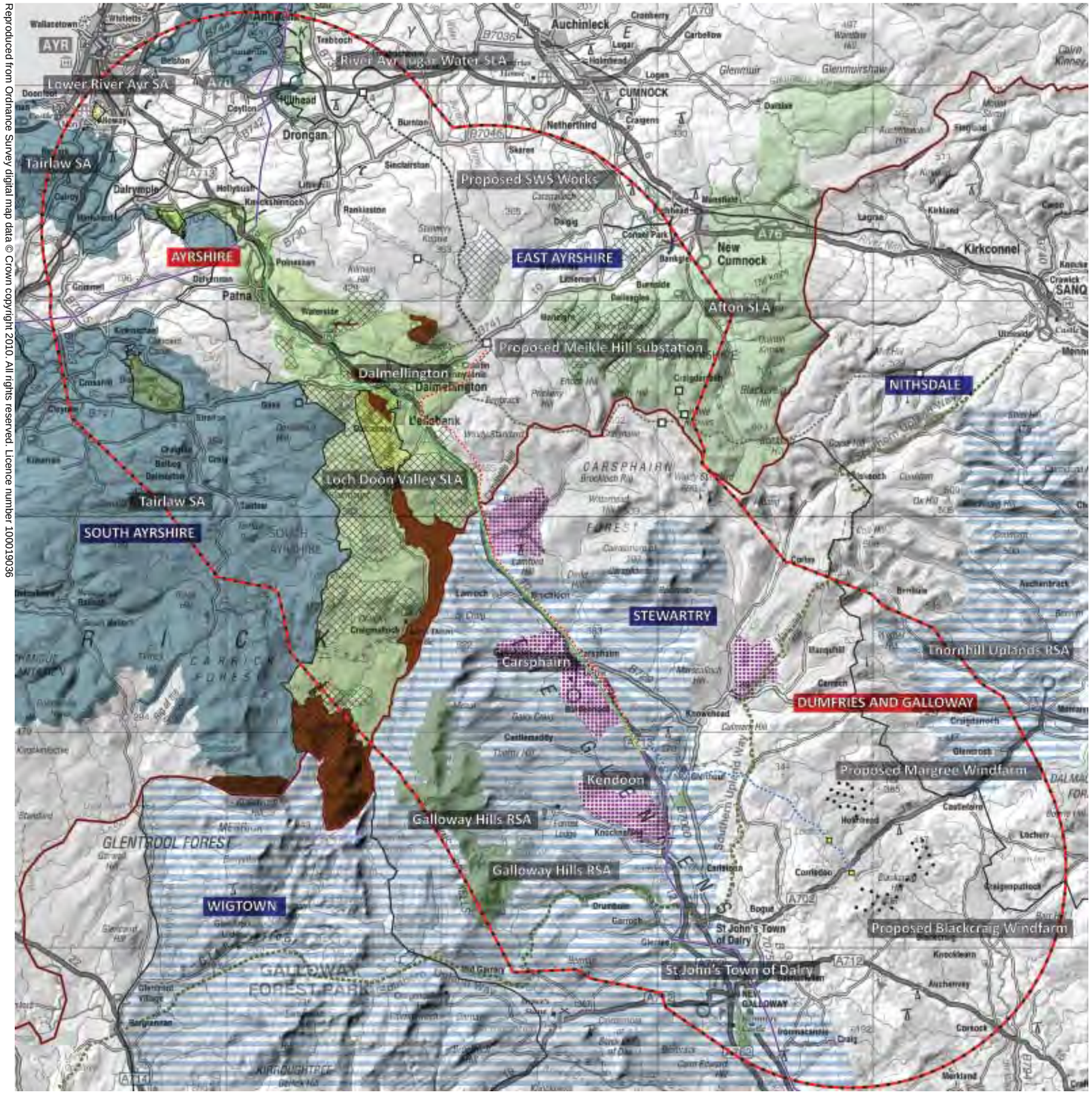


Figure 3.01 - Topography of Study Area

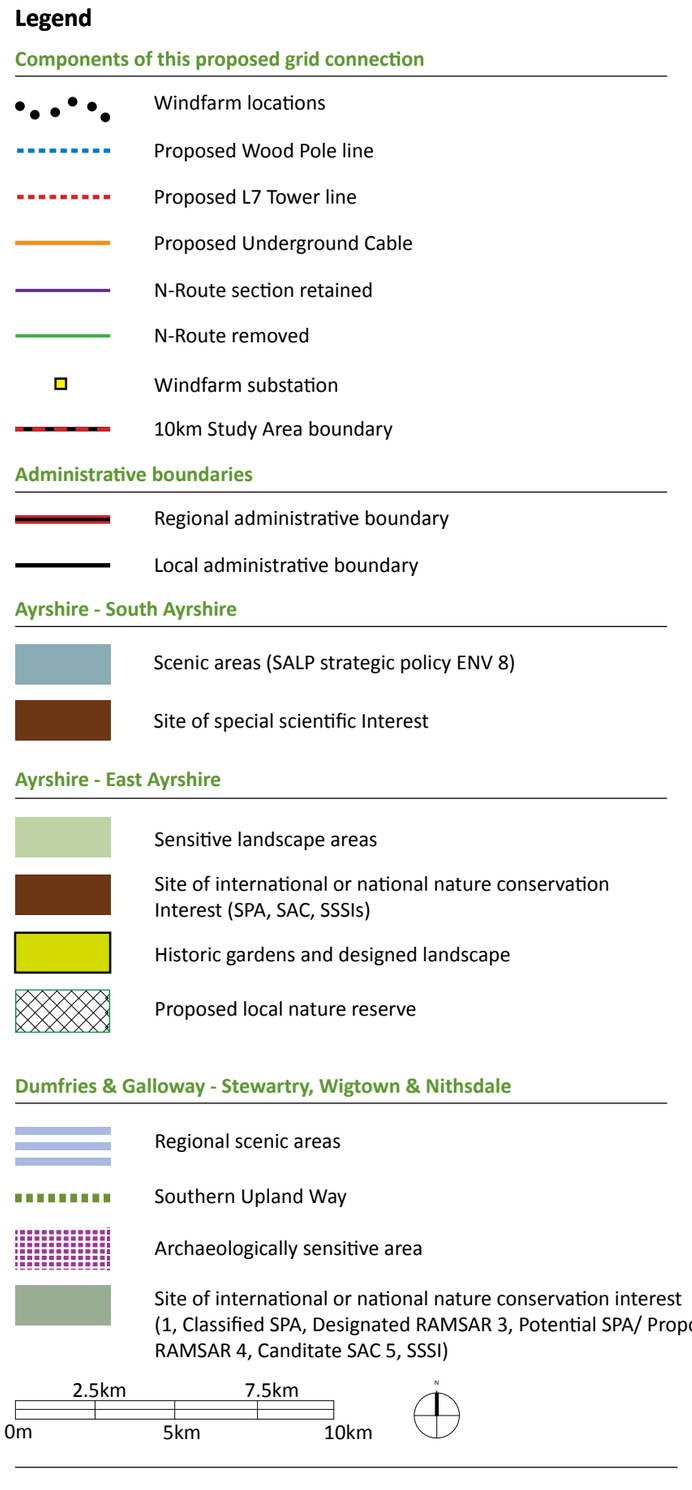


Figure 3.02 - Principal environmental routeing constraints

3.3 Infrastructure Requirements

1 In the light of the installed capacity of each individual windfarm, and their combined capacity (111.5MW) the grid connection can be accommodated on a single circuit connection at 132,000 volts (132kV). This single circuit comprises three conductors (wires).

2 Typically single circuit connections at this voltage are carried on steel lattice towers, as is the case with the existing N-Route to the west of the windfarms. Recent technical developments however allow these connections to be carried on a wood pole line called a '132kV single circuit flat formation wood pole line' (wood pole line). The robust structure of this wood pole line is needed to support the weight of the conductors. The wood pole line, whilst of smaller stature (typically 16m tall rather than 29m) does require a greater number of poles separated by shorter spans in order to maintain the necessary clearances. Figure 3.08 shows the form of this wood pole line and a comparison with the existing N-Route towers.

3 Whilst parts of the proposed OHL can be supported on wood poles, any combination of this with the Galloway Hydro circuit (to replace the existing N-Route) would require a steel lattice tower to carry the two circuits (six conductors).

4 In addition to the OHLs, a substation will be required for each windfarm to step up the internal windfarm connections at 33kV to 132kV for the OHLs. These will be approximately 70 x 50m in area and will each contain a control building and busbars, transformer and gantries for the OHLs.

3.4 Routeing Studies

1 SPT has a particular approach to the routeing of OHLs. This seeks to undertake preliminary and more detailed investigations to allow the development of a well defined and viable 'preferred' route. This route then forms the basis for formal consultation. At the end of this process of consultation, the route is reviewed as appropriate in the light of the comments received and a 'proposed' route is developed which is taken forward through the process of EIA to form the application.

2 The initial stages are used to identify the 'preferred' route, and the strategy for undertaking this is as outlined below.

3.4.1 Design Strategy

1 The objective of successful routeing is the identification of a route that achieves an appropriate balance between cost, technical feasibility and environmental effects.

2 The range of constraints identified have been considered to ensure that wherever possible any effects are avoided. The routeing has also followed the sequential process outlined in the Holford Rules and supplementary guidance normally adopted for developments of this type.

3 It is not possible to avoid every individual constraint within the search area, but with careful consideration as to the location and level of the constraint, a Preferred Route through the landscape can be identified.

4 A number of defined stages have facilitated the identification of the preferred route, and these are as indicated on Figure 3.03.

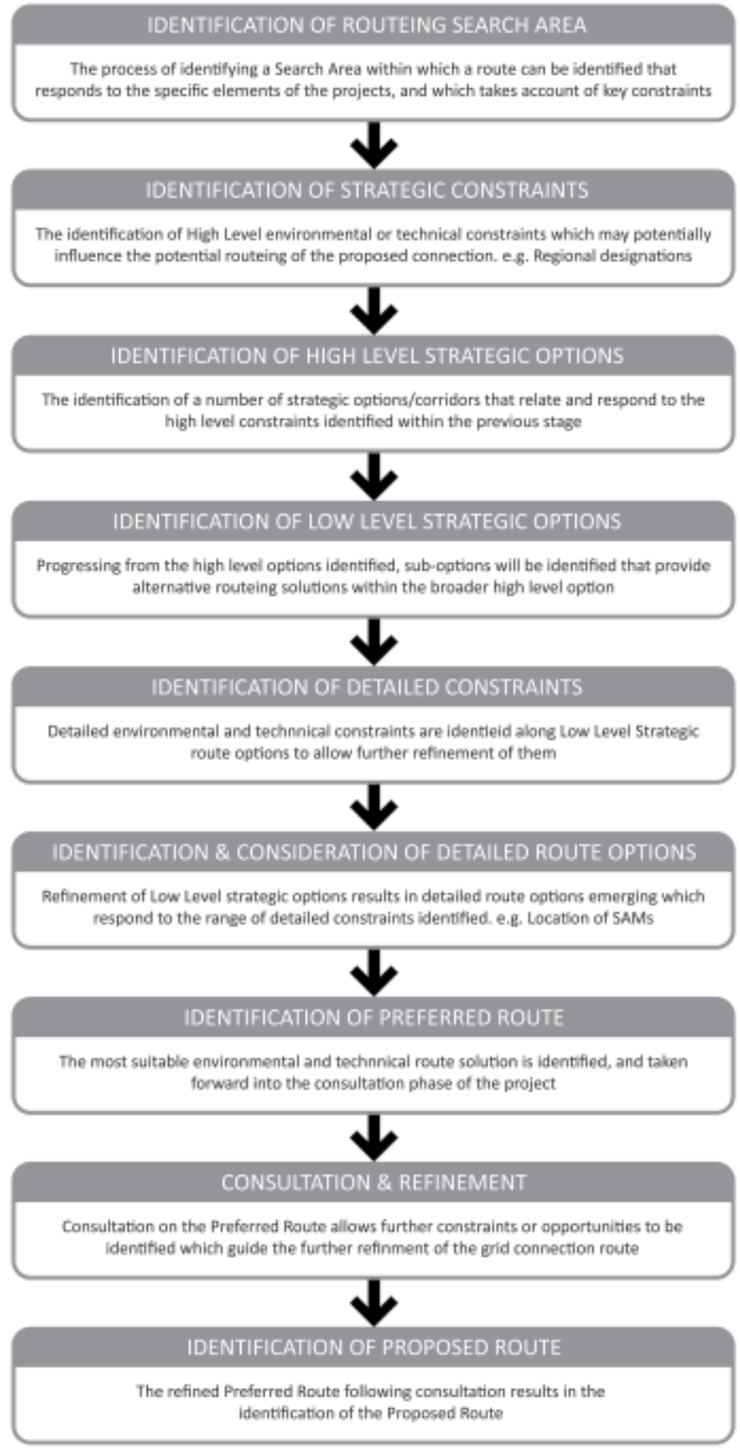


Figure 3.03 - Routeing strategy

3.4.2 Strategy

1 The initial stage in identifying a route for the proposed OHL was undertaken to identify the appropriate strategy for the provision of these connections.

2 Two broad strategic options existed:

- **Option 1** - The use of a new dedicated wood pole OHL linking the windfarms at Blackcraig & Margree directly to the collector substation at Meikle Hill. This would be independent of any of the other existing grid infrastructure within the wider environment. See Figure 3.04.

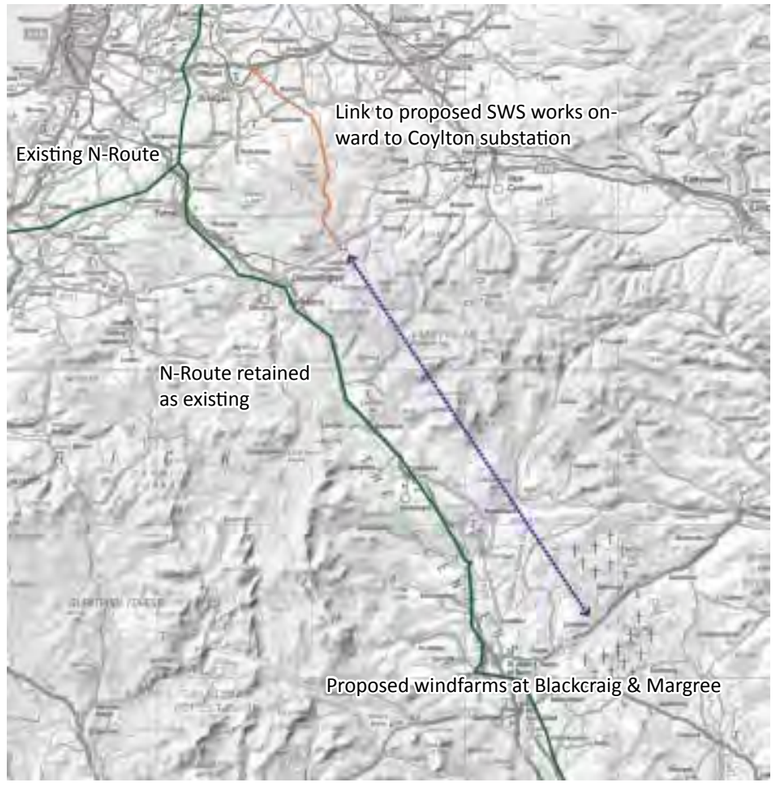
- **Option 2** - The use of a wood pole OHL carrying the 132kV Blackcraig & Margree windfarms circuit (via the substation at Margree windfarm) to a point on the existing N-Route. From this point an upgrade of the existing line (carried on double circuit steel lattice towers) would occur. This upgrade would be such that the existing N-Route circuit would be carried on the western side of new steel lattice towers, with the 132kV windfarm circuit being carried on the eastern side. The steel lattice towers required to carry the OHLs (L4) would have an average height of 26m. This approach would provide for both the new windfarm connections and a required replacement of parts of the existing ageing grid infrastructure. This new line could not occupy the exact alignment of the existing N-Route as this would need to remain in service during the construction of the new line. Following completion of the new line, the redundant section of the existing N-Route would be decommissioned. At a suitable point to the north, the windfarm circuit would again separate from the steel lattice towers and be carried on a wood pole line to the substation at Meikle Hill. From this point northward the existing N-Route towers and conductors would be retained and would continue northwards towards the substation at Coylton. This connection back to the existing and retained N-Route could either be direct if the new alignment was sufficiently close or through a length of 132kV wood pole if more distant. See Figure 3.05.

3 A review of these strategic options was undertaken to identify the routeing strategy to be taken forward.

4 The conclusion of this review was that utilising a dedicated wood pole line for the whole length of the route (Option 1) was a technically feasible method of providing the necessary grid connection. The adoption of this route (when considered in isolation) would potentially have had more limited effects on the environment than Option 2, however this new connection would have broadly paralleled the existing (and retained N-Route) and would therefore have resulted in effects from both OHLs in relatively close proximity.

5 In adopting Option 2, it is envisaged that the total length of OHL remaining in the landscape post development would be circa 37km (21km replacement N-Route & 16km wood pole line), whereas Option 1 would result in approximately 57km (21km existing N-Route (retained) & 36km wood pole line) remaining.

6 In the light of this and in order to facilitate the provision of replacement for parts of the ageing N-Route, SPT identified that Option 2 would be preferable.



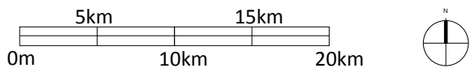
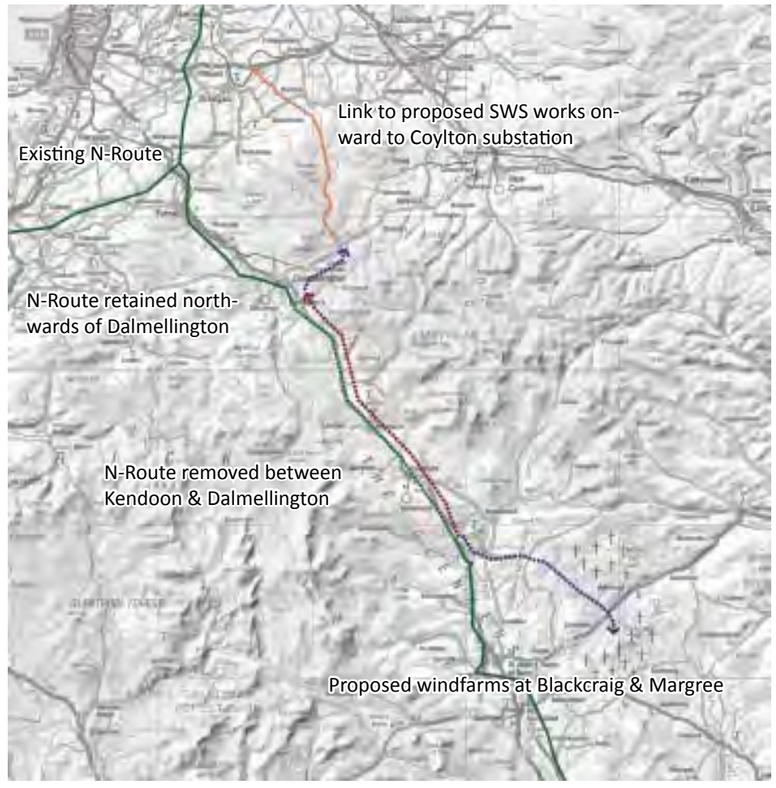


Figure 3.04 - High level strategic options - 1

Legend

- Notional direct Wood Pole connection between windfarms & Meikle Hill substation
- Retained N-Route
- Onward link from Meikle Hill substation
- Windfarm locations

7 Therefore, in order to provide the required OHLs, SPT identified that this would be best achieved through the establishment of sections of new wood pole lines connecting the windfarms and the Meikle Hill substation to either end of an upgraded section of the existing N-Route.



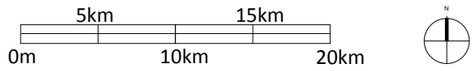


Figure 3.05 - High level strategic options - 2

Legend

- Notional Wood Pole connection between windfarms & Kendoon
- Notional lattice tower connection between Kendoon & Meikle Hill substation
- Onward link from Meikle Hill substation
- Retained N-Route
- Replaced N-Route
- Windfarm locations

3.4.3 Additional Infrastructure Issues

1 Having established that the strategy for the provision of the connections is to be achieved through a combined OHL comprising sections of wood pole and steel lattice tower (replacing parts of the N-Route) there are a number of other technical criteria that need to be considered when developing the route further.

2 The replacement steel lattice towers will be carrying two circuits (6 conductors) (although these will still be 132kV) and therefore will need to be L4 Towers. These are typically 26m tall compared to the 21m of the existing N-Route towers. See Figure 3.08.

3 The connection to the replacement N-Route needs to be made to the north of the existing substation at Kendoon for technical reasons.

4 The windfarm circuit (3 conductors) will be carried on the eastern side of the new steel lattice towers and there is a very strong preference that the windfarm circuits should not be required to cross the N-Route circuit at any point.

5 The replacement steel lattice tower line cannot be on-line as the existing N-Route will need to be retained in service until the new line is energised before being removed.

3.4.4 Principal Options

1 Having established that Option 2 (the combined wood pole and replacement N-Route) is the preferred solution both technically and environmentally, it is apparent that the best way to optimise the attributes of this is to maximise the length of the N-Route to be replaced and to minimise the lengths of new wood pole lines required to make the connections between this and the windfarm substations and the Meikle Hill substation.

2 The identification of both the wood pole lines and the alignment of the replacement for the N-Route are the subject of detailed routeing considerations explained subsequently.

3 The alignment of the wood pole in the southern part of the proposed OHL however required resolution of a broader routeing option to establish the corridor within which the detailed routeing studies would be undertaken.

4 The two broad routeing options at the southern end of the route involve the location of the connection between the wood pole line from the windfarms and the replacement section of the N-Route. As described the optimum arrangement for this would allow the replacement section of the N-Route to extend as far south as possible towards the existing Kendoon substation. On the basis of this technical constraint, and the known concentration of environmental constraints in the area of Kendoon, the two options were developed. These were:

- to pass to the south of Dundeugh Hill, passing close the substation at Kendoon and connect to the existing N-Route near to this; and
- to cross the landscape to the north of Dundeugh Hill and follow the Water of Deugh connecting to the existing N-Route near Carsphairn.

5 The length of wood pole line linking the windfarms to the replacement N-Route for the more northerly route would be circa 16.5km as opposed to the circa 11km required for the more southerly route. This reduced length, combined with the expected reduction in potential environmental effects, (specifically regarding the crossing of the Water of Deugh to avoid the Non-Inventory Landscape at Knockgray) and the opportunity to replace greater lengths of the existing N-Route indicate that the shorter southerly route provides the best technical and environmental opportunity to achieve this part of the connection.

6 In identifying this option as providing the most suitable corridor for the routeing, it was understood that there are appreciable environmental (and technical constraints) in the area around Kendoon. These detailed constraints and issues were considered in detail during the identification of the route.

7 These broad low-level options are illustrated on Figure 3.06.

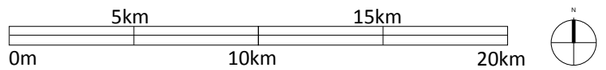


Figure 3.06 - Low level strategic options

Legend

- Notional Wood Pole connection between windfarms & Kendoon
- Notional lattice tower connection between Kendoon & Meikle Hill substation
- Retained N-Route
- Replaced N-Route
- Windfarm locations

3.4.5 Additional Capacity

1 As described it was established that the optimum technical and environmental routeing would be achieved through a three part connection of:

- Wood pole OHL from Blackcraig and Margree Windfarms to a point near Kendoon;
- Replacement for N-Route from point near Kendoon to a point near Dalmellington; and
- Wood pole OHL from point near Dalmellington to Meikle Hill substation.

2 These connections would all be provided as single circuit 132kV OHLs to provide the required capacity for the grid connection applications.

3 Technically this solution provides the required transmission capacity for the replacement N-Route circuit and the windfarm circuit, but the capacity in these lines is limited to these. In the light of the likelihood of other OHL applications further south in Dumfries and Galloway, and the available capacity at the substation at Meikle Hill (with its 400kV connection to Coylton) a decision to upgrade the capacity of this connection as far south as Kendoon was taken. The wood pole connection onward to the windfarms remains at the required capacity for the two windfarms only (single circuit 132kV).

4 Increasing the capacity of the OHL will be achieved through:

- the upgrade of the L4 Towers to L7H Towers. These L7H Towers provide for three paired sets of conductors on each side (12 conductors in all). The L7H steel lattice towers are slightly taller than the L4s and have paired conductors rather than single conductors; and
- continuing the steel lattice tower the full distance northwards to the Meikle Hill substation (instead of a wood pole link) at the northern end of the OHL.

5 This extension to the steel lattice tower formation allows the OHL to benefit from the additional capacity at the Meikle Hill substation and in so doing allows an additional length of 12km of the existing N-Route north of Dalmellington (as far as Tower 101) to be removed.

6 Figure 3.07 shows the potential configuration of this connection strategy including the additional length of N-Route removed, whilst Figure 3.08 shows the form of this L7 Tower and a comparison with the existing N-Route towers & wood poles.

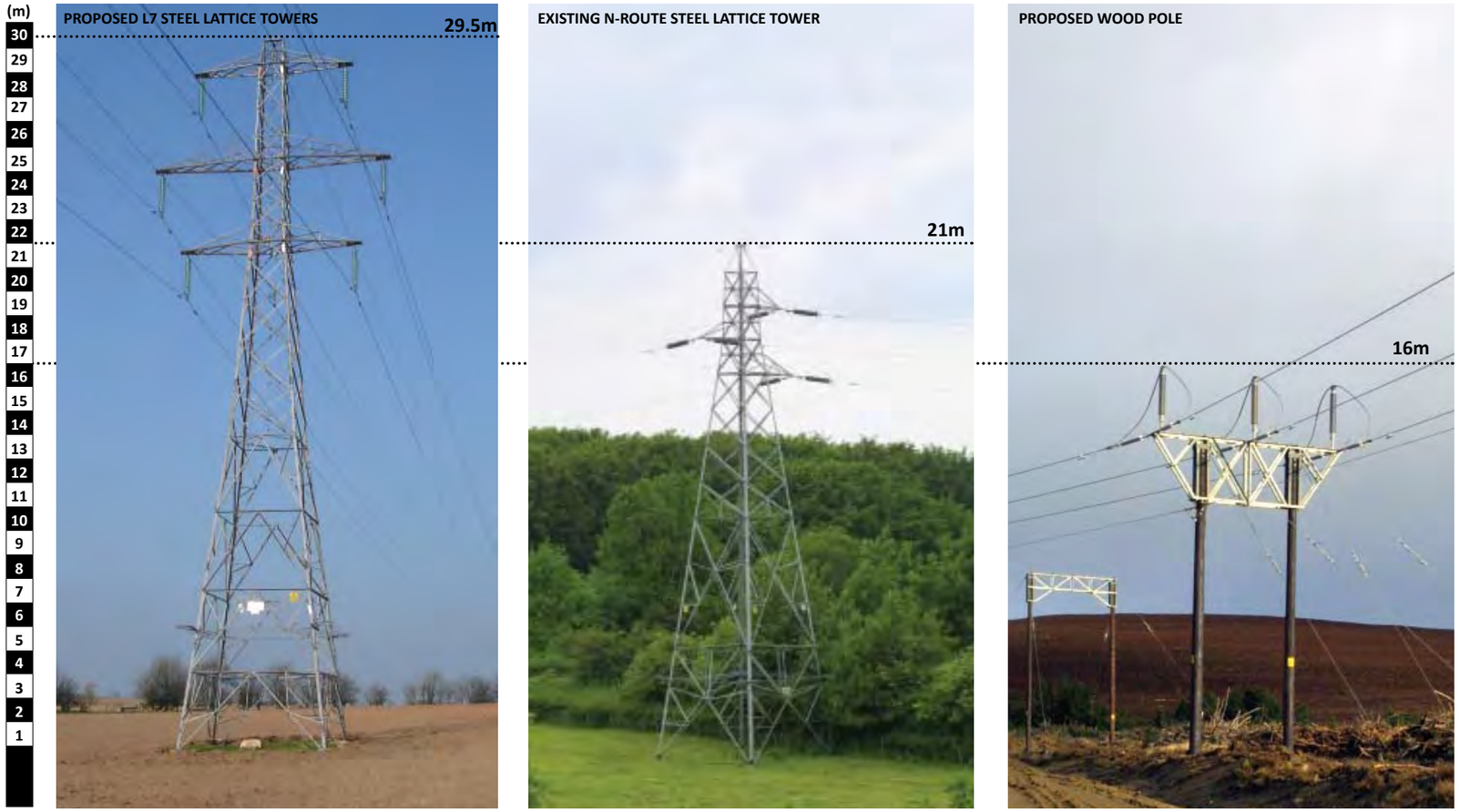


Figure 3.08 - Tower type height comparisons

3.5 Substations

1 Having established the strategy for the provision of the OHLs and knowing the end point to the north at Meikle Hill, it was necessary to identify locations for the two windfarm substations to provide the southern end points for the routeing.

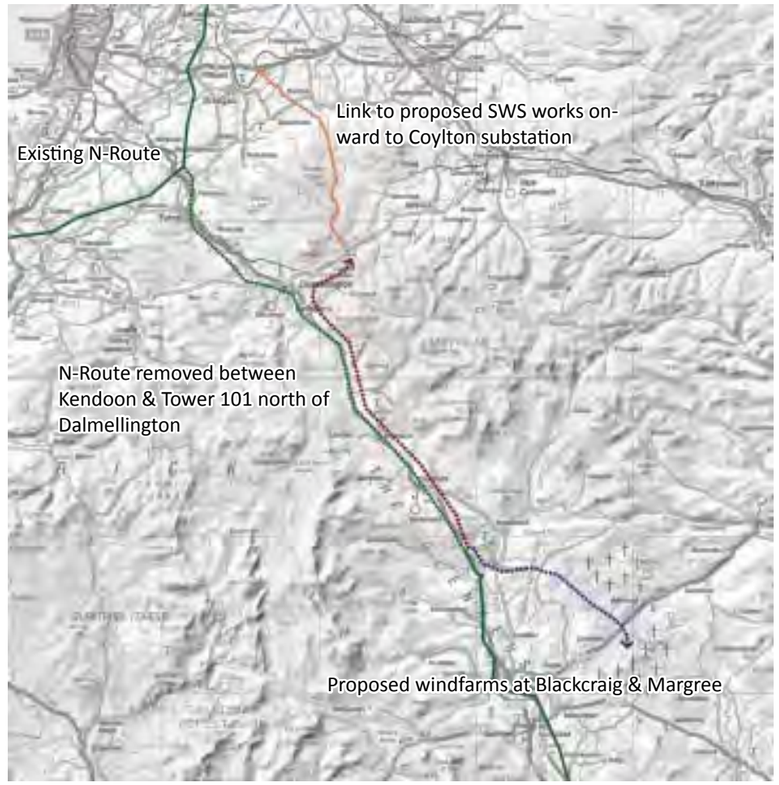


Figure 3.07 - High level strategic options - 3

Legend

- Notional direct Wood Pole connection between windfarms & Meikle Hill substation
- Retained N-Route
- Onward link from Meikle Hill substation
- Windfarm locations

3.5.1 Substation locations

1 The substations at both Blackcraig and Margree Windfarms are an integral part of the required grid connections and are considered 'ancillary' to the OHLs. Therefore these will form part of the S37 Applications for the different sections of the lines. On this basis the routeing studies have been extended to include the identification of locations for these.

2 Although it may appear that there is appreciable latitude in the location of the substations, they need to be arranged in response to the local environment and in such a way as to allow the routeing between them and beyond to remain viable.

3 There are limited generic requirements for the locations of the substations, with the key issues being a site capable of accommodating a level construction platform up to (50m x 72m) and any associated earthworks and good vehicular access (or the potential for this).

3.5.2 Blackcraig Substation

1 Blackcraig Windfarm is located on an elevated ridgeline with steep slopes rising up to this from all directions. Topographically this presents challenges in both providing the necessary level site and also in facilitating access to this. On this basis it was decided to look for a site on the lower ground to the north-west of the ridge (to connect most easily to the proposed OHL). Loch Howie is located at the foot of the rising ground and provides a constraint to location of the substation and its 33kV underground connection to the windfarm.

2 A key access route to the windfarm will be taken along the existing forest road from the A702 passing to the south of Wallace's Rig and Loch Howie and then ascending the ridge. This access road therefore provided a logical point at which to seek to identify a suitable location. This combined with the need for a level (or potentially level) site indicated that the former borrow pit adjacent to the access road at 268969, 583509 would provide a suitable site for the substation. This site benefits from a topographically discreet location with both Wallace's Rig and a small knoll to the south providing screening.

3 The other level site along this access track is at the end of Loch Howie and the potential hydrological and landscape and visual implications of this indicated that this site would be more sensitive.

3.5.3 Margree Substation

1 Margree Windfarm is located on the rising ground approximately 1km north of Shield Willie Hill. At the outset of the identification of the location of the substation, the windfarm was more extensive with the southern-most turbines located appreciably closer to Shield Willie Hill. In the light of the requirements for the location of the substation, two potential sites were identified:

2 The first was close to the existing access track on the top of Shield Willie Hill at 268201, 585297. This location provides a level site (although this is currently an area of mature forest) and close proximity to one of the principal windfarm access tracks; and

3 The other site identified was on the lower southern slopes of Shield Willie Hill within an area of recent clearfell. This second site at 268006, 584987 whilst not as level as the former provides the opportunity to create a level construction platform. In addition, the site, whilst not immediately accessible from the existing track network, is alongside a proposed access track identified as part of the windfarm construction.

4 The second site offers the appreciable benefits of being located lower within the landscape and thus likely to be more visually discrete, it occupies an area of recent clearfell and thus will not require the felling of any standing trees (and particularly mature forest) which is of value to red squirrels. The position of the second site provides the further benefits in that it does not require the wood pole line from Blackcraig Windfarm to ascend to Shield Willie Hill before descending again to follow the identified routeing, reducing both the length of the link and its visibility.

5 Survey investigations of the ground conditions at the second site have confirmed its suitability for the creation of the required construction platform, which can be achieved within the area of clearfell.

3.5.4 Sections of the Route

1 Having established the strategy and approach for the OHLs, the detailed routeing studies have been undertaken on the different sections of the route.

2 The three sections which were the subject of detailed routeing studies were:

- Section 1 - An overhead wood pole line running from the substation at Blackcraig, via Margree substation, to the N-Route in the vicinity of Kendoon;

- Section 2 – A replacement steel lattice tower OHL for the existing N-Route; and
- Section 3 - An OHL (wood pole or L7 Towers) running from a location near Dalmellington to the substation at Meikle Hill.

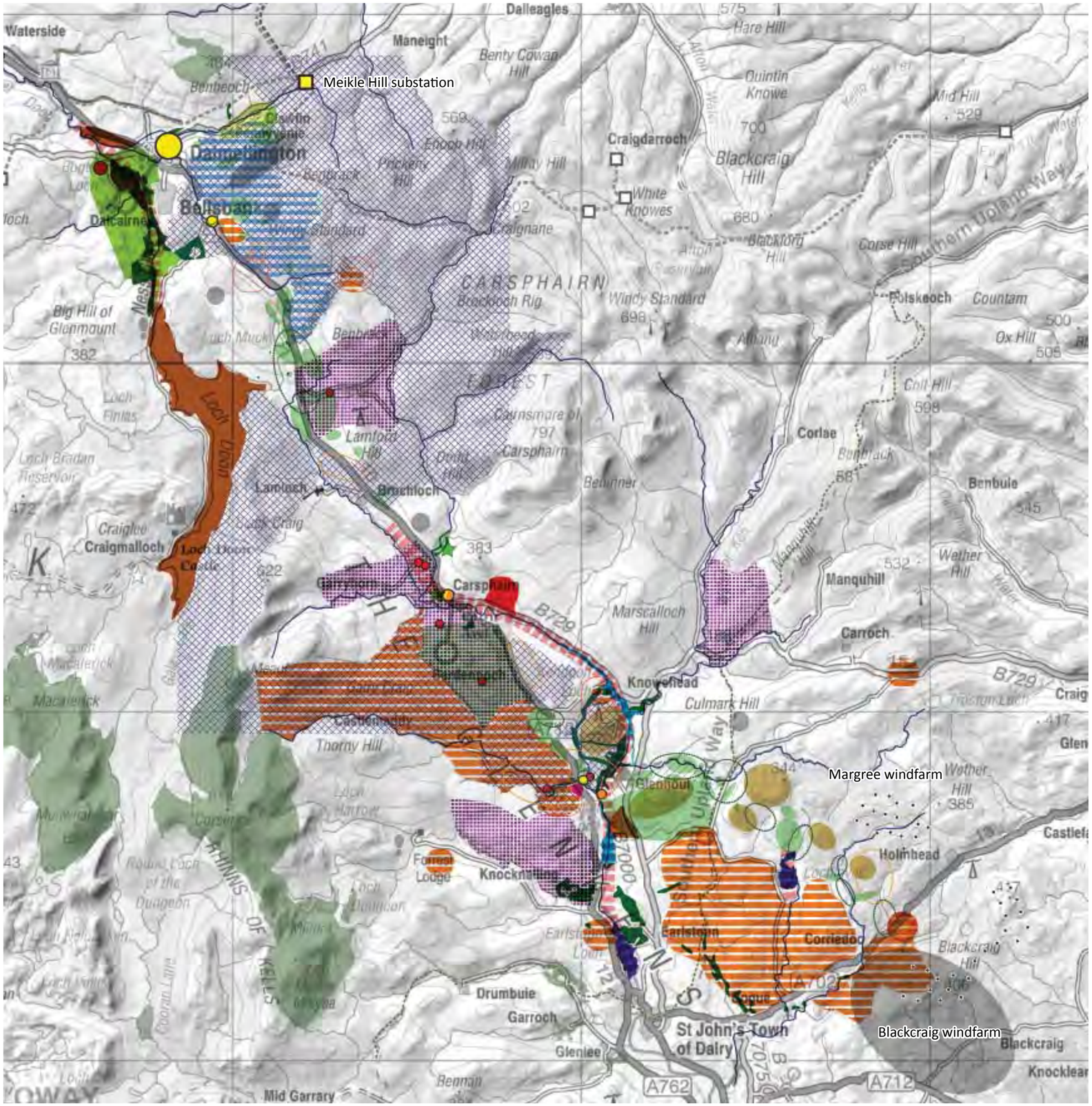
3 The identified constraints which apply to these sections are shown on Figure 3.02 (overall constraints), and on Figures 3.10 & 3.14. For each section of the route a number of different alignments were considered to allow the identification of the 'preferred' route.

4 The routes considered for each section are detailed within Figures 3.10 & 3.14. The proposed route, and how this responds to the identified constraints on a local level, is shown on Figures 3.12, 3.13 & 3.15.

5 The establishment of the routeing strategy and the principal elements of it were undertaken alongside the detailed routeing studies for the OHL. The change to incorporate the additional capacity was included after much of the early routeing had been completed.

6 This chronology does not affect the routeing options identified and the detailed studies undertaken on the different sections of the route remain valid. The exact start and finish locations of each of the sections do however vary as a result of this and the different combinations tested. (In the case of the final northern section adopted there is no obvious break from the middle section for the continuation of the L7 Towers, although this section is still considered separately).

7 Detailed constraints to routeing are shown for the entire Study Area on Figure 3.09.



Legend

Components of this proposed grid connection

- Windfarm locations
- SWS project proposed Meikle Hill substation

Constraints

- A713
- 'Built' constraints
- Archaeologically Sensitive Areas
- Non-Inventory Designed Landscapes
- Vulnerable watercourses (categorised as 1a & 1b under WFD)
- Southern Upland Way
- Ancient Woodland inventory sites
- Sites of Special Scientific Interest
- Former black grouse mitigation area for Kyle Windfarm
- Other waterbodies
- Ornithological constraints
- Other features, as labelled
- Scheduled Ancient Monuments
- Planning constraint
- Red squirrel priority woodland
- Black grouse historic lek sites
- Otters (high density of signs)
- Red squirrel (high density of signs)
- Waders & wildfowl flight corridor
- Breeding bird constraint
- Inventory Designed Landscapes
- Distinctive high points
- Sensitive habitats

0m 2.5km 5km 7.5km 10km

Figure 3.09 - Detailed environmental routeing constraints

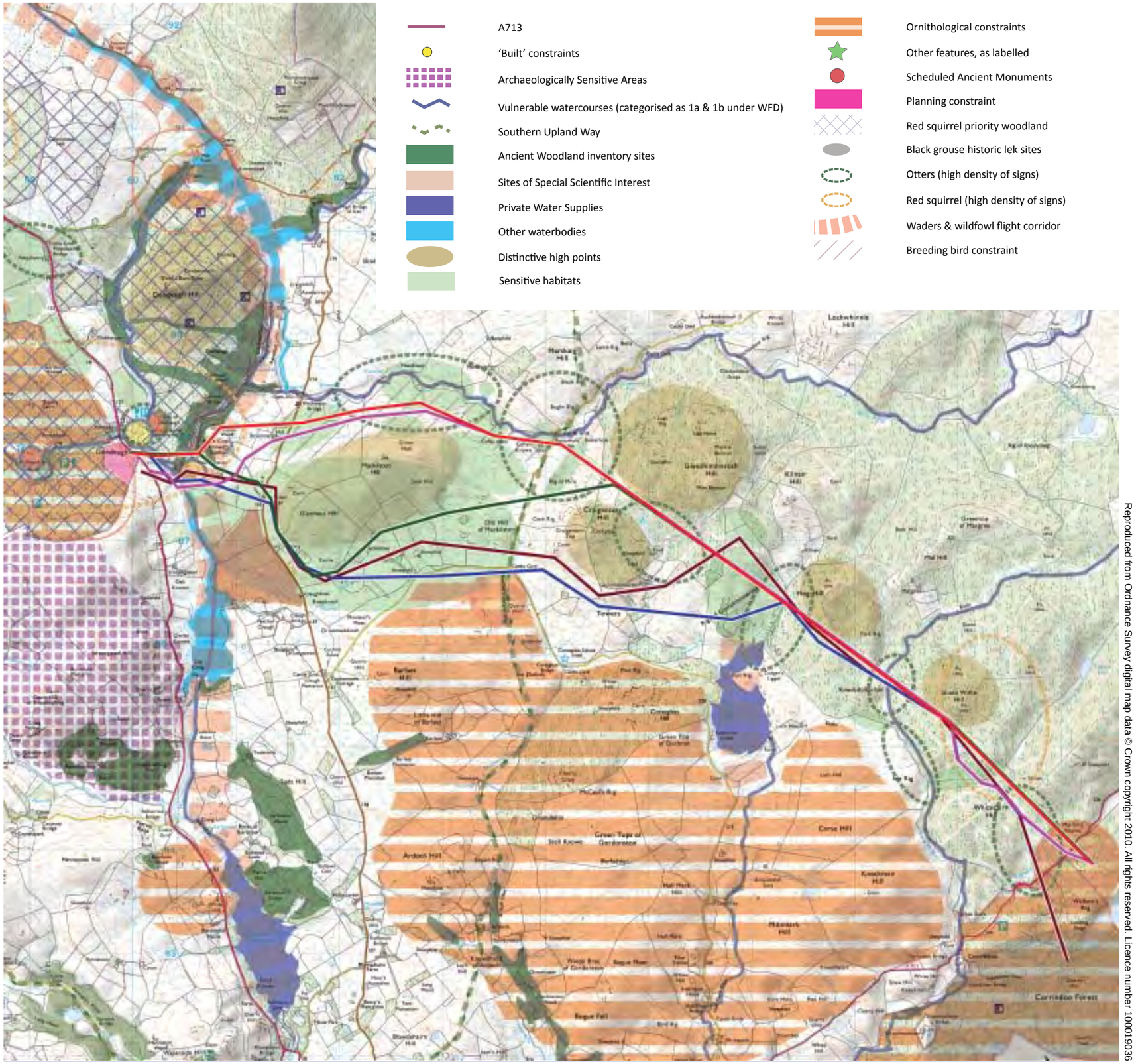


Table 3.01 - Section 1 Route options considered

Route Colour	Constraints	Opportunities
Maroon	Abrupt change of direction at Craigencorr Hill Passes to the south of Mackilston Hill Abrupt change of direction at Mackilston Hill Proximity to properties at Mackilston and Glenhoul Routes very close to Glenshimmeroch Farm	Avoids highpoints within Margree forest Avoids Lochinvar & primary ornithology constraints Avoids the Black Water valley The SSSI at Cleugh is avoided
Dark Blue	Abrupt change of direction below Hog Hill Passes close to area of ornithological interest Passes close to Lochinvar and property at Glenshimmeroch Proximity to properties at Mackilston and Glenhoul Abrupt change of direction to west of Mackilston Hill	Avoids highpoints within Margree forest Avoids Lochinvar & primary ornithology constraints Avoids the Black Water valley The SSSI at Cleugh is avoided
Green	Straight line between Shield Willie Hill and Glenshimmeroch Hill Passes to the south of Mackilston Hill Abrupt change of direction at Mackilston and Glenhoul Proximity to property at Glenhoul	Avoids highpoints within Margree forest Avoids Lochinvar & primary ornithology constraints Avoids the Black Water valley The SSSI at Cleugh is avoided Avoides farm at Glenshimmeroch
Purple	Straight line between Shield Willie Hill and Glenshimmeroch Hill Passes close to the Black Water and potential bird breeding habitat Crosses local highpoint at White Hill, south of Blackwater Bridge	Avoids highpoints within Margree forest Avoids Lochinvar & primary ornithology constraints The SSSI at Cleugh is avoided Avoids farm at Glenshimmeroch Avoids properties to the south and west of Mackilston Hill & Glenhoul
Red	Straight line between Shield Willie Hill and Glenshimmeroch Hill Passes close to the Black Water and potential bird breeding habitat Crosses local highpoint at White Hill, south of Blackwater Bridge Potential effect on Inventory Woodland at Kendoon	Avoids highpoints within Margree forest Avoids Lochinvar & primary ornithology constraints The SSSI at Cleugh is avoided Avoids farm at Glenshimmeroch Avoids properties to the south and west of Mackilston Hill & Glenhoul

Figure 3.10 - Section 1 route options considered

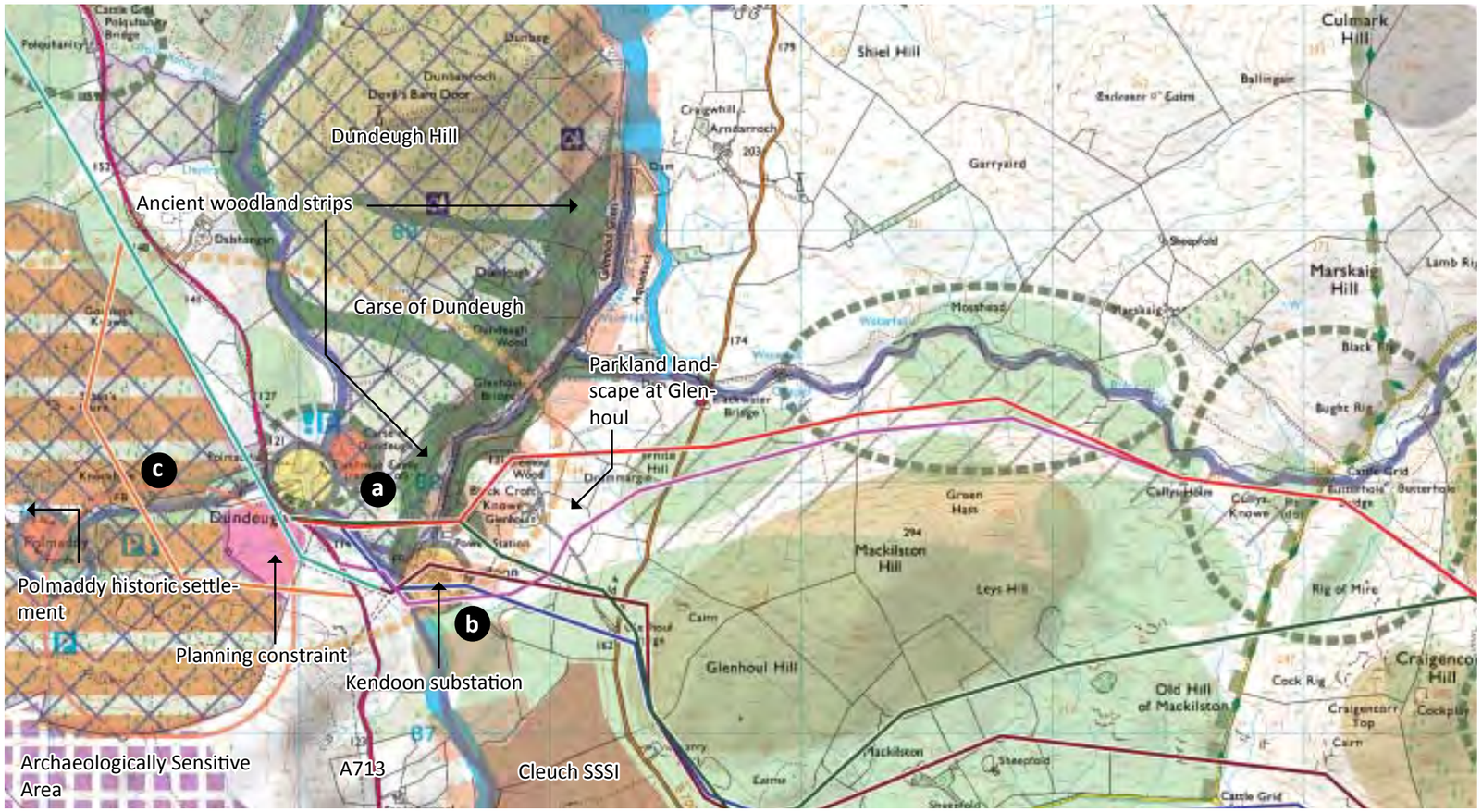


Figure 3.11 - Route options at Kendoon (legend as Figure left)

3.6 Identification of the Preferred Route

1 Having established the strategy for the provision of this section of the OHL, this has been developed through the application of normal routeing criteria in the light of the constraints identified through both desk and site survey.

3.6.1 Section 1

1 A route was sought which combines the shortest length between the substations at Blackcraig and Margree and responds to the known constraints between these points. In essence this required the identification of a route which passed to the north of Lochinvar and the ornithological constraints to the south whilst respecting the topographic and forestry constraints as far as possible in routeing towards Kendoon.

2 A number of route options were considered and these are shown in Figure 3.10 along with the reasons for rejecting these.

3 The identification of much of this route is relatively straight forward with limited conflict between technical and environmental constraints, however the achievement of an acceptable routeing to the south of Dundeugh Hill has been appreciably complicated by the technical requirements of the OHL and the density of environmental and other constraints.

4 This combination of issues has resulted in a number of detailed options being considered for the final part of this section of the route, some of which necessarily have implications on the routeing further south and east and the location of the connection with Section 2 of the route.

5 The identification of the detailed routeing in this complex section of the route has been developed iteratively as the understanding of the technical and other constraints developed. The options considered are illustrated on Figure 3.11.

6 The initial route option **(a)** sought to avoid the need to cross the existing OHL to the south of the substation at Kendoon by adopting a route just to the north of the Hydro turbine house and following the existing wayleave of the 11kV distribution wood pole across the Ancient woodland on the Carse of Dundeugh and joining the existing N-Route immediately south of the houses at Polmaddy. The required clearances from the turbine house and the need to expand the existing wayleave (with its affect on the Ancient woodland) and the very limited space available to the west of the A713, but to the east of the existing N-Route ensured that this route option was considered both technically and environmentally unachievable.

7 In the light of the constraints on the option above, it was accepted that the technical constraint of not crossing the existing OHL (N-Route) to the south of the substation at Kendoon might need to be relaxed. This allowed a potential route to be identified which passed through the 'parkland' landscape of Glenhoul and crossed the head of Carsfad Loch to the south of the existing 132kV crossings and then passed beneath these to allow the connection to be made into the southern end of the N-Route just north of its connection to the Kendoon substation **(b)**. Archaeological find spots adjacent to the watercourse crossing suggested that there was some sensitivity at the point of crossing, but it was considered that the flexibility for the wood pole and tower locations could avoid these. This route required the new L7 Towers to be placed alongside the existing N-Route towers as this circuit needs to be maintained until replaced by the new circuit. The proximity of the new alignment to the A713 and the existing towers indicated this route would be technically very challenging to construct. During the period of consideration of this option, the presence of planning consent (now partially implemented) for three new dwellings in the area immediately to the west of the A713 was identified. These consents, although covering relatively large areas did not separate the curtilage of the dwellings from the area of the consent. As SPT does not have statutory rights for securing wayleaves across the curtilage of domestic dwellings, this was considered to provide an unacceptable risk to realising the proposed line, notwithstanding the existing presence of an existing N-Route tower in this area of land (and in closer proximity to the proposed dwellings). (Although not identified at that stage this constraint would have applied equally to the previous option considered). In the light of these constraints this route was rejected.

8 As a result of the rejection of the second option in this location, and on the continuing understanding that a route to link to the southern end of the N-Route – rather than further north at Carsphairn was required, investigation was undertaken as to the opportunity to adopt the route outlined above to the point of the crossing of the head of Carsfad Loch and then to continue westward before turning north into the Polmaddy plantation from its southern border **(c)**. In this option, the OHL would continue as a wood pole to the point where it passed under the N-Route circuit heading south and from this point northwards would be supported by L7 Towers with the N-Route circuit from the N-Route to the north on the western side and the windfarm circuits to the east. From this location the route continued north across the Polmaddy Burn, east of the ancient settlement, before crossing the line of the existing N-Route close to Gordon's Knowe and adopting an alignment northwards, parallel to this, but to the east. Additional survey work was undertaken within this area to identify any constraints. Constraints were identified in the presence of the recreational use of this area of forest especially connected with the archaeology at the Settlement, the very mature (long term retention) forest (which would require extensive felling to achieve windfirm edges) and the presence of both red squirrel and ornithological constraints. These constraints were considered sufficient to preclude further consideration of this route option.

9 The identification of the constraints and the limited number of other available opportunities to achieve an acceptable route in this location necessitated a review of the strategy for providing the connection.

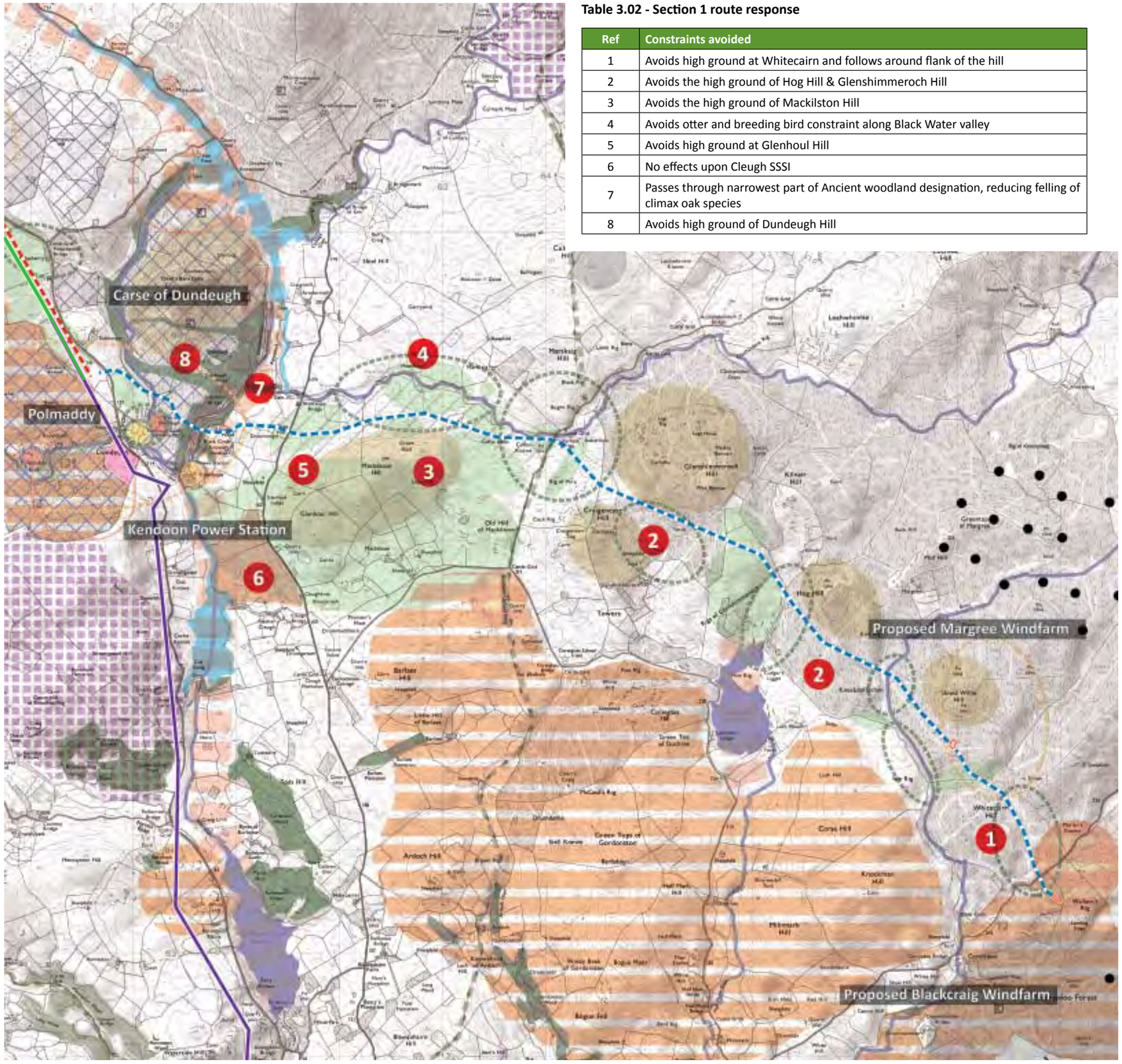


Table 3.02 - Section 1 route response

Ref	Constraints avoided
1	Avoids high ground at Whitecairn and follows around flank of the hill
2	Avoids the high ground of Hog Hill & Glenshimmeroch Hill
3	Avoids the high ground of Mackilston Hill
4	Avoids otter and breeding bird constraint along Black Water valley
5	Avoids high ground at Glenhoul Hill
6	No effects upon Cleugh SSSI
7	Passes through narrowest part of Ancient woodland designation, reducing felling of climax oak species
8	Avoids high ground of Dundeugh Hill

Legend

Components of the preferred grid connection

- Windfarm locations
- Preferred Wood Pole line
- Preferred L7 Tower line
- N-Route section retained
- N-Route removed
- Substations

Constraints

- A713
- 'Built' constraints
- Archaeologically Sensitive Areas
- Non-Inventory Designed Landscapes
- Vulnerable watercourses (categorised as 1a & 1b under WFD)
- Southern Upland Way
- Ancient Woodland inventory sites
- Sites of Special Scientific Interest
- Other waterbodies
- Ornithological constraints
- Other features, as labelled
- Scheduled Ancient Monuments
- Planning constraint
- Red squirrel priority woodland
- Otters (high density of signs)
- Red squirrel (high density of signs)
- Waders & wildfowl flight corridor
- Breeding bird constraint
- Distinctive high points
- Sensitive habitats

0m 0.5km 1km 1.5km 2.0km

N

Figure 3.12 - Preferred route - section 1

10 The key principles established in identifying a route in this area require the route to:

- pass to the south of the Dundeugh Hill to avoid the constraints to the north and to maximise the length of the existing N-Route to be replaced;
- pass to the north of the substation at Kendoon to avoid crossing the existing N-Route circuit; and
- connect to the east side of the existing N-Route towers.

11 These principles required the identified constraints on the southern end of the Carse of Dundeugh be revisited to see if there was a detailed routeing opportunity in this area. The identified constraints consist of:

- the narrow fringes of ancient woodland along either sides of the Water of Ken and Water of Deugh;
- the Scheduled Monument of Dundeugh Castle on the western side of the Carse of Dundeugh;
- the bird flight lines along the Water of Ken; and
- the long term forest retentions covering some of the areas of forest around the perimeter of the Carse of Dundeugh (much of the central area has been felled and the replanting is currently at pole stage).

12 Although these constraints are such that routeing across this area would not normally be considered, the constraints which apply to the other options indicate that more detailed consideration of the potential effects on these needed to be undertaken to see if an appropriate route could be developed in the light of them.

13 Detailed site work facilitated the identification of a route from White Hill on the B7000 which crosses the parkland landscape to the north of Glenhoul Lodge with no effect on the mature trees in this location and which crosses the Water of Ken to the northwest of the hydro balancing tower at a location where the ancient woodland fringing the watercourse is narrowest to minimise any effects. The most valuable part of the woodland is the climax oak community on the edges of the ravine occupied by the watercourse, with the woodland outwith this generally of less value. Through detailed survey and arrangement of the elements of the proposal, this climax oak community can remain without the need for appreciable felling, although localised topping will be required to achieve the necessary safety clearances. The SAM has been visited and all that remains of this is a barely recognisable mound of stone located within an overgrown former clearing in the mature forest on the edge of the Carse of Dundeugh. It is not considered that either the SAM or its setting provide an appreciable constraint to the routeing as proposed.

14 On the Carse of Dundeugh, the route crossed an area of pole stage plantation forest, before crossing the Water of Deugh through an existing break in the belt of mature conifers which fringe this area north of the SAM. Once across the river, the route crosses the open pasture of at Dalshangan and the A713 before joining the southern extent of the steel lattice towers comprising the route to the north.

15 In the light of the broad routeing issues and the detailed area adjacent to Kendoon a preferred route was developed which is shown on Figure 3.12.

3.6.2 Section 2

1 This section of the route, whilst it has been subject to appreciable study has not resulted in a similar number of route options as for Section 1, with the corridor of the existing route well established, and the detailed alignment of the preferred route largely determined by proximity issues to the existing N-Route and a number of individual constraints.

2 The existing alignment of the N-Route does not provide a viable option for the proposed steel lattice tower line, as this needs to remain in place until the energisation of the new OHL.

3 The identification of the preferred route was in large part predicated on a minimum offset of 50m (to allow for safe working distances to be maintained during construction) from the existing line except where opportunity or constraint suggested that deviation from this would be required.

4 The principal areas where greater deviations (beyond the minimum 50m) have been required or are desirable are set out below along with the reasons for these.

Location of increased deviation from existing N-Route (>50m)	Reason for this deviation
Between the northern edge of Polquhanity and Greenwell of Scotland	Proximity of existing route to A713
	Forestry constraints
	Seeking to locate line further downslope from Bardennoch Hill
	To avoid repeated road and river crossings
	Proximity to properties at North Liggat
At Lamford	Proximity of properties
From Polnaskie Bridge northwards	Insufficient space within Muck Water Valley to accommodate existing and proposed OHLs

5 The alignment of the preferred route and the key constraints are shown on Figure 3.13.

3.6.3 Section 3

1 As described previously, this section of the route was initially predicated on a wood pole line connecting the northern end of the steel lattice tower replacement for part of the existing N-Route. That the eventual strategy includes this part of the proposed OHL as an L7 steel lattice tower, does not conflict with the initial routeing studies undertaken.

2 The combination of the topography, a series of minor valleys running south-west to north-east and connecting the Muck Water valley and the elevated ground at Meikle Hill, and the density of constraints both environmental and other have required to consideration of a number of route options for this part of the OHL. These are shown on Figure 3.14.

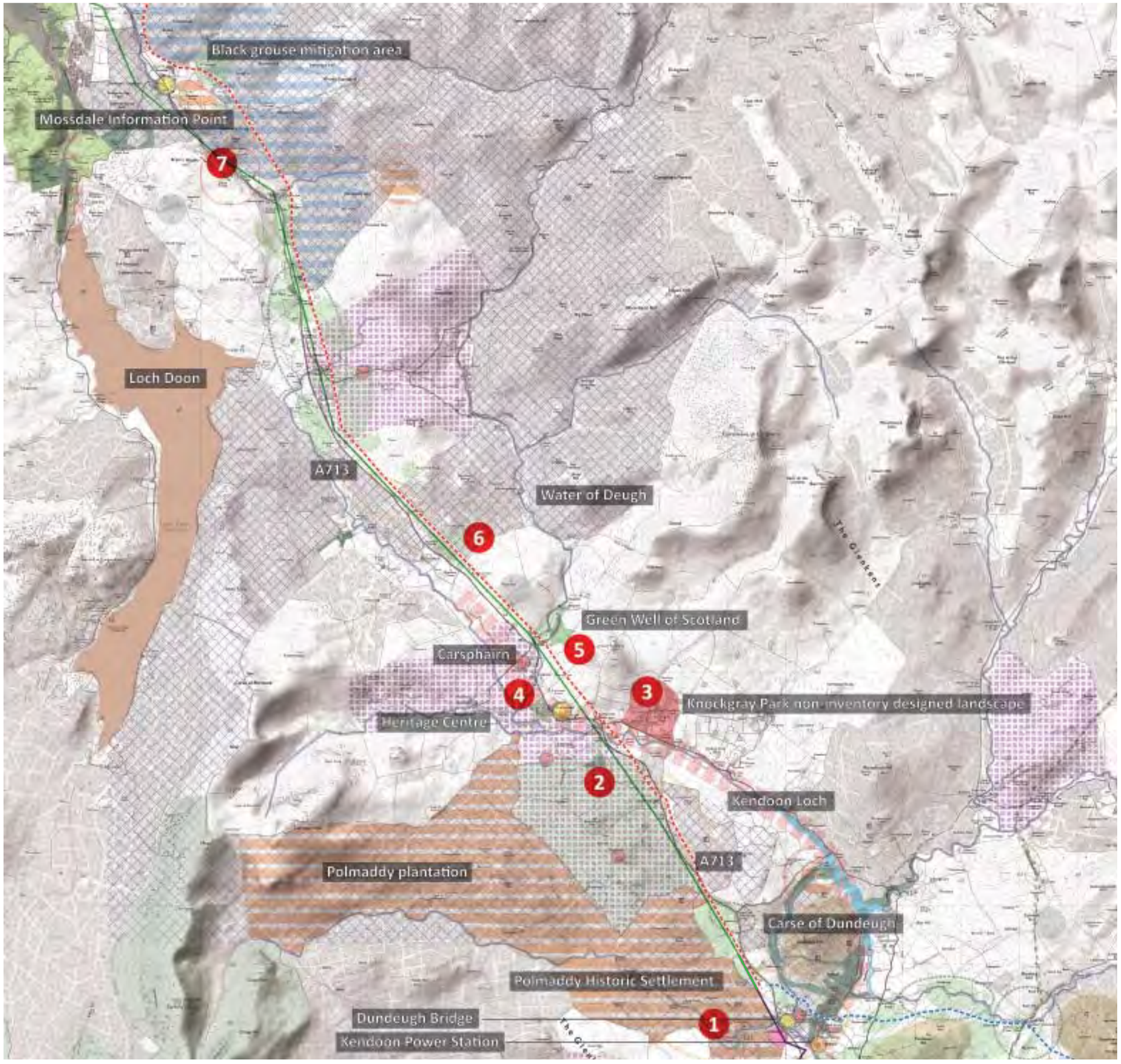
3 The initial premise for this section of the route (based on a wood pole connection to Meikle Hill) was that it should avoid the area of black grouse mitigation (formerly proposed as part of the Kyle (South) Windfarm) to the east of Kirn Bridge. In order to achieve this, the initial premise for its routeing was that the previously considered L4 Tower format of the route would continue north-west from Kirn Bridge and cross the A713, with the divergence of the N-Route and wood pole at Town's Common, with the N-Route continuing northwards as existing and the windfarm circuits reverting to a wood pole line at this point. From this location, the route (on wood pole) would have re-crossed the A713 adjacent to the minor road junction immediately to the south-east of Dalmellington, and passed around the foot of Mains Hill before following the lower north facing slopes of the Cummock Burn north-eastwards to the substation at Meikle Hill. This alignment was identified to minimise the intrusion into the area of known black grouse sensitivity, whilst providing some separation of the route from Dalmellington and maximising backclothing of the route within the mosaic of woodland along the southern edge of the Cummock Burn. The further investigation of this route identified a number of constraints to this potential routeing including proximity to Dalmellington, the need to recross A713, the effect on forest structure and the potential sterilisation of coal reserves.

4 In the light of the constraints identified, a new alignment was considered which adopted a termination of the L7 Towers to the east of the A713 near Kirn Bridge with a wood pole link to the northern continuation of the N-Route. The windfarm circuit on the wood pole line from the terminal tower to Meikle Hill was then proposed north-eastwards across the Parrie Burn and around the upper part of Mains Hill before passing to the north of the ridgeline of Knockgirran, Camlarg Hill and Cockclay before joining the alignment of one of the South West Scotland Renewables Connection Project (SWS Project) routes. This option provided greater separation from Dalmellington and avoided the area of coal reserves, and was outwith the core areas for black grouse, however it was located high on the slopes of the valley of the Cummock Burn and was therefore visually exposed.

5 In the light of the constraints apparent on the route to the north, and following 12 months of black grouse survey, it was decided to revisit the initial assumption that the routeing should avoid the valleys of the Mossdale Burn and Parrie Burn as a result of the importance of the area for black grouse. The principal presence of this species (both recent and historic) has been on the northern side of Mossdale Burn along the verge of one of the forest tracks. A route option was considered which adopted an alignment up the southern side of Mossdale Burn to avoid this area; however it was considered that although avoiding the key area of black grouse activity this would unacceptably divide areas of habitat and would potentially provide a constraint to flight activity.

6 In the light of the various options considered and constraints identified, a route was identified from the northern steel lattice tower at Kirn Bridge north-eastwards across the Parrie Burn and then following the northern valley side below the ridgeline of Knockgirran, Camlarg Hill and Cockclay before joining the alignment of one of the SWS Project routes on the final approach to the substation at Meikle Hill. This alignment avoids the core areas of black grouse habitat, whilst maintaining the separation between the line and the watercourse and ensuring that the line is visually contained within this valley landscape.

7 This alignment whilst originally conceived for a wood pole connection has been largely retained for the continuation of the L7 route, although the alignment has been moved somewhat southward towards the watercourse to ensure that the L7 Towers are visually better enclosed within the valley.



Legend

Components of the preferred grid connection

- Windfarm locations
- Preferred Wood Pole line
- Preferred L7 Tower line
- N-Route section retained
- N-Route removed
- Substations

Constraints

- A713
- 'Built' constraints
- Archaeologically Sensitive Areas
- Non-Inventory Designed Landscapes
- Vulnerable watercourses (categorised as 1a & 1b under WFD)
- Southern Upland Way
- Ancient Woodland inventory sites
- Sites of Special Scientific Interest
- Former black grouse mitigation area for Kyle Windfarm
- Other waterbodies
- Ornithological constraints
- Other features, as labelled
- Scheduled Ancient Monuments
- Planning constraint
- Red squirrel priority woodland
- Black grouse historic lek sites
- Otters (high density of signs)
- Red squirrel (high density of signs)
- Waders & wildfowl flight corridor
- Breeding bird constraint
- Inventory Designed Landscapes
- Distinctive high points
- Sensitive habitats

0m 1km 2.0km (0.5km, 1.5km)

N

Figure 3.13 - Preferred route - section 2

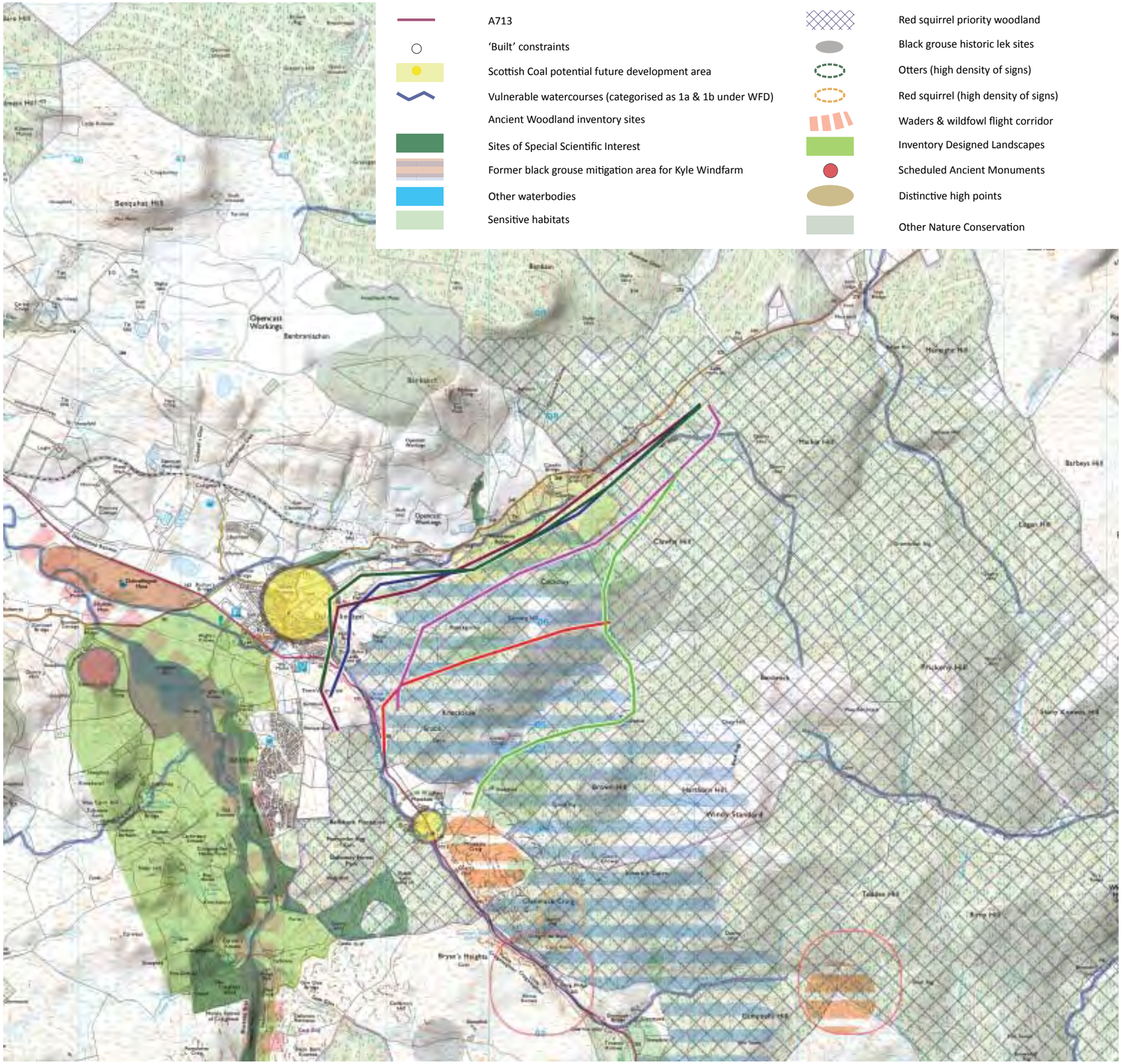


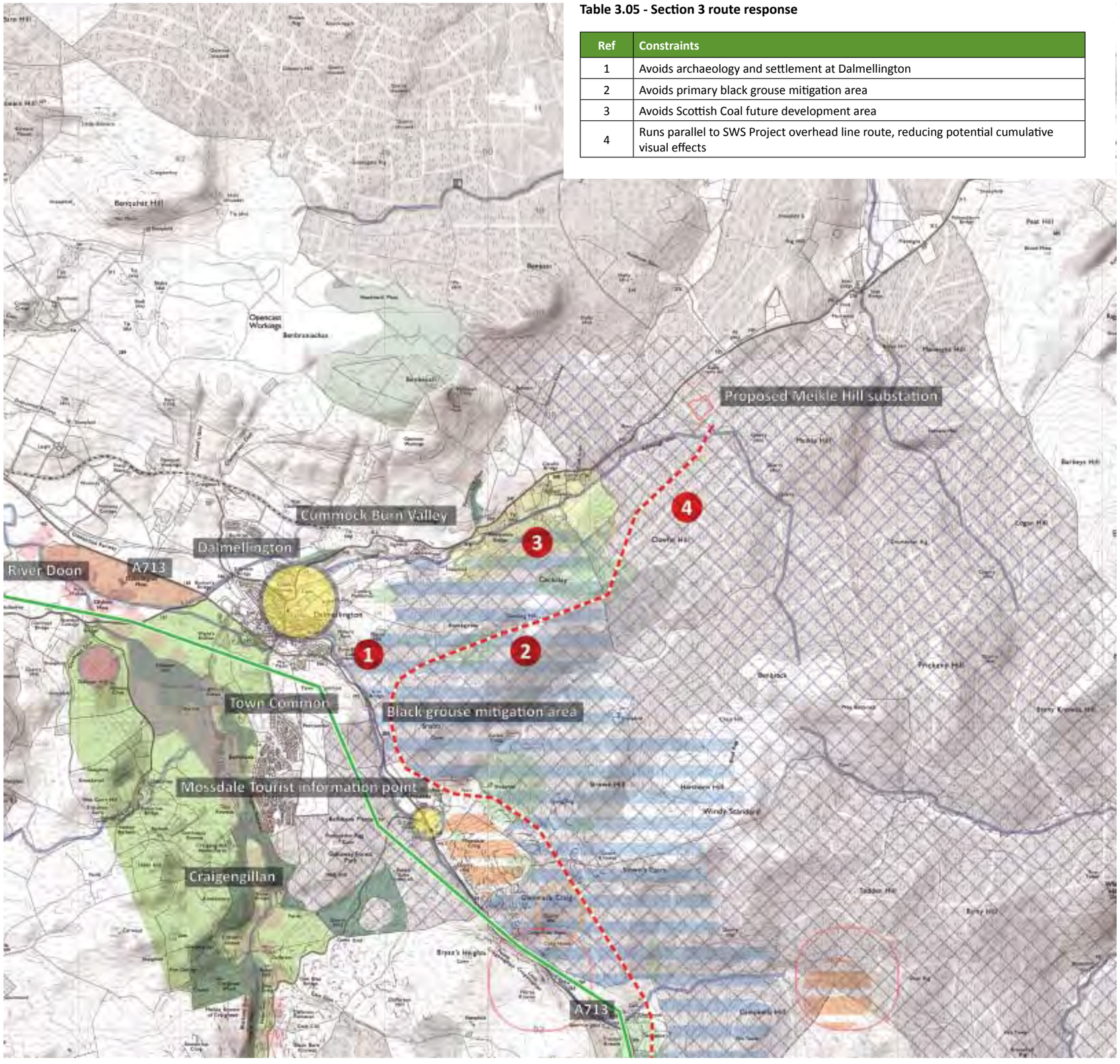
Table 3.04 - Section 1 route options considered

Route Colour	Constraints	Opportunities
Maroon	Based upon utilising the existing N-Route alignment, so starts from Town's Common Crosses A713 tourist route & Water of Muck Passes through the Scottish Coal potential future development area Passes close to residences in Dalmellington	Avoids black grouse mitigation area Avoids higher ground to east
Dark Blue	Based upon utilising the existing N-Route alignment, so starts from Town's Common Crosses A713 tourist route & Water of Muck & Cumnock Burn Passes through the Scottish Coal potential future development area Passes close to residences in Dalmellington Passes over archaeological site 'Dame Helen's Castle' on the southern edge of Dalmellington	Avoids black grouse mitigation area Avoids higher ground to east
Dark Green	Based upon utilising the existing N-Route alignment, so starts from Town's Common Crosses A713 tourist route & Water of Muck Crosses through core black grouse areas Passes over archaeological site 'Dame Helen's Castle' on the southern edge of Dalmellington	Avoids black grouse mitigation area Avoids higher ground to east
Red	Based upon utilising a link to a proposed overhead line proposed as part of the SWS grid reinforcement Requires crossing of the Muck Water Passes through the centre of the Black Grouse Mitigation Area Runs alongside the Parrie Burn for a short length	Avoids residences on the edge of Dalmellington Avoids archaeological site 'Dame Helen's Castle' on the southern edge of Dalmellington Avoids the Scottish Coal potential future development area Avoids crossing A713 tourist route & Water of Muck
Purple	Visually exposed on ridgeline	Avoids residences on the edge of Dalmellington Avoids archaeological site 'Dame Helen's Castle' on the southern edge of Dalmellington Avoids the Scottish Coal potential future development area Avoids crossing A713 tourist route & Water of Muck
Green	Crosses through core black grouse areas	Avoids residences on the edge of Dalmellington Avoids archaeological site 'Dame Helen's Castle' on the southern edge of Dalmellington Avoids the Scottish Coal potential future development area Avoids crossing A713 tourist route & Water of Muck

Figure 3.14 - Section 3 route options considered

Table 3.05 - Section 3 route response

Ref	Constraints
1	Avoids archaeology and settlement at Dalmellington
2	Avoids primary black grouse mitigation area
3	Avoids Scottish Coal future development area
4	Runs parallel to SWS Project overhead line route, reducing potential cumulative visual effects



Legend

Components of the preferred grid connection

- Windfarm locations
- Preferred Wood Pole line
- Preferred L7 Tower line
- N-Route section retained
- N-Route removed
- Substations

Constraints

- A713
- 'Built' constraints
- Scottish Coal future development area
- Vulnerable watercourses (categorised as 1a & 1b under WFD)
- Ancient Woodland inventory sites
- Sites of Special Scientific Interest
- Former black grouse mitigation area for Kyle Windfarm
- Other waterbodies
- Red squirrel priority woodland
- Black grouse historic lek sites
- Otters (high density of signs)
- Red squirrel (high density of signs)
- Waders & wildfowl flight corridor
- Inventory Designed Landscapes
- Scheduled Ancient Monuments
- Distinctive high points
- Sensitive habitats
- Other Nature Conservation

0m 0.5km 1km 1.5km 2.0km

Figure 3.15 - Preferred route - section 3

8 This alignment and more particularly its formation (L7 Towers) ensures that a connection back to the N-Route at Town's Common crossing the A713 is no longer required. In addition the strategy adopted to provide this connection will allow an additional 12km of N-Route to the north of Town's Common to be removed.

3.6.4 The 'Preferred' Route

1 The combination of the identified options for each of the three sections comprised the 'preferred' route and this was the route presented for public consultation in April and May of 2009.

3.6.5 Consultation

1 Following the identification of the 'preferred' route, public consultation was undertaken in order have an opportunity to benefit from local knowledge and opinion. In the light of the information and comments received the preferred route was further amended as detailed below to form the 'proposed' route. It is the proposed route which is the subject of this Environmental Impact Assessment.

3.6.6 The 'Proposed Route'

1 In the light of the information received and the comments made during the consultation process, a number of alterations have been incorporated into the proposed OHL:

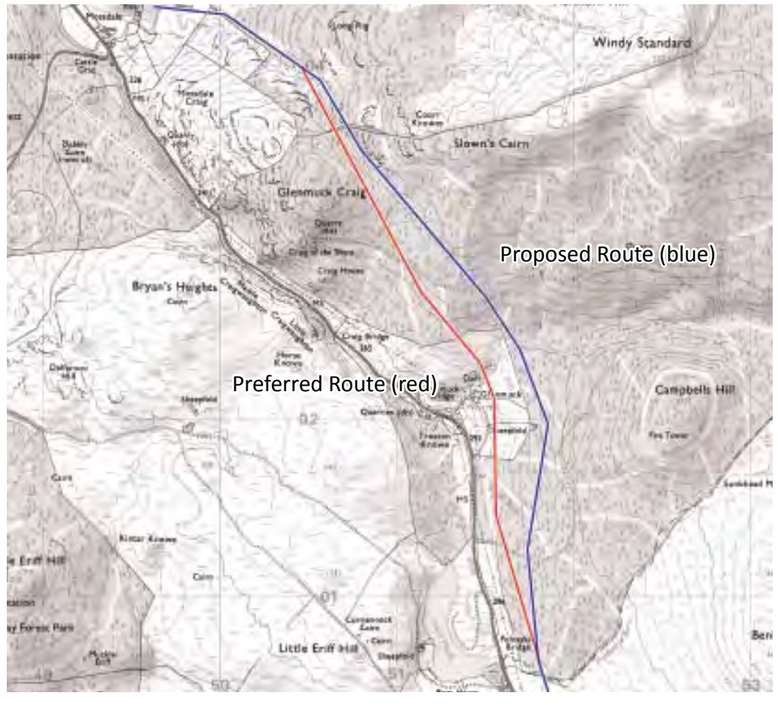
- At Dalshangan, just north of Kendoon, the wood pole line originally crossed the open ground to the south of the property at Dalshangan towards its connection to the southernmost L7 Tower to the west of the A713. In the light of the potential effects on the parkland like landscape at Dalshangan and to relocate the line further from the property at Hawkrigg, the route was modified so that it crosses the Water of Deugh further north. The proposed route rather than crossing the Water of Deugh (as in the preferred route) continues north along the eastern side of it, in a northerly direction, avoiding the majority of the long term retention pine woodland on the western flank of the hill, and staying on the higher ground above the river terrace and the forest access track directly to the west. Upon reaching a point near to grid reference NX 59789 89241, the route turns westwards and crosses the river into the northern part of the landscape surrounding Dalshangan house. In crossing this river, the elevation of both the eastern and western sides of the river allow the route to overfly areas of the ancient woodland in this area, although limited other areas will require felling to accommodate the route. The route continues westwards along the northern boundary of the landscape at Dalshangan, before terminating some 120m east of the road.

- In light of safety clearance and maintenance concerns regarding a 'slack span' (tee in from horizontal formation conductors on wood pole to vertical formation on the tower) arrangement over the A713, an underground cable solution has been adopted which links the terminal end of the Wood Pole OHL (within the Dalshangan landscape) to the southern terminal point of the L7 Tower route at Tower 102. In crossing the A713 in this way there are also visual benefits for those travelling along this key tourist route. This arrangement is illustrated on Figure 3.16.

- Adjacent to Bardennoch the preferred route passed close to the property and had two steel lattice turning towers in close proximity on the eastern and western side of the A713 to facilitate the road crossing. The routeing in this area is appreciably constrained by the adjacent forest. Changes to the alignment have however been adopted to move the more northerly of these towers appreciably northward away from the property and thereby to move the conductors further from the property. This movement has been as large as possible in the light of the technical constraints to achieving a road crossing and respecting the forestry constraints. Notwithstanding these constraints the achievement of this separation from the property will require 'profiling' of the forest edge at Cumnock Knowes. See Figure 3.18.

Figure 3.16 - Proposed route changes at Dalshangan

Figure 3.17 - Proposed route changes at Glenmuck



- The proposed route at North Liggat has been realigned so that it now passes further from the cottages located here, thus reducing any potential effects upon them. See Figure 3.18.

- The proposed route at Glenmuck has been realigned so that it crosses further upslope and thus away from the property and associated landscape here. This alignment largely avoids the area of broad leaved woodland that has recently been planted in this location. See Figure 3.17.

2 In the light of the different stages undertaken above, the proposed route is as shown in Chapter 5. This route already includes appreciable mitigation having been developed to both:

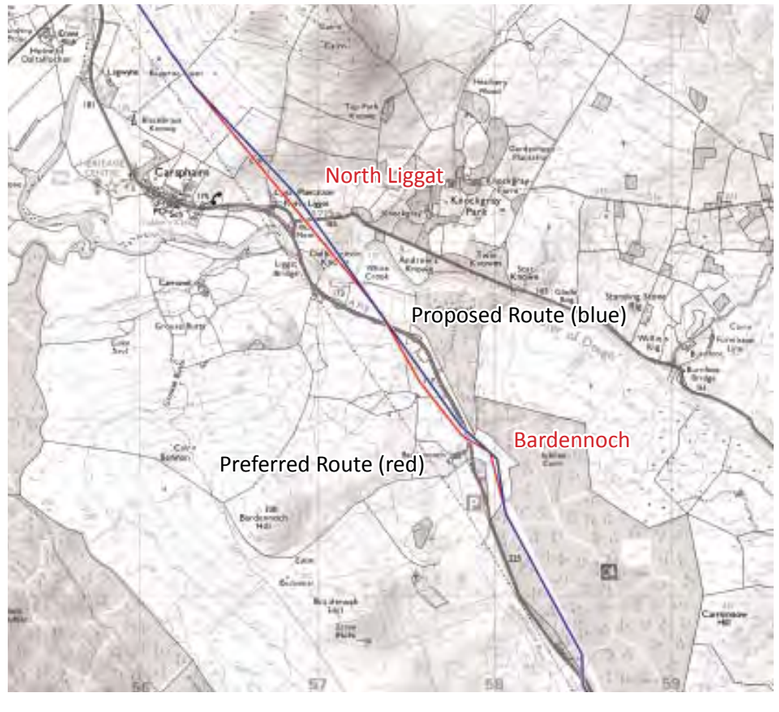
- avoid (where possible) identified constraints; and

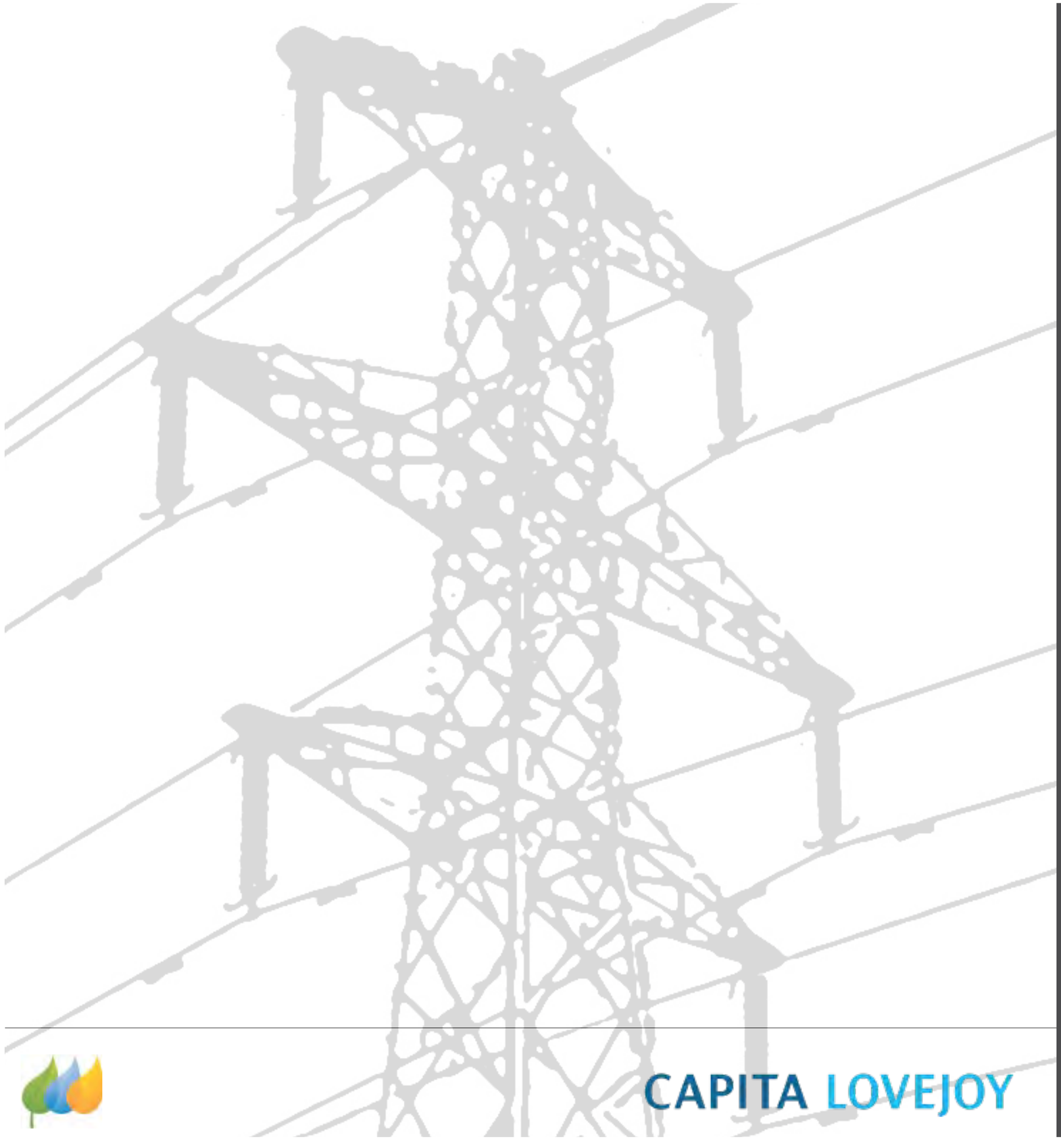
- minimise effects (where possible) on identified constraints.

3 In addition, the routeing strategy serves to limit the conflict between constraints and routeing, with Figures 3.12, 3.13 & 3.15 illustrating the constraints that have been largely avoided by undertaking the routeing shown. To further this inbuilt mitigation, the routeing has been undertaken in accordance with accepted routeing principles, the Holford Rules and the Forestry Commission additions to this.

4 The proposed route including all elements (steel lattice tower positions and types, wood pole positions and types, stringing compounds, accesses and forestry changes) are included within Chapter 5.

Figure 3.18 - Proposed route changes at North Liggat & Bardennoch





04

Legal & Policy Framework

Blackcraig and Margree Windfarms
Grid Connection
Environmental Statement

CAPITA LOVEJOY

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4.0 The Planning Context

4.1 The Electricity Act

1 Under Section 37 of the Electricity Act 1989 ('the Act'), consent is required from the Scottish Ministers for an electric line above 20kV to be installed or kept installed above ground.

2 At the point of submission of the Section 37 applications, a request for deemed planning permission will also be made under Section 57(2) of the Town and Country Planning (Scotland) Act 1997 to the Scottish Ministers.

3 Development proposals for the overhead line (OHL) have taken a range of policy and guidance into account when considering the potential significant environmental effects. There are three key tiers of policy and guidance which are considered:

- UK and Scottish Government Energy Policy;
- Planning Policies and Guidance;
- The Development Plan; and
- Topic related policies relevant to the development.

4 The key policies and guidance for each tier are summarised in turn below.

4.2 UK Energy Policy

1 White Papers were published in May 2007, including the Department of Trade and Industry's 'Meeting the Energy Challenge' and the joint departmental White Paper, 'Planning for a Sustainable Future'. These set out the key renewable energy targets and objectives, and identify a number of planning reforms to assist in the delivery of renewable energy projects through the planning process.

2 The UK Climate Change Bill was subsequently introduced in November 2007 and became an Act of Parliament following Royal Assent on 26th November 2008. The Climate Change Act 2008 includes setting targets in statute and a limit on the level of UK emissions. As such the Act introduces a long term framework for the UK to achieve a 60% reduction in CO2 emissions by 2050, compared to 1990 levels. Whilst many of the provisions of the UK Bill extend to Scotland, the Scottish Government introduced a Scottish Climate Change Bill to Parliament in December 2008, giving Scottish Ministers the power to establish an advisory body, a Scottish Committee on Climate Change. The Scottish Bill sets a higher target of 80% reduction in CO_2 emissions by 2050, based upon the high level of potential for renewable energy, particularly marine and wind energy, and places a duty on those Ministers to report to the Scottish Parliament on the ways intended to deliver these targets. The Bill for the Climate Change (Scotland) Act 2009 was given Royal Assent on 4 August 2009.

4.3 National Planning Policies and Guidance

1 National Planning Framework (NPF) sets out the strategy for long term spatial development in Scotland. Scottish Planning Policies (SPP) provide statements of policy on nationally important planning matters. In February 2010 a single consolidated SPP was also published that replaced existing SPPs and NPPGs. The consolidated SPP outlines the Scottish Government's approach to nationally important land use planning matters and will be used to inform the content of development plans, be a consideration in decisions on planning applications and used to inform development proposals from initial conception to implementation.

1 Planning Advice Notes (PAN) provide advice on good practice and other relevant information. NPF2 was published in June 2009, updating the first NPF, and provides a strategy for planning over the next 20-25 years. As contained within the consolidated SPP and PANs, the following planning policy criteria is of relevance:

4.3.1 Renewable Energy

1 SPP: Paras. 182-195 describe the policy criteria in respect of wind farm, off-shore and other renewable energy generation, to meet the increased renewable energy targets set by the Scottish Government.

2 PAN 45: 'Renewable Energy Technologies' (Revised 2002) provides advice in respect of the likely planning issues to arise from such proposals (including noise intrusion, visual effect, and effect upon flora and fauna) as well as good practice guidance as to how these should be addressed. Annex 2 of PAN 45 (November 2008) provides advice to planning authorities on supplementary planning guidance for wind farms, particularly on the process of preparing spatial frameworks for wind farms over 20 megawatts capacity.

4.3.2 Development in the Countryside

1 SPP: Paras. 92-97 summarise the need to enable development in rural areas that will support prosperous and sustainable communities, enabling rural diversification whilst protecting and enhancing their environmental quality.

4.3.3 Natural Heritage

1 SPP: Paras. 125-148 summarise the criteria for considering the impact of development on internationally, nationally and locally designated areas, protected species, trees and woodland.

2 PAN 60: 'Planning for Natural Heritage' (August 2000) provides advice on how development can contribute to the conservation and enhancement of the natural environment, using case studies to demonstrate good planning practice.

4.3.4 Cultural Heritage

1 SPP: Paras. 110-124 set out policy on the historic environment including guidance on the criteria for granting listed building consent, conservation area consent and planning permission for development which may affect the historic environment, such as (but not exclusively) World Heritage Sites, Scheduled Monuments, and designated landscapes.

2 PAN 42: 'Archaeology – The Planning Process & Scheduled Ancient Monuments' (January 1994) provides further advice on the handling of archaeological matters within the planning process.

4.3.5 Other Environmental Protection

1 PAN 58: 'Environmental Impact Assessment' (September 1999) provides advice regarding the process of Environmental Impact Assessment in Scotland. Whilst this PAN relates specifically to environmental impact assessment for development projects authorised under planning legislation, the basic principles of this advice are relevant to those carried out under The Electricity Act 1989.

2 PAN 51: 'Planning and Environmental Protection' (Revised 2006) provides general advice on environmental protection through development. This includes advice in respect of sustainable development and environmental pollution. More specifically, PAN 56: 'Planning and Noise' (1999) outlines ways of mitigating the adverse effect of noise.

4.4 Development Context

1 The regional and local planning administrative boundaries are indicated on Figure 4.01.

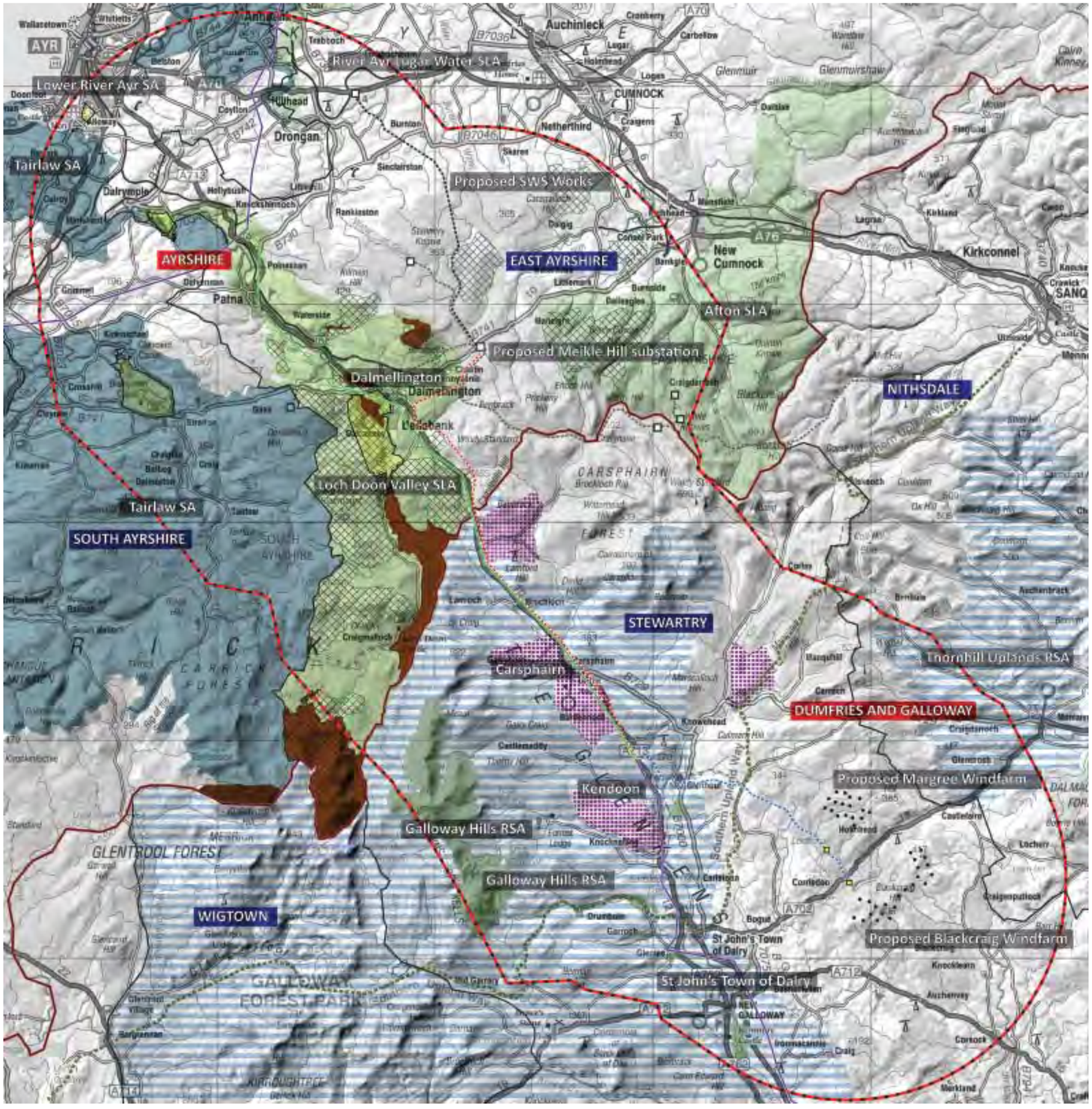
2 At a regional level, the route of the OHL is divided between Ayrshire (northern portion of the Study Area) and Dumfries and Galloway (southern portion). As such, the route falls within the regional planning policy remit of the Ayrshire Joint Structure Plan – 'Growing a Sustainable Ayrshire' (AJSP) (approved November 2007) and the Dumfries & Galloway Structure Plan (DGSP) (approved December 1999).

3 At local level, this same northern area of the site falls within the local policy remit of the Finalised Draft with Modifications: East Ayrshire Local Plan (EALP) (February 2009), which is currently being examined by the Directorate of Planning and Environmental Appeals (DPEA). The examination is anticipated to conclude in June/July 2010.

4 The remainder and majority of the route lies within the local area of Stewartry, part of Dumfries and Galloway. As such, planning policies within the Adopted Stewartry Local Plan (SLP) (July 2006) apply to this area.

5 The Development Plan system has been reviewed under the Planning etc (Scotland) Act 2006 and new development plan regulations that came into force in February 2009. Under the terms of the new Act there is no longer a requirement to produce a separate structure plan, with strategic issues being covered by new Local Development Plans (LDP). As such the proposed East Ayrshire LDP will replace the AJSP and EALP, and the Dumfries and Galloway LDP will replace the DGSP and SLP. It is anticipated that the process of preparation will lead to adoption of both new LDPs in 2013.

6 Until such time as the new LDPs are adopted by the respective Councils, the requirements of the AJSP, DGSP, EALP and SLP are all material considerations in identifying the planning context of the proposed OHL.



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km Study Area boundary

Administrative boundaries

- Regional administrative boundary
- Local administrative boundary

Ayrshire - South Ayrshire

- Scenic areas (SALP strategic policy ENV 8)
- Site of special scientific Interest

Ayrshire - East Ayrshire

- Sensitive landscape areas
- Site of international or national nature conservation Interest (SPA, SAC, SSSIs)
- Historic gardens and designed landscape
- Proposed local nature reserve

Dumfries & Galloway - Stewartry, Wigtown & Nithsdale

- Regional scenic areas
- Southern Upland Way
- Archaeologically sensitive area
- Site of international or national nature conservation interest (1, Classified SPA, Designated RAMSAR 3, Potential SPA/ Proposed RAMSAR 4, Candidate SAC 5, SSSI)

2.5km 7.5km
0m 5km 10km

Figure 4.01 - Strategic designations

4.4.1 Generic Policy Context

1 There are a number of generic and strategic development control policies which are relevant to the OHL and under which a number of the detailed policies have been prepared.

2 AJSP Policy STRAT 1 provides a general statement of policy towards the appropriateness of development proposals in Ayrshire. A list of Guiding Principles, including those for Environmental Quality, to which development proposals must accord in order to be considered appropriate to the Structure Plan are set out within Schedule 1 of the plan.

3 AJSP Policy ENV 1 also supports the principles of environmental quality, specifically seeking to ensure the maintenance and enhancement of the quality of Ayrshire's landscape and distinctive local characteristics when considering proposals for new development.

4 DGSP Strategy Statement 3 provides a broad statement of the Council's aim to improve the quality of life for everyone in the region by maintaining and improving access to services and facilities, and caring for the natural and built environment.

5 EALP Policy SD1 states that the Council will adhere to the principles of sustainability when considering all development proposals, to meet the provisions of the AJSP. In particular it states that development will not have an unacceptable adverse impact on the character and appearance of the location, the environment and amenity of local communities, the landscape character and quality, and natural and built heritage resources.

4.4.2 Wind Farm Policy

1 AJSP Policy ECON 7 requires that windfarm development outside the Preferred Areas of Search, including transmission links to the grid, are acceptable where it can be demonstrated that there is no significant adverse effect on: historic environment; areas designated for their regional or local natural heritage value; tourism or recreational interests; communities; buffer zones; aviation and defence interests; and broadcasting installations. ECON 7 also requires that all applications for windfarms are assessed in relation to criteria including, as appropriate; grid capacity, impacts on the landscape and historic environment, ecology (including birds), biodiversity and nature conservation, the water environment, communities, aviation, telecommunications, noise and shadow flicker.

2 DGSP Policy S21 relates more generally to renewable energy, including associated infrastructure and grid connections. Relevant to the proposed OHL, it states that renewable energy development will be considered favourably where it does not impact upon the built and natural areas and routes important for tourism or recreational use in the countryside, the amenity of the surrounding area. Policy specific to wind farms and wind turbines (Policy S22) relates to the location of such and refers to the Wind Farm Search Area. However, it also states that development must generally accord with Policy S21.

3 EALP Policy CS14 states that applications for wind farm development will be measured against the requirements of AJSP Policy ECON 7.

4.4.3 Designated Sites/Landscape Policy

1 Within the assessment area, the AJSP (comprising East Ayrshire, North Ayrshire and South Ayrshire) identifies a number of landscape/site designations including Sensitive Landscape Character Areas, Green Networks and Investment Corridors. The policy requirements in relation to these are summarised below.

2 AJSP Policy ENV 2 requires that the protection and enhancement of landscape in Sensitive Landscape Character Areas must be a prime consideration in the determination of development proposals.

3 To support the promotion of a Green Network for Ayrshire, AJSP Policy ENV 4 proposes that development within, adjacent to or affecting areas identified as part of these should be designed to enhance the landscape quality and expand their habitat potential. In conjunction with this, within the Investment Corridors this policy seeks to ensure that all development proposals consider the landscape setting and opportunities to link green spaces.

4 Within Dumfries and Galloway there are a number of designated sites/landscapes, specifically Regional Scenic Areas, Nature Conservation Sites of National Importance and Archaeologically Sensitive Areas. In relation to these particular designations, the SLP (namely SLP Policies 42, 45 and 55 respectively) states that development within or affecting these sites or areas will be assessed against the relevant Structure Plan policies, as summarised below.

5 DGSP Policy E2 requires the siting and design of development to respect the special nature of the Regional Scenic Areas (RSAs). Development within, or which would have a significant impact on RSAs, may be permitted where it can be demonstrated that:-

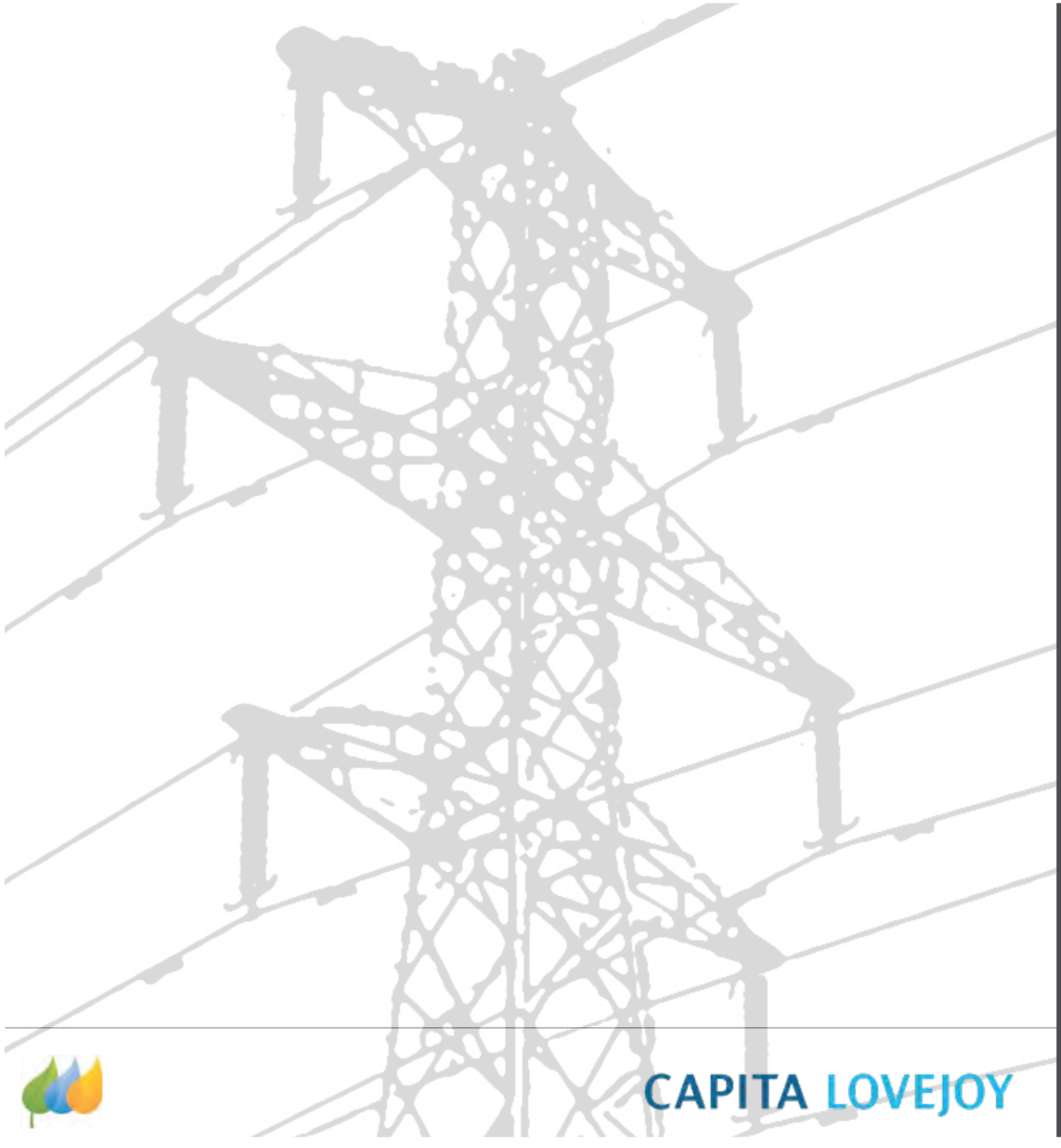
- the landscape character and scenic interest for which the area has been designated would not be adversely affected; or
- there is a specific need for the development at that location which could not be located in a less sensitive area.

6 DGSP Policy E5 sets out the requirements for development affecting Sites of Special Scientific Interest and these sites provide the basic statutory protection for other designations such as National Nature Reserves (NNRs). The policy requires development to demonstrate that it does not compromise the underlying objectives and overall integrity of the site, or that there is a national requirement or a proven national interest in allowing such a development that cannot be achieved elsewhere.

7 The boundaries of Archaeologically Sensitive Areas are defined within the DGSP and indicated within the Proposals Map. The proposed OHL crosses two such areas and in this respect DGSP Policy E13 states that the character and archaeological interest must be safeguarded.

8 Similarly the surrounding area for the OHL within East Ayrshire includes Sensitive Landscape Areas and, at varying proximities, local, national and internationally significant natural heritage sites. In this respect, EALP Policy ENV10 states that Design Statements will be requested at the Council's discretion to support applications for major development, or in sensitive areas such as Sensitive Landscape Areas. Guidance on the preparation and content of such is provided by PAN68: Design Statements (August 2003).

9 EALP Policy ENV 13 seeks to ensure protection of all significant natural heritage sites. In particular it states that any development affecting sites of international or national interest (including Natura 2000 sites, Sites of Special Scientific Interest, or local nature reserves, provisional wildlife sites and Regionally Important Geological and Geomorphological Sites (RIGS)), must demonstrate that the objectives and integrity of those designated areas remains largely unaffected. Development adversely affecting internationally and nationally designated sites must demonstrate that no alternative solutions are available or that the impact is outweighed by the benefits of national or public interest arising from the development.



05

Project Description

Blackcraig and Margree Windfarms
Grid Connection
Environmental Statement

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5.0 Project Description

5.1 Grid Connections

1 As described previously the connections have undergone appreciable change during the evolution of the proposal to address technical and environmental issues and in response to stakeholder comment and opinion.

2 The grid connections now comprise a number of distinct elements. In order from the south these are:

- An underground 33kV cable from the windfarm at Blackcraig along the windfarm access track to the substation at Blackcraig (2.7km);
- A substation at Blackcraig Windfarm (stepping up the 33kV windfarm circuits to 132kV for transmission) (GR268945, 583525);
- A wood pole OHL (132kV) running north-west to a substation close to Margree Windfarm (1.8km);
- A substation at Margree Windfarm (stepping up the 33kV windfarm circuits to 132kV for transmission) (GR 267935, 585029);
- A further length of wood pole OHL (132kV) running north-west to a location just north of Kendoon (GR 259415, 589221) (10.34km);
- An underground 132kV cable from wood pole tower 2 (GR 259415, 589221) to L7 Tower 102R (GR 259087, 589399) at Dalshangan (440m in length);
- A length of L7 overhead OHL (OHL) (132kV) with the windfarm circuits on the eastern side and a replacement of the existing N-Route circuit on the western side running north-west towards Dalmellington and then north-east to the 400kV substation at Meikle Hill (24.3km);
- A short underground cable connection into the Meikle Hill substation; and
- Removal of the existing N-Route from a point close to Kendoon to a location 12km north of Dalmellington (32km).

3 Section 5.2 below porovides more detail on these elements and goes on to discuss the construction details of the project. The layout of the proposed grid connections is shown on Figures 5.01 and 5.06 - 5.16.

5.2 Elements of the Grid Connections

1 The proposed grid connection will comprise a number of distinct sections.

5.2.1 33kV underground connection from windfarm at Blackcraig

1 The 33kV connection from the windfarm at Blackcraig will be provided underground. The cable will follow the route of the principal access track which connects the proposed windfarm with the substation.

2 The cable route will be prepared through the use of open trenching, with this excavated with a 360^0 excavator opening a trench into which the ducts are laid within a selected sand bed, protected and then backfilled with the original material and consolidated. Any topsoil and vegetation will be retained and used on the upper layers and surface of the reinstatement. Any additional material will be exported and removed from the area of the works.

3 Where required, and particularly on slopes, measures such as impermeable bunds will be put in place within the cable trench to prevent this becoming a pathway for the movement of ground or surface water.

4 Following the construction of the trench and the installation of the ducts, the conductors will be drawn through these.

5.2.2 The Wood Pole line

1 The proposed OHL will be constructed using recently designed heavy duty wood poles with galvanised steelwork bracings supporting aluminium conductors.

2 The proposed design is described below and examples of pole supports designs are shown at Figure 5.02 and photographs provided at Figure 3.08 within Chapter 3.

5.2.2.1 Line height

1 The statutory minimum ground clearance for a 132kV OHL is 6.7m. The line is designed to afford this clearance in ALL circumstances. The overall height of the line is also dependent on a number of criteria, including geographical location, topography, height above sea level, wind & ice loading, span length and conductor type.

2 Pole sizes will be selected to maintain this statutory clearance and will normally be in the range of 10.5m to 14m with 2.5m in the ground. Steelwork and insulators to support the conductors will be fitted above, adding approximately 2m to the overall line height. The maximum top height of the poles and steelwork and insulators, however, is up to 18m where extreme circumstances dictate. e.g electrified railway crossings. Pole sizes may be reduced where there are short spans or on localised topography, or they may exceptionally be increased to provide adequate clearance for conductors over elevated land, structures or features.

5.2.2.2 Span length

1 The span lengths (distance between supports) also depend on the same criteria as line height and will vary from 60m to 100m, with an average span of 77m between supports.

5.2.2.3 Supports

2 The OHL comprises a combination of four types of support or pole types:

- Intermediate;
- Section/angle section;
- Terminal; and
- Failure containment.

3 Intermediate structures are used where the OHL follows a straight line/alignment. Options include single pole or 'H' pole structures. Both types of structure support steelwork and insulators to carry the conductors. In general, 'H' pole structures will allow for longer spans; the single pole structure being limited to approximately 60m spans (as outlined above). The single pole (rarely used) supports a steel cross arm of nearly 6m overall length. The 'H' pole comprises two poles set 3m apart, with a similar overall cross arm length.

4 In some situations the 'H' pole structure can be secured further with stays, allowing span lengths to increase. The 'footprint' of the structure will, however, be increased as a result. In order to maintain the stresses induced in the OHL, 'H' pole structures are required at regular intervals along a straight line. There is also a need for the failure containment arrangement at regular intervals.

5 Angle section structures are used to enable changes of direction in the OHL. Whilst there are minor differences in options for these structures, relating to the angle to be negotiated, all comprise 'H' pole structures, supported by a minimum of four stays (2 per pole). The maximum angle of deviation is 35 degrees from straight ahead.

6 Terminal structures are used at either end of the OHL. The terminal structure allows the OHL to be connected either to a cable or directly to a substation. The cable termination structure comprises a terminal pole with two smaller poles in front to support the cable termination. See Figure 5.02.

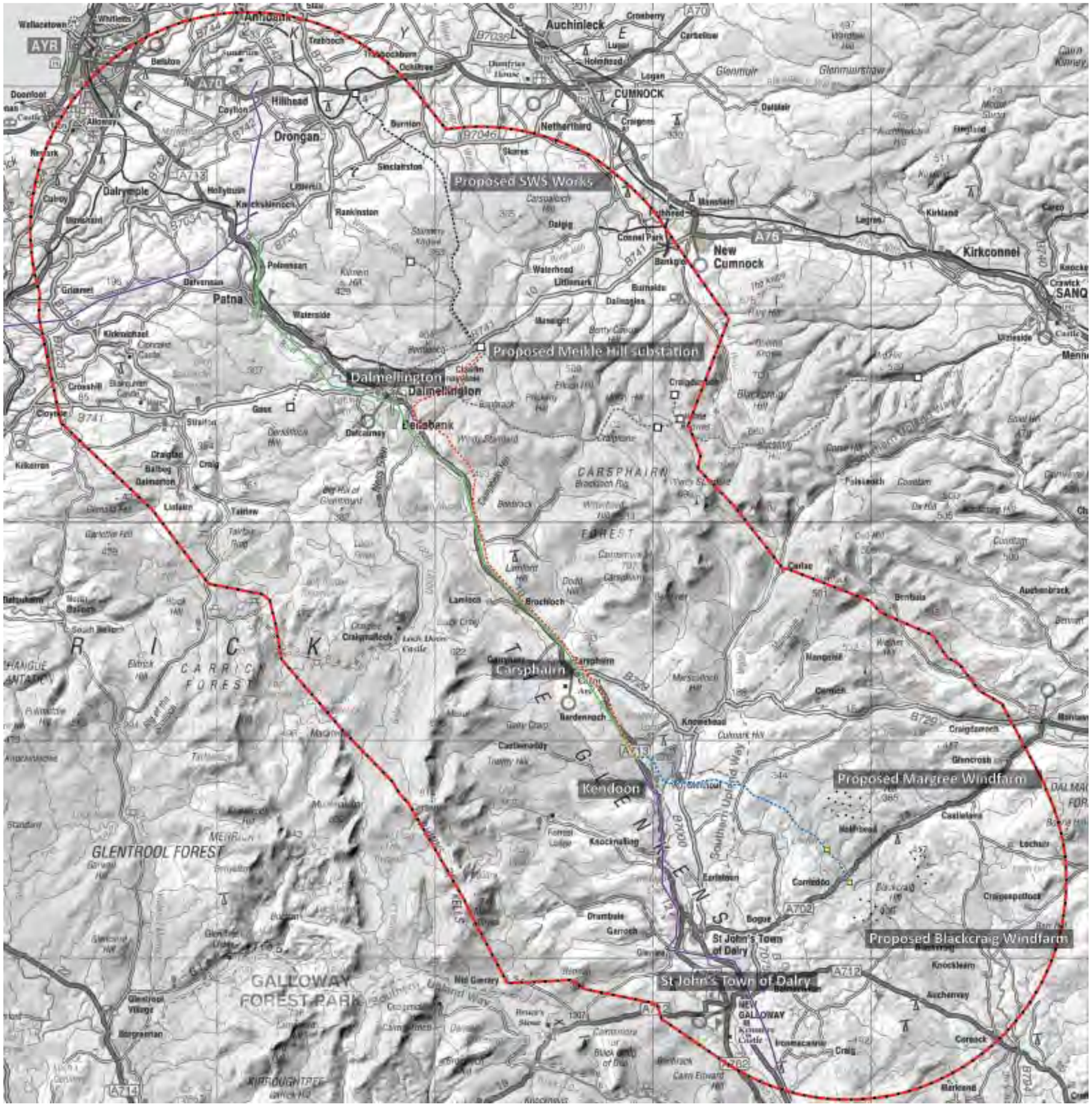
7 Failure containment provision for conductor failure ('broken wire') situations is a requirement of European/British standard document BS EN 50431 specifying the design of OHLs above 33kV. The failure containment structure is an 'H' pole configuration, with poles set at 6m apart, and stayed.

8 All wood poles are fully seasoned and treated with an appropriate preservative. The galvanised steelworks associated with this support (pole top steelwork) is assembled using galvanised high tensile steel bolts with nuts and locking devices.

5.2.2.4 Overhead line components

1 The single-circuit comprises three separate phase conductors which are attached to the pole top structure on insulators (circa 2m long), made from porcelain, glass or modern composite materials. Insulators are fastened to the pole top steelwork. At intermediate supports the conductors sit on top of insulators. At other supports the conductors are cut and terminated on both sides of the pole with insulators placed on top of the steelwork. A fourth conductor is carried underneath the cross arm as an earth conductor. This earth conductor provides both a path for fault current and a means of transmitting protection and communication information via a fibre optic core. The OHL is earthed at every pole using a copper conductor and copper rods beneath the ground in a cross formation emanating from the foot of the pole(s). The amount of earth conductor laid in the ground at any particular pole position is dependent on the resistance of the surrounding soil/rock at that point.

2 The conductors will be aluminium and will be $300mm^2$ cross-section (24mm diameter) in order to provide the required capacity for the windfarms at Blackcraig and Margree. The earth wire which is carried beneath the conductors is $154mm^2$ in cross section (14mm diameter).



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line (combining the windfarm circuit and the refurbished N-Route circuit
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km Study Area boundary

Components of South West Scotland Renewables Connection Project

- 400kV line
- 132kV line
- Substation

Location Plan

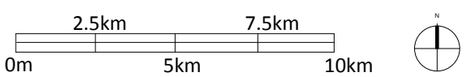
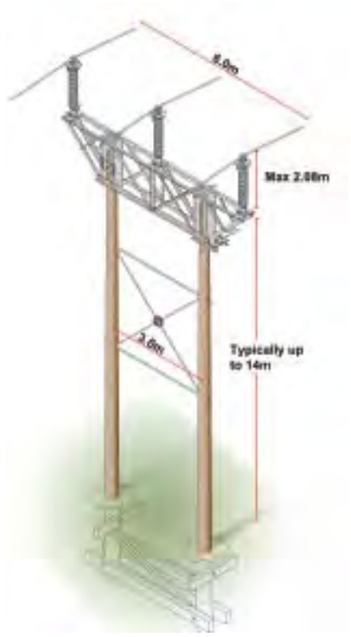
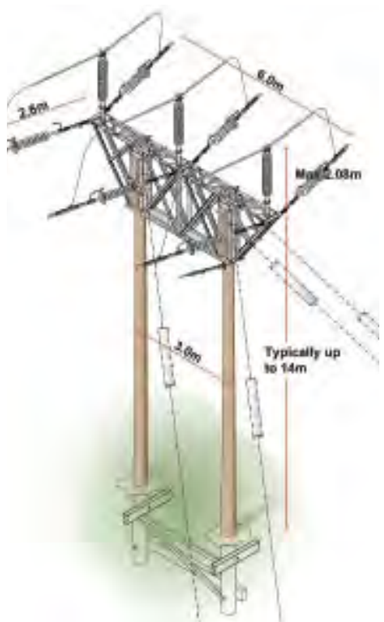


Figure 5.01 - Site Context & elements of the grid connection

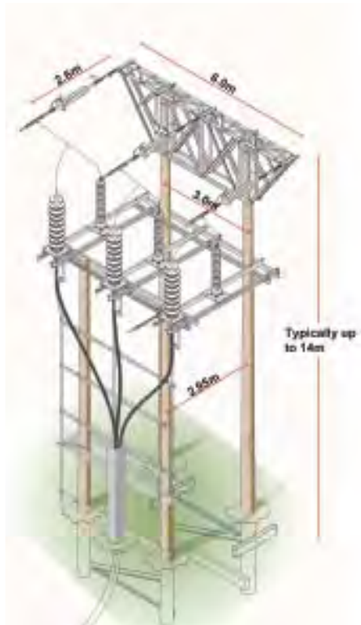
Figure 5.02 - Wood Pole types/supports



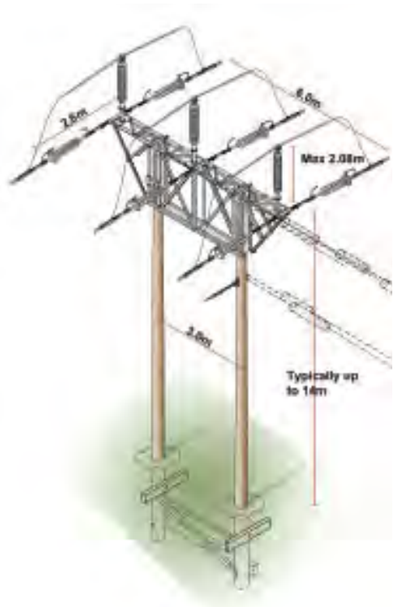
Straight line Wood Pole



Angle Wood Pole



Termination Wood Pole



Section Wood Pole

5.2.3 132kV underground connection from Wood Pole line to L7 Tower line

1 Between the wood pole line from the Margree substation and the L7 tower line, the grid connection is undergrounded for approximately 440m in order to resolve technical and operational issues in crossing the A713. The conductor transitions are achieved though sealing end compounds upon the terminal structures of the wood pole and steel lattice OHLs. The layout of these elements are shown on Figure 5.02 (Termination Wood Pole) and Figure 5.05.

2 Typically the conductors and optical ground wire are accommodated in a trench 1250mm deep and 510mm wide. Within this trench the conductors and ground wire are contained in separate polyethylene ducts. The arrangement and protection of these ducts are shown in Figure 5.03. Where it is not possible to install the conductors through open trenching, such as under the A713, directional drilling will be used to install the ducts through which the conductors and others will subsequently be drawn.

5.2.4 The steel lattice tower (L7H) sections

5.2.4.1 Line height

1 The statutory minimum ground clearance for a 132kV L7H line is 6.7m

5.2.4.2 Span length

1 The span lengths (distance between supports) also depend on the same criteria as line height and will vary from 164m to 353m, with an average span of 243m between supports.

5.2.4.3 Supports

1 The OHL comprises a combination of types of steel lattice towers:

- Suspension tower D;
- Turning tower D30 (for up to 30^0 deviations);
- Turning tower D60 (for up to 60^0 deviations); and
- Terminal Tower DT.

2 For each tower type there are a number of permutations of potential heights and support leg length to allow for ground conditions and to ensure that the minimum ground clearances are achieved midspan. Typically the towers are circa 29.5m tall.

3 Diagrams for each of the tower types are shown on Figure 5.04.

5.2.4.4 Overhead line components

1 The L7H towers will carry twelve conductors and an earth wire. The conductors will be aluminium and will be 300mm^2 cross-section (24mm diameter) in order to provide the required capacity. The earth wire is carried at the top of the towers and will have a cross-section of 154mm^2 and will incorporate a fibre optic communication wire for control purposes.

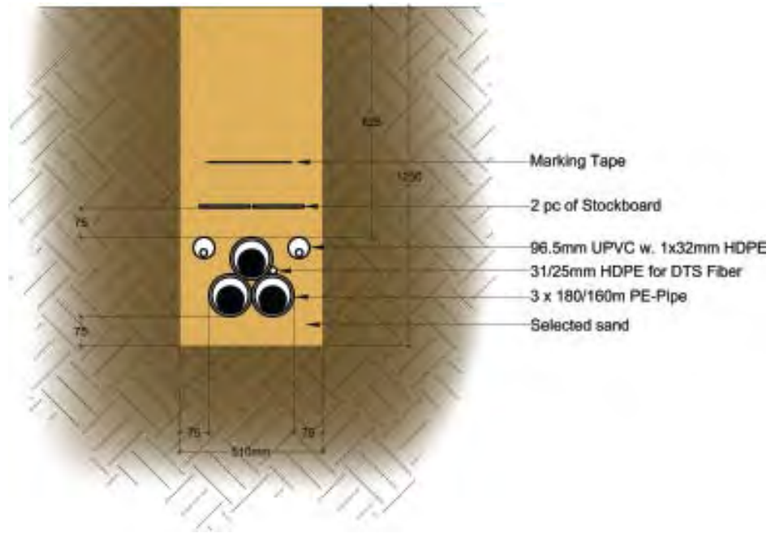


Figure 5.03 - Cable trench detail (Not to Scale)

2 On the suspension towers, the insulators are carried vertically below the arms of the towers, with paired conductors on each insulator. At the turning and terminal towers the insulators are broadly horizontal (in line with the conductors in both directions) to hold the line tension and a loop of conductors links the ends of the insulators.

5.2.5 The substations

5.2.5.1 Margree substation

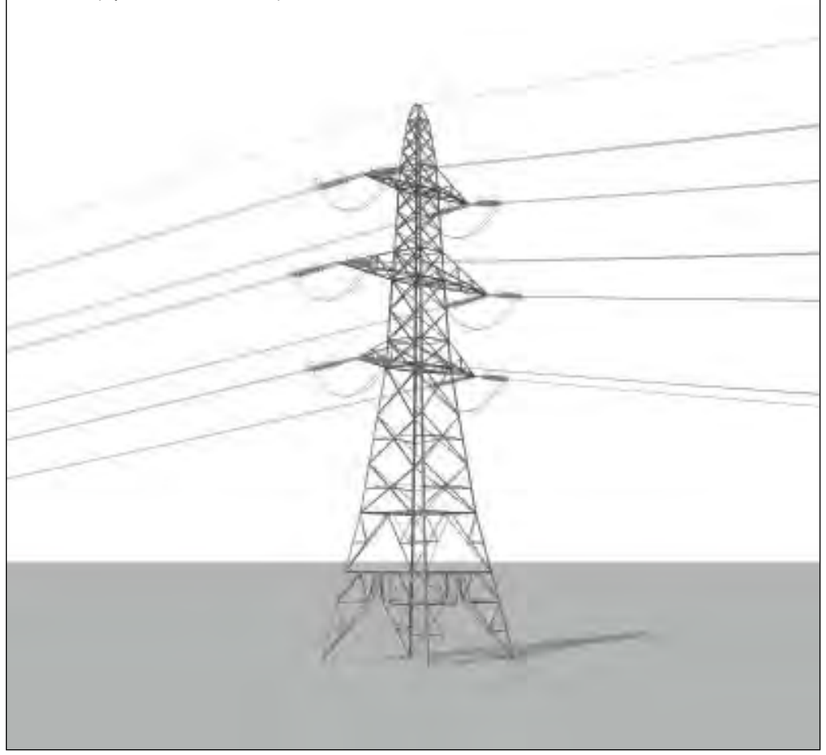
1 The substation at Margree will be contained within a level compound of approximately 67.8m x 47.0m located downslope to the south of the existing forestry track in an area of recent clearfell. The compound will be surrounded by a 2.74m tall steel palisade security fence and a 1.5m wide perimeter pathway. The compound will contain a control building (approx 21m x 13.5m and up to 7m tall), overhead busbars, 132/33kV 90MVA transformer, and two 8.6m overhead gantries forming the termination of the OHL from Blackcraig and the start of the wood pole OHL to Kendoon. The form and location of the substation is shown on Figure 5.17. Access will be provided via existing forest tracks or new access tracks as indicated on Figure 5.16.

5.2.5.2 Blackcraig substation

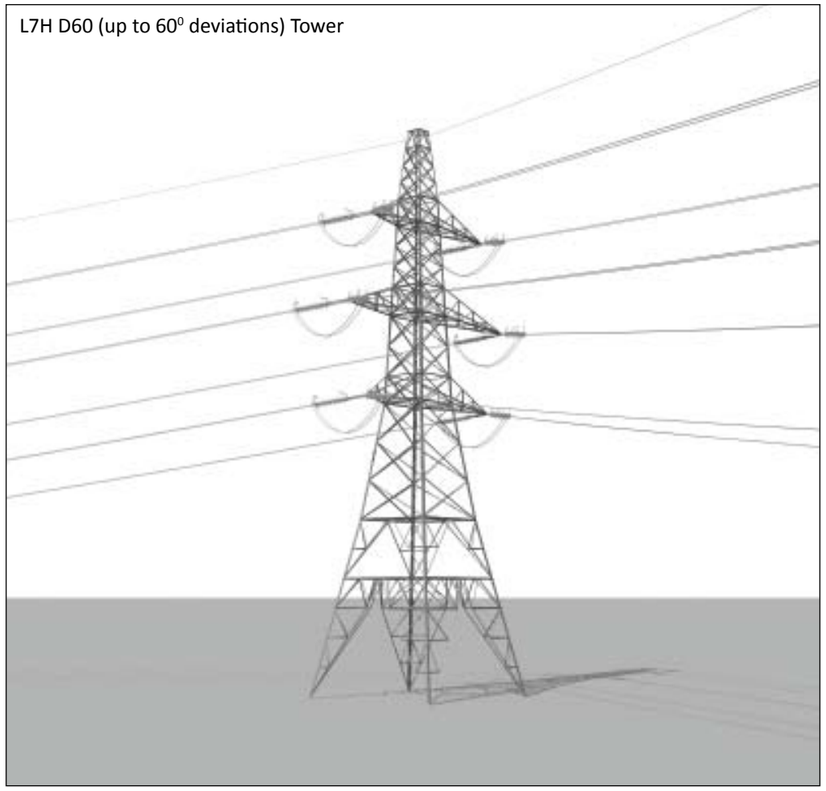
1 The substation at Blackcraig will be contained within a level compound 69.1m x 31.5m located to the north of the existing forest track within an area of a former borrow pit. The compound will be surrounded by a 2.74m tall fence and a 1.5m wide perimeter pathway. The compound will contain a control building (21m x 13.5m and up to 7m tall), overhead busbars, 132/33kV 90MVA transformer, and an 8.6m overhead gantry forming the start of the OHL to the Margree Substation. The form and location of the substation is shown on Figure 5.18.

2 **Note**: Both sites are yet to have detailed Site investigation or Civil Engineering studies. Also, no detailed electrical studies have been undertaken. Access will be provided via existing forest tracks or new access tracks as indicated on Figure 5.16.

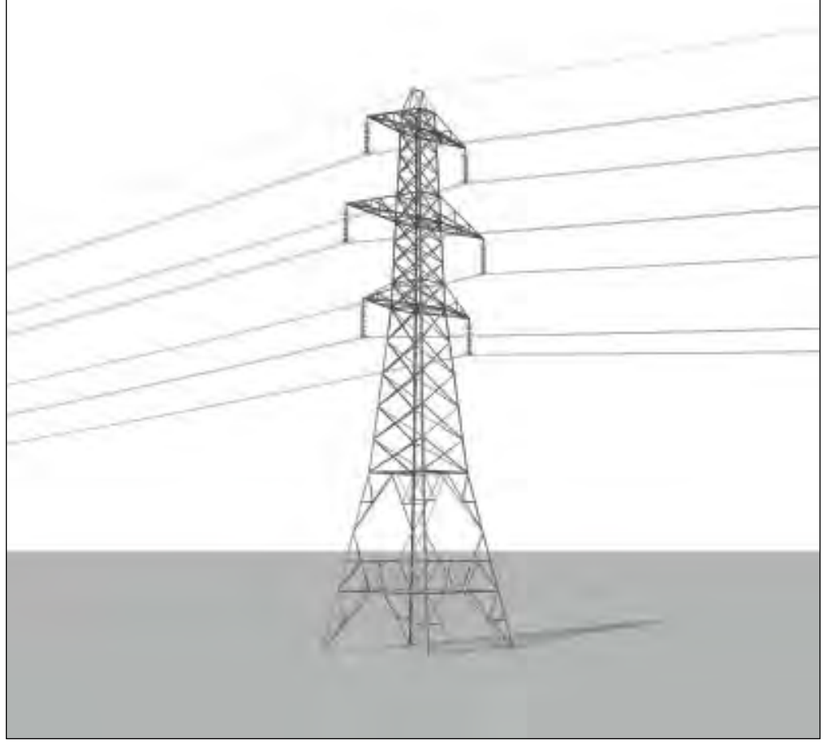
L7H D30 (up to 30^0 deviations) Tower



L7H D60 (up to 60^0 deviations) Tower



L7H Suspension Tower



L7H DT (Terminal) Tower

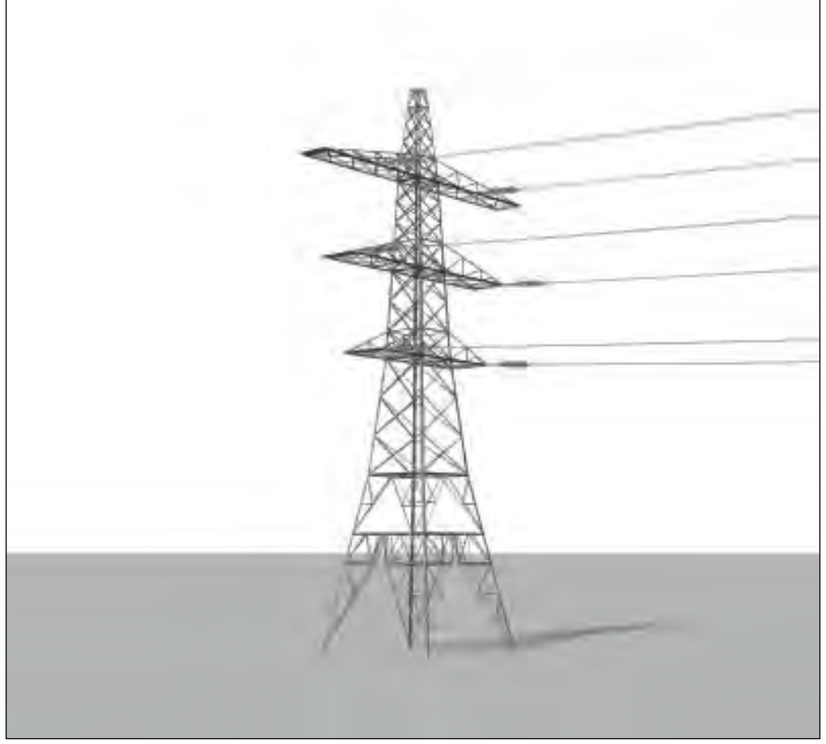
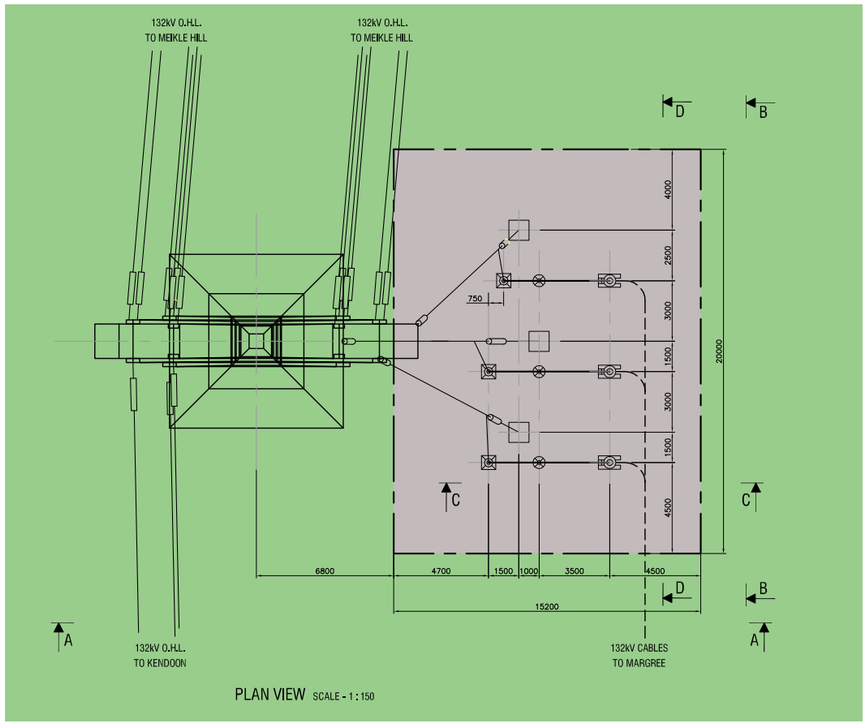


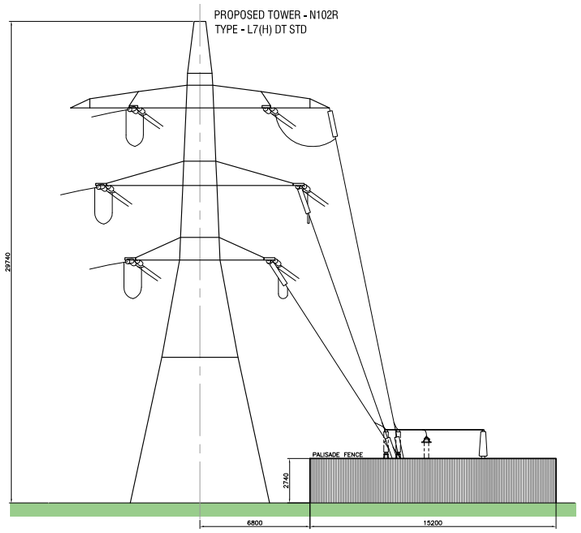
Figure 5.04 - L7H Tower details



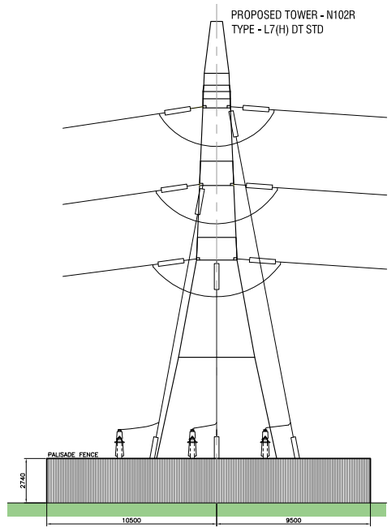
PLAN VIEW SCALE - 1 : 150

MINIMUM ELECTRICAL CLEARANCES	132Kv
E - PHASE TO EARTH	1100mm
P - PHASE TO PHASE	1400mm
S - SECTION CLEARANCE	3800mm
D - SURGE ARRESTER CLEARANCE	1100mm

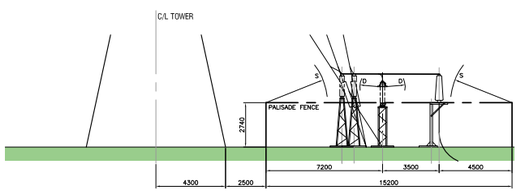
NOTE: ALL NEW EQUIPMENT INSTALLED MUST BE DESIGNED TO COMPLY WITH SAFETY DISTANCES AS DEFINED IN SECTION A2.3 OF SCOTTISHPOWER SAFETY RULES (ELECTRICAL & MECHANICAL) HANDBOOK.



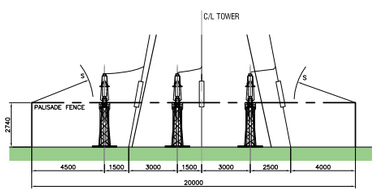
ELEVATION A-A SCALE - 1 : 150



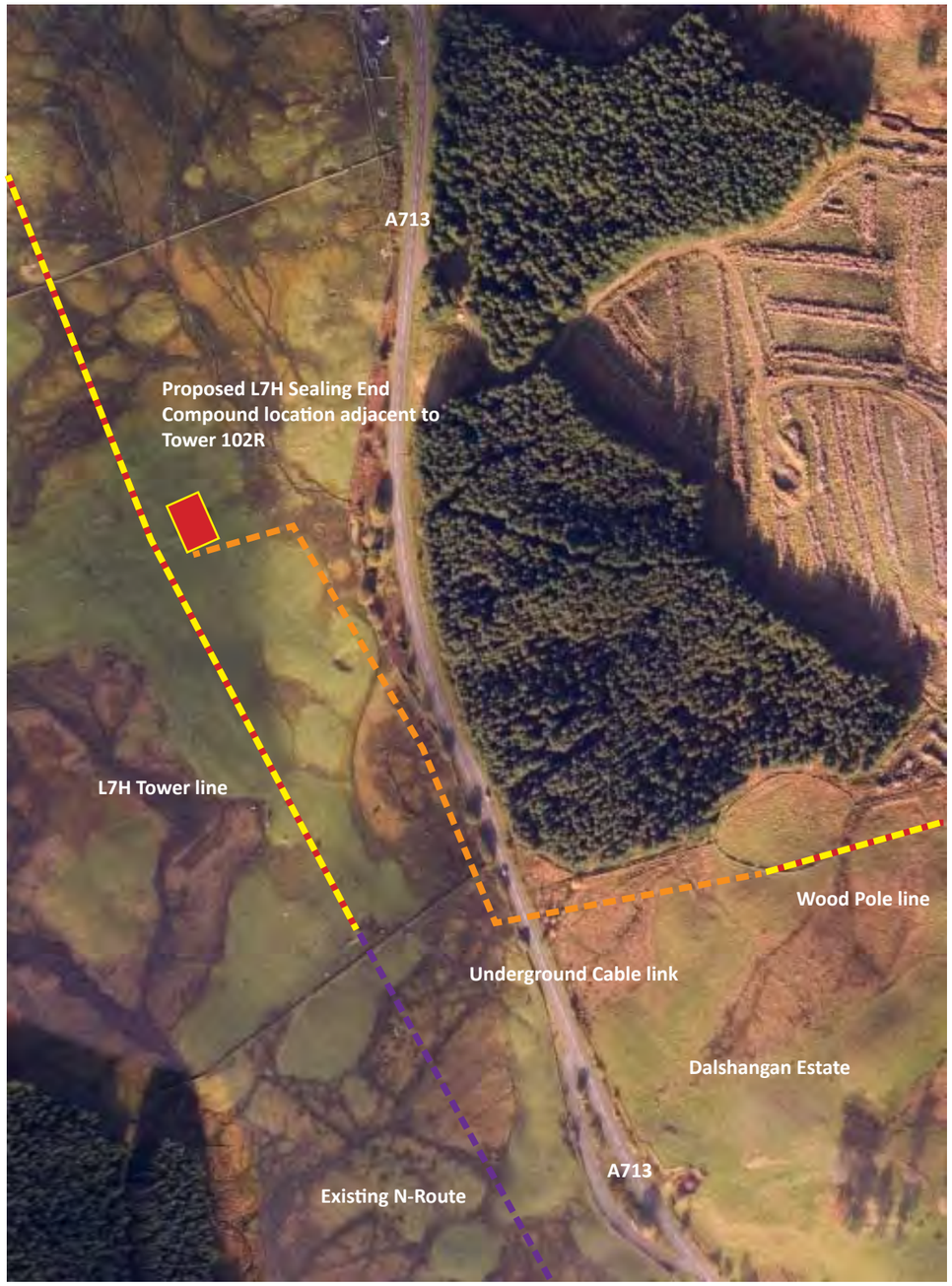
ELEVATION B-B SCALE - 1 : 150



SECTION C-C SCALE - 1 : 150



SECTION D-D SCALE - 1 : 150



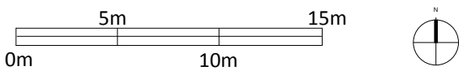
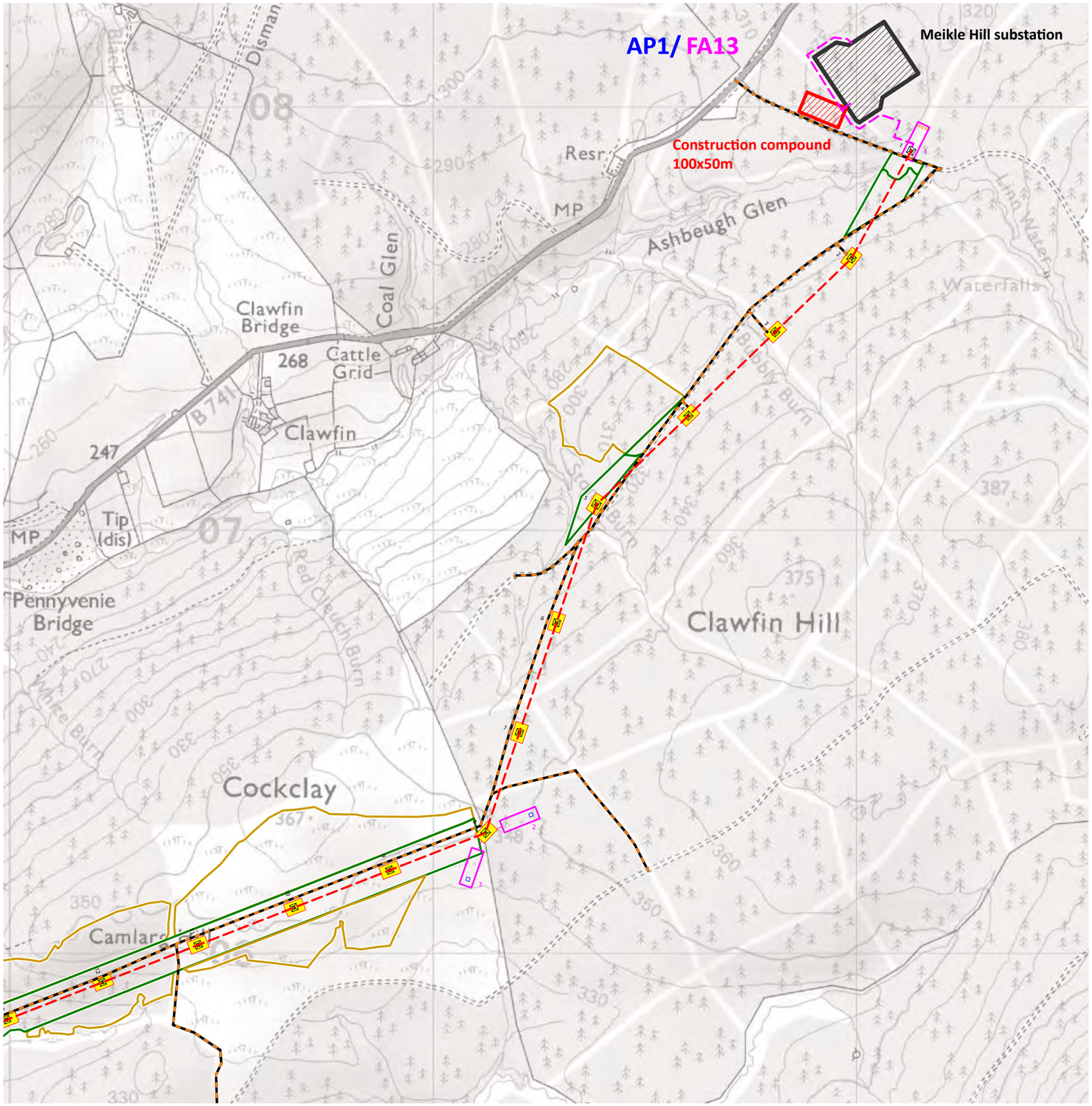


Figure 5.05 - L7H Tower Sealing End Compound details



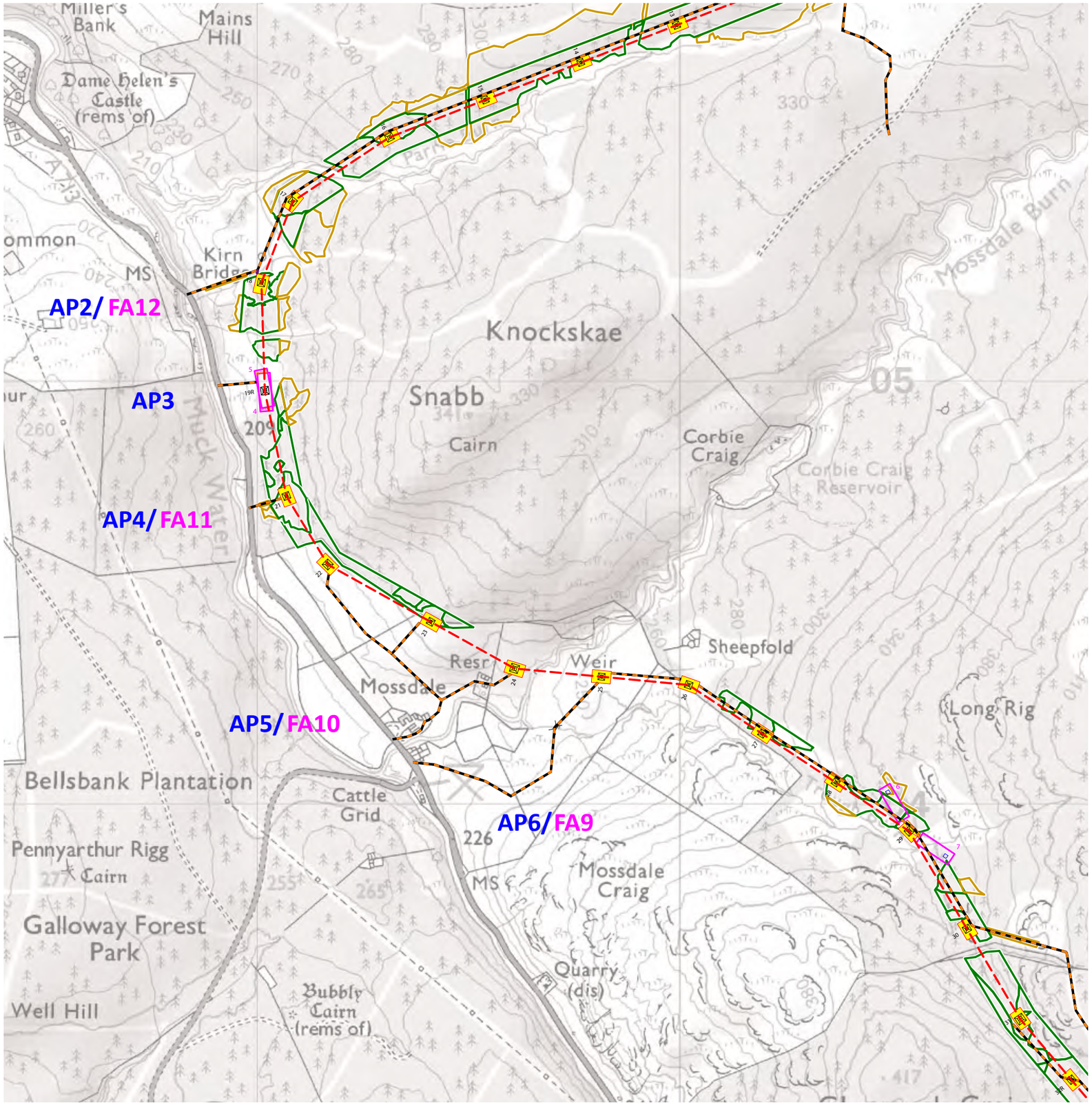
Legend

Components of this proposed grid connection

- Proposed L7 Tower line
- Underground link to Meikle Hill substation
- Proposed L7 Tower position
- Substation locations
- Construction compound locations
- Proposed Access Tracks
- Proposed Forestry Access Tracks
- Construction pads for towers
- Proposed pulling compounds
- AP1/FA1 — Access Points (AP) and Forestry Access Points (FA)
- Proposed felling to accommodate 80m wayleave
- Windthrow/felling outwith 80m wayleave

0m 125m 250m 375m 500m

Figure 5.06 - Detailed proposed route drawing 1 of 11



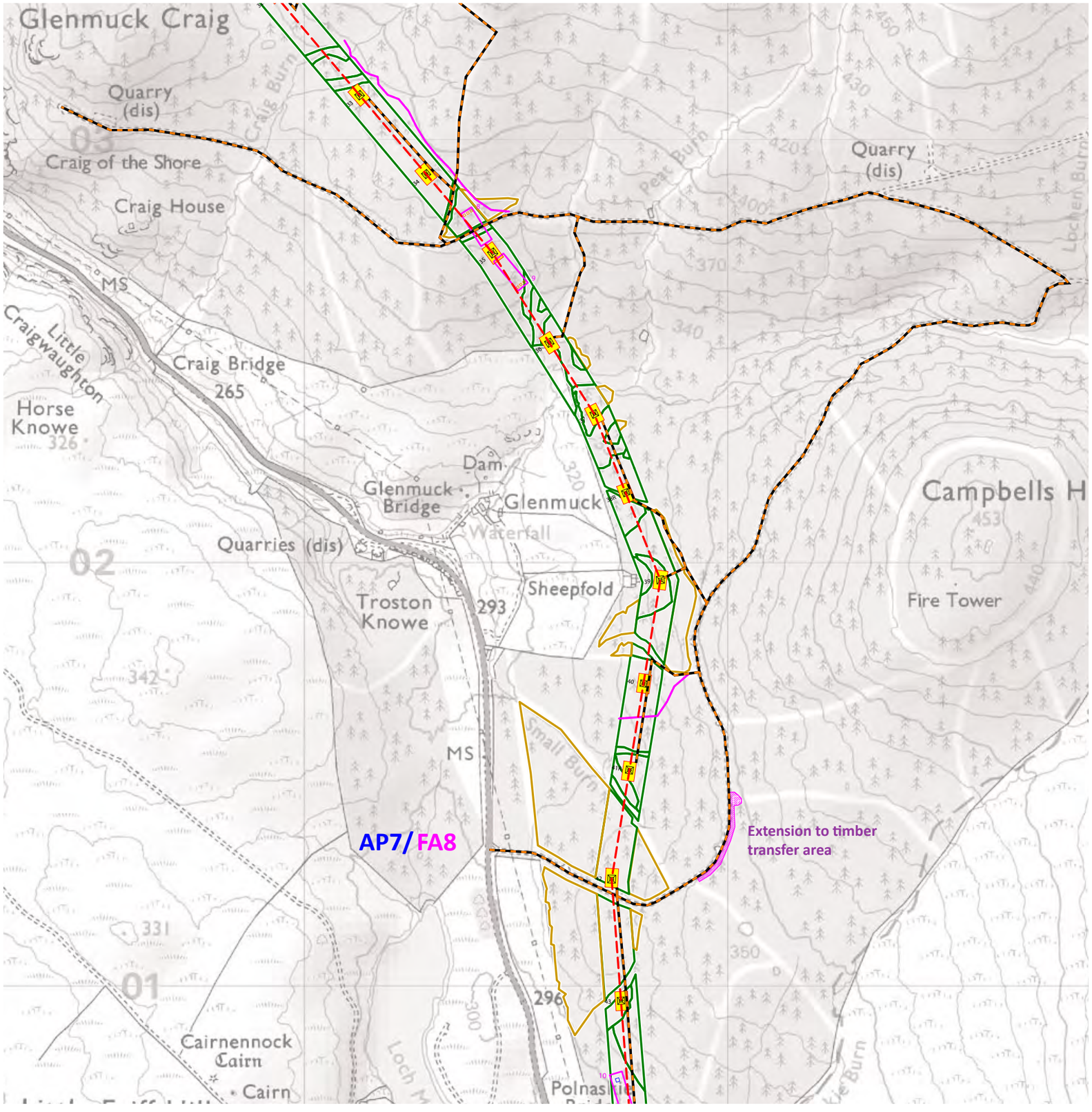
Legend

Components of this proposed grid connection

- Proposed L7 Tower line
- Proposed L7 Tower position
- Substation locations
- Construction compound locations
- Proposed Access Tracks
- Proposed Forestry Access Tracks
- Construction pads for towers
- Proposed pulling compounds
- AP1/FA1 — Access Points (AP) and Forestry Access Points (FA)
- Proposed felling to accommodate 80m wayleave
- Windthrow/felling outwith 80m wayleave

0m — 125m — 250m — 375m — 500m

Figure 5.07 - Detailed proposed route drawing 2 of 11



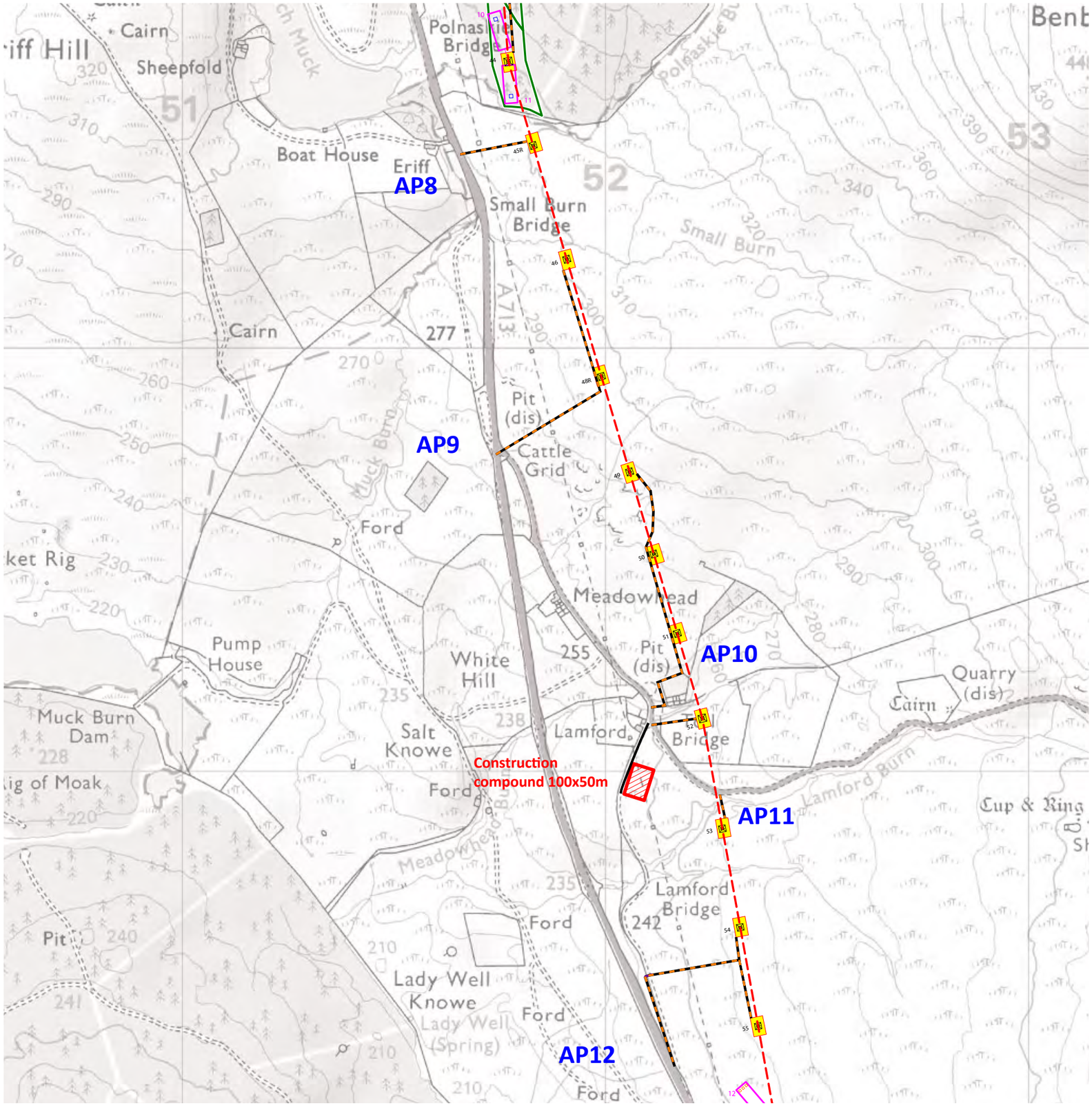
Legend

Components of this proposed grid connection

- Proposed L7 Tower line
- Proposed L7 Tower position
- Substation locations
- Construction compound locations
- Proposed Access Tracks
- Proposed Forestry Access Tracks
- Construction pads for towers
- Proposed pulling compounds
- AP1/FA1 — Access Points (AP) and Forestry Access Points (FA)
- Proposed felling to accommodate 80m wayleave
- Windthrow/felling outwith 80m wayleave
- Extensions to timber transfers areas

0m 125m 250m 375m 500m

Figure 5.08 - Detailed proposed route drawing 3 of 11



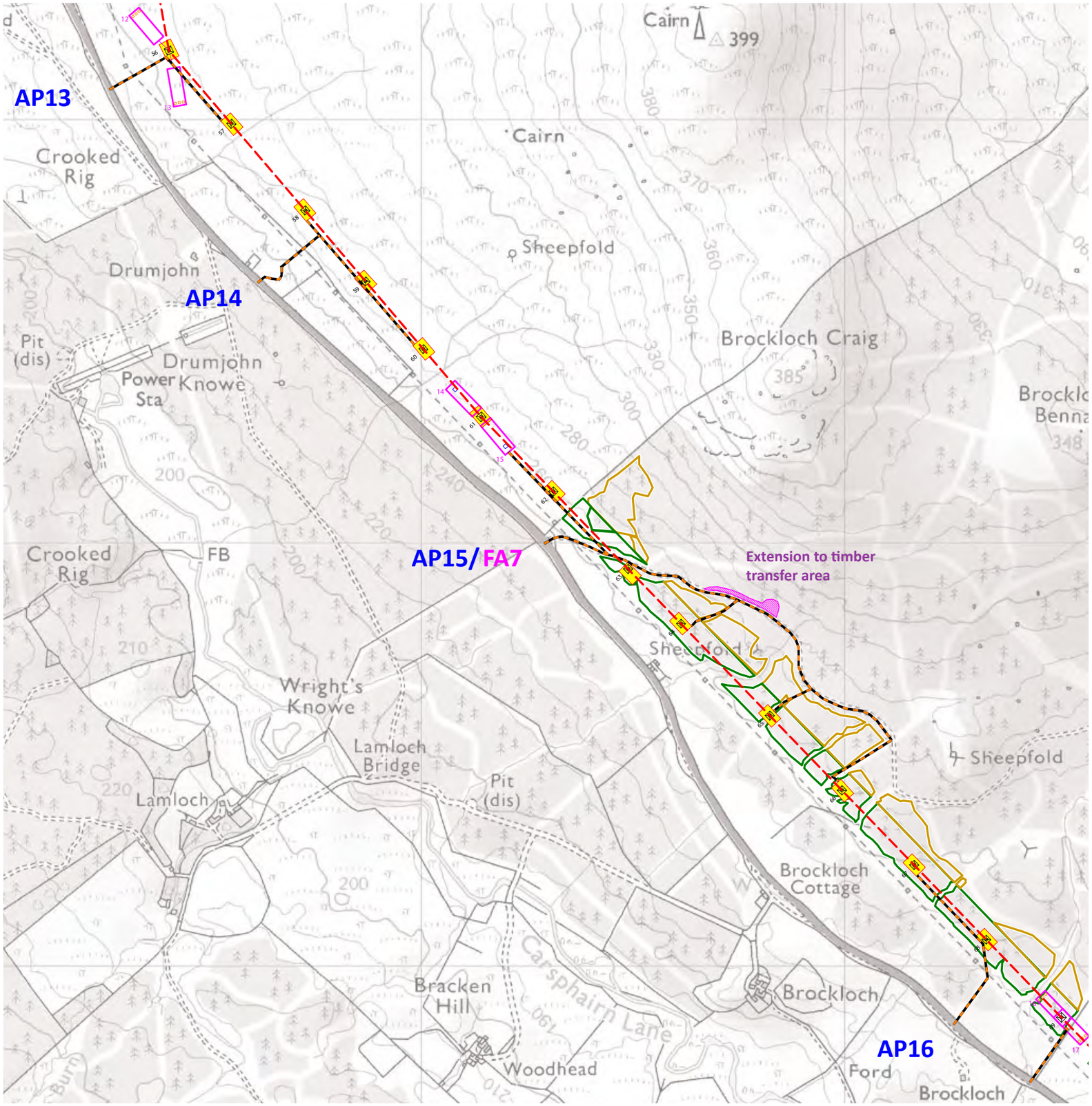
Legend

Components of this proposed grid connection

- Proposed L7 Tower line
- Proposed L7 Tower position
- Substation locations
- Construction compound locations
- Proposed Access Tracks
- Proposed Forestry Access Tracks
- Construction pads for towers
- Proposed pulling compounds
- AP1/FA1 — Access Points (AP) and Forestry Access Points (FA)
- Proposed felling to accommodate 80m wayleave
- Windthrow/felling outwith 80m wayleave

0m 125m 250m 375m 500m

Figure 5.09 - Detailed proposed route drawing 4 of 11



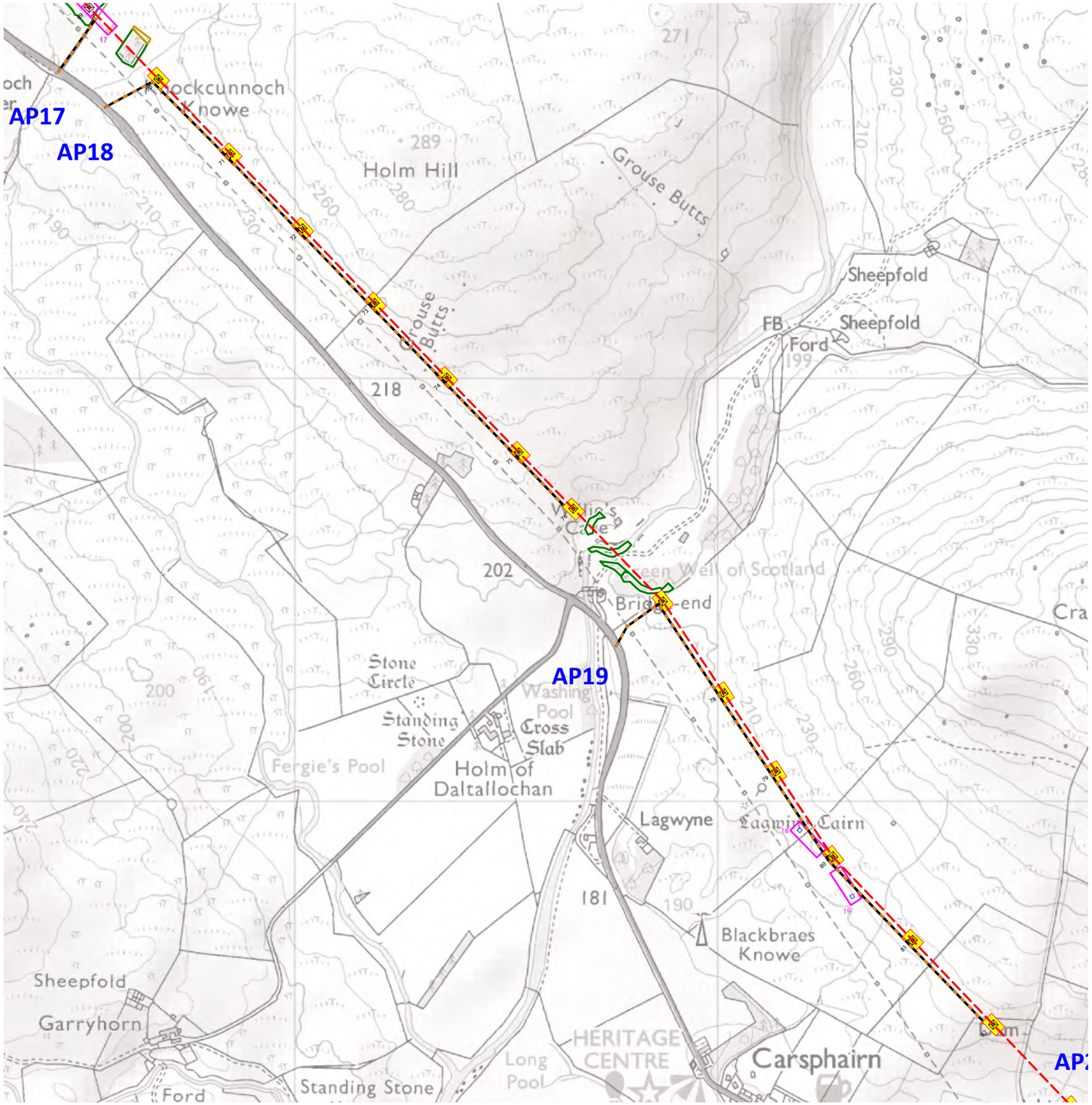
Legend

Components of this proposed grid connection

- Proposed L7 Tower line
- Proposed L7 Tower position
- Substation locations
- Construction compound locations
- Proposed Access Tracks
- Proposed Forestry Access Tracks
- Construction pads for towers
- Proposed pulling compounds
- AP1/FA1 — Access Points (AP) and Forestry Access Points (FA)
- Proposed felling to accommodate 80m wayleave
- Windthrow/felling outwith 80m wayleave
- Extensions to timber transfers areas

125m 375m
0m 250m 500m

Figure 5.10 - Detailed proposed route drawing 5 of 11



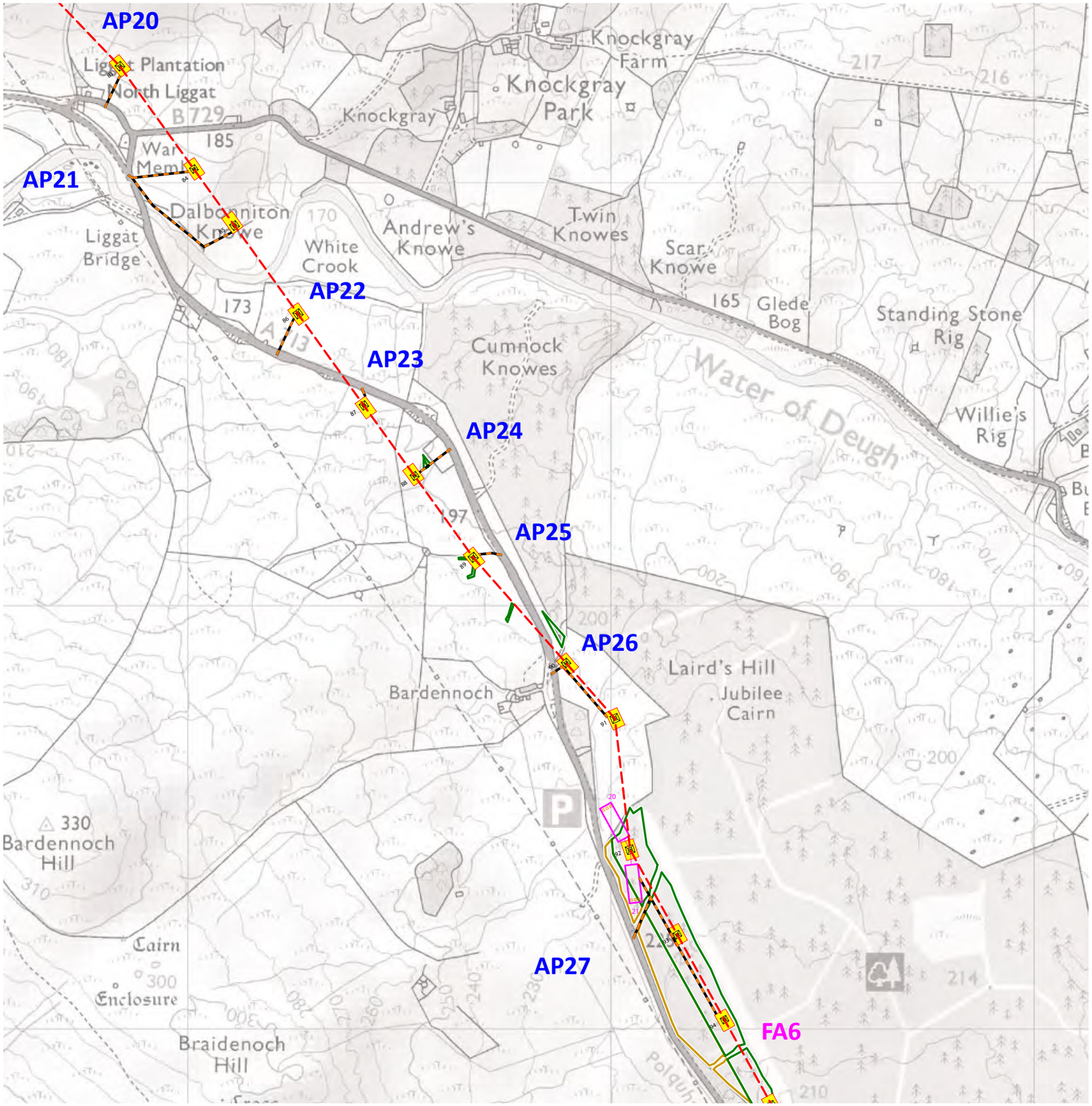
Legend

Components of this proposed grid connection

- Proposed L7 Tower line
- Proposed L7 Tower position
- Substation locations
- Construction compound locations
- Proposed Access Tracks
- Proposed Forestry Access Tracks
- Construction pads for towers
- Proposed pulling compounds
- AP1/FA1 — Access Points (AP) and Forestry Access Points (FA)
- Proposed felling to accommodate 80m wayleave
- Windthrow/felling outwith 80m wayleave

0m 250m 500m 125m 375m

Figure 5.11 - Detailed proposed route drawing 6 of 11



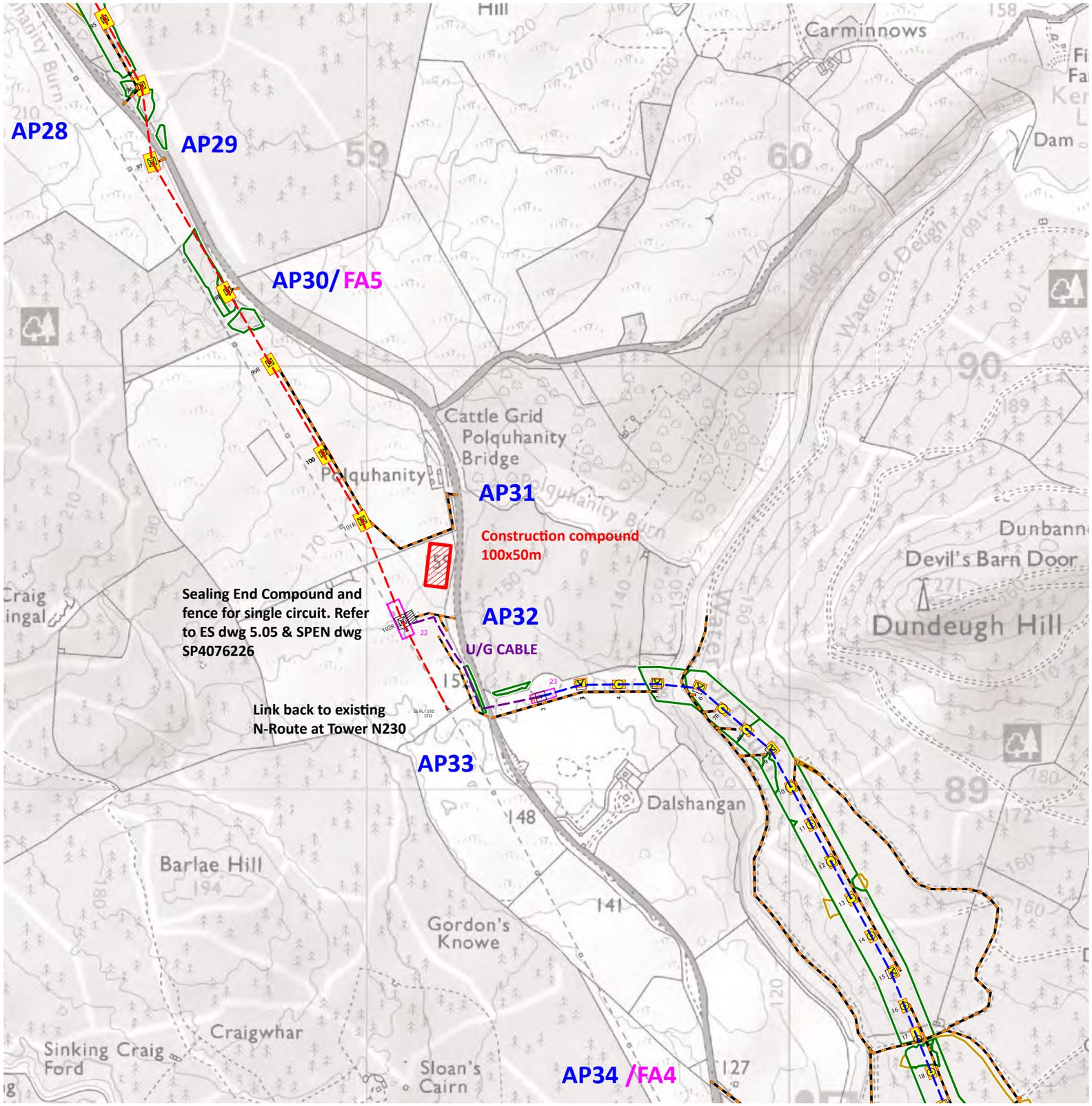
Legend

Components of this proposed grid connection

- Proposed L7 Tower line
- Proposed L7 Tower position
- Substation locations
- Construction compound locations
- Proposed Access Tracks
- Proposed Forestry Access Tracks
- Construction pads for towers
- Proposed pulling compounds
- AP1/FA1 — Access Points (AP) and Forestry Access Points (FA)
- Proposed felling to accommodate 80m wayleave
- Windthrow/felling outwith 80m wayleave

125m 375m
0m 250m 500m

Figure 5.12 - Detailed proposed route drawing 7 of 11



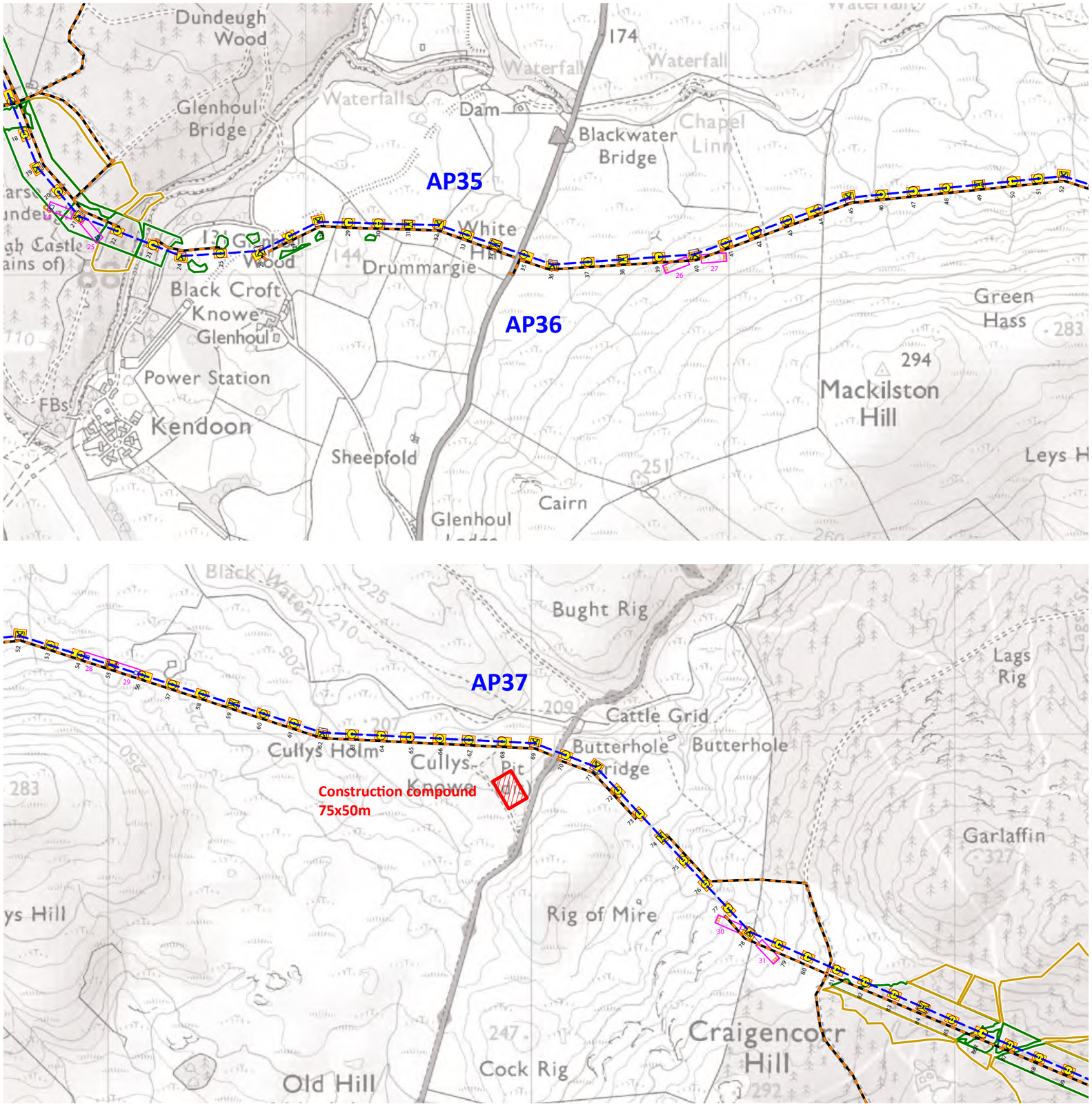
Legend

Components of this proposed grid connection

- Proposed L7 Tower line
- Proposed Wood Pole line
- Proposed underground cable linking Wood Pole line to L7 Tower line
- Proposed L7 Tower position
- Proposed Wood Pole position
- Substation locations
- Construction compound locations
- Sealing End Compound adjacent to Tower 102
- Proposed Access Tracks
- Proposed Forestry Access Tracks
- Construction pads for towers
- Proposed pulling compounds
- AP1/FA1 — Access Points (AP) and Forestry Access Points (FA)
- Proposed felling to accommodate 80m wayleave
- Windthrow/felling outwith 80m wayleave

0m 125m 250m 375m 500m

Figure 5.13 - Detailed proposed route drawing 8 of 11



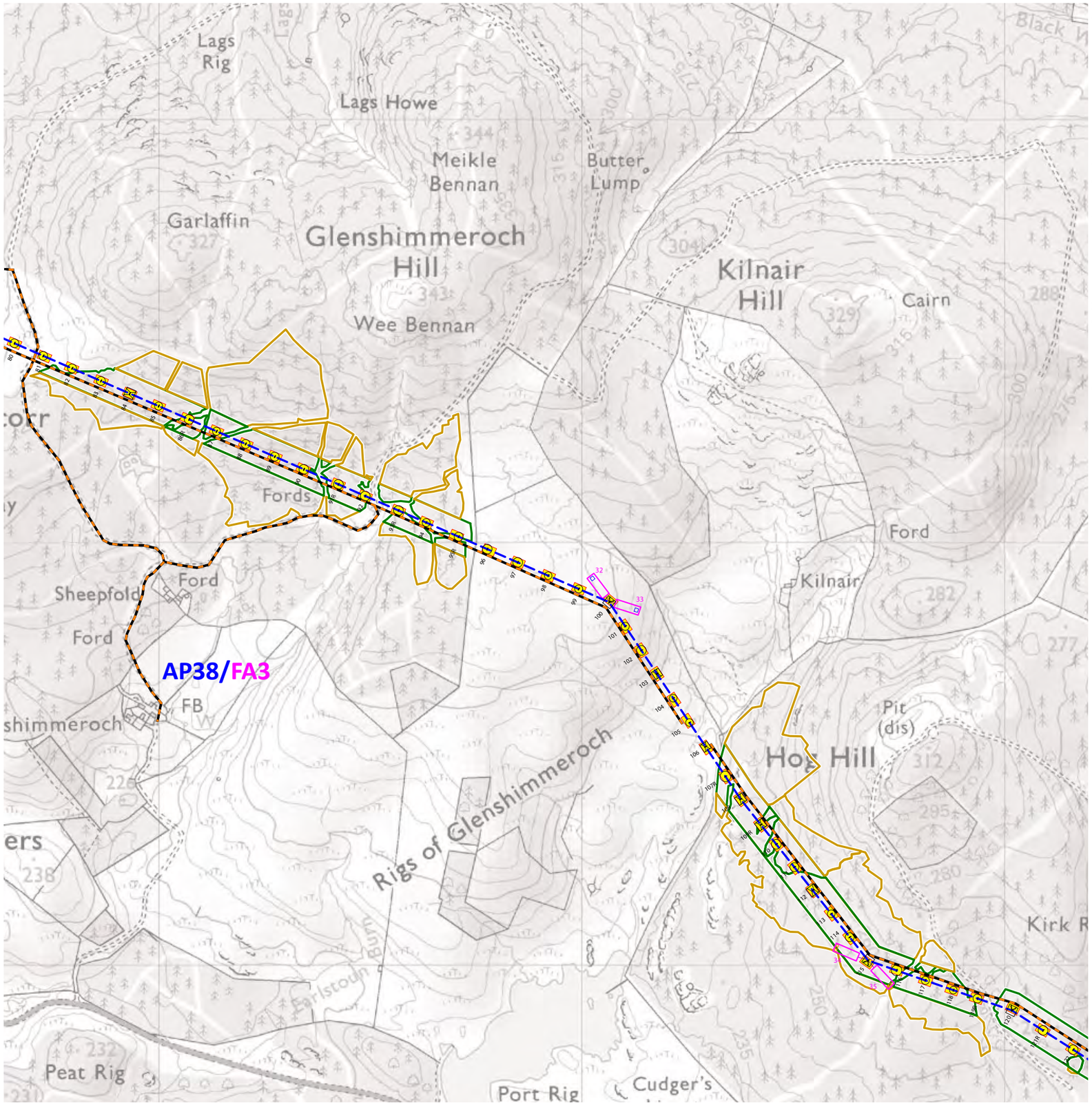
Legend

Components of this proposed grid connection

- Proposed Wood Pole line
- Proposed Wood Pole position
- Substation locations
- Construction compound locations
- Proposed Access Tracks
- Proposed Forestry Access Tracks
- Proposed pulling compounds
- AP1/FA1 — Access Points (AP) and Forestry Access Points (FA)
- Proposed felling to accommodate 80m wayleave
- Windthrow/felling outwith 80m wayleave

125m 375m
0m 250m 500m

Figure 5.14 - Detailed proposed route drawing 9 of 11



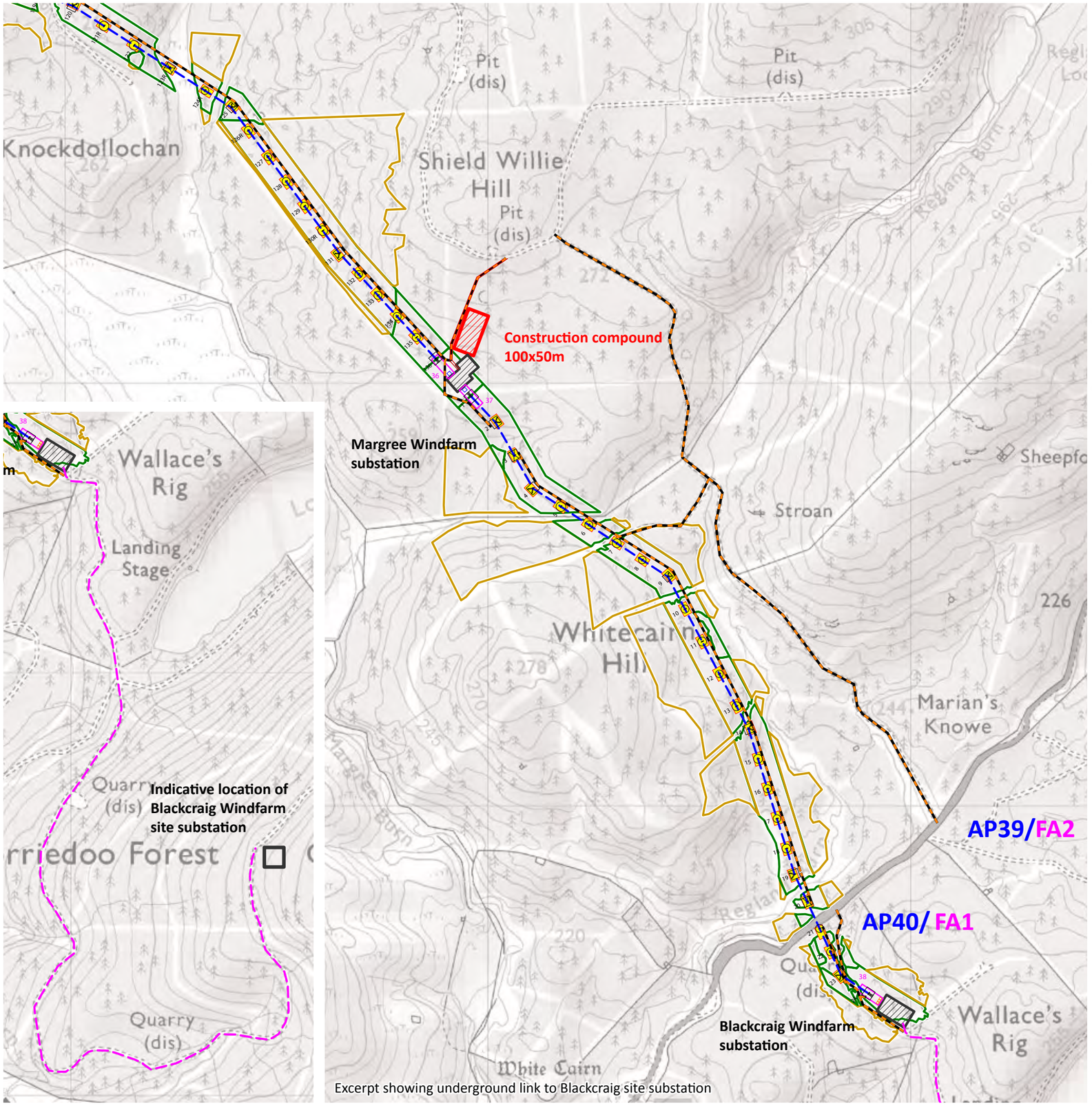
Legend

Components of this proposed grid connection

- Proposed Wood Pole line
- Proposed Wood Pole position
- Substation locations
- Construction compound locations
- Proposed Access Tracks
- Proposed Forestry Access Tracks
- Proposed pulling compounds
- AP1/FA1 — Access Points (AP) and Forestry Access Points (FA)
- Proposed felling to accommodate 80m wayleave
- Windthrow/felling outwith 80m wayleave

0m 250m 500m 125m 375m

Figure 5.15 - Detailed proposed route drawing 10 of 11



Excerpt showing underground link to Blackcraig site substation

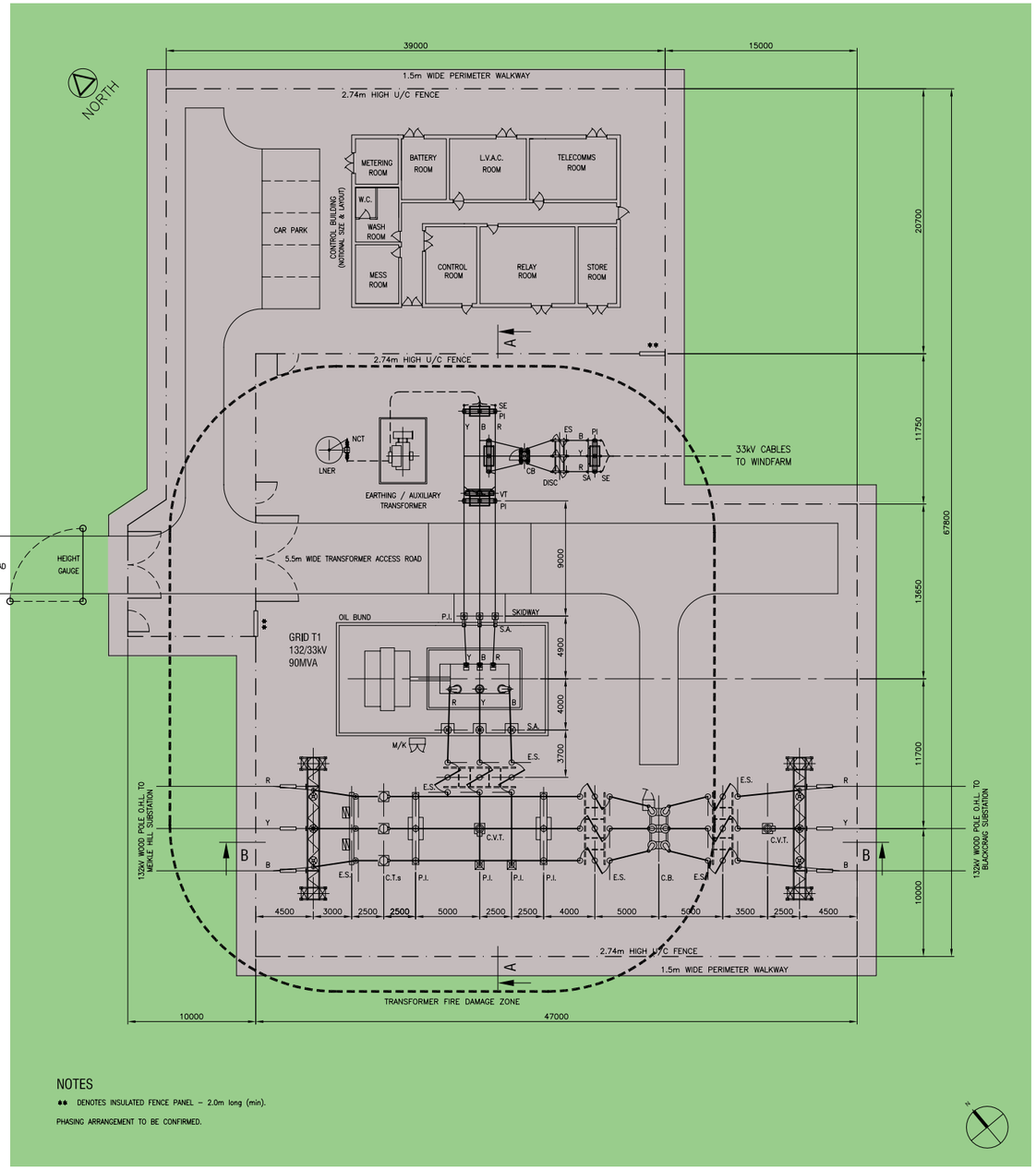
Legend

Components of this proposed grid connection

- Proposed Wood Pole line
- Underground link to Blackcraig Windfarm site substation
- Proposed Wood Pole position
- Substation locations
- Construction compound locations
- Proposed Access Tracks
- Proposed Forestry Access Tracks
- Proposed pulling compounds
- AP1/FA1 — Access Points (AP) and Forestry Access Points (FA)
- Proposed felling to accommodate 80m wayleave
- Windthrow/felling outwith 80m wayleave

125m 375m
0m 250m 500m

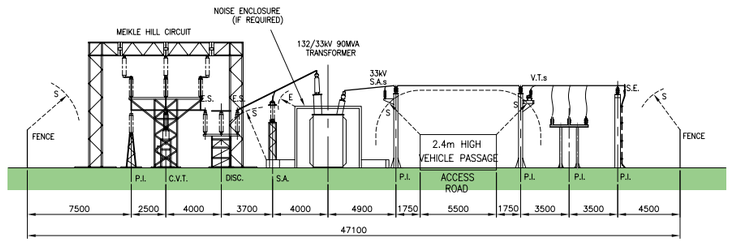
Figure 5.16 - Detailed proposed route drawing 11 of 11



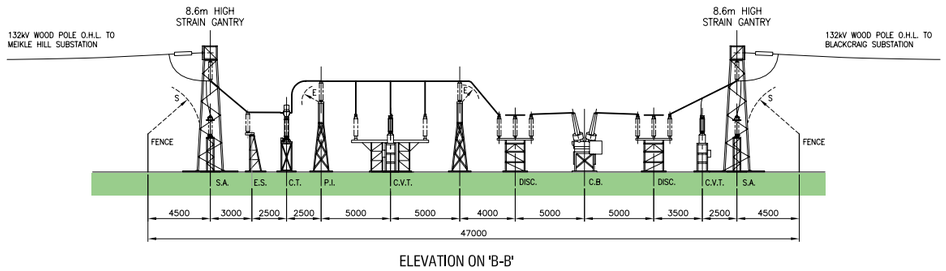
NOTES

●● DENOTES INSULATED FENCE PANEL – 2.0m long (min).

PHASING ARRANGEMENT TO BE CONFIRMED.



ELEVATION ON 'A-A'



ELEVATION ON 'B-B'

MINIMUM ELECTRICAL CLEARANCES	132Kv	33Kv
PHASE TO EARTH (E)	1.1m	0.5m
PHASE TO PHASE (P)	1.4m	0.5m
SECTION CLEARANCE (S)	3.8m	3.2m
SURGE ARRESTER TO EARTH (D)	1.1m	0.5m
MINIMUM INSULATION HEIGHT (M)	2.4m	2.4m

THIS DRAWING FOR FEASIBILITY PURPOSES ONLY

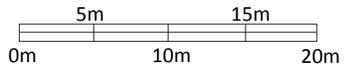
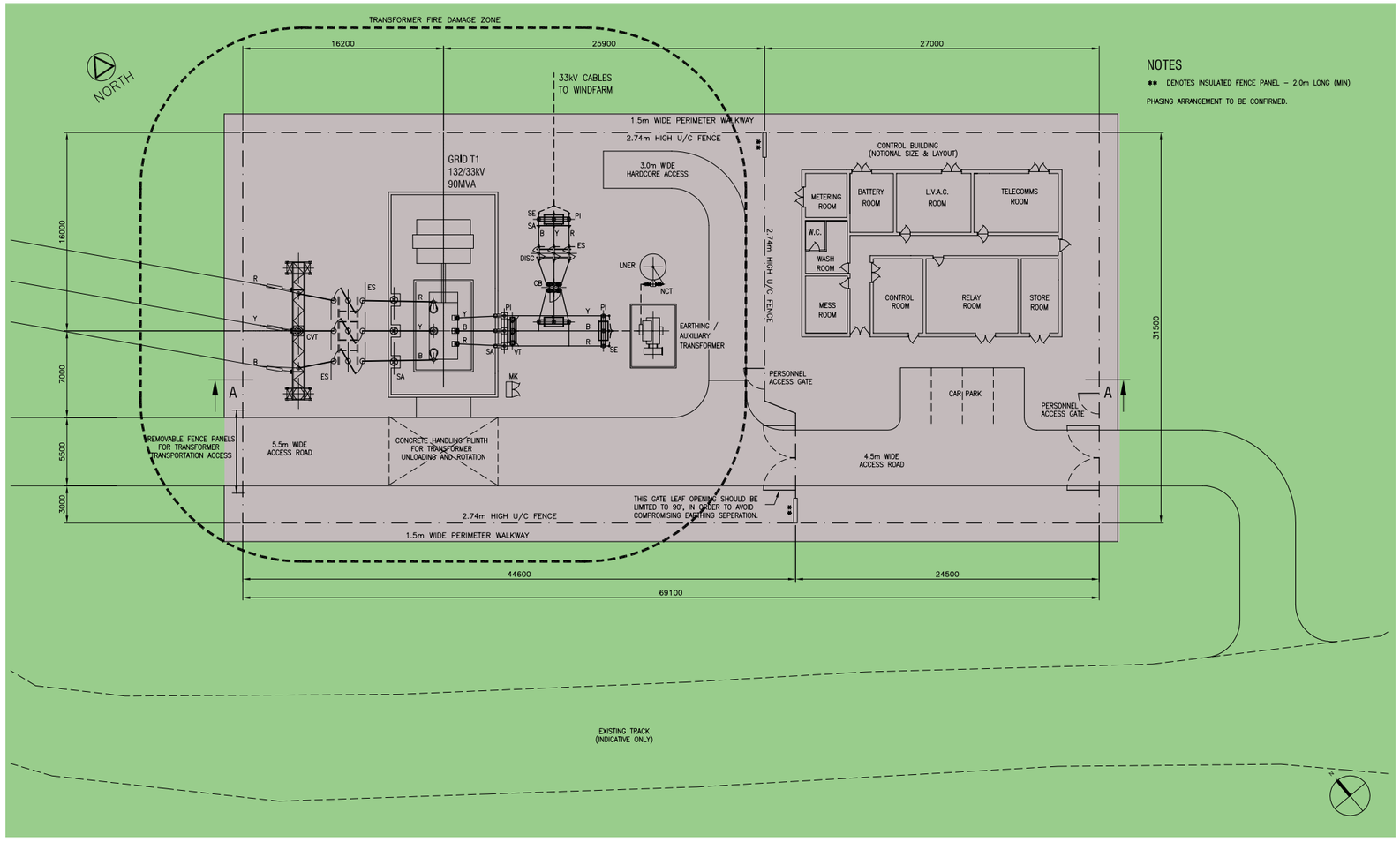
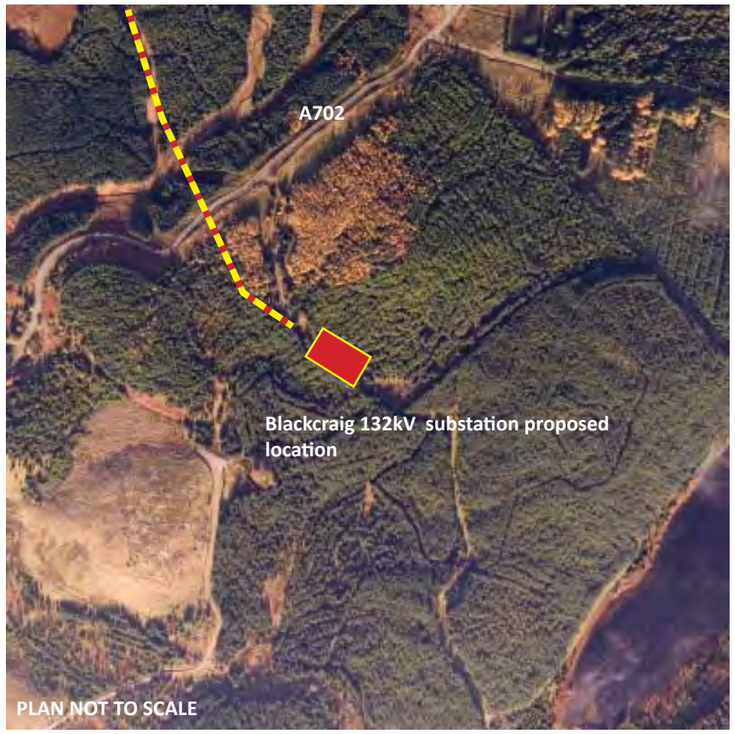
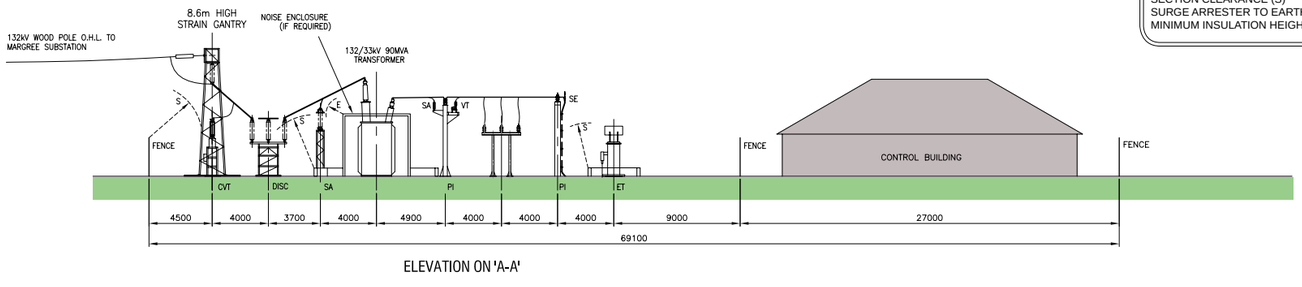


Figure 5.17 - Margree substation







ELEVATION ON 'A-A'

MINIMUM ELECTRICAL CLEARANCES

	132Kv	33Kv
PHASE TO EARTH (E)	1.1m	0.5m
PHASE TO PHASE (P)	1.4m	0.5m
SECTION CLEARANCE (S)	3.8m	3.2m
SURGE ARRESTER TO EARTH (D)	1.1m	0.5m
MINIMUM INSULATION HEIGHT (M)	2.4m	2.4m

THIS DRAWING FOR FEASIBILITY PURPOSES ONLY

5m 15m
0m 10m 20m

Figure 5.18 - Blackcraig substation

5.2.6 Construction

1 The construction of the different elements of this project will be procured by SPT through a specialist contractor/s. This will be procured through a 'design and build' contract or similar mechanism, and will require the contractor to develop the proposals set out within this document into a construction package. This contractor will be required to comply with the requirements set out in this document and the Technical Appendices attached to it and any conditions or other restrictions placed upon the S37 consent.

2 The schedule of mitigation and commitments included within this document and the requirement for compliance with all extant laws and regulations will form a part of this contract to ensure that the construction operations carried out accurately reflect the assessment undertaken and presented with this ES.

5.2.6.1 Control of environmental effects during construction

1 An Environmental Management Plan (EMP) will be produced to ensure that due cognisance is made of the impact of the development on the environment and to outline the means by which the effects of the works are to be minimised. The document will be read in conjunction with SPT's Construction, Health, Safety and Welfare requirements. The EMP will help control and guide the working practices used during the construction of the development, and will be reviewed and amended as necessary throughout construction. The document will also incorporate SNH and SEPA guidelines by reflecting current best practice in protecting the environment during the works.

2 The content of the EMP will contain at least the contents of the 'Schedule of Mitigation' included as an appendix to this ES and all legal and other requirements and such other guidance and requirements as to provide best practice environmental management.

3 In addition to the EMP, the appointed contractor will be required to produce and implement an Environmental Management System (EMS) that meets the requirements of ISO 1400 and which reflects the content of the EMP. Compliance with the requirements of the EMS and EMP will be a contractual obligation for the appointed contractor and will be audited by a representative of SPT.

4 The appointed contractor will be required to produce Construction Method Statements (CMS) to detail the methodology and control of any works identified in the EMP as potentially environmentally sensitive.

5.2.6.2 Pre-construction activities

1 Prior to construction of the OHL a precision ground survey will be carried out to determine the ground profile along the centre of the OHL route and for 25m on either side where the ground profile slopes across the OHL route. This is to ensure that the locations selected for towers, poles and stays and their relationship with each other comply with the technical limits laid down for maximum span lengths, maximum sums of adjacent spans and safe clearance to live conductors in the final siting. Further consideration is also given to detailed environmental effects and the wishes of the landowners. In addition pre-construction ecological surveys will be carried out to ensure that the required mitigation and avoidance can be effected.

2 Where the route of the OHL passes over or in close proximity to trees that could infringe safe clearances to 'live' conductors, the trees will be felled or pruned prior to the construction of the OHL. The felling proposals are shown on Figures 5.06 - 5.16.

3 Felling will be undertaken within the identified 80m wayleave corridor for the OHL. The main exceptions to this are at Glenhoul Glen and The Water of Deugh crossing adjacent to Dalshangan where detailed survey, routeing and design has been undertaken in order restrict the requirement for felling of areas of ancient woodland.

4 Other areas where trees are present within the wayleave, but where no felling is required, include Green Well of Scotland.

5 Where felling is required this will be undertaken according to best practice using a combination of mechanical harvesters and manual chainsaws. The saleable timber will be removed and will form part of the timber crop being harvested within the forest. Otherwise any unmerchantable timber and brash will be felled and laid down along the line of the route (within the forested areas only) or the area mechanically mulched. Secondary mulching of brash on harvested areas will be carried out to provide access within the forest for the duration of the construction process.

6 All forest operations will be undertaken in accordance with the Forestry Commission's Forest and Water Guidelines.

7 The felling will be undertaken sequentially in locations as required (and subject to environmental constraints) and it is envisaged that this will take approximately 3 days per hectare. Mulching standing trees where required will take 3 days per hectare and mulching brash will take 1.5 days per hectare. (These figures assume 4 harvesters and 2 mulchers.)

5.2.6.3 Access

1 Vehicular access with a maximum width of 5m has to be secured to every site on the route. Access routes and detailed arrangements will be agreed with each landowner or occupier and the contractor/SPT. In most cases will use the existing agricultural or forestry access. The overall objective of the identification and provision of access will be to avoid and /or reduce effects on any natural or cultural heritage interests and to cause least disturbance to current land use and management practices. The principle method employed to achieve this will be to maximise the use of existing tracks (and bridges) with upgrading of these where necessary. Where this is not possible or where the use of existing tracks would result in unnecessarily long connecting tracks, two options are available:

- The construction of temporary spurs to each location;
- The construction of temporary tracks between locations which connect to an existing road or track.

2 In addition pre-construction ecological survey will be undertaken to inform the detailed routeing of any access tracks and to avoid and minimise any environmental effects. Access to the locations is envisaged as follows.

Table 5.01 - Access information

Project Elements	Access Point	**Other elements accessed from this location** (PC – Pulling Compound, CC – Construction Compound, SS – Substation)	New tracks Volume of stone required m^3	Upgraded tracks Volume of stone required m^3	Total m^3
Steel Lattice Tower numbers					
1-8	AP1	PC 1 and 2 CC	1,268	744	2,012
9-18	AP2	PC 3	2,926	0	2,926
19R	AP3	PC 4,5	86	0	86
21	AP4		75	0	75
22-24	AP5		810	0	810
25-34	AP6	PC 6,7	3,652	0	3,652
35-44	AP7	PC 8,9,10,11	1,880	1,914	3,794
45	AP8		150	0	150
46-48	AP9		556	0	556
49-51	AP10	CC	715	67	782
53	AP11		53	0	53
54-55	AP12		389	84	473
56-57	AP13	PC 12,13	334	0	334
58-60	AP14		559	0	559
61-66	AP15	PC 14,15	707	387	1,094
67-68	AP16		418	0	418
69	AP17	PC 16,17	150	0	150
70-76	AP18		1,445	0	1,445
77-82	AP19	PC 18,19	1,327	0	1,327
83	AP20		79	0	79
84-85	AP21		432	0	432
86	AP22		90	0	90
87	AP23		19	0	19
88	AP24		87	0	87
89	AP25		51	0	51
90-91	AP26		183	0	183
92-94	AP27	PC 20,21	449	0	449
95-96	AP28		202	0	202
97	AP29		16	0	16
98	AP30		17	0	17
99-101	AP31	CC	717	0	717
102	AP32		72	0	72
Wood Pole numbers					
1-5 & Tower 103	AP33	PC 22,23	400	0	400
6-22	AP34	PC 24,25	1,146	1,319	2,465
23-34	AP35		739	0	739
35-51	AP36	PC 26,27	591	0	591
52-73	AP37	PC 28,29 CC	1,451	0	1,451

74-105	AP38	PC 30,31,32,33 CC	1,797	791	2,588
106-136 & B&M1-20	AP39	PC 34,35,36,37 SS - Margree CC	3,570	909	4,479
B&M 21-24	AP40	PC 38 SS - Blackcraig	136	137	273
Totals					**36,096m³**

Figure 5.19 - Floating tracks/steel matting/Low pressure access track

Figure 5.20 - Temporary access tracks

3 The locations of these accesses are shown on Figures 5.06 - 5.16.

4 For the purposes of this assessment it is assumed that all temporary tracks will be removed at completion, however there is potential to retain these at landowner request (any tracks required to be left in-situ permanently would require planning permission). There are a number of permanent additions to the forestry tracks at GR 251313, 602968 and GR 251860, 601672 and these are required to allow future removal of timber and operational changes to timber stacking areas at GR 251998, 601347 and GR 253747, 596876.

5 Stone will be imported where required to upgrade existing forest and farm tracks. This upgrading will be permanent and reinstatement will take place along the verges as required.

6 The type of temporary track will be identified at each location on the basis of sensitivity of the location, land use and ground conditions, however the premise for all of these will be to minimise the intervention required whilst limiting the potential effects on the environment. The EMP will set out the detailed criteria for identifying the type of tracks required and the appropriate installation and removal techniques for each type.

7 There are three main types of access:

- Low pressure vehicle use – this approach will be adopted wherever possible to avoid the need to form a track. The access will however still be limited to the width required and demarcated as appropriate.
- Floating tracks – this approach will be used in areas of peat or where the ground bearing capacity is insufficient. Geotextiles and geogrids will be employed as required with imported stone. This may be combined with minor local cut and fill and drainage works as required.
- Wood/steel matting – in areas with particular sensitivity temporary matting will be used where ground conditions permit.

8 It is envisaged that the total stone for the access tracks of up to approximately 36,000m³ will be required for this project. This is as set out in the table above. The source for this stone is assumed to be from an offsite source to ensure that a robust worst case assessment can be made for vehicle movements, however it is possible that some of this material could be sourced from local borrow pits related to the windfarms or forestry activities and this would reduce the requirements for vehicle movements. The vehicular movements required for this are identified in Chapter 13 and considered within the assessment of the traffic and transportation.

9 Access for construction traffic will be required and maintained to all sites during the construction phase. The rolling construction programme will ensure that not all tracks are in place at any one time and any tracks that are no longer required will be removed as appropriate.

10 Future access arrangements for maintenance and fault repairs will be arranged with the relevant land owners.

11 The development of the proposals and the accesses to the different elements of these have been designed to minimise the need to cross watercourses. Where however there is a need to provide such a crossing a temporary crossing will be constructed. There are two types of crossing envisaged:

- Narrow burns – a mat of timbers will be used, supported by steel beams; and
- Larger watercourses – steel plate decking bridge supported on main beams and cross members.

12 Photographs of these crossing structures are provided at Figure 5.21.

13 Watercourse crossings are envisaged at the following locations:

Table 5.02 - Watercourse crossings (See Figure 11.01 within Chapter 11, Hydrology)

Location of Watercourse crossing	Type of crossing envisaged
NS 4917 0550	steel plate decking
NS 4904 0536	timber mat
NS 4900 0526	timber mat
NS 4920 0446	timber mat
NS 4970 0418	existing crossing, may require upgrading
NS 4994 0430	timber mat
NS 5058 0390	timber mat
NS 5092 0361	timber mat
NX 5227 9892	timber mat
NX 5639 9372	timber mat
NX 5683 9324	timber mat
NX 5797 9176	timber mat
NX 5843 9063	timber mat
NX 6121 8810	timber mat
NX 6161 8801	timber mat
NX 6234 8817	timber mat
NX 6264 8820	timber mat
NX 6282 8821	timber mat

Location of Watercourse crossing	Type of crossing envisaged
NX 6347 8800	timber mat
NX 6355 8799	timber mat
NX 6538 8714	timber mat
NX 6632 8649	steel plate decking
NX 6698 8592	timber mat
NX 6729 8574	timber mat
NX 6737 8568	timber mat
NX 6742 8563	timber mat
NX 6760 8539	timber mat
NX 6875 8381	timber mat

14 In addition to the crossings identified above, a number of crossings on existing forestry tracks are likely to be used. It is possible that some of these may require upgrading.

15 All watercourse crossings will be designed to comply with the controlled activities (Scotland) Regulations. These would adhere to the general binding rules and may, in some instances, require a car licence.

16 Where forestry works require water crossings, these will typically be provided through the use of temporary log bridges as is normal forestry practice.

Figure 5.21 - Watercourse crossings

5.2.6.4 Wood Pole line sections

1 Single-circuit wooden pole line construction follows a standard sequence of activities these include:

- Preparation of accesses;
- Initial forestry clearance;
- Excavation of foundations;
- Delivery of poles;
- Erection of poles;
- Undergrounding/deviation of lower voltage lines where necessary for safety clearances;
- Delivery of conductor drums and stringing equipment;
- Insulator and conductor erection and sagging; and
- Clearance and reinstatement.

2 Construction is anticipated to take approximately three to four weeks per kilometre, resulting in a construction period of approximately 11 months.

5.2.6.4.1 Land use during construction

1 Access for construction requires an area at least 600m^2 (30m x 20m) at pole sites (to be clearly demarcated to limit construction activities to this area) and a 5m wide swathe under the conductors along the route, whilst conductor stringing is in progress. Where required the area at each pole will be locally levelled to allow installation of the wood poles.

2 Additionally, a working area of 1,200m^2 (60m x 20m) will be required approximately every 2km along the OHL to accommodate the winches required for pulling the conductors (pulling compound). These working areas will be located depending on the availability of access and the terrain, number of angle structures and severity of angle deviations and in the light of the pre-construction environmental surveys. Table 5.01 gives an indication of where, at the time of assessment, the likely accesses, pulling compounds, and construction compounds were thought to be. However, these are subject to review by the contractor and will be in agreement with landowners. The greater the angle of deviations, the closer the working areas will be required. These working areas will not extend more than 80m beyond the last wood pole being strung in that section.

3 At convenient places along the route, temporary storage areas may be required for the dispersal of plant and equipment. These will be agreed between the contractor and the landowners. Identification of these will be undertaken to minimise any potential environmental effects and will comply with the requirements of the EMP.

4 Access for construction traffic will be required and maintained to all sites during the construction phase.

5 Indicative locations for all these elements are included on Figures 5.06 - 5.16.

Table 5.03 - Construction compound information - wood pole section

Construction Compounds	Area (m^2)	Number	Volume of stone required (m^3)
Principal	5,000	1	1,500
Secondary	3,750	1	1,125
Stringing Compounds	1,200	16	2,880
Total			5,505

5.2.6.4.2 Wood Pole erection

1 The erection of wood poles requires excavation (typically 3m^2 and 2m deep) to allow the pole brace blocks and/or steel foundation braces to be positioned in place. Each support's earth mat is installed, comprising two earth conductors laid at the base of the pole in an 'X' arrangement horizontally, about 600mm deep. Earth rods are inserted vertically along the route of these conductors.

2 The excavation is then backfilled and consolidated in layers, normally with the original materials. Topsoil is reserved for the top layer and any surplus subsoil or rock is removed from the site. Any turf or similar vegetative covering will have been carefully removed and stored for the duration of the works and will be used to complete the reinstatement.

3 Where required, limited levelling of the ground will be undertaken at the location of the wood poles to allow the construction processes to be undertaken. This will be kept to the minimum required to undertake the construction and will be made good following construction to avoid any additional effects.

4 Where required the wood poles are stayed using galvanised wires located with earth anchors or 'deadmen' as appropriate to the ground conditions.

5 Where required the construction of wood poles can involve the use of 'floating foundations' or soil mixing techniques to stabilise poor ground conditions for construction.

5.2.6.4.3 Wood Pole conductor stringing

1 Once all poles within the section of OHL under construction have been erected, all poles are fitted with insulator supports. Running blocks are fitted to the top of the insulator support and the conductors are fitted using the following techniques.

2 Drums of conductor and a tensioner with a hydraulic brake are located in a working area at one end of the OHL section, with the pulling winch at the other. The conductor is joined to a single, heavy-duty pilot wire and drawn through the section, one conductor at a time, under constant tension. During stringing radio communication is maintained between the operators of the pulling winch, the tensioner, hydraulic brake and intermediate observation points so the pulling can be stopped if problems arise. By using the 'Continuous Tension Stringing' method the conductors are held aloft at all times and do not touch the ground or any other structures.

3 OHL conductors are usually erected from one end of the OHL, in short sections (up to 2km, dependent upon the terrain and complexity of the design). Temporary

stays may be required at pulling positions to balance the conductors as the build progresses to the other end. These stays will be installed and removed along the length of the OHL as the individual sections are completed.

Figure 5.22 - Wood Pole/Wood Pole construction

5.2.6.5 Steel lattice tower sections

1 OHL construction follows a standard sequence of activities. For steel lattice tower OHLs these activities include:

- Preparation of accesses;
- Initial forestry clearance;
- Preparation of temporary working areas including excavation and construction of foundations;
- Delivery, assembly and erection of steel lattice towers and associated items;
- Delivery of conductor drums and stringing equipment;
- Insulator and conductor erection and sagging; and
- Clearance and reinstatement.

2 Construction is anticipated to take approximately two to three weeks per kilometre, resulting in a construction period of 17 months.

5.2.6.5.1 Land use during construction

1 In addition to access tracks temporary construction compounds will be required. There is likely to be a principal compound of circa 100m x 100m (10,000m^2) and a number of smaller satellite compounds 50m x 75m (3,750m^2) or 100mx50m (5,000m^2). These will typically be located close to the main road network where water sewage and electricity supplies can be accommodated readily. These compounds cannot be identified at this stage as they will be subject to identification by the appointed contractor in agreement with the landowner, although notional locations are shown on Figures 5.06 - 5.16. The identification of these sites will however be accompanied by an environmental appraisal of the sites and these will be required to comply with the principles established for the rest of the project and the EMP will be applied to their location and operation.

2 The compounds will be secure and will contain site welfare and parking.

3 The compounds will be lit as required during normal working hours and will have movement activated lighting during the hours of darkness.

4 Access for construction requires an area of at least 1,350m^2 (90m x 30m) at tower locations (to be fenced off/demarcated to limit construction activities to this area). Consideration will be given to varying the size and shape of these areas to avoid any environmental constraints. Following commissioning of the OHL these areas will be restored.

1 Additionally a working area of 2,700m^2 (90m x 30m) will be required approximately every 3-4km along the OHL to accommodate the winches required for stringing the conductors. These working areas will be located depending on the availability of access and the terrain, number of angle structures and severity of angle deviations and are shown on Figures 5.06 - 5.16. The greater the severity of angle deviations, the closer the working areas will be required. These working areas will not extend more than 150m beyond the last tower being strung in that section. These areas will be constructed using a similar technique to the temporary access tracks to ensure the required plant can be supported. These will be removed on completion of the construction works.

Table 5.04 - Construction compound information - L7 Tower section

Construction Compounds	Area (m^2)	Number	Volume of stone required (m^3)
Principal	10,000	1	3,000
Secondary (1)	3,750	1	1,125
Secondary (2)	5,000	2	3,000
Tower construction areas	1,350	103	20,857
Pulling Compounds	2,700	22	8,910
Total			36,892

5.2.6.5.2 Steel lattice tower erection

Foundations

1 Concrete foundations are required for L7 Towers. The foundation type and design for each tower will be confirmed following detailed soil investigations at each location.

2 The majority of foundations will however be of a concrete pyramid type. Depending on ground conditions however, mini-piled, auger or rock foundations may be employed. These alternatives require the drilling or auguring of a number of holes for each leg of the tower with these holes reinforced with steel and concrete. The tower steelwork connects to a 'stub' and these are located and fixed by means of a pile cap at each leg position.

3 Where foundations are excavated, the dimensions will depend on both the tower type and the ground conditions, but will typically be between 4m x 4m x 4m for a line tower or 5m x 5m x 5m for angle towers. Excavated material will be retained on site and placed back within the excavations (in appropriate layers) following the concrete works.

4 The typical concrete volumes required for each tower type are:

Table 5.05 - Concrete volumes required

Tower Type	Volume of concrete per tower (m^3)	Number of towers of this type	Volume of concrete (m^3)
Suspension tower D	3.75	77	288.75
Turning tower D30	11.6	19	220.40
Turning tower D60	22.9	5	114.50
Terminal Tower DT	22.5	1	22.50
Concrete Volume required			**646.15**

5 All concrete will be imported as ready-mix.

6 Once the excavations are formed, the tower legs will be fixed in accordance with the foundation design and the pyramid formwork placed around the stub to allow concrete pouring. Once the concrete has partially cured, the formwork will be removed and the excavation backfilled using the original material and compacted. Any surplus material will be removed from site and treated in accordance with the site waste management plan.

Figure 5.23 - Foundations and steel lattice construction

7 Should peat be encountered specific foundation designs will be developed to deal with the very limited load bearing potential. There are two approaches to dealing with this:

- In areas of deep peat piling will be required; and
- In areas of shallow peat rock anchorages are used.

8 The type, construction and quantity of piles required at each leg location will be determined by the depth of peat and underlying ground conditions. In general however, piling requires the following operations to be undertaken:

- Formation of a stable piling platform;
- Driving of piles down to suitable solid/stable ground;
- Formation of shuttering around piles for each leg;
- Formation of steelwork to form tower leg stubs;
- Pouring of concrete into shutters to form pile cap; and
- Removal of shuttering.

9 Rock anchors are generally used where the peat depth is more limited, with the anchors typically 100-150mm in diameter and connected to the tower legs with a small reinforced concrete block similar to the pile cap. The process of constructing the rock anchors is as follows:

- Formation of box shutter from sheet piles;
- Excavation within box piling to expose the bedrock;
- Excavation of approximately 500mm of rock to provide key for anchorages;
- Placement of stubs, steelwork and pouring of concrete; and
- Backfilling of area within box shuttering (which is sacrificial and left in place).

10 Once the foundations are complete, (and cured) the steelwork will be delivered to site and assembly will commence either by setting up a derrick crane and building the tower in steel sections, or assembling the tower in part at ground level and lifting the sections by crane to form the tower.

11 The process of construction of steel lattice towers and their foundations is shown in Figure 5.23.

Steel lattice tower conductor stringing

12 Once a sufficient number of towers have been erected stringing of these with conductors will be undertaken. This requires stringing locations at every 3-4km or where a deviation occurs. The pulling compounds will require temporary surfacing similar to the access tracks, and these will be removed following commissioning of the OHLs.

13 Once all towers within the section of OHL under construction have been erected, drums of conductor and a tensioner with a hydraulic brake are located in a working

area at one end of the OHL section, with the pulling winch at the other. The conductor is joined to a single, heavy-duty pilot wire placed in blocks hanging from the insulators on the towers and drawn through the section, under constant tension. During stringing radio communication is maintained between the operators of the pulling winch, the tensioner, hydraulic brake and intermediate observation points so the pulling can be stopped if problems arise. By using the 'Continuous Tension Stringing' method the conductors are held aloft at all times and do not touch the ground or any other structures.

Figure 5.24 - Conductor stringing, L7 Towers

14 Where the conductor needs to be strung across public roads, protection in the form of scaffolding will be erected prior to the commencement of stringing in consultation with the appropriate road authorities. Scaffolding will be erected at either side of the crossing, with the span between the scaffolding netted to provide the required clearances. It is this requirement for scaffolding and netting which limits how obliquely the route can cross roads. Examples of scaffolding are shown at Figure 5.24.

5.2.6.6 Construction of the Substations

1 The construction of the substations will comprise the following tasks:

- Felling (where required);
- Pre-construction activities;
- Earthworks to form construction platform;
- Formation of concrete bases for control building, transformer and other structural elements;
- Construction of control building;
- Electrical plant and cable installation;
- Establishment of secure compound and facilities;

- Commissioning of installations; and
- Reinstatement of perimeter and removal of any temporary works.

5.2.6.6.1 Pre-construction activities

1 Prior to commencement of permanent works, a secure site compound, facilities and access will be provided. This will include for the provision of bunding and other measures to ensure the EMP can be achieved and that any plant or items which may give rise to spills of contamination are protected.

5.2.6.6.2 Earthworks

1 Any turves, topsoil; and subsoil over the site will be removed and stored for subsequent reuse in restoring temporary works areas. Any unsuitable material will be disposed of according to the waste management plan.

2 In order to create a level flat construction platform suitably graded aggregate will be placed in layers and compacted. This work will include provision for local patterns of drainage to be retained and drainage measures will be incorporated as required. It is envisaged that the aggregate for these bases will be sourced from off site sources, however borrow pits established for the construction of the windfarms will be used where available. The volume of material for these bases is envisaged as follows.

Table 5.06 - Substations stone requirements

Location	Stone requirement for construction (m)
Blackcraig Substation	3,730
Margree Substation	5,113

3 The construction of the platforms for the two windfarm substations will be undertaken to accommodate the entry of the underground windfarm cables at 33KV into the substation compound.

5.2.6.6.3 Concrete bases

1 Following the completion of the construction platform, concrete bases will be cast for the individual elements of the substation requiring this support.

Table 5.07 - Substations concrete requirements

Location	Concrete requirement for construction (m^3)
Blackcraig Substation	153
Margree Substation	214
Total volume	367

2 This concrete will be imported as ready-mix.

5.2.6.6.4 Control buildings and electrical plant installation

1 The control buildings will be single storey and constructed using normal construction techniques, using brickwork or profiled steel cladding. This will be fitted out with the electrical and control plant required for the substation.

2 The equipment forming the network within the compound including busbars, insulator supports and disconnectors will be delivered on normal HGVs and will be assembled and prepared on the pre-cast foundations as required.

3 The transformers will be delivered by specialist HGVs and located within the substations.

4 The electrical connections within the substations and switchyard will be completed using large diameter tubular conductors and cabling.

5 The connections to the OHLs on the strain gantries will be made to complete the required electrical connections.

6 Following completion of this there will be a period of commissioning and testing.

Figure 5.25 - Substation under construction

5.2.6.7 Removal of redundant sections of N-Route towers

1 The existing 132kV OHL (N-Route) must remain operational to ensure a secure electricity supply until the proposed 132kV OHL can be energised.

2 Following completion and energisation of the new circuits, the existing redundant N-Route between tower N100A to the north of Polnessan and tower N230 at Kendoon will be decommissioned and dismantled. This existing stretch of 132kV OHL to be removed is approximately 32km in length consisting of 130 towers.

3 This dismantling will be commenced within 18 months of the completion of the new OHL connection between Meikle Hill and Blackcraig.

5.2.6.7.1 Access for Dismantling

1 Dismantling of the existing OHL will require access to all existing tower positions to dismantle the conductors and towers before removing part of the foundations. Access for construction plant will be required to divert and dismantle the existing conductors and towers, followed by access to remove part of the foundations.

2 Where the route of the existing OHL follows that of the proposed OHL, the existing accesses installed for construction will be used for the dismantling. These existing accesses might have to be locally extended. Due to the shorter timescales required for dismantling, providing reasonably good weather conditions prevail, temporary matting will be used to extend the existing accesses where required.

3 In cases where a risk assessment requires the towers to be dismantled by crane, such as areas in close proximity to roads, buildings or existing OHLs, depending on the ground condition there might be a need to install a suitable access. Generally, for the size of crane required, matting would be suitable for access, however in areas of poor ground conditions such as wet bog or peat, stone or geotextiles might be required to provide a more stable track bedding to facilitate use of the crane.

5.2.6.7.2 Dismantling

Dismantling Conductors

1 Before starting to dismantle the conductors, protection measures consisting of scaffolding and nets would be erected over obstacles such as roads and OHLs. Dismantling of the conductors takes place only when the protection measures have been put in place. Access would be required to allow the scaffolding equipment to be delivered to the locations where it is to be erected.

2 Rollers (running out blocks) are erected at each tower position and the conductor is unclamped and placed in the rollers. Using a winch, the tension of the line is released and the conductors are gently lowered to the ground. The conductors are then cut into manageable sections, coiled up and removed from site. The insulators and old fittings are lowered at this time and removed from site, and disposed of in line with the waste management plan.

Conductor Dismantling – Protected Sites

3 When dismantling conductors over environmentally sensitive sites areas or other obstacles such as road, rail and river crossings where scaffold protection cannot be utilised, systems such as Catenary Support System (CSS) are employed to allow the conductors to be removed under constant tension.

4 The CSS system uses the existing conductors to deploy a secondary cable that is then used as a support whilst dismantling all phase and earth wires. Although there is still a requirement to lower the final conductor, only one rope would be lowered rather than the three conductors which had previously been dismantled. This rope, when carefully lowered can be recovered by hand.

Dismantling Towers

5 The dismantling of each tower would be assessed on an individual basis taking into account items such as the location of the tower, available space around the tower and near-by obstacles. If the assessment allowed and there were no other safety implications which needed to be taken into account, the tower could be felled in a controlled manner using a steel cutter to cut the two back legs and pulling it over onto its side using a tractor and winch. In particularly sensitive sites the tower could be felled onto straw bales or tyres.

6 Following an assessment of the safety and environmental implications if the above methods of felling were not considered suitable, then the tower would be unbolted and lowered in sections using a crane or derrick. Once on the ground, the towers would be cut into smaller manageable pieces and removed from site. This could be achieved by either of two methods depending on the access available.

7 If access were suitable, a scrap skip would be delivered to site and the towers cut into manageable pieces using either oxyacetylene cutting equipment or a cutting attachment on the excavator. The scrap steelwork would then be loaded into the skip and removed from site for recycling.

8 If the access were not suitable for a scrap skip to be delivered, the tower would be cut into smaller sections using the cutting attachment on the excavator. Once complete, the sections of cut tower would be flown out using a helicopter to a nearby storage area where they would be cut into smaller manageable pieces and then loaded into a scrap skip to be removed for recycling.

Removal of Foundations

9 Using either a wheeled or tracked excavator, the foundation is exposed to a depth of about 1m apart from in sensitive sites, such as SSSIs, where the foundations would only be exposed to 300mm (This is the minimum level of removal to ensure that a hazard is not left insitu). The concrete on the exposed foundation would then be broken into manageable sizes exposing the tower leg underneath. The leg would be cut at 1m deep and removed. The foundation would then be backfilled ensuring the backfill is compacted at regular intervals. When the foundation was completely backfilled, any surplus material would be removed from site (see below).

Environment and Waste Removal and Disposal

10 All waste materials would be removed from site in accordance with relevant waste and environmental regulations. Where possible, the principle of waste minimisation would be applied by the reuse and recycling of removed materials. All wastes would be identified, classified, quantified and where practicable, appropriately segregated.

11 All waste will be transferred using a registered waste carrier to a licensed waste disposal or recycling centre.

12 The majority of redundant materials from dismantling could be reused or recycled. The conductor, towers and glass insulators would be transferred to a licensed scrap merchant for recycling, with only the dismantled insulators being disposed of in a licensed waste facility. Following removal of foundations, any surplus spoil, which cannot be re-used on site, would also be removed to a licensed waste facility.

13 When removing installed access tracks, the removed stone would be recycled, such as in the restoration of borrow pits, with only the underlying geotextile and geofabric being removed to a licensed waste facility.

5.2.6.8 Site Reinstatement and Restoration

5.2.6.8.1 Introduction

1 Once the new OHL has been commissioned, the sites will be reinstated. Contract requirements will include removal of all temporary access tracks, all work sites round towers and where the 132kV OHL was removed, the restoration of all construction compounds. All work will be carried out in agreement with landowner and taking account of environmental constraints and committed mitigation measures would be implemented (see Schedule of Mitigation in Appendix A).

5.2.6.8.2 Tracks

1 Little if any ground restoration would be required where matting used for short-term access on reasonably firm ground is removed. Where tracking has been left *in-situ* for lengthy periods of time some compaction may have taken place. Remedial sub-soiling / cultivation might be required in these locations depending on the levels of compaction and taking account of any environmental constraints such as buried archaeology etc.

2 Where floating stone access tracks have been used over peat an indentation as a result of the compaction and settling from the stone installation could be left. The risk of compaction would be minimised by:

- Using suitably graded geotextiles and geofabrics to spread the weight of the track;
- Micrositing tracks to avoid any particularly wet areas of peat; and
- Using appropriate drainage techniques to maintain the natural hydrology of the peat.

3 Following removal of the floating tracks, the line of the tracks would be allowed to revegetate naturally to reduce the risk of impact from further intrusive methods.

4 Where tracks which have been dug in are removed, the land would be gently graded back to fit with the surrounding topography. Culverts could be left in place in these situations unless an environmental interest makes this undesirable. Leaving culverts in place could reduce disturbance in the future if maintenance works were required.

5 Planning permission would be required to leave any temporary tracks in place permanently.

5.2.6.8.3 Tower Sites

1 Topsoil would be stored within the working area for each tower in bunds approximately 1.5m in height and at the boundary of the area. Subsoil removed to enable construction of the foundations would be temporarily stockpiled in separate bunds within the working area. Once the foundations of each tower could be backfilled the excavated material would be replaced and compacted in layers. Any surplus material would be graded around the working area prior to replacing and regrading the topsoil.

2 Any soils that are removed which could not be classified as having a good consolidated structure would not be used for backfilling and these and any contaminated materials would be removed to a suitably licensed facility.

3 Each site would be allowed to revegetate naturally or seeded. The appropriate treatment would be identified for each site in the EMP.

5.2.6.8.4 Restoration of the 132kV line removal

1 Similar principles to those described above for restoration of tracks and tower sites would be used for all areas where the existing N-Route 132kV OHL was removed. It is unlikely that appreciable remedial work would be required to restore areas of temporary track since it is the intention to use temporary matting wherever possible.

2 Tower sites in agricultural areas would be restored and incorporated back into the surrounding land use type. Areas of bog and moorland sites would be carefully restored ensuring natural regeneration would be encouraged.

5.2.6.8.5 Construction Compounds

1 Construction compounds would all be made good at the end of construction with all buildings and materials removed and soils appropriately restored. The requirement for any planting and/or seeding would be identified once sites are chosen and all necessary measures would be identified in the EMP.

5.2.6.8.6 Design Principles for Restoration

1 The following design principles would be followed for restoration of all sites:

- Best practice would be followed for restoration of all sites including that provided by SNH and the Forestry Commission;
- Restoration plans would be detailed in the Environmental Management Plan (EMP) for generic habitat types and specific plans made for individual sites where a requirement for specific measures is identified by the project environmental representative;
- Restoration plans would take account of any identified important habitat and species locations and archaeological sites;
- All soils and peat which were removed would be stored carefully and replaced on site as soon as construction allows;
- Restoration would seek to successfully integrate the site with surrounding land uses and habitats;
- The ground would be graded to fit with natural contours;
- Pre-existing drainage would be made good;
- Natural regeneration of habitats would be promoted;

1 Opportunities to deliver local biodiversity enhancements would be identified by the environmental representative with input from the team ecological advisor and implemented at suitable sites identified in the EMP (see Technical Appendix A);

- Any required replanting and /or reseeding would be undertaken at appropriate times of the year and with the agreement of landowners; and
- Restoration plans in areas used for public access would take account of access requirements and ensure that new planting does not interfere with access and also delivers visual benefits where possible.

5.2.6.9 General construction issues

5.2.6.9.1 Concrete supplies

1 The concrete requirements for the construction of the different elements of the project have been identified in the preceding sections.

Table 5.08 - Total concrete requirement

The total concrete requirements **(m^3)**	
Tower foundations	642
Substation construction	367
Total	**1,009**

2 All concrete used on this project will be provided as ready mix imported from offsite locations and there will be no onsite batching.

3 The vehicle requirements for these movements have been included within the Traffic and Transport Assessment.

5.2.6.9.2 Aggregate requirements

1 The aggregate requirements for the construction of the different elements of the project have been identified in preceding sections. These requirements include temporary roadways and access tracks, construction compounds and working areas and for the construction of the substation compound bases. It is assumed that this material will be provided from quarries within the local area and the material will be brought in by road. This allows a robust worst case assessment of the traffic implications of the use and movement of this material. It is possible however that local 'on-site' sources (windfarm or forestry borrow pits) may be used and these would reduce the requirements for vehicle movements on the public highway.

Table 5.09 - Total aggregate requirements

The total aggregate requirements (m^3)	
Temporary access tracks	36,092
Compounds and working areas for Wood Pole OHL	5,505
Compounds and working areas for steel lattice tower OHL	36,892
Permanent works	884
Total	**87,332**

5.2.6.9.3 Transport of materials

1 During construction the wooden poles and components of the steelwork and insulators are transported on general purpose HGVs and 4-wheel drive cross-country vehicles which have incorporated lifting devices. Where access proves more challenging, personnel and materials can be transported via helicopter.

2 Drums of conductors are delivered as close as possible to the angle or tension tower/pole sites from which the conductors are pulled. If necessary tractors adapted to carry such loads are used to transport drums to the pole sites.

3 Special plant is available if there are any requirements for special precautions to be taken during construction of the OHL due to local environmental conditions or hazards.

4 Other construction materials will be moved on standard HGVs.

5 There will also be additional vehicle movements associated with light vans and private cars.

6 The numbers and programming of these movements are set out in Chapter 13 and an assessment made of these on the basis of the existing traffic conditions on the local highway network.

5.2.6.9.4 Noise

1 During construction, contractors would be required to maintain low noise levels in the vicinity of dwellings or other noise sensitive receptors by employing sufficiently silenced machinery and by distancing, or where practicable, screening noisy activities or items of plant, as outlined in BS5228 1 & 2: 2009. This is considered in greater detail in Chapter 14.

5.2.6.9.5 Crossing existing lines

1 It may be necessary to cross existing OHLs to achieve the most favourable or environmentally acceptable route or, where practicable, to maximise the distance from dwellings. The crossing of OHLs may cause temporary interruptions to supply while the works are being carried out. Crossing of OHLs will therefore be programmed at times when existing OHLs can be temporarily taken out of service.

2 Statutory clearances must be maintained between live conductors of the existing OHL and the conductors of the new OHL and pole stay wires used in new pole construction. These are generally maintained by keeping separation distances between OHLs, including where OHLs run in parallel.

5.2.6.10 Construction in 'Sensitive Areas'

1 SPT has consulted extensively with environmental agencies concerning the matters of construction in or near sensitive habitats and conservation areas. The company has in the past prepared method statements which were issued to contractors for use in environmentally sensitive sites to address issues of habitat, archaeology, designed landscapes and historic structures. This practice would continue for this project and the method statement would be rigorously applied and, where required, agreed with relevant Environmental Agencies.

5.2.6.11 Micro-siting

1 Whilst the route for the connection has been refined through the routeing and EIA process and been subject to technical and design refinements to arrive at the detailed development footprint upon which the assessment is based, the line of the connection may be subject to further minor deviation and wood pole/tower micro-siting to allow for unconfirmed ground conditions (especially in heavily forested areas) pre-construction confirmation of environmental conditions and alterations through landowner negotiations. Micro-siting provides scope for further mitigation of potential effects. The scope to micro-site individual tower and pole structures can be achieved through the use of an Infrastructure Location Allowance (ILA) set out in 5.2.6.12 below. The ILA will form part of each of the Section 37 applications and it is anticipated this would be a condition attached to any Section 37 applications granted.

5.2.6.12 Infrastructure Location Allowance (ILA)

1 Due to the length of the overall planning and construction phases of the project and the dynamic nature of some of the environmental baseline interests, it is recognised that, post-consent, it may be necessary and desirable to refine the final vertical and horizontal profile of conductors and tower/pole positions and the lines of access tracks. A number of environmental constraints may need to be accommodated and require minor location alterations as a result of requests from landowners or results from updated construction/survey information.

2 To ensure the final positions of the OHL and associated works are not varied to such a degree as to cause an unacceptable change in the extent or significance of any environmental effects compared with those identified in the ES, an infrastructure location allowance (ILA) is sought. For the OHLs the ILA is generally sought within a 25m radius of the pole/tower positions shown on the application drawings. This will effectively result in a corridor of 50m width (25m either side of the proposed OHL) within which the wood poles/towers may be located subject to the necessary process outlined below.

3 It should be noted that the ILA tolerances under and either side of the OHL routes shown on the application drawings have been ecologically surveyed during the OHL routeing process and this information is available in the first instance to inform those requesting an ILA.

4 Implementation of the ILA will be controlled through the EMP which will require a request to vary a pole/tower position. This request would trigger the need to issue the ILA request to the relevant environmental consultants to allow them to consider the implication of relocating the wood pole/tower position or alignment of underground section within the ILA. Where implementation of the ILA may give rise to significant effects this process would include notification to the relevant statutory consultees.

5 Because of the environmental and technical studies that have been completed, micro-siting is considered unlikely to result in a significant change in the assessment. These studies have informed the routeing process, the identification of the proposed route and the identification of the location of pole/tower positions. In addition the proposed route has been developed on the basis of an understanding of the ILA requirements and has taken account of this in the separation provided between the route and any particularly sensitive areas. The assessed effects have taken account of the ILA and the potential variance in the OHL position that would result.

6 The exception to this is where the OHL has been located as close as statutory clearances to woodland and forestry permit (to avoid the need for felling) where implementation of the ILA might result in additional effects. This approach has been adopted to avoid the need to provide an additional (unlikely to be required) 25m offset from wooded areas where routeing ideally requires the minimum separation between the OHL and adjacent woodland.

7 The micro-siting of the poles/towers in any one location for the OHL route has been defined to ensure that effective environmental mitigation, as laid out in the Mitigation Strategy, can be delivered on site. This has been informed by the relevant surveys and associated environmental impact assessments.

Table 5.10 - Indicative construction programme

Activities	Months 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Site establishment and preliminary works																																							
Access track construction & restoration		■	■	■	■	■	■										■	■	■	■	■																	■	■
Forestry felling	■	■	■	■	■	■																																	
Steel lattice tower overhead line construction																																							
L7 overhead line			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■																			
Wood Pole overhead line construction																																							
Heavy duty Wood Pole overhead line				■	■	■	■	■	■	■	■	■	■	■	■																							
Substations and Switchyard construction																																							
Blackcraig Substation			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■																			
Margree Substation			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■																			
N-Route works																																							
Removal of existing N-Route																					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Overall Programme																																							
Overall Construction	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

5.2.7 Programme

5.2.7.1 Construction programme

1 It is envisaged that the project will be constructed over an extended period envisaged between March 2011 and November 2013 with the different elements being required in a strict sequence and taking different periods to construct. An indicative programme is provided above.

5.2.7.2 Construction working hours

2 A 48 week working year and construction over a five day working week has been assumed for assessment purposes. Construction activities will be undertaken during daytime periods only, between approximately 07:00 to 19:00 during the summer months and 07:30 to 17:00 during the winter (or as daylight allows). Where there are no human or environmental sensitivities working outwith these times may be locally possible to optimise operational opportunities.

5.2.7.3 Vehicle numbers

3 The vehicle numbers for material deliveries, construction operations and staff movements are identified overall and attributed to both locations and programme periods to allow an understanding and assessment of the effects of these. This is detailed within Chapter 13.

5.2.8 Operation and maintenance

1 In general an OHL requires very little maintenance. It is however regularly inspected to identify any unacceptable deterioration of components so that they can be replaced. These inspections are carried out annually, with alternate inspections being undertaken from the ground and from the air by helicopter.

2 Experience indicates that new OHLs of these types would require refurbishment after approximately 20-40 years, depending upon the severity of pollution and local weather conditions. The wood pole elements of this would require refurbishment or replacement after 30-40 years.

3 The substations will be unmanned and will only require weekly visits for the monitoring of equipment or to deal with faults. Any limited maintenance will typically be carried out during planned operational outages when electricity demand is low, typically during the summer months.

4 The substations will not be lit unless staff are present on site and the conditions require this.

5 Wayleaves will be inspected annually, with alternate inspections being undertaken from the ground and from the air by helicopter. The tree clearance at the outset will limit the development of secondary undergrowth; however this will be locally cleared with the resulting material left to decay naturally. It is not considered that there will be any requirement for temporary access tracks along the wayleaves for maintenance purposes.

5.2.9 Decommissioning

1 This proposal does not include the decommissioning of the elements of the project. This is not included as the environmental baseline at the time of decommissioning whenever that may be is unknown.

2 On this basis the assessment of the effects of the elements of the project are considered to be long term. This complies with the guidance provided within the Guidance on the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000 which accepts that generating stations with a working life of 30 years should be described as long term.

3 The design life of the L7H OHL is 80 years and the wood pole line is 40 years. If at this point, or any other point in the future a decision was made to decommission the OHL, work would be undertaken following the procedures outlined for the 132kV OHL as adjusted to reflect established best practice at that time.

5.2.9.1 Decommissioning Traffic

1 Traffic movements for any future dismantling of the 132kV OHL would follow the same routes as those identified in Chapter 13/Technical Appendix H for construction of the proposed project. However, appreciably fewer vehicles would be required to support the dismantling operations compared with proposed project construction and access road formation, and the plant involved would be smaller and lighter.

5.3 Forestry

5.3.1 Introduction

1 Much of the route is located within an elevated landscape, appreciable parts of which are occupied by extensive areas of commercial forestry.

2 This section describes:

- the proposals for felling to construct the OHLs, including the wayleave requirements; and
- the felling process for the OHLs, cable connection and substations, followed by details of the indicative construction programme and the proposed environmental management procedures.

5.3.2 Felling

1 This section provides details of the felling requirements, the felling process and the proposed routes for timber transportation.

2 The consideration of likely felling requirements is an integral part of the proposals. The different aspects of the felling including:

- the minimum requirements for the achievement of a wayleave;
- the identification of the routes within forestry areas;
- the intended treatment of areas outwith the wayleave;
- the treatment of areas deforested for the proposal; and
- the opportunities for habitat development within these area; and
- are discussed within this section and the Technical Appendix considering Mitigation.

3 Each of the specialist topic chapters includes an assessment of the felling proposals on the basis of the description provided here. In addition the Traffic and transport Chapter considers the vehicle movements associated with forestry works on the basis of the figures included within Technical Appendix H.

4 Chapter 6 provides an assessment of the likely effects of the Blackcraig & Margree Grid Connection on commercial and other forestry resources and activities.

5.3.3 Wayleave Requirements

1 The felling of commercial forests will be required to physically construct the OHLs, underground cables and substations, and also to maintain the required clearance for safe construction and maintenance of the OHLs. The following minimum clearance corridors (wayleave) are required for operational reasons:

- 80m for the OHLs: i.e. 40m either side of the centre line;
- 10m for additional access tracks; and
- 40m around all substations.

2 The felling of approximately 75 hectares (ha), of woodland and forests is required for the wayleave of the Blackcraig & Margree Grid Connection, with the majority of the trees proposed for felling comprising Sitka spruce, the dominant species in Scottish commercial forests. This is detailed in felling area Table 5.11:

Table 5.11 - Forestry felling by area

Forest	Area Ha	Average Vol per ha	Total volume m³	Comment
Blackcraig	1.94	105	204	
Margree	19.59	322	6305	
Glenshimmeroch	6.80	156	1061	
Kendoon	3.94	206	682	
Barlaes Hill	1.12	350	393	
Bardennoch	5.98	248	1481	
Brochloch (inc Knockummoch Knowe)	9.30	117	1156	
Brownhills	7.12	417	1924	
FC above Brownhills	1.55	60	93	in practice, most likely to be mulched
FC above Brownhills	0.92	60	55	in practice, most likely to be mulched
FC to Parrie burn	0.19	56	11	in practice, most likely to be mulched
FC to Mossdale burn	2.16	78	170	in practice, most likely to be mulched
FC to Meikle Hill	14.61	141	1559	
Total	**75.22**	**208**	**15094**	

3 It is important to note that this approximates to the 'maximum case' felling as in some areas, it is likely that in some of the areas the trees will already have been harvested by the landowner for other operational / management reasons. This is tempered however by the fact that areas felled recently may have been replanted by the time the OHL is constructed, and the figures provided are considered to represent an appropriate baseline.

5.3.4 Windthrow Effects

1 SPT has statutory rights within the area of the wayleave corridor and can thus bring forward specific proposals for the treatment of forests within this corridor, with a high degree of certainty that this can be achieved either through negotiation with the landowner or through compulsory powers if required.

2 The felling of forests for the wayleave of the OHLs connection may expose previously sheltered trees to the wind. This will potentially render any unstable exposed forest edges facing the prevailing wind susceptible to 'windthrow effects', with these trees either falling or failing to reach their full crop potential.

3 The probability, and predicted extent, of the windthrow effect outwith the felling for the wayleave corridor has been predicted. The total area considered likely to be subject to windthrow outside the 80m wayleave corridor is (this in addition to the felling area in Table 5.11), with the breakdown by area provided in Table 5.12 below.

Table 5.12 - Likely windthrow by area

Forest	Area Ha	Average Vol per ha	Total volume m³	Comment
Blackcraig	1.45	85	122	
Margree	35.00	309	10800	
Glenshimmeroch	14.82	156	2312	
Kendoon	3.68	174	739	
Bardennoch	2.77	233	646	
Brochloch (inc Knockummoch Knowe)	6.99	124	860	
Brownhills	12.03	400	4628	
FC above Brownhills	0.40	60	24	in practice, most likely to be mulched
FC to Parrie burn	0.46	59	27	in practice, most likely to be mulched
FC to Mossdale burn	1.94	79	154	in practice, most likely to be mulched
FC to Meikle Hill	26.27	161	4227	
Total	**105.81**	**232**	**24540**	

4 The areas of woodland and forests outwith the wayleave corridor and their management should windthrow develop are however outwith the SPT's ability to absolutely influence. As a result of this it is not possible to be definitive at this stage as to how these will be managed. In the absence of certainty of future of these areas, the assessment has been undertaken on the basis that these areas will all be subject to windthrow. The effects of this predicted windthrow have been assessed within the specialist topic chapters as appropriate.

5 SPT will however seek to secure the management of these areas in accordance with best practice for forestry design and management and to provide mitigation of the potential effects of poorly designed forests. Where possible areas of potential windthrow will be subject to design and management to reflect the aspirations of the Forest Landscape Design Guidelines in achieving the following within the forest and landscape:

- Shape;
- Visual Force;
- Scale;
- Diversity;
- Unity; and
- Spirit of Place.

6 Further details of this are provided within the mitigation Technical Appendix (A).

5.3.5 Felling Process

1 Tree felling and timber extraction will be undertaken using conventional machinery for the felling of mature and semi mature accessible timber, as detailed below.

2 The majority of felling will be undertaken with mechanical harvesters. These are custom built machines. The machine harvesting head is mounted on a hydraulic book. This grips the tree trunk and severs it as close to the ground as possible using a powered chainsaw. The whole tree is laid on its side and delimbed by driving the stem through mounted, adjustable delimbing knives with powered drive wheels. The stem is cross cut into appropriate lengths to suit the end use of the timber according to length, diameter and straightness, using electronic measuring devices. The timber is stacked on the ground by category to await extraction to roadside. In support of the harvester there will be a small team of manual chainsaw operators who will fell and process those trees which are either too large or heavily branched for the harvester.

3 Timber extraction to roadside will be by custom built 'forwarders' which are six or eight wheeled vehicles with all wheels driven. Vehicles may be fitted with band tracks in soft ground conditions to reduce ground pressure. The timber is lifted using a hydraulic grapple mounted on a telescopic boom and is placed on the vehicles timber bunk(s). The timber is carried to roadside and stacked according to market category to await transportation.

4 In areas where, either due to tree size or location, it is not viable to fell and extract the crop, the trees will be felled to waste or mechanically mulched. This will occur in parts of the project to varying extents. This will be undertaken by either manual chainsaw operators (motor manual tree felling) or whole tree mulching, using purpose built machinery.

5 Where trees are felled within a wayleave, the root system will be left in place to reduce possible effects on soil structure / stability. The exception to this will be in the identified tower / pole working areas where the surface will need to be levelled prior to introduction of the required installation equipment.

5.3.6 Environmental Protection Measures

1 The harvesting for the Blackcraig & Margree Grid Connection will be typical of upland forestry operations in south-west Scotland. The sites present no particular difficulties in terms of terrain or steepness of slope. Nevertheless, there are a range of environmental protection measures which are becoming standard for such operations and which will be employed to minimise the risk of environmental damage.

1 All harvesting operations will be carried out in accordance with the Forestry Commission's Forests and Water Guidelines[1]. Technical Appendix F: Hydrology, Hydrogeology and Water Resources provides more detailed information about the measures to be employed, including the following.

5.3.6.1 Protection of soil structure

1 Upland soils with a moderate to high peat or clay content can be vulnerable to structural damage from excessive trafficking by heavy machines. This can promote soil erosion and reduce soil fertility. Damage will be minimised by the use of 'brash mats'. Brash here consists of branches and treetops with no commercial value. During felling and delimbing, the merchantable timber is placed in separate zones to the brash. A proportion of the brash is 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.

5.3.6.2 Protection of watercourses

1 On occasion, it will be necessary for extraction routes to cross rivers and burns. The frequent passage of machines can cause siltation of stream water. Watercourses will be bridged to minimise the risk of siltation. On the completion of operations bridges will be removed.

5.3.6.3 Protection against spillage

1 The fuelling and servicing of machines on-site will be carried out in designated locations well away from watercourses. Fuel and diesel bowsers will be bunded against accidental spillage. Machines will carry appropriate spillage kits and there will be additional spillage equipment kept on site. Operators will be provided with the contact details of relevant organisations, including SEPA, who will be contacted in the event of a spillage occurring.

5.3.7 Timber Transportation

1 It is proposed that the timber required to be felled to achieve the wayleave (and assuming felling of the full area liable to windthrow) will be transported from the areas of felling to a range of end users including sawmills, chipboard and pulp mills and also woodfuel processing depots via the extraction routes outlined in Table 5.13 below.

Table 5.13 - Transportation of felled material detail

Exit point	Exit GR Easting	Exit GR	Forest	Lorry movements	Add 10% for associated plant movements
1	268820	583750	Blackcraig	11	12
2	269050	583960	Margree	570	627
3	264810	585900	Glenshimmeroch	112	124
4	259825	588245	Kendoon	47	52
5	258670	590170	Barlaes Hill	13	14
6	258300	590950	Bardennoch	71	78
7	253290	597000	Brochloch	67	74
8	251450	601320	Brownhills	218	240
9	249370	604090	FC above Brownhills	4	4
10	249320	604150	FC above Brownhills	2	2
11	248980	604700	FC to Parrie burn	1	1
12	248830	605200	FC to Mossdale burn	11	12
13	251710	608070	FC to Meikle Hill	193	212
Total				1321	1453

2 In including for the felling and removal of all of the timber within the areas considered likely to be subject to windthrow, this represents a robust worst case assessment. Assuming that the areas identified above as likely to be mulched were mulched and if no forestry felling and removal was undertaken from the areas liable to windthrow, the vehicle movements would be reduced to a total of only 697 (less than half of those on which the assessment of vehicle movements in Chapter 13 is based).

5.3.8 Post Harvesting Site Treatment

1 Where there is a requirement to maintain the wayleave, replanting will be restricted to tree and shrub species which will not grow to a height which conflicts with the long term safe operation of the OHL. The brash or mulch resulting from tree clearance operations will be left on site to degrade and slowly release nutrients back into the soil in keeping with normal forest practice. No brash will be left in or adjacent to watercourses. In access corridors required for the construction of the OHL the brash will be mulched. This mulched material can then either be incorporated into the soil as part of the access road building process or left in-situ to be covered with the temporary road surface. In both cases the nutrient release as the material decomposes is considered beneficial to the forest sites' nutrient status.

2 Ground preparation in advance of replanting will be in accordance with current best practice[2], including the creating of spaced planting platforms ('mounds') using an excavator, to ensure satisfactory re-establishment. The spacing of mounds will depend on the type of planting proposed (species and replanting objectives).

1 - Forestry Commission (2004) Forests and Water Guidelines. Fourth Edition. HMSO.

2 - Including Scottish Natural Heritage and the Forestry Commission (2003): Habitat Networks for Wildlife and People. The Creation of Sustainable Forest Habitats.

5.4 Mitigation

1 The proposed OHL has been developed through the iterative process of environmental impact assessment to minimise environmental effects as far as is possible within the technical constraints of a project of this nature. Mitigation has been undertaken at three levels:

- avoidance of potential effects;
- reduction of potential effects; and
- offset.

2 The key elements of the mitigation for this route applied at each level are set out below. Full details of the mitigation for each discipline are set out within the individual assessments and the overall package of mitigation measures are set out in Technical Appendix A.

5.4.1 Avoidance

1 The process of route selection is the most important and effective source of mitigation for the OHL. By employing appropriate routeing strategies it has been possible to avoid a number of potential effects. This has been achieved through arriving at a proposed route which responds to the specific technical & environmental constraints of the area, and which seeks to avoid specific locations that are deemed particularly sensitive to development of this type such as proximity to water courses, archaeological features, areas of ecological sensitivity and specific landscape features.

2 Programming of construction operations will be employed in order to avoid potential effects where seasonal constraints dictate.

3 Demarcation of working/exclusion areas and adoption of appropriate working practices will be developed and employed to avoid specific effects where appropriate.

5.4.2 Reduction

1 The likely effects of the proposed OHL have been reduced through the technical design of the OHL itself.

2 The use of the 132kV wood pole over the section from Kendoon to Blackcraig has allowed the OHL to be carried on this structure (maximum 18m tall) rather than the more typical steel lattice towers (L7H - 27m tall).

3 The combination of these grid connections with the replacement and removal of parts of the existing N-Route (including an additional 12km to the north) has been developed to reduce the overall effects environmental effects of the network in this part of south-west Scotland.

4 The routeing, in addition to seeking to avoid specific constraints has also been developed to provide reduction mitigation where avoidance has not been possible. Typically this has been adopted to:

- minimise the need to remove areas of established broadleaved woodland and minimise effects on commercial forestry; and
- to optimise the opportunities for backclothing as far as possible to further reduce the perceptibility of the route;

5 Programming of construction operations will be further employed in order to reduce potential effects where seasonal constraints dictate.

6 Demarcation of working/exclusion areas and adoption of appropriate working practices will be further developed and employed to reduce specific effects where appropriate.

7 The detailed design of the OHL has been developed to include 'bird diverters' in specific locations detailed within the ornithology chapter to reduce the likelihood of bird strikes. For the wood pole line the bird diverters will be located on the spans between 2-35 and 91R-115. These bird diverters will be alternately fitted to the conductors and earth wires such that when viewed from the side, there is a diverter located every 5m along the length of the OHL. For the steel lattice tower section of the OHL, bird diverters will be fitted on the earth wire only at 5m intervals between towers 3-30 and 82-87. The form of the bird diverters is shown in Figure 5.26.

8 Management of the wayleave (commensurate with the required safety clearances will be sought to allow the development of 'scrub' or pre-thicket with the intention of providing mitigation for red squirrel habitat through the reduction of habitat loss and fragmentation.

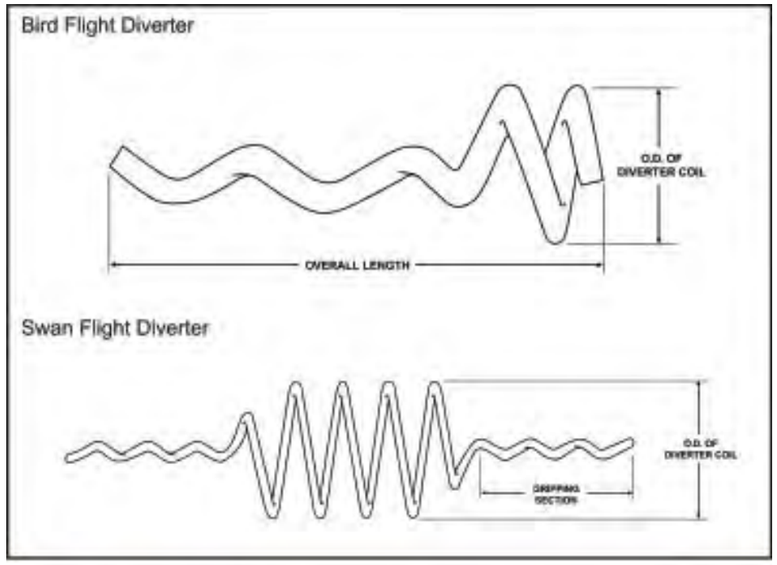
9 In some locations where the areas are adjacent to open ground and there are no red squirrel sensitivities opportunities will be sought to manage these areas towards the regeneration of moorland habitat.

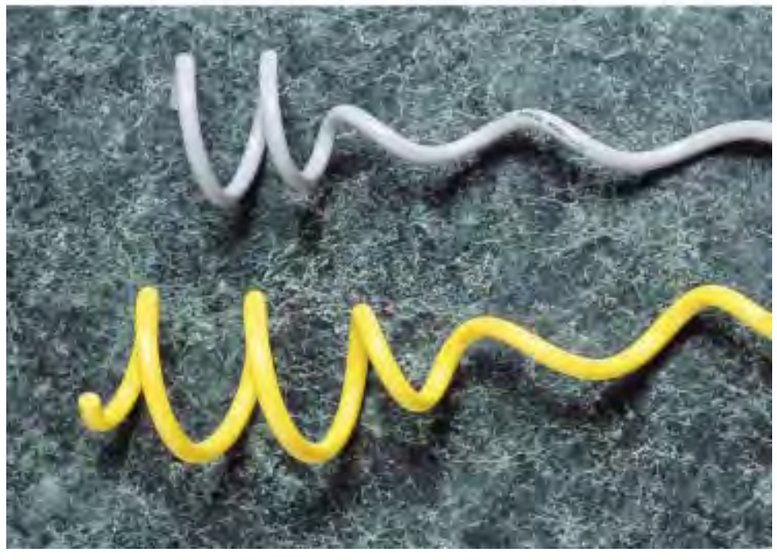
5.4.3 Offset

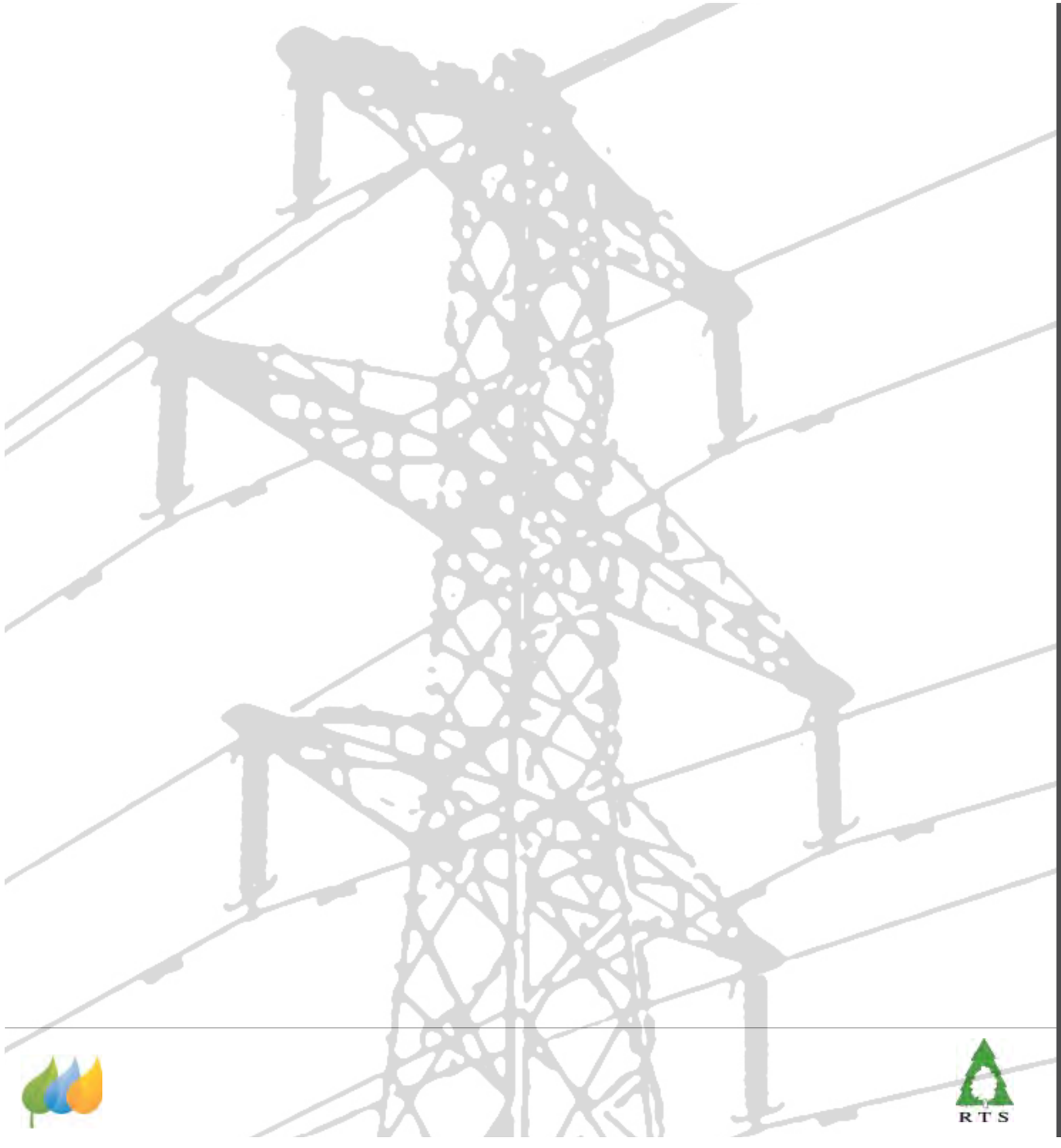
1 SPT will seek through negotiations with landowners to develop forestry management measures outwith the wayleave corridor of the OHL to provide additional environmental benefits. These include measures to deal with the issues of windthrow.

2 Where any unexpected discoveries are made suitable assessment and recording will be undertaken particularly in the case of any previously unrecorded archaeological finds.

Figure 5.26 - Bird Flight Diverters







06

Forestry

Blackcraig and Margree Windfarms
Grid Connection
Environmental Statement

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6.0 Forestry

6.1 Introduction

1 This chapter considers the effects on forestry and woodland areas as a result of construction and operation of the proposed grid connection for Blackcraig & Margree Windfarms. The proposed project, as described in detail in Chapter 5, comprises the construction and operation of a new 132kV grid connection, and associated works from Blackcraig to Margree Windfarm, and from Margree substation to the collector substation at Meikle Hill, and other ancillary works. The approach to this assessment has been developed in accordance with the agreed methodology for the overall project, taking into account responses received from the scoping exercise undertaken by SPT, and the outcome of specific consultations undertaken to inform the content of this chapter.

2 This chapter summarises the findings of the assessment of the likely significant effects on forestry relating predominantly to the felling of the required 'wayleave corridor' during construction, and the presence of the development within forests and woodlands during operation of the OHL. There are also likely to be effects on forests and woodland outwith the wayleave corridor as a result of knock-on effects such as windthrow where a previously sheltered part of the forest or woodland is exposed to wind action through the felling of the wayleave corridor. These additional effects are also considered within this chapter. The detailed assessment, undertaken by RTS is found in Appendix B - Forestry. A summary of the likely effects of felling on the landscape resource and visual amenity are covered separately in Chapter 7: those of Ecology in Chapter 8.

3 The proposal has been developed to minimise the area of felling whilst being mindful of the need to achieve:

- Edges to the felled areas that are not liable to be damaged by the wind;
- A layout which does not unduly compromise forestry activities;
- A corridor within the forest which respects best practice forest design; and
- Avoids areas of sensitive habitat.

4 The effects of the introduction of an OHL into woodland will be short term during construction, and long-term during operation. The following interrelated effects can arise from the introduction of the line within woodland areas associated principally with the requirement for tree felling and vegetation management:

- Short-term effects resulting from the Construction phase.
- Long-term effects during the Operation phase. These can include:
  - > Increase of Windthrow risk during Operation - Windthrow Risk;
  - > Landscape and Visual effect on woodland;
  - > Effects on Ecology (flora & fauna);
  - > Effects on the Hydrology as a result of tree clearance;
  - > Effects with regard to the Management of Native and other non-commercial woodlands
  - > Effects on Shelter; and
  - > Effects on potential forest and woodland areas

5 Table 6.01 below outlines the sources of possible effects and their corresponding effects on forests which have been assessed in full. These are all potentially of long term duration. Measures to reduce or mitigate likely effects are discussed later in this chapter.

Table 6.01 - Source of Impact and Possible Effect on Forestry

Source of Effect	Possible effect on forestry
Felling and Construction	
Felling of Trees for Wayleave	Loss of regional[1] forest resource (Blackcraig & Margree OHL as a Whole and Cumulative only)
	Risk of windthrow to retained trees.
	Loss of native or Ancient semi-natural woodland
Operation and Maintenance	
Retention and maintenance of the wayleave.	Effects on forest management.
	Effects on shelter for agriculture

6 On the basis of the strategic routeing work undertaken, the professional judgement of the EIA team, experience from other relevant OHLs or policy guidance or standards of relevance to this topic area, the following possible effects were scoped out:

- effects on shelter; and
- effects on forestry management during construction.

6.2 Assessment Methodology

6.2.1 Regulatory context

1 In Scotland, the regulatory authority for tree felling is Forestry Commission (Scotland), with powers under the Forestry Act (1987).The principle exception to this is where tree felling forms part of a development with Planning Consent. Consultees engaged in both processes include SNH, SEPA, Historic Scotland and others where relevant.

6.2.2 Overall approach

1 As there are no published criteria, guidance or methodologies in relation to the assessment of effects on forests and woodlands, the assessment is necessarily based on professional judgement informed by available forestry plans (and supporting information), field work, local management experience and consultation. The assessment has however taken account of national policy, guidance and advice including Forestry Commission Guidance where applicable.

6.2.3 Assessment Structure

1 The assessment is structured around the consideration of the following possible effects:

- effects of loss of areas of forest cover;
- effects of loss of trees from windthrow;
- effects of loss of native and ancient semi-natural woodland
- effects on forest management; and
- cumulative effects on the regional forest resource.

6.2.4 Consultation

1 As FCS owns large areas of commercial forests within the Study Area, and as a key consultee serving as the forestry directorate of the Scottish Government advising on and implementing forest policy, consultation was undertaken with FCS during the routeing and EIA stages. In relation specifically to the EIA stage, meetings were held with FCS and site visits undertaken between August 2008 and November 2009.

2 In addition to seeking a formal Scoping Opinion, account has also been taken of information provided and requests arising from further consultation with Forestry Commission Scotland (FCS) and relevant forest landowners/managers (where possible). Table 6.02 below highlights the key issues raised and Table 2.01 within Chapter 2 provides a list of those formally consulted during the Scoping process.

Table 6.02 - Source of Impact and Possible Effect on Forestry

Consultee	Key Issues Raised
FCS	Routeing in areas of Forest, Forest Design plans and how planned felling fits in with these; the Blackcraig & Margree OHL in combination with other developments i.e. opencast coal and windfarms; Windthrow.
UPM Tilhill	Forest Design Plans and routeing within areas under control of this management body.
Scottish Woodlands	Forest Design Plans associated with the windfarms at Blackcraig & Margree

6.2.5 Data Collection and Field Survey

1 A number of data sources were used to inform the assessment including Forest Enterprise and private estate stock maps and records, ordnance survey maps and available aerial photography. A full list of data sources is provided in the detailed assessment Appendix B Forestry.

2 Field surveys were undertaken between July 2007 and July 2009 to supplement and verify the desk based work and consultations and further inform the assessment. The surveys comprised walking (where forest density allowed) each of the OHLs and associated substation locations which collectively comprise the Blackcraig & Margree OHL. Forest characteristics including forest type and detailed descriptions of the area, age, species mix, stocking density, together with length of proposed connection passing through the forest were recorded. A general assessment of site conditions including altitude, exposure and soil type was undertaken to inform the prediction of the likely risk of windthrow to the trees outwith the wayleave corridor.

6.2.6 Assessing Significance

1 The approach to the assessment has been to:

- establish the baseline conditions;
- assess, for every potential effect, whether it is adverse or beneficial in nature;
- identify mitigation for those effects which have potential either by themselves or in combination with other effects to have an adverse environmental effect; and
- assess the residual effect taking agreed mitigation measures into account.

2 The effect on woodland of introducing a new transmission line is normally considered to be of an adverse nature (tree felling). Beneficial effects in some areas may arise where the introduction of the proposed transmission line allows the dismantling of an existing line, or in the removal of ecologically habitat-poor conifer plantation. This may be followed by natural regeneration or planting of native woodland species, and the development of more open ground than that which existed originally.

3 The effect of the proposed project on the woodland derives from the combination of the extent of the physical change and the degree of that change to the character of the site and its surroundings, and the sensitivity of the site and its surroundings.

4 The first stage of the woodland assessment therefore consists of establishing the existing (baseline) environmental conditions. This involves supplementing the information collected at the route selection stage with more detailed information relating to the character, quality and sensitivity to change of the woodland affected. The assessment of change in the woodland considers a number of criteria as follows:

Table 6.03 - Guideline criteria for assessing woodland effects

Criteria considered	Type of Criterion
The degree of change caused by the physical presence of the new line and associated structures (e.g. substations). Safety clearance zones, etc:	Woodland change
The degree of change resulting from alterations to, or removal of, existing woodland, required to accommodate the new line and associated structures. Felling to windfirm and landscape edges, etc:	Woodland change
The degree of change resulting from changes to patterns in the woodland arising from the above. Changes to the wider, long term forest landscape design felling coupes, etc:	Woodland change
The degree and rate of change in the woodland, both in the recent past and that anticipated in the near future:	Woodland Sensitivity
The quality of the woodland and the extent to which it is rare or distinctive (ecologically, and in landscape and visual terms):	Woodland sensitivity
The value attributed to the woodland through designations:	Woodland sensitivity

5 Judging the extremes of the various woodland change criteria allows their magnitude to be categorised as follows:

- **Major**: a noticeable change to the woodland over a wide area or an intensive change over a limited area.
- **Moderate**: small changes to the woodland over a wide area or noticeable change over a limited area.
- **Minor**: very minor changes to the woodland over a wide area or minor changes over a limited area.
- **None: effectively no change.**

6 In a similar manner, judging the extremes of sensitivity of the woodlands for this assessment, and dividing the range covered, allows the categorisation of sensitivity in broad terms as:

Highly sensitive: areas of woodland that are:

- highly valued, e.g. Ancient Woodland category 1a;
- particularly rare or distinctive, or;
- considered susceptible to small changes.

Moderately sensitive: areas of woodland that are:

- valued more locally; and/or;
- are tolerant of moderate levels of change.

Slightly sensitive: areas of woodland that are:

- generally more commonplace;
- considered potentially tolerant of noticeable change; or
- undergoing substantial development such that their character is one of change

None: areas of woodland that are:

- unaffected by the development, e.g. woodland in deep valleys or low scrub woodland where the overhead line 'overflies' the woodland area;
- tolerant of major changes, e.g. plantation forest where major structural changes are regular or planned; or
- with no designations and considered of no ecological or landscape value

7 Details of woodland designations were studied and incorporated within the assessment of effects.

8 The effect is categorised, as set out in the table below, on the basis of the professional judgment of skilled observers.

9 The table indicates in general terms how thresholds for the effects can be derived by considering together the guideline criteria regarding the degree of change and the sensitivity of the woodland. It must be emphasised, however, that the assessments of magnitude and sensitivity, as well as the assessed effects, are all matters of professional judgment of skilled observers.

6.2.7 Guideline significance categories

Table 6.04 - Guideline effect categories

Effect	Definition	Guideline Threshold
None	No detectable change to the environment	No discernible change to the woodland
Minor	A detectable but non-material change to the environment	Minor changes to a woodland considered tolerant of change
Moderate	A material but non-fundamental change to the environment	Noticeable change to a woodland tolerant of moderate levels of change
Major	A fundamental change to the environment	Noticeable change to a sensitive or nationally valued woodland, or intensive change to less sensitive or regionally valued woodland

1 The 'environment' is taken to include the ecological and landscape & visual environment.

2 Detailed site notes were prepared and, following analysis, management prescriptions and mitigation measures were formulated for each woodland area, and these can be found in Appendix B.

3 Assessments of effects were made, and proposals developed to mitigate their effects, including, amongst other things, windthrow, landscape, visual, ecology, hydrology, shelter and woodland management.

4 The risk of windthrow and the operational effects on forest management are inherently different; therefore distinct sensitivity criteria are required for each effect to inform the overall judgement of significance of effect.

5 The sensitivity of the existing woodland to windthrow effects as a result of the introduction of the connection has been determined taking account of:

- tree species and age;
- site location, altitude, aspect and exposure (to prevailing winds);
- previous silvicultural management regimes, including thinning;
- soil type, ground preparation methods and drainage conditions.

6 The sensitivity of forestry management to the effects of the wayleave felling has been determined taking account:

- forest productivity (in terms of, species and crop mixture);
- accessibility in terms of ground conditions;
- current management regime, including objectives of management, and size of management unit;
- imposition of additional safety constraints in forest areas adjacent to the line[1].

1 - This is as a result of imposed additional work to manage and in particular harvest trees in close proximity to a power line (as detailed in AFAG guideline 804)

7 Sensitivity is categorised as high, moderate, slight or none. It should be noted that not all aspects considered within the example conditions are required concurrently to define the sensitivity level.

8 The magnitude relates to the extent of change to the forest management or the area likely to be subjected to windthrow. Magnitude is categorised as major, moderate, minor or none.

9 The significance of the likely effect was determined through professional judgement informed by available data sources and consultation, considering both the sensitivity of the forestry blocks together with the magnitude of change.

10 Effects are categorised as major, moderate, minor or none/no effect. Effects assessed to be major or moderate are considered to be 'significant' in accordance with the EIA Regulations. Those assessed as minor or none are considered to be not significant in terms of the EIA regulations.

6.2.8 Baseline Summary

1 The Study Area comprises large tracts of commercial forests within which are small pockets of newly planted, and established broadleaves. In addition, whilst routeing has sought to avoid ancient woodland sites, the proposed route unavoidably passes through two small areas of SNH-designated Ancient Semi-Natural Woodland which affects some 4.47ha within the local area of 122ha of such designated sites.

2 The commercial forest areas can be broadly divided into three areas:

- the southern area in the vicinity of the proposed Blackcraig and Margree windfarms. Here, the proposed route passes through 5,348m of forest area;
- the central area in the vicinity of the A713 corridor between Kendoon to south of Dalmellington, within which are found the affected ASNW sites. Here the proposed route passes through 8,588m of forest and woodland, and;
- the northern area between Dalmellington and the proposed Meikle Hill substation. Here, the proposed route passes through 6,951m of forest.

3 The majority of the forest area within the Study Area comprises commercial forest, with an ownership split of 47%:53% between Forestry Commission Scotland and private landowners. This is roughly split 45% mature or mid-rotation conifer, 18% young or new planting, 33% felled or open ground, and <4% broadleaves, measured in length of passage through forest or woodland.

Table 6.05 - Baseline Summary

Location	Forest or woodland area	Length of Affected Woodland	Percentage of route	Length of AW designated woodland
South	Blackcraig (FCS-Corriedoo)	215	1%	0
South	Margree	3815	18%	0
South	Glenshimmeroch	1318	6%	0
Central	Glenhoul	499	2%	0
Central	Dundeuch (FCS)	1674	8%	614 (3%)
Central	Polquhanity/Dalshangan	221	1%	
Central	Barlae Hill/Laird's Hill (FCS)	1326	6%	0
Central	Misc. small woods	237	1%	
Central	Brochloch	1700	8%	0
Central	Knockunnock Knowe	52	<1%	0
Central	Brownhill	3489	16%	0
North	Mossdale south (FCS)	850	4%	0
North	Mossdale to Meikle Hill (FCS)	6350	29%	0
Total		**21746**	**100%**	**614**

6.2.9 The Do Nothing Scenario

1 In the absence of the Blackcraig & Margree OHL the forest areas would continue to be managed by the forest owners/managers through a programme of tree felling and replanting to achieve the objectives within their long-term forest plans. Under the current forest plans for forests within the Study Area, programmes for tree felling on a large commercial scale have been carried out, and are being planned to commence over the next 10-20 years continuing the creation of a series of felling and restocking coups in the process of restructuring to develop a more diverse age and species structure for the next forest crop rotation. The existing 132kV N-Route wayleave would remain.

2 It should also be recognised that there are other developments proposed within the forestry Study Area both windfarms and others, which will influence the future forestry situation in the absence of the Blackcraig & Margree OHL.

6.2.10 The Strategic Routeing process

1 Prior to commencement of the EIA, the strategic routeing studies outlined in Chapter 3 sought to prevent or reduce effects where possible. The rules applied to the routeing studies sought to avoid areas of forestry where possible, as outlined within the Holford Rules and The Forestry Commission guidance on routeing transmission lines. However, due to the large scale and locations of the areas of commercial forests in relation to the 'fixed' connection points (i.e. the windfarm substations), it was deemed that no reasonable alternative to routeing through commercial forestry areas was available in some locations.

6.2.11 Further modifications to scheme design

1 During the EIA process, possible effects on forests and woodlands can be avoided or reduced through micro-siting of towers and poles and related infrastructure locations, and through proposing specific construction practices. These measures have been used to reduce effects on forestry.

6.2.12 Good practice measures

1 A series of good forest practice measures have been incorporated into the proposals/ Environmental Management Plan (EMP) produced to reduce the effect of the Blackcraig & Margree OHL on the forest, and include:

- avoidance of areas liable to windthrow;
- management of areas vulnerable to windthrow;
- adherence to Arboriculture and Forestry Advisory Group (AFAG) guidance during felling and extraction of timber;
- adherence to Forestry Commission Guidelines e.g. to ensure protection and enhancement of the water environment; and
- implementation of tree harvesting and extraction methods to ensure minimisation of soil disturbance and compaction.

6.3 Assessment of Effects

1 This section comprises an assessment of the effects arising from the:

- Single circuit overhead (wood pole) line between Blackcraig and Margree;
- Single circuit overhead (wood pole) line between Margree and north of Kendoon;
- Double circuit overhead (tower) between Kendoon and Meikle Hill, replacing the existing N-Route; and
- Removal of existing N-Route

6.3.1 Felling and Construction

6.3.1.1 Likely Effects – Felling within the 80m wayleave

1 Of the maximum potential forest area within the 80 metre wayleave, (174ha), the net stocked area after deduction of open ground, is 111ha. Of this the minimum felling requirement of mature and semi-mature trees within the 80m corridor is estimated at 75ha. (A further 31ha of young and establishing woodland will require to be cleared within the 80m wayleave). See Table 5.11.

2 The physical magnitude of change as a result of felling and construction within the 80m wayleave is deemed to be minor due to the size of the forest units through which the proposed OHL is routed (>7400ha) , but moderate in terms of the brown edge effect, where the wayleave passes through mature and semi-mature conifer, predisposing the adjacent stands to windthrow.

3 The change to the forest as part of the wider landscape is considered in Chapter 7, Landscape & Visual Impact Assessment.

4 The sensitivity of the forests and woodlands, being large scale commercial forest accustomed to the effects of the commercial felling cycle, is considered slight

5 Overall, the effect before mitigation measures, is considered **moderate** and therefore **significant**.

6.3.1.2 Likely Effects – Windthrow outwith the 80m wayleave

1 The creation of the 80m wide corridor through mid rotation and mature conifer trees within the Study Area will result in the creation of a 'brown edge' to the forest. The risk of windthrow in this situation following felling of the minimum operational line corridor was reviewed in consultation with the Forestry Commission Scotland and private landowners. Areas were identified where the forest was deemed to be at high risk of windthrow on the basis of exposure, tree height, soils and drainage systems. The predicted area of forest outwith the 80m wayleave which would be subject to windthrow as a direct result of the minimum felling within the 80m corridor has been estimated at approximately 106ha. See Table 5.12.

2 On the basis that, overall, the forest through which the route passes is considered to be of moderate sensitivity to windthrow and the magnitude of change is minor, the effect is assessed overall as **moderate** and therefore **significant**.

6.3.1.3 Proposed Mitigation Measures

1 In addition to the good routeing and good practice measures outlined previously, a number of mitigation measures will be implemented within the wayleave (i.e. land over which SPT have control) to reduce the effect of windthrow on forests, including:

- restricting the width of felling corridor to the minimum required for statutory safety clearances;
- employing tree-topping, or profiling at routeing pinch-points to avoid the need for extensive additional felling to windfirm edges where landscaping considerations dictate or permit; and
- reviewing opportunities to positively manage any natural regeneration of low-growing shrub species along the edge of the wayleave that may occur.

2 Whilst SPT will seek to employ further measures, such as extending the felling to a 'wind-firm' edge, they do not have statutory powers outwith the wayleave corridor and therefore this aspiration requires the agreement of the landowner. It cannot therefore form 'committed mitigation' and cannot be considered to mitigate the likely effects for this assessment. Notwithstanding this position SPT will seek to agree extensions of the felling areas to incorporate felling to windfirm boundaries.

3 With consent from landowners, felling outwith the wayleave corridor would extend to the nearest practical windfirm edge, applying Forest landscape design principles.

4 These are: shape, scale, diversity, visual force, unity and 'spirit of the place'. In creating a new boundary edge appreciation of these principles and their practical applications would be employed to effect visual improvements to the areas outwith the minimum wayleave corridor where visible by the public.

5 With regard to both the FCS and private landholding, mitigation measures as outlined above, whilst not 'committed' are considered likely.

6.3.1.4 Residual Effects

1 The measures likely to be most successful in mitigating windthrow effects are those relating to the implementation of works outside the wayleave corridor. However, as outlined, at this stage they do not form 'committed mitigation' and cannot be taken account of in assessing residual effect. Therefore the residual effect remains as **moderate** and **significant**.

6.3.2 Likely Effects – Loss of ASNW designated woodland

1 The OHL is routed through 614m of woodland designated as ASNW classes 1a, 2A and 3 comprising broadleaved and conifer trees. Because the woodlands hold SNH' ASNW designations, by definition, the sensitivity of the woodlands to change is considered high or moderate.

2 The clearance associated with the minimum 80m corridor is estimated at 4.77ha. The magnitude of the felling and construction effect on these areas is deemed to be moderate due to the overall size of the designated woodland through which the proposed OHL is routed (122ha)

3 On the basis that, overall, the designated woodlands through which the route passes are considered to be highly sensitive to change and the magnitude of effect is moderate, the effect would be **major**, which is **significant**.

6.3.2.1 Proposed Mitigation Measures

6.3.2.1.1 Carse of Dundeugh

1 Other constraints on routeing require the OHL to cross this area. Careful micro siting of the wood poles, following detailed individual tree survey and profiled topographical surveying at Glenhoul has resulted in the removal of the requirement to fell a number of mature broadleaved trees that are within the wayleave to one or two trees only. This has been achieved by maintaining the conductors well clear of the estimated maximum tree height likely to be attained by the trees, or crown reducing (topping) where appropriate.

2 This procedure will be repeated at the crossing of the Water of Deugh at Dalshangan, employing crown-topping techniques where necessary in order to avoid felling any broadleaved tree within the wayleave.

3 The remaining areas of ASNW designated trees within Kendoon, that will require to be felled, are non-native conifers (Norway spruce and Douglas fir) the removal of which can be seen as positive change.

4 The balance of the designated areas then remain as largely young and new planting of conifer and broadleaves established by FCSw: of these, most of the broadleaves can be retained as low growing trees within the wayleave corridor.

6.3.2.1.2 Green Well of Scotland

1 At Green Well of Scotland, there is a small area of over mature birch (SNH-ASNW designated 2A) (16 linear metres) within the 80 metre corridor, which will not be affected by the OHL.

2 In addition to the above, there is an opportunity to encourage the natural regeneration of native species appropriate to the site, within or along the edge of the wayleave.

6.3.2.2 Residual Effects

1 Following the above measures, the residual effect will be **minor** and therefore **not significant**.

6.3.3 Operation and Maintenance

6.3.3.1 Likely Effects

1 Current and future forestry management is likely to be affected by the introduction of the OHL and associated felling requirements. This is likely to require forest managers to amend current objectives, plans and techniques for the relevant forest, in particular, the incorporation of felling requirements into their long-term felling, restocking and landscape design plans.

2 The sensitivity of the forest is assessed taking into account the stage of development of the crop, and the topography of the forest site. As some 55% of the proposed route passes through woodland and forest that comprises either open ground, recently felled or young plantation, and the topography of the forest is, with minor exceptions, reasonably flat, this results in a reduced sensitivity to effects on forest management. It is therefore judged that within the area through which the proposed OHL is routed the sensitivity of the forest to change is slight.

3 The scale of local felling is not outwith normal felling proposals for these types of sites, and the effect on forest activities in the water environment is considered slight, or **minor**, and therefore **not significant**

4 The magnitude of the operational effects on forest management are defined as minor having assessed the scale of the whole forest area, relative to the area of that forest where operations are likely to be affected. This assessment is based on a review of the size of forest unit affected by the route (approx 7,400ha), and the relatively small area where there is likely to be a direct operational effect on forest management from the presence of the OHL.

5 On the basis that the effects on the forest are considered to be slight or **minor**. The effect is **not significant**.

6.3.3.2 Proposed Mitigation Measures

1 In addition to the good forestry practice measures identified in para. 6.2.12 (1), a number of further measures are proposed to mitigate the effect on forestry management including:

- encouraging each individual landowner to incorporate the presence of the overhead line into their revised forest plans

- retaining new and upgraded access tracks for landowner use (where requested, and subject to separate planning consent);
- creating new access tracks where the presence of the new OHL would result in difficulties in accessing forest areas isolated by the OHL. Isolation can be as a result topography, the presence of a watercourse, or the lack of brash for timber extraction following the removal of trees within the wayleave;
- provision of forwarder access from new and upgraded roads into adjacent forest blocks;
- erection of 'goal-posts' to show maximum safe working height for forestry traffic;
- creating alternative timber transfer areas, where the route precludes the use of existing facilities;
- management of natural regeneration within the wayleave to assist managers in their objectives to increase woodland diversity; and wildlife corridor management; and
- monitoring and removal of windblown trees.

6.3.3.3 Residual Effects

1 Whilst the mitigation measures will be of benefit to future forest management, they do not alter the predicted significance of effect. The residual operational effect on forest management therefore remains as **minor** and **not significant**.

6.3.4 Removal of N-Route

6.3.4.1 Likely Effects

1 A section of the existing N-Route will be dismantled currently passing through some 5,750m of commercial forest. The current width of the wayleave varies between 25 to 60 metres.

6.3.4.2 Positive Mitigation

1 Removal of the route will release back to the landowner the area of wayleave currently occupied by the OHL, and lift the current restrictions on the management of the ground.

6.3.4.3 Residual Effects

1 Whilst the effect may not immediately be apparent, the incorporation of these areas into the forest design plans covering adjacent woodland will result in increased forest cover and, in time, remove the existing 'corridor effect', which is often the result of earlier less sympathetic landscape design regimes.

2 The release of between 14 and 35 ha back into unrestricted forest design and timber production allows the forest manager the full range of management options at the appropriate time, which is most usually at the time of clearfell of adjacent crops. The land may be retained as open ground or incorporated in to the design of the next rotation.

3 Whilst either option is considered positive change, SPT have no influence on the ultimate land use for these vacated wayleaves

6.3.5 Assessment of Cumulative Effects

1 The overall approach adopted for the cumulative assessments, including the list of developments considered, is outlined in Chapter 2: The Environmental Impact Assessment. Given the nature of likely cumulative effects, the following developments were included in the cumulative assessment:

- South West Scotland Grid Connection Project (SWS Project);
- Blackcraig Windfarm;
- Brockloch Rig Windfarm;
- Margree Windfarm; and
- Chalmerston Opencast Coal Extension.

2 All these developments involve felling and fall within the regional forest area of the Blackcraig & Margree OHL i.e. they are within a region which share common forest management regimes for this geographic area of south-west Scotland.

3 Whilst each of the environmental statements discuss loss of forestry, the nature of the loss and methodologies for assessing significance are not comparative. The felling requirements for each development, as presented within the respective ES' are as below:

- Blackcraig Windfarm: 31ha of tree felling;
- Margree windfarm: 490ha of tree felling;
- Chalmerston Opencast Coal Extension: 113ha of tree felling;
- Brockloch Rig Windfarm: 86.4ha of tree felling.
- SWS Project 894ha

4 On this basis, a total of 1,615 ha of forest will be felled by these developments considered within the cumulative assessment.

5 The effects from the SWS Project listed above are similar to that of the Blackcraig & Margree OHL in that they both require the clearance of commercial conifer forest. In terms of a construction effect, this clearance of commercial forest, dependant on the age of that forest, can produce a risk of windthrow to the retained trees where the required felling does not coincide with an existing forest edge.

6 With regard to windfarm and opencast developments, due to the scale of tree clearance required, there has been a general commitment by these developers to fell to windfirm boundaries thereby removing, or at least minimising, the risk of further windthrow.

7 This is in contrast to the narrower and more linear nature of the wayleave felling required for the Blackcraig & Margree, and the SWS Project OHLs. Therefore effects of windthrow are often not directly referred to within the environmental statements for the developments considered within the cumulative assessment. On this basis an assessment of total cumulative windthrow effects has not been possible.

8 Also, as effects of these developments on forest management are not directly assessed within each of the environmental statements, a comparative cumulative assessment of effects of operation and maintenance on forest management has not been possible.

9 Notwithstanding the above, an assessment has been made on the cumulative effect of the loss of forest due to the Blackcraig & Margree OHL in relation to the regional forest resource.

10 The sensitivity of the regional forest resource to the loss of 217 stocked hectares (111ha of felling and 106ha of windthrow) of forest and woodland due to the Blackcraig & Margree OHL in the context of the extent of the regional forest (27,400ha) is judged as being slight. The magnitude of effect, judged qualitatively on the basis of the predicted loss (in ha) of the regional forest resource, is considered **minor**, and therefore **not significant**.

6.3.6 Felling and Construction Total Cumulative Effects

6.3.6.1 Likely Effects

1 An assessment of the total cumulative loss to the regional forest resource has been undertaken quantitively, based on the information available in the relevant ES'. The total potential cumulative loss of the forest resource is 1,832ha (i.e. 1,615ha cumulative developments + 217ha Blackcraig & Margree OHL). It is estimated that 27,400ha of land within the regional forest resource is commercial conifer. As the total cumulative loss of the regional forest resource would represent an increase of less than 0.8%, from 5.9% to 6.7%: the increase of this total cumulative effect on the forest resource at the regional level is assessed as **minor** and **not significant**

6.3.6.2 Proposed Mitigation Measures

1 No additional mitigation measures are proposed to those previously mentioned for the Blackcraig & Margree OHL.

6.3.6.3 Residual Effects

1 The residual total cumulative effect on the regional forest resource will remain as **minor** and **not significant**.

6.3.7 Loss of ASNW Total Cumulative Effects

6.3.7.1 Likely Effects

1 After mitigation, there is no net loss of ASNW broadleaved woodland, and there is therefore no additional cumulative loss

6.3.7.2 Proposed Mitigation Measures

1 No additional mitigation measures are proposed to those previously mentioned for the Blackcraig & Margree OHL.

6.3.7.3 Residual Effects

1 The residual total cumulative effect on Ancient Semi-natural woodland remain as before, the effect is **minor** and **not significant**.

6.3.8 Felling and Construction Contribution of the Blackcraig & Margree OHL

6.3.8.1 Likely Effects

1 The predicted total loss of forest associated with the Blackcraig & Margree OHL in combination with the other developments is 1,832ha, which equates to approximately 6.7% loss of the regional forest resource. Of this total the Blackcraig & Margree OHL contributes 217ha (including the predicted windthrow areas outwith the wayleave) (i.e. an increase of <0.8% loss). On this basis the contribution of the Blackcraig & Margree OHL to the total cumulative loss of the regional forest resource is assessed as being **minor** and **not significant**.

6.3.8.2 Proposed Mitigation Measures

1 No further mitigation is proposed.

6.3.8.3 Residual Effects

1 The residual effect of the contribution of the Blackcraig & Margree OHL to the total cumulative loss of the regional forest resource remains as **minor** and **not significant**.

6.3.9 Potential Forest & Woodland Areas

1 Within the Study Area, the proposed OHL passes through some 16.6km of land outwith forests and woodland. The removal of the existing 132kV OHL, thereby vacating the existing wayleave corridor, and making the land potentially available for new planting effectively offsets the restrictions to afforestation, and accordingly, there is considered no potential net loss of land to new woodland planting as a result of the construction of the OHL.

6.3.10 Further Survey or monitoring Requirements

1 No additional survey or monitoring is proposed.

6.3.11 Summary of likely significant Effects

1 Table 6.06 - below summarises the likely residual significant effects associated with the Blackcraig & Margree OHL. These effects are all of long term duration.

Table 6.06 - Likely Residual Effects

Forest Receptor	Residual Effects
Felling and Construction	
Predicted Loss of Forest due to Windthrow (106ha)	Moderate (Significant)
Blackcraig & Margree OHL as a Whole	
Net Loss of Forest within wayleave (111ha)	Moderate (Significant)
Net Loss of ASNW woodland (0 ha)	Minor (Not Significant)
Cumulative effects: Net loss of forest resource	Minor (Not Significant)

6.4 Summary

1 The main potential effects of an OHL within forest plantations and woodlands are:

- those which relate to the creation of a clearance corridor (windthrow, shelter ecological and visual effects); and
- effects caused by disruption to woodland management during the operation of the line; and
- future restrictions on the management of the corridor.

2 Mitigation primarily takes the form of careful routeing to avoid forestry plantations or woodlands, where significant effects could occur, followed by various measures to reduce the effect such as felling to a windfirm edge, retaining low growing trees and shrubs within the OHL corridor or restructuring for visual and nature conservation reasons.

3 Where mitigation measures are identified on land outwith the wayleave corridor, for example additional felling to deliver a more natural landscape and windfirm edge, then these measures can only be undertaken with the agreement of the affected landowner.

4 Where routeing cannot avoid passing through woodland, the proposed route would pass through 21.75km of woodland, and affect 217ha of woodland.

5 The loss of 212ha of coniferous and 5ha of broadleaved woodland equates to <0.1 of 1% of the woodland cover in Scotland, the effect of which is negligible, and therefore, **not significant**.

6 The proposed project would result in the loss of <5ha of woodland designated Ancient Semi-natural- woodland, categories 1a/3, much of which is now non-native conifer plantation.

7 As a result of careful routeing and surveying there is no net loss through clear felling, of ASNW-designated mature broadleaved woodland : alternatively, crown reduction is carried out.

8 Following detailed and careful routeing and given the opportunity to implement mitigation measures detailed in this document, it is considered that, of the identified woodland sites affected or potentially affected by the construction and operation of the OHL, the residual effect after mitigation would be minor and therefore, **not significant**.

9 The loss of land to potential new woodland is considered **not significant**.

10 The cumulative effect on woodlands of the imposition of the project is considered minor and therefore **not significant**.

6.5 Glossary of Terms

1 A Glossary of Terms used in this Chapter is provided below.

Table 6.07 - Glossary of Forestry Terms

Term	Meaning
Ancient Woodland AWI	Sites shown as woodland on readily available map sources from 1750 onwards, and as semi-natural woodland on the 1750 map. These are sites with a proven continuity of woodland cover for at least 230 years, and which are likely to be the modified remnants of Scotland's original forest cover. The total area of each site is divided into the present day extent of semi-natural and plantation woodland.
Long-established Woodland of Semi-Natural Origin Long-Established Woodland of Plantation Origin	Sites which appear to be semi-natural woodland in c 1860 (i.e. those on the OS 6 First Edition maps) but not shown as woodland on the 1750 maps. These are woods that have apparently arisen between 1750 and 1860 and have a proven continuity of woodland cover for at least 120 years. However, omissions from the 1750 maps were such that many of these sites will be ancient, but cannot be proved to be so. The total area of each site is divided into the present day extent of semi-natural and a plantation woodland. Sites which appear to be plantation woodland in c 1860 but not shown as woodland at all in 1750 (or shown as plantation on these maps). These are woods that were apparently planted between 1750 and 1860 (or even before 1750) and thus have a proven continuity as woodland for at least 120 years. Omissions from the 1750 maps will mean that some of these sites may be ancient in origin. Many of the older plantations have considered conservation value in their own right. The total area of each site is divided into the present day extent of semi-natural and plantation woodland.
Other Woods on 'Roy' Woodland Sites	Sites which were shown as unwooded in 1860 but which were present as woodland in 1750 and are wooded on the current maps. Such sites have had only a short break in continuity of woodland cover, and though some groups may have been lost (e.g. lichens) much of the value of the site may have remained. Because the maps of 1860 omitted some remote woods, some of these sites may in fact be ancient. The total area of each site is divided into the present day extend of semi-natural and plantation woodland.
Other Woodland	Any other woodland known from recent ground survey to be important for nature conservation. These are frequently small woods in narrow valleys which have often been omitted from the maps. Many are believed to be fragments of ancient woodland. The total area of each site is divided into the present day extend of semi-natural and plantation woodland.
Recent plantations	Plantations established on sites which have had a non-wooded phase (arable, pasture, moorland etc) in the last 300 - 400 years. Most of these plantations are in the uplands and are of conifers.
Brashing	Cutting away the dead side branches from young conifers, to a height of about 6ft, to aid fire protection or provide easier access.
Broad-leaved tree	A tree of the natural order Dicotyledones, having a typically broad leaf which, in Britain, is usually deciduous; a hardwood; examples are oak, ash, beech.
Canopy	Collectively, the mass of branches and foliage formed by the crowns of trees.
Clear Felling	Complete removal of the whole tree crop at one time.
Compartment	A distinct sub-division of the woodland suitable as a basis for long term management and record keeping.
Conifer	Tree of the natural order Coniferae, which have, as a general rule, long and narrow evergreen leaves or needles, and bear their seeds in woody cones; a softwood; examples are pine, larch, spruce.
Coppice	Broad-leaved woodland which is cut over at comparatively short periods of years (1 to 25), causing the growth of many small shoots from each stump.
Critical height	The tree height at which windthrow is likely to start.
Crown	The canopy of the branches of the tree.
EIA	Environmental Impact Assessment.
Forest	Predominantly tree covered land (woodland) whether in large tracts (generally called forests) or smaller units (known by a variety of terms such as woodlands, woods, copses and shelterbelts).
Forest Gales	Forestry Commission's method of assessing the probability of average trees within a forest stand being damaged by wind.
Forestry Commission (Scotland)	Forestry Commission Scotland is the devolved department of the Forestry Commission with responsibility for forest policy. It has an agency (known as Forest Enterprise) which is charged with the management of the Forestry Commission's own forests. For all woodland not owned by the Forestry Commission, the Forestry Commission Scotland is charged with the promotion of high standards of sustainable forest management and administration of grant aid. This work is undertaken by that part of the FCS historically known as the Forest Authority.
Holford Rules	A series of planning guidelines first developed in 1959 and reviewed in 1990. These relate to principles to be followed in the design of new powerlines with regard to landscape consideration.
Natural regeneration	The re-growth of a forest crop from self-sown seed, without artificial planting or sowing.
Pollard	Tree cut off about 6ft above ground level, resulting in a tuft of branches which is harvested, and grows again, at intervals of a few years.
Premature felling	The felling of trees prior to them attaining full mature status.
Rack	A narrow unpaved pathway left or cut through a tree crop to give access and to facilitate the extraction of timber to a wide ride or road.
Ride	Broad track running through a wood; a ride has a natural surface, whereas a road is metalled and made up.
Rotation	Interval of years between the repetition of an operation; a felling rotation naturally equals the maximum age to which trees are grown in a given forest or compartment.
Semi-natural Ancient Woodland SNAWI	Ancient and Semi-natural Woodlands are defined as those known to be continuously present since 1600 AD (1750 AD in Scotland)
Severance felling	A felling design or practice not following normal forestry practice.
Shelterbelt	Woodland, normally a long narrow strip, designed primarily for agricultural shelter. May also perform a visual screening or sporting function
Silviculture	The growing and tending of trees in woodlands, plantations or natural forests.
Stand	A defined area of woodland, usually of similar size, species and age.
Sterilisation	The imposition of a non forestry management regime on an area. No woodland can be established in this area.
Thicket stage	A stage in the growth of a plantation or natural regeneration during which the lower branches of the growing trees meet and interlace.
Thinning	Removing selected stems from a crop of trees, so as it give the remaining stems more growing space; a tree so removed.
Topping	The removal of up to 50% of the live crown of a tree as a means to reducing the tree height in proximity to the OHL conductors.
Windblow	Uprooting of trees by the wind, or a tree so uprooted.
Wind-break	Breakage of tree stems by the wind, or a tree so broken.
Windfirm	Considered unlikely to suffer the effects of windthrow
Windthrow	Uprooting of trees by the wind, or a tree so uprooted.
Windthrow risk	A technical assessment of risk based on local climate, topography, site conditions and tree height

07

Landscape & Visual Impact Assessment

Blackcraig and Margree Windfarms
Grid Connection
Environmental Statement

CAPITA LOVEJOY

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7.0 Landscape and Visual Impact Assessment

7.1 Introduction

1 This assessment is undertaken to determine the likely significant effects of the proposed overhead line (OHL) Grid Connections for Blackcraig and Margree Windfarms on the landscape and visual resource of the Study Area. The S37 Applications for these OHLs includes the substations at Blackcraig and Margree (as ancillary development) and therefore these have been considered and are reported within the ES. The assessment considers the effects on the landscape resource (both direct effects and effects on how the landscape is perceived) and the effects on visual amenity (views). Figure 7.01 shows the proposed OHL routes in the context of the surrounding landscape.

2 This assessment of the likely significant effects of the proposed development on the landscape and visual resource has taken account of all of the attributes of the landscape. In order to do this it has been necessary to identify a Study Area within which all of these effects will be contained.

3 Overhead transmission lines tend to give rise to effects within the landscape by virtue of a number of attributes specific to both the form of the support structures and to their extended linear nature. These attributes include:

- vertical form of the steel lattice towers (L7) and wood pole structures, especially termination and angle towers and poles;
- the linear routeing of the lines through the landscape (especially through forested areas);
- location (partly within elevated landscapes); and
- relationship to the scale and nature of the existing landscape.

4 These attributes may affect different components of the landscape in different ways, and combine to result in an effect.

5 This assessment of the effects of the proposed OHL on the landscape does not consider public attitudes towards overhead electrical transmission lines. The assessment concentrates instead on the change that the proposal will bring to the different attributes of the landscape on the basis of the magnitude of any change and the sensitivity of the receptor.

7.2 Methodology

7.2.1 General

1 Capita Lovejoy employs a specific methodology for the assessment of the effects of OHL development on the landscape and visual resource. This methodology respects the advice contained within:

- National planning policy, guidance and best practice;
- Guidelines for Landscape and Visual Impact Assessment Second Edition The Landscape Institute and Institute of Environmental Management and Assessment (2002);
- 'Landscape Character Assessment Guidance for England and Scotland'. Scottish Natural Heritage and The Countryside Agency (2002);
- 'Visual Assessment of Windfarms Best Practice' University of Newcastle for Scottish Natural Heritage (commissioned report F01AA303A) (2002);
- 'Guidelines on the Environmental Effects of Windfarms and Small Scale Hydroelectric Schemes' Scottish Natural Heritage (2001); and
- Visual Representation of Windfarms Good Practice Guidance – SNH (2006).

2 In addition other documentary sources were consulted including:

- SNH's Landscape Character Assessments; and
- The Environmental Statement documents produced for the Blackcraig, Margree and Kyle Windfarms and the South West Scotland Renewables Connection Project (SWS Project).

7.2.2 Study Area

1 The Study Area for the assessment of landscape and visual effects is defined as the area containing all of the likely significant effects of the proposals on any element of the landscape. The Study Area for this grid connection extends to a maximum of 10km from the proposed route. This 10km limit has been adopted (& illustrated) for effects pertaining to landscape character and other landscape issues. For effects pertaining to visibility, Study Areas relating to the type of structures (L7 Towers or wood poles) have been adopted, these being 10km for L7 Towers and 6km for wood poles, with these distances representing the cut off for the visibility of these different structures. For further detail on this, refer to section 7.2.4.3.

2 The approach to the assessment was however flexible, and if potential significant effects had been identified at or close to the edges of the Study Area during the assessment process the Study Area would have been incrementally extended such that it contained all of the likely significant effects identified.

3 The landscape and visual assessment is carried out in three stages.

7.2.2.1 Baseline

1 The initial stage, which records the existing situation, including:

- Factual description of the landscape conditions throughout the Study Area (typically to include geography, geology, topography, land use patterns, population distribution, patterns of communication, history etc);
- Establishment of baseline conditions for the assessment to incorporate project assumptions for the development of the two application windfarms (Blackcraig and Margree), the SWS Project and the windfarms to be connected by this (Dersalloch, Brockloch Rig, Hare Hill Phase 2, Afton);
- Review of landscape planning policies and designations;
- Review of landscape character documentation (with on-site corroboration); and
- Review of visual amenity of the Study Area and general visibility of the route.

7.2.2.2 Assessment of the effects of the development

1 For the purpose of the assessment, the potential effects on the landscape and visual resource are divided into three categories:

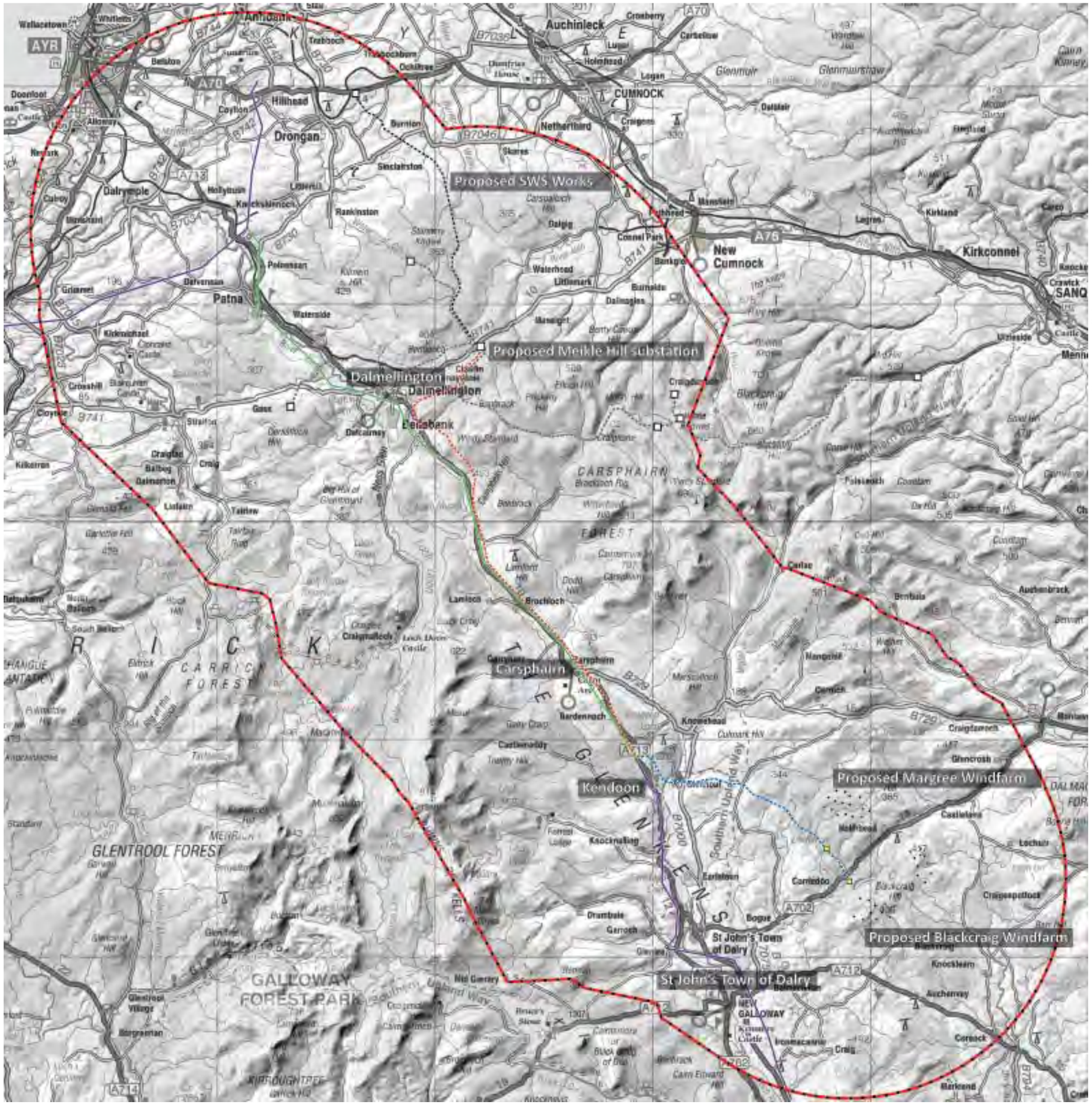
- Effects on landscape resource that will result from the development, and resultant changes to landscape character that may arise from these changes;
- Effects on the perception of the landscape resource throughout the Study Area, whereby the perceived character or experience of the landscape resource (including designated areas) may be altered through the proposed development; and
- Effects on visual amenity as assessed through a series of representative viewpoints and routes within the landscape from which general conclusions are then drawn regarding the overall visual effects of the proposed development.

2 It is likely that each of these categories will include several different key elements and components (each of which is termed a landscape receptor), or in the latter case, viewpoints and routes such as roads, paths, etc (visual receptors), that may be affected by the proposed development. The assessment of the effects of the development proposal on routes within the area is often particularly important with the extended linear form of OHL developments. This is particularly the case with much of the central part of the proposed grid connections following the corridor of the A713 between Dalmellington and Kendoon.

3 Following the identification of each of the various landscape receptors and viewpoints, the effect of the development on each of them is assessed through a combination of the following factors:

- The sensitivity of the landscape receptor or view/route, considering its ability to accommodate the development in terms of existing development, the pattern and scale of the landscape and the potential for mitigation. This includes consideration of both:
  - > The quality of the landscape receptor or view/route available, in terms of its physical state and condition, its integrity, and the extent to which it displays a distinctive character; and
  - > The value of the landscape receptor or view/route, based on any designations that may apply, on its importance to users, and on the presence of intrinsic aesthetic characteristics such as scenic quality or sense of place;

  and
- The magnitude of the change on each landscape receptor and view/route based on the nature, scale and degree of the change that will result from the proposed development.



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km landscape Study Area boundary

Other components of South West Scotland Renewables Connection Project

- 400kV line
- 132kV line
- Substation

2.5km 7.5km
0m 5km 10km

Figure 7.01 - Proposed route and site context

4 The combined consideration of these factors results in the determination of the effect of the proposed development upon each landscape receptor and view/route. In order to provide a consistent approach through the assessment of the different topics, the effects are categorised as follows:

- **None** – no detectable change to the environment;
- **Minor** – a detectable but non-material change to the environment;
- **Moderate** – a material but non-fundamental change to the environment; and
- **Major** – a fundamental change to the environment.

5 Any effect of the proposed OHLs or ancillary development assessed as major or moderate in terms of the criteria is considered to be significant within the terms of the EIA Regulations. Other effects are considered to be not significant.

6 The assessment of landscape effects requires the consideration of a wide range of attributes of the baseline condition and the likely changes to this. The diversity of receptors and issues which potentially affect these indicate that each effect and the considerations relevant to it are likely to be unique. On this basis it is not considered possible or desirable to define categories of sensitivity and magnitude and use a matrix to combine these together to identify and categorise the effects.

7 The assessment is undertaken through reasoned professional judgement of the individual component elements of any effect and how they combine together to result in an effect. It is useful however to identify the broad relationship between sensitivity and magnitude in assessing an effect. In general terms a sensitive receptor might only require a limited magnitude of change to result in an effect which is assessed as Moderate or Major, where a greater magnitude of change is likely to be required to result in a similar effect on a receptor that was considered to be less sensitive.

8 In addition to their significance, effects are described according to their nature, which can be beneficial, neutral or adverse. In general:

- **Beneficial** effects occur where the development (or some aspect of it) will complement or contribute to the landscape receptor or view/route, strengthening it or adding positive qualities and characteristics that were not previously available, or removing existing detractors;
- **Neutral** effects occur where the development (or some aspect of it) will neither contribute to nor detract from the landscape receptor or view/route, and will be comfortably assimilated into the existing landscape or visual context; and
- **Adverse** effects occur where the proposed development (or some aspect of it) will introduce elements that are detrimental to, or discordant with, a landscape receptor or view/route or attribute thereof, or which detract from the existing condition.

9 The timescale of each effect is also assessed as being short-term, medium-term or long-term, and permanent or reversible. In the case of this OHL development the effects will in general be considered permanent but reversible. Each effect will be described in detail with reference to its timescale.

10 Unless otherwise stated, all effects on the landscape resource, the perception of this, and the visual amenity are considered to be adverse, with the introduction of an OHL providing a contrast to the previously existing characteristics (or a reinforcement of these where existing lines are present and retained).

11 Effects other than adverse are likely to occur in a number of specific locations along the proposed route, such as points along the A713 where the presence of the current N-Route is likely to result in neutral effects, and in locations where the removal of infrastructure (the N-Route north of Dalmellington) may result in beneficial effects. These issues are dealt with within the specific assessments that follow.

12 The landscape and visual assessment provides an evaluation of a wide range of considerations relevant to a specific series of landscape receptors and representative viewpoints. This process allows conclusions to be drawn regarding the more general effects of the proposed development on the landscape and visual resource throughout the Study Area, and these conclusions are presented as the final stage of the assessment.

7.2.3 Consultations

1 In undertaking this assessment considerable consultation has been undertaken with statutory consultees and others to ensure that the assessment is as well informed as possible and that the concerns and interests of the parties that were consulted are taken into consideration (see Table 2.01: Table of Scoping Responses and table 7.01 below). A consultation document was produced in January 2009 and distributed to these consultees, whilst an exhibition outlining the details of the proposal was held in Dalmellington and Carsphairn in late April 2009.

Table 7.01 - Key consultation responses

Subject	Summary of Points Raised
Scottish Natural Heritage	SNH were consulted with regards to Representative Viewpoint selection and esign of the OHL route generally
D&G Council	D&G Council were consulted with regards to Representative Viewpoint selection. They also provided comment on RSAs, the A713 scenic route, the scenic parts of the route and the methodologies used within the assessment.
Forestry Commission Scotland	Highlighted the addendum to the Holford Rules relating to Forest and wayleave design. Consultation was ongoing throughout the design phase of the project with reference to 'pinch points' along the route and all forestry areas when required.
Visit Scotland	Identified the importance of landscape and visual character in relation to those visiting Scotland for recreation.
Private landowners	Consultation was ongoing throughout the design phases of the project.

3 A request for an Environmental Impact Assessment Scoping Opinion was forwarded to a wide range of stakeholders in September 2009. (Reference Chapter 2. Section 2.1). This document, which outlined the policy and legislative context of the proposed development, described the location and nature of the development and defined the environmental baseline and potential effects. The proposed assessment methodologies in respect of a range of parameters to be addressed were also described for consideration.

7.2.4 Technical Considerations

7.2.4.1 ZTVs

1 In order to facilitate the process of landscape and visual impact assessment, extensive use is made of computer generated images. Zone of Theoretical Visibility mapping (ZTV) and wireline illustrations have been produced based on the 10m digital terrain model (O.S Landform Profile) to determine the maximum theoretical visibility of the proposed OHL. In the light of information gathered through site visits to a recently constructed length of 132kV single circuit flat formation wood pole line in north Wales and L7 Towers in Cumbria, and knowing in detail the terrain of the Study Area, the limit of theoretical visibility assumed for these productions is 6.0km and 10km respectively. The ZTVs produced have been done so assuming a worst-case scenario which assumes a slack-span arrangement over the A713 at Dalshangan. The design change to undergrounding was adopted too late in the project to account for this in the visibility mapping.

2 In order to aid the understanding of the visibility of different sections of the OHL, the ZTVs are banded to correspond to numbers of towers or wood poles that will theoretically be visible.

3 These ZTVs are included within the assessment to illustrate the (theoretical maximum) visibility of the proposed OHL and has been used throughout the design and assessment process as a working tool to facilitate development of the route and to mitigate its potential effects.

4 For each pole or tower, a single representative point is tested for visibility. On plan, this point corresponds to the pole or tower position in the line schedule. Its height above the setting level is the overall height of the structure. On towers, this will generally correspond with the top of the earth peak. In the case of the wood poles where the central upstand insulator is slightly offset from the centre of the structure, the point tested for visibility will not actually correspond to a physical part of the pole.

5 Rather than being on the ground, the point on the ZTV map is raised by 2 metres. This corresponds more closely with a human eye level and also serves to raise the line of sight above any local anomalies in the DTM.

6 Illustrative ZTVs have also been provided for the substations at the proposed Blackcraig & Margree windfarms. These provide an indication of the potential visibility of these structures, based upon a structure 9m in height covering the extent of the footprint of the substations, up to a distance of 6km. The resulting visibility maps therefore assume a worst-case scenario and do not present accurately the visibility of the specific electrical infrastructural elements to be found within substations such as these, which in reality is expected to be appreciably less widespread.

7.2.4.2 Backclothing/ Skylining

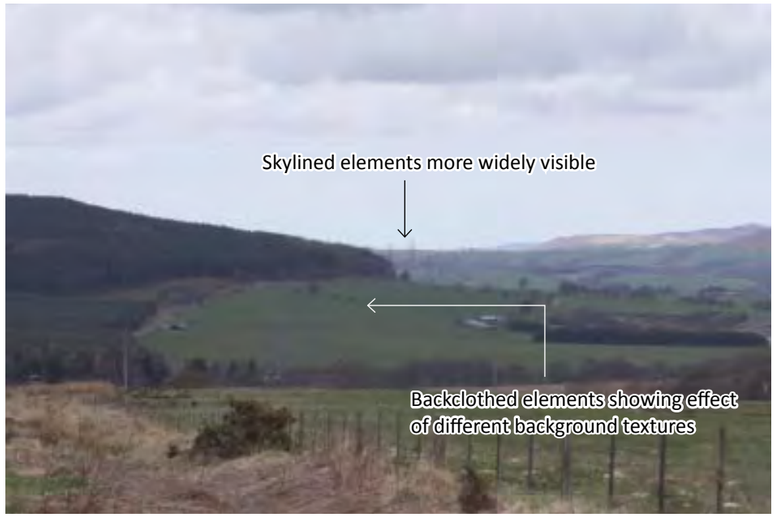
1 Views of the proposed OHL are described employing the following terms:

- Backclothing – occurs where the OHL and substations (or parts of them) are seen from a particular viewpoint against a solid backdrop. The backdrop will generally be provided by rising ground beyond the OHL although the presence of, for example, forest in the view beyond the line could also result in backclothing.

- Skylining - occurs where the OHL and substations (or parts of them) are seen from a particular viewpoint outlined against the sky with no solid backcloth. The visual effect resulting from sections of OHL that are skylined will generally be greater than the effect resulting from sections of the OHL that are backclothed.

7.2.4.3 Perceptibility Analysis

1 In the light of the field observations carried out for both the single circuit flat formation wood pole line studied and the L7 Towers, Perceptibility Mapping has been carried out to identify the likely perceptibility of the route under a range of different scenarios. The following assumptions have been made:



Photograph 1 - Skylined and backclothed elements

Single circuit flat formation wood pole line

- 1.5km is the outer limit of 'normal' perceptibility (the distance beyond which the casual observer is likely to be unaware of the presence of an OHL of this type) when the OHL and support structures are fully backclothed (this is the perceptibility distance represented within the visibility mapping);
- 2.5km is the absolute limit of perceptibility when the OHL and support structures are fully backclothed; and
- 6km is the outer limit of visibility when the OHL and support structures are seen fully skylined.

L7 steel lattice towers

- 2-3km (depending on lighting and nature of backclothing) is typically the limit of perceptibility when the OHL and support structures are fully backclothed; and
- 10km is the outer limit of visibility when the OHL and support structures are seen fully skylined.

2 These distances provide a basis to understand the likely 'perceptibility' of the route. In many cases, although the OHL and support structures are theoretically visible (on the basis of the bareground digital terrain), the perceptibility of these will be appreciably diminished. In all cases the assessment has been undertaken on the basis of the bareground ZTV; however the moderating effects of 'perceptibility' must be considered. These, in addition to the screening provided by the extensive areas of commercial forest and other woodland will often serve to appreciably mitigate the presence of the OHL within the landscape.

3 As with any material subjected to the elements on a consistent basis, wood pole structures suffer weathering and subsequent colour variations over time. The colour of the poles at the point of construction is a dark brown colour, which fades over time to a more silver-grey, and appreciably lighter, colour. The rate of change of colour will depend heavily on the prevailing weather conditions and to some degree on the type of timber and timber treatment that is used. The perceptibility distances outlined above are considered representative at the point of construction when the poles retain the darker brown colouration. Over time, as the poles age and fade in colour, the effectiveness of backclothing (and thus the perceptibility) is likely to reduce (depending upon the colour of the prevailing backclothing landscape or landscape feature). This is to some measure compensated by a reduction in visibility of skylining when the poles have acquired a paler colour. On balance it is considered that the wood pole component of the OHL will gradually become more perceptible over the life of the line, although this change in perceptibility is difficult to predict and is subject to variation depending on lighting, backclothing/skylining and many other factors.

4 Unlike the wooden elements of parts of the OHL, the metallic elements of the OHLs, and particularly the steel lattice towers are likely to become less perceptible with increasing age as the original 'shiny' galvanised finish on the steelwork dulls to a flatter grey colour which is more readily visually assimilated within the landscape.

7.2.4.4 Wirelines

1 In addition to the ZTVs prepared, computer generated line drawings (wirelines) indicating the appearance of the proposed OHL have been prepared for each view that has been assessed. These wirelines are geometrically accurate and represent the form of the proposed OHL superimposed on a bareground digital terrain model (based on the OS 10m grid).

2 As noted above for ZTVs, the wirelines are representations of the maximum theoretical visibility of the proposed OHL. They are based on considerations of topography but take no account of the many other components of visibility in the landscape which will affect the perception of the proposed OHL.

3 In almost all cases atmospheric conditions will reduce the visibility of the proposals, and in many cases this reduction in visibility will be considerable. The actual visibility of any overhead transmission line will depend on both the weather and lighting conditions which, in this location in south-west Scotland, will frequently reduce the visibility to an appreciable degree.

4 Figure 7.02 indicates the viewpoint locations which have been assessed as part of the LVIA.

7.2.4.5 Photographs and Photomontage

1 Photography has been undertaken at all of the identified viewpoints using a fixed focal length camera (Digital SLR, 56mm equivalent) mounted on a tripod with a panoramic head. The individual images have been joined to produce a composite panoramic image in cylindrical projection. The correct viewing distance for these images is 250mm to replicate the view that will be obtained on site. These are presented within this study as a range of fields of view, but the correct viewing distance for the image remains constant.

2 Each view is presented as three components as follows:

- Component A - The panorama of photographs taken during the site visit;
- Component B - The corresponding wireline image of the proposed OHL; and
- Component C - The photomontage image of the viewpoint.

3 For all of the viewpoints a photomontage has been prepared and this is included on the viewpoint sheet alongside the original photograph in order to best represent the change to the view under consideration. These photomontages have been constructed using the photographs taken on site, superimposing the (geometrically accurate) wireline image onto this.

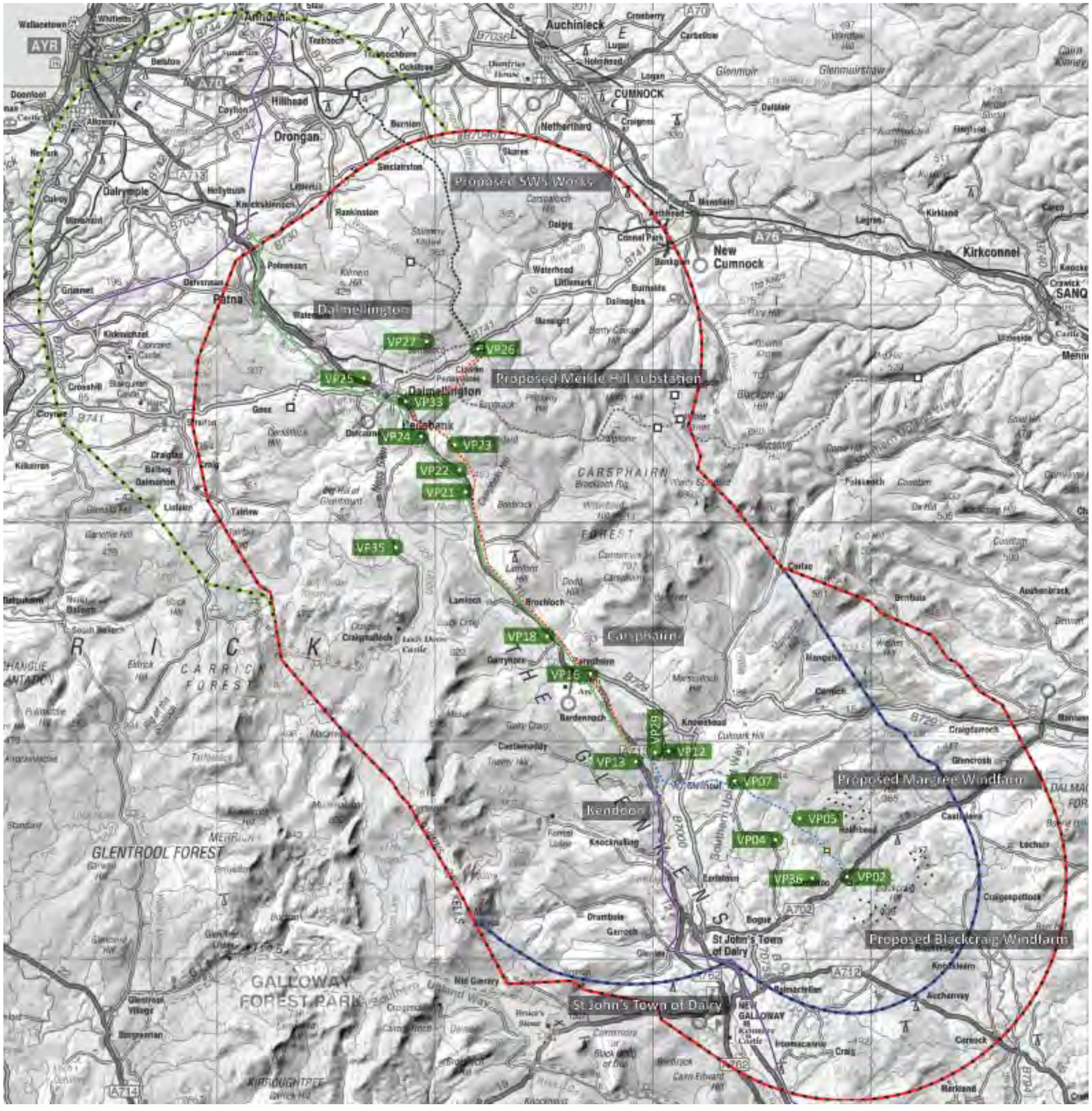
4 Enlargement of the part of the photomontage containing the line (at a maximum of 130 degrees) is also provided and the extent of this enlargement is identified on the wireline image. These enlargements, provided at 200% of originals, are included to allow for the fact that having observed an OHL as a component within the view, the viewer will, in many cases, tend to focus on this feature. The correct viewing distance for these individual images is 500mm.

5 A plan indicating the locations of the viewpoints is included at Figure 7.02, and for each viewpoint, larger scale plans detail the precise viewpoint location, elevation, and the direction of view are provided.

6 The document 'Visual Analysis of Windfarms Good Practice Guidance SNH AB (AA308)030487' (prepared for Scottish Natural Heritage, The Scottish Renewables Forum and the Scottish Society of Directors of Planning) advocates somewhat different parameters for the presentation of images. The parameters adopted above have been retained to facilitate the inclusion of the three part image on the (extended) A3 pages as described and to allow the extended format of the pages for those larger than 90 degree views which are important in the understanding of the effects to remain at manageable proportions. The representations remain faithful to the Good Practice Guidance in other respects. In recognition of the desirability of the inclusion of images with an increased viewing distance, enlargements of parts of the photomontages are included as described above.

7 Although not currently consented at present, both Blackcraig and Margree Windfarms and the SWS Project and associated windfarms are illustrated on the wireline images and photomontages where appropriate, as the provision of the OHL is dependent on the construction of these windfarms. The OHL would not feature within the landscape without the presence of these windfarms. The recently refused windfarm at Kyle is however not included within the images provided.

8 Table 7.02 indicates the viewpoint locations which have been considered in the assessment. The viewpoints considered have been selected, through consultations and



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km visibility Study Area boundary
- 6km visibility Study Area boundary (Wood Poles)
- 10km visibility Study Area boundary (Removed N-Route section)
- VP02 — Assessment Viewpoint Locations

Other components of South West Scotland Renewables Connection Project

- 400kV line
- 132kV line
- Substation

2.5km 7.5km
0m 5km 10km

Figure 7.02 - Viewpoint location plan

on site review, from an initial schedule of viewpoints which numbered all the viewpoints under consideration. It will be apparent therefore that, as viewpoints have been omitted from detailed study, the remaining viewpoints are not numbered consecutively.

Table 7.02 - Schedule of viewpoint locations

Viewpoint no.	Location	Grid reference	
VP 02	A702 near Corriedoo	268845	583775
VP 04	Lochinvar	265684	585513
VP 05	Hog Hill	266758	586430
VP 07	Blackwater Valley SUW link	263792	588141
VP 12	Dundeugh Hill (near summit)	260383	589427
VP 13	Linnfraig Layby	259328	589067
VP 16	North Liggat	257134	593120
VP 18	Holm Hill	255434	594676
VP 21	Loch Muck	251431	601467
VP 22	Glenmuck	250799	602371
VP 23	Court Knowes	250888	603567
VP 24	Mossdale Visitor Point	249363	604044
VP 25	Dalmellington Moss	246692	606511
VP 26	Meikle Hill	251719	608052
VP 27	Benbeoch Hill	249626	608239
VP 29	Dundeugh Hill (west flank)	260048	589297
VP 33	Dalmellington	248575	605522
VP 35	Fishing Lodge Loch Doon	248113	598919
VP 36	Knockman Hill	267325	583714

7.2.4.6 Cumulative Effects

1 The assessment of the landscape and visual effects of the proposed OHL will take account of the windfarms at Blackcraig & Margree which (although not present within the landscape at the time of the assessment) will be considered as part of the baseline environment for the assessment of the landscape and visual effects (as they give rise to the need for the OHL). The assessment will also consider all of the existing and any proposed overhead transmission lines, or any changes to this as a result of the proposals including the SWS Project and its windfarms. Any other plans or projects relevant to this assessment that are identified will be considered within the individual assessment areas. The windfarms within a 20km Study Area are illustrated on Figure 7.07.

7.2.4.7 Serial and Sequential Effects

1 The extended linear nature of the OHL can potentially result in its effects being widely experienced. This is particularly the case with the route following the A713 for much of its length between Kendoon and Dalmellington. The assessment will take account of the potential for serial and sequential appreciation of the OHL as this affects the landscape resource, the perception of this and the visual amenity. This consideration of the effects will also take account of the areas from which the proposals will remove the presence of the existing N-Route.

7.2.4.8 Construction and Other Effects

1 The development of the proposed OHL will potentially have different effects on the above considerations during the different phases of its lifecycle and these will be considered through the assessment. Typically the effects during construction, operation and any changes subsequent to this will be considered within the assessment.

7.3 Baseline Studies

7.3.1 Topography

1 The Study Area contains a landscape of appreciable topographical diversity between the lower slopes of Blackcraig Hill in the foothills of the Southern Uplands to the south, through the broad upland valley of the Water of Deugh and its headwaters to the narrow incised valley of Glenmuck and the elevated landscapes of the Southern Upland to the north-east. The Galloway Uplands found to the south-west are a dominant area of landform in this part of south-west Scotland.

2 The southern end the Study Area is located at the foot of and to the northwest of Blackcraig Hill (406m) within the undulating topography which defines the lower slopes of the Southern Uplands in this area. This area contains a number of small but distinct hills including White Cairn Hill (278m), Shield Willie Hill (285m), Hog Hill (312m) Garlaffin (327m) and Mackilston Hill (294m).

3 From Mackilston Hill the land falls sharply to the upland valley of the Water of Deugh with its much modified course forming the Galloway Hydro Scheme. The valley landscape runs both north–west and south-east and contains a number of water bodies which result from the impoundment of the watercourse as part of the hydro scheme. To the north-west the valley landscape is broad, but clearly defined, separating the Glenkens to south-west and north-east. Beyond this high ground defining the broad valley landscape lie the more elevated landscapes of the Galloway Uplands at The Rhinns of Kells and Corserine to the west and Cairnsmore of Carsphairn to the east.

4 Further north, the broad head of the valley landscape is reached close to Loch Muck, with the elevated landscape of both sides converging. The Muck Water valley is sharply incised through this higher ground, with prominent highpoints at Bryan's Heights (355m), Glenmuck Craig (417), Brown Hill (424m), and Snabb (341m). Further east, the landscape of the Southern Uplands rising to between 500 and 700m forms an elevated backdrop to these more modest hills.

5 The ground rises to the east through a series of rising crests at Camlarg Hill (350m), Cockclay (367m), Clawfin Hill (375m) and Meikle Hill (418m), before decreasing towards New Cumnock and the upper Nith Valley. To the north of Dalmellington, the Study Area broadly follows the line of the River Doon, as this watercourse flows towards and into the Ayrshire Lowlands, and ultimately to Ayr. The topography in this area is much more subtle and low-lying, and beyond Patna, the high points are limited to circa 200m as would be expected in these more coastal zones.

7.3.2 Geology and Soils

1 The solid geology of the Study Area is composed of mainly sedimentary greywackes and shales of the Ordivician and Silurian period with areas of new red sandstone and granite intrusions. The Southern Upland Fault broadly follows the boundary between Dumfries and Galloway and Ayrshire to the south of Dalmellington.

2 These Ordovician rocks are generally of dark grey and brown hues and being resistant to denudation form extensive ranges of rounded hills and plateaux between 300 and 800m. These sedimentary formations are disrupted by igneous intrusions including Porphyritic and Rhyolitic dykes and granite batholiths. These include the Loch Doon Granite intrusion and the domed mass of Cairnsmore of Carsphairn. To the north of the fault line lies the coal measures north of Dalmellington.

3 This underlying geology is much modified through glaciation, with much of the area formerly covered by the southern upland ice sheet and The Merrick and Cairnsmore being the sources of valley glaciers. The signs of glacial activity are most pronounced around the Rhinns of Kells and the glacially-overdeepened trough of Loch Doon.

4 The underlying geology produces stony, loamy drift over the hills with clay tills in the valleys. The high rainfall and humidity of the area are conducive to peat growth and bogs are therefore common on both upland areas and within valley floors.

7.3.3 Settlement

1 The settlement pattern within the Study Area is very limited with only a small number of settlements. Much of the area is elevated landscape and supports a number of individual isolated farms and houses.

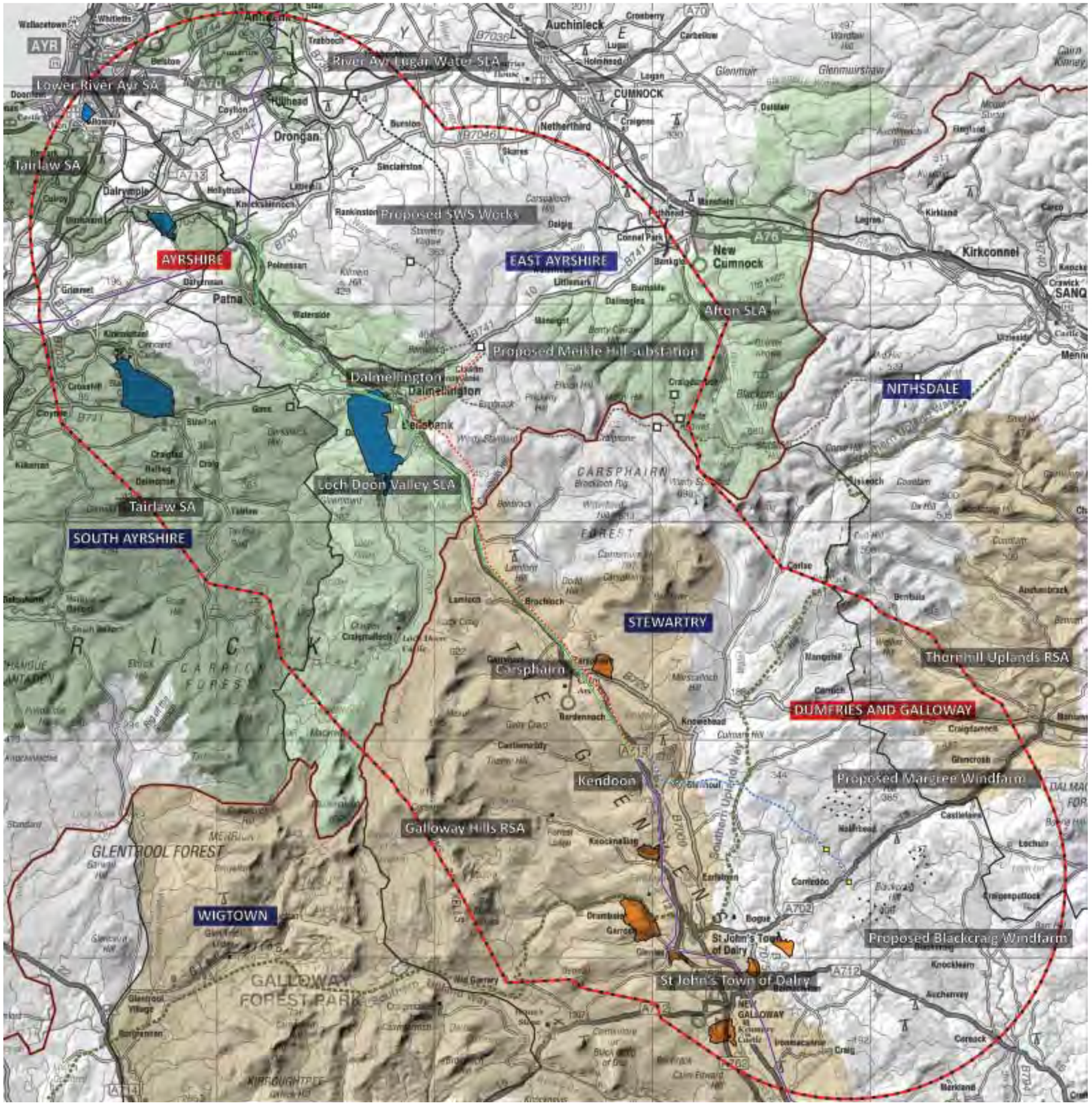
2 In the south the villages of New Galloway and St John's Town of Dalry are both located on the Water of Ken (the lower reaches of The Water of Deugh) and junctions with the principal local roads (A712 and A702 respectively). Further south the A713 provides access to Castle Douglas.

3 Heading north there is a small hamlet at Dundeugh largely associated with the forest operations, and a limited number of houses across the Water of Deugh at Kendoon associated with the Hydro.

4 Carsphairn, a small village which only provides limited local services, is located further north along the A713. Beyond this there is only limited isolated settlement until Dalmellington is reached. This is a small town, the growth of which has largely responded to the former mining industry which was located in the area, and which continues today.

7.3.4 Communications

1 The primary road within the Study Area, as is the A713 between Ayr and Castle Douglas and provides the link with Dalmellington, St John's Town of Dalry and New Galloway. This road is also referred to as the Galloway Tourist Route, and provides appreciable access to the wilder parts of south-west Scotland.



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km landscape Study Area boundary

Administrative boundaries

- Regional administrative boundary
- Local administrative boundary

- Inventory designed landscapes

South Ayrshire

- Scenic Area

East Ayrshire

- Sensitive Landscape Areas

Dumfries & Galloway

- Regional Scenic Areas
- Non-inventory designed landscapes

2.5km 7.5km
0m 5km 10km

Figure 7.03 - Landscape designations

2 The A702 joins the A713 at St John's Town of Dalry and provides a link north-east to Moniaive, Thornhill and more distantly Edinburgh.

3 The A712 crosses the A713 in New Galloway, providing a connection to Crocketford and the A75 to the south-east and Newton Stewart to the south-west.

4 Aside from these principal roads there are very few others within the Study Area, with the exception of the B729/B7000 which connects Carsphairn and St John's Town of Dalry to the east of Earlstoun and Carsphad Lochs and provides a connection to Moniaive. The other minor route is the B741 which links Dalmellington to the north-east to the A76 at New Cumnock.

5 Aside from these routes within the Study Area there are only a very limited number of smaller roads, most of which are not through roads and only provide access into the more remote parts of the elevated landscape.

6 In addition to the public road network, the extensive areas of forest have a network of access tracks which connect to this. The Southern Upland Way, an important coast-to-coast path crosses the Study Area passing through St John's Town of Dalry.

7.3.5 Land use

1 Much of the elevated landscape comprises a mixture of extensive areas of commercial coniferous forest and areas of moorland. This land use continues across much of the more elevated part of the upland valley of the Water of Deugh north of Carsphairn, and to the south-west of this valley as the landform rises towards the Galloway Uplands. The area to the east of St John's Town of Dalry, which is variously covered by the Foothills and Foothills with Forest landscape types, is also covered by large tracts of commercial forest plantation and heather moorland, but the presence of the windfarms at Blackcraig & Margree have contributed to an appreciable change to the landscapes in these areas.

2 Further south within the valley landscape and on the undulating slopes rising from this are areas of enclosed fields of improved gazing divided by drystone dykes. These areas are well spaced and associated with the isolated farms found within the area. The improved gazing gives way to more open unenclosed grazing as the adjacent elevated landscapes are ascended. New pressures on the landscape within these valley and valley side areas are emerging through the Dumfries & Galloway 10 acre Smallholding Scheme, which is seeing a number of areas of semi-improved grazing land being turned over for house and smallholding development. This is particularly prevalent in and around Kendoon.

3 As the valley continues northwards to Dalmellington, the land use is primarily semi-improved grazing with occasional tracts of forest, which give way to moorland as the elevation from the road increases. Areas of commercial planting on the distant south-westerly slopes provide a distinct contrast to this muted landscape.

4 Approaching Glenmuck, the prevalence of forest in and around the road corridor increases as the more forested upland landscapes to the north become more expansive and closer to the road.

5 To the north and east of Dalmellington, large tracts of land are given over to open-cast mining with its characteristic appearance and heavy plant activity, whilst there is a much more settled feel to the landscape around the River Doon, as it flows northwards towards Ayr. This valley is relatively flat bottomed, resulting in a more fertile landscape in and around the river corridor, which contains improved grassland, and large areas of grazing. The steeper sides to this valley contain areas of commercial forest and semi-improved grazing land, which gives way to a more moorland landscape to the west.

7.3.6 Tourism and Recreation

1 The Study Area is essentially elevated upland with scattered farms and only limited settlement. The Galloway Tourist Route (A713) runs through the Study Area, and the villages of St John's Town of Dalry and New Galloway provide some accommodation and other facilities.

2 The principal focal point of walking activity is the Southern Upland Way which crosses the southern part of the Study Area and St John's Town of Dalry.

3 Whilst the immediate Study Area is not particularly important for recreation there are a number of important areas immediately outwith this including Glentrool in the Galloway Forest Park and the Ayrshire coast, which attract appreciable visitor numbers. Effects on Tourism and Recreation are considered further at Chapter 12.

7.3.7 Landscape Designations

7.3.7.1 General

1 The landscape of the Study Area contains extensive areas of landscape related designations that reflect the different levels of importance attached to the various elements of the landscape within this area.

2 Landscapes are designated at national, regional or local level, to reflect their acknowledged value. Statutory designations identify only landscapes of outstanding or highest quality and value, with regional or local designations reflecting a hierarchy of importance below this. All landscapes are different and all are valued to some degree, particularly by those who live, work and relax within them.

3 The landscape designations present within the Study Area are those defined within the relevant Development Plans. These designations are illustrated at Figure 7.03.

7.3.7.2 International/ National Scenic Areas

1 There are no international or national landscape designations affecting the area of the proposed OHL.

7.3.7.3 Regional Scenic Areas

1 Regional Scenic Areas (RSAs) are a non-statutory designation adopted by D&G Council. RSAs define those landscapes which are considered to contain landscapes of particular regional quality and value, and where protection and enhancement of the landscape will be given priority.

2 There are two RSAs within the Study Area:

- the Galloway Hills RSA, the north-eastern limit of which includes the Water of Deugh and Water of Ken and extends northwards including The Glenkens and Cairnsmore of Carsphairn and areas to the north-west up to the boundary with Ayrshire; and
- the Thornhill Uplands RSA, the south-west corner of which extends to the A702 between Moniaive and St John's Town of Dalry.

7.3.7.4 Sensitive Landscape Character Areas/Scenic Areas

1 Sensitive Landscape Character Areas (SLCAs) and Scenic Areas are identified within the Ayrshire Joint Structure plan and these are broadly continuous with the Galloway Uplands RSA northwards into Ayrshire. Within these areas protection and enhancement of the landscape are prime consideration in determining development proposals.

7.3.7.5 Archaeologically Sensitive Areas (ASAs)

1 Within the Study Area in Dumfries and Galloway there are a number of areas designated as ASAs. This designation reflects the local concentrations of archaeologically important locations and seeks to maintain their character and archaeological interest.

7.3.7.6 Inventory & Non-Inventory Landscapes

7.3.7.6.1 Inventory Landscapes

1 Within the 10km Study Area, there are four Inventory Designed Landscapes. These are to be found in the northern part of the Study Area and include those at Craigengillan and Blairquhan Castle near to Dalmellington and Skeldon House and Rozelle near to Ayr.

7.3.7.6.2 Non-Inventory Landscapes

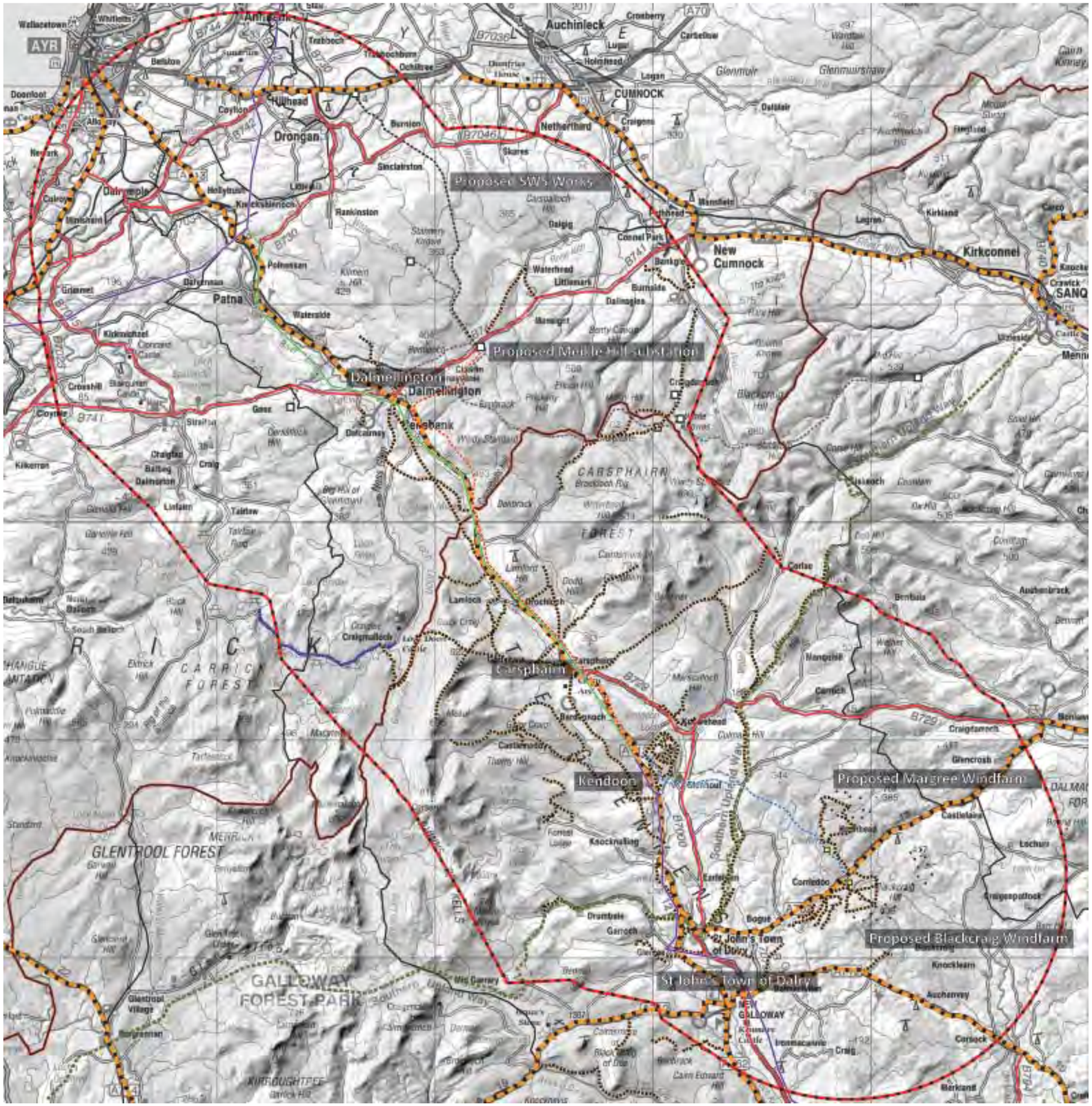
1 There are Non-Inventory Designed Landscapes at nine locations within the Study Area, all of which sit within Dumfries & Galloway (the designation is a D&G policy only), and are located in the southern portion of the Study Area, around Carsphairn and St John's Town of Dalry. These landscapes are at Knockgray Park, Kenmure Castle, Knocknalling, Hannaston, Garroch, Glenlee, The Holme, Barscobe House and Big Drumfork.

7.3.7.7 Listed Buildings

1 Listed buildings within the Study Area are covered within the Archaeology & Cultural Heritage assessment at Chapter 10.

7.3.7.8 Conservation Areas

1 Conservation Areas within the Study Area are covered within the Archaeology & Cultural Heritage assessment at Chapter 10.



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km landscape Study Area boundary

Administrative boundaries

- Regional administrative boundary
- Local administrative boundary

Routes

- A roads
- B roads
- Southern Upland Way
- Forest track
- Scotways routes

0m 2.5km 5km 7.5km 10km

Figure 7.04 - Public access within Study Area

7.3.7.9 Summary

1 In summary, much of the Study Area is covered by landscape designations (RSA and SLCA) which reflect its importance at a regional scale. In addition there are areas of ASA and the Non Inventory landscape which identify the elevated importance of particular areas of the landscape. The widespread presence of these designations suggests that the proposed route is likely to have to cross at least parts of these.

2 Much of the south-eastern part of the Study Area between the windfarms and B7000 is not subject to any particular designation which reflects any particular landscape importance.

7.3.8 Rights of Way and Public Access

1 The various footpaths, cycle-ways and bridle-ways that provide access to the countryside in the Study Area are recorded by a range of different government and non-government organisations and vary both in terms of their national or local importance as well as the protection that they are afforded.

2 Rights of way in Scotland are only 'alleged' unless they have been successfully contested through the courts. A public right of way is defined as a route that links two settlements and which has been actively used for more than 25 years.

3 The Land Reform (Scotland) Act 2003 establishes statutory public rights of access to land for recreational purposes as well as for crossing land. This Act is to be implemented in parallel with existing rights of way legislation, with the Act attempting to clarify any discrepancies that may exist. This process should improve the rights of the public to access countryside areas and potentially make a much wider area accessible.

4 Dumfries and Galloway Council and East Ayrshire Council are the main bodies charged with the definition and protection of countryside access in this area. An Access Strategy is currently in preparation and this strategy will encompass a review of the existing network of rights of way and footpaths as well as seeking ways to increase access opportunities to the countryside. The Countryside Access sections within the respective Councils also deal with access issues for cyclists and horse-riders.

5 ScotWays is a registered charity founded in 1845 which aims to safeguard public access in Scotland by recording access routes and monitoring their up-keep. Forestry Commission Scotland also contributes to the provision of access by protecting existing routes and creating new routes on their land for walkers and cyclists.

6 Public access within the Study Area is limited, and is indicated on Figure 7.04. This access may be categorised as follows:

7.3.8.1 Freedom of Access to Forestry Commission Land

1 Freedom of access to all land managed by Forestry Commission Scotland is available for recreation purposes.

7.3.8.2 Other rights of way

1 There are 92 alleged Rights of Way/Rights of Way within the Study Area, which are covered in more detail within Chapter 12: Tourism & Recreation.

7.3.8.3 Southern Upland Way

1 The Southern Upland Way provides a long distance footpath that connects the west to the east coast of Scotland linking Portpatrick on the west coast of the Rhins peninsula with Cockburnspath, south of Dunbar, on the east coast. This route crosses the southern part of the Study Area, passing through St John's Town of Dalry and heading north to pass between Margree Forest and Mackilston Hill.

7.3.9 Landscape Resource

1 The landscape resource of the Study Area has been the subject of landscape assessments, undertaken by Land Use Consultants on behalf of SNH as part of the assessment of the landscape of Scotland:

- Ayrshire Landscape Assessment
- Dumfries and Galloway Landscape Assessment

2 These documents provide a description of the landscape resource within the Study Area and describe a hierarchical framework. The documents employ the following nomenclature to describe the classification of the landscape components, namely Regional Character Areas (RCAs), Landscape Types and Landscape Units.

3 Regional Character Areas are noted as being 'recognisable as distinct landscape 'regions' at the broad scale, based on general characteristics such as landform, geology, soils, land use, ecological associations, historical associations and urban and industrial activity, which incorporate a range of typical Landscape Types'. Landscape Types are defined as 'tracts of countryside which have a unity of character due to particular combinations of landform and landcover and a consistent and distinct pattern of constituent elements.' Landscape units are defined as 'the discrete geographical areas of relatively uniform character of a Landscape type'.

4 For the purposes of this assessment, the Regional Character Areas and the Landscape Types are particularly relevant, providing both an overview of the broad landscape of the Study Area and more detail of its constituent components.

5 The terms Regional Character Areas, Landscape Types and Landscape Units are adopted in the context of this assessment.

7.3.9.1 Regional Character Areas

7.3.9.1.1 Dumfries and Galloway

1 The Dumfries and Galloway Landscape Assessment identifies two distinct Regional Character Areas as extending into the Study Area. These are The Galloway Uplands and The West Southern Uplands. These two distinct Regional Character Areas are separated by the western side of the valley of the Water of Deugh/Water of Ken. To the west lies The Galloway Uplands and to the east The West Southern Uplands.

The Galloway Uplands

2 This Regional Character Area is centred on the Merrick uplands and is dominated by the granite intrusions and metamorphic aureole containing the dramatic physical features including the Rhinns of Kells. The area is relatively rugged and wild and the core area (away from the Study Area) is one of Scotland's most important wild areas. Forest is a major feature, dominating extensive areas of the upland landscape. Much of this area is within the Galloway Forest Park and much of the forest management is undertaken for recreational benefit.

The West Southern Uplands

3 The West Southern Uplands comprise characteristically smooth conical peaks with extensive foothills and plateaux. Forest and upland sheep grazing are the principal land uses, except in the dales where more cattle are grazed, and arable crops and grass silage are grown within walled and hedged enclosures. It is appreciably different from the Galloway Uplands to the east in its more uniform topography and absence of rugged landforms.

7.3.9.1.2 Ayrshire

1 The Ayrshire Assessment identifies similar Regional Character Areas continuous with those described for Dumfries and Galloway.

2 In addition however, to the north-east of Dalmellington the landscape is identified as being within the Ayrshire Rim Regional Character Area, with that to the west being within the Carrick Hills and Valleys Regional Character Area.

Ayrshire Rim

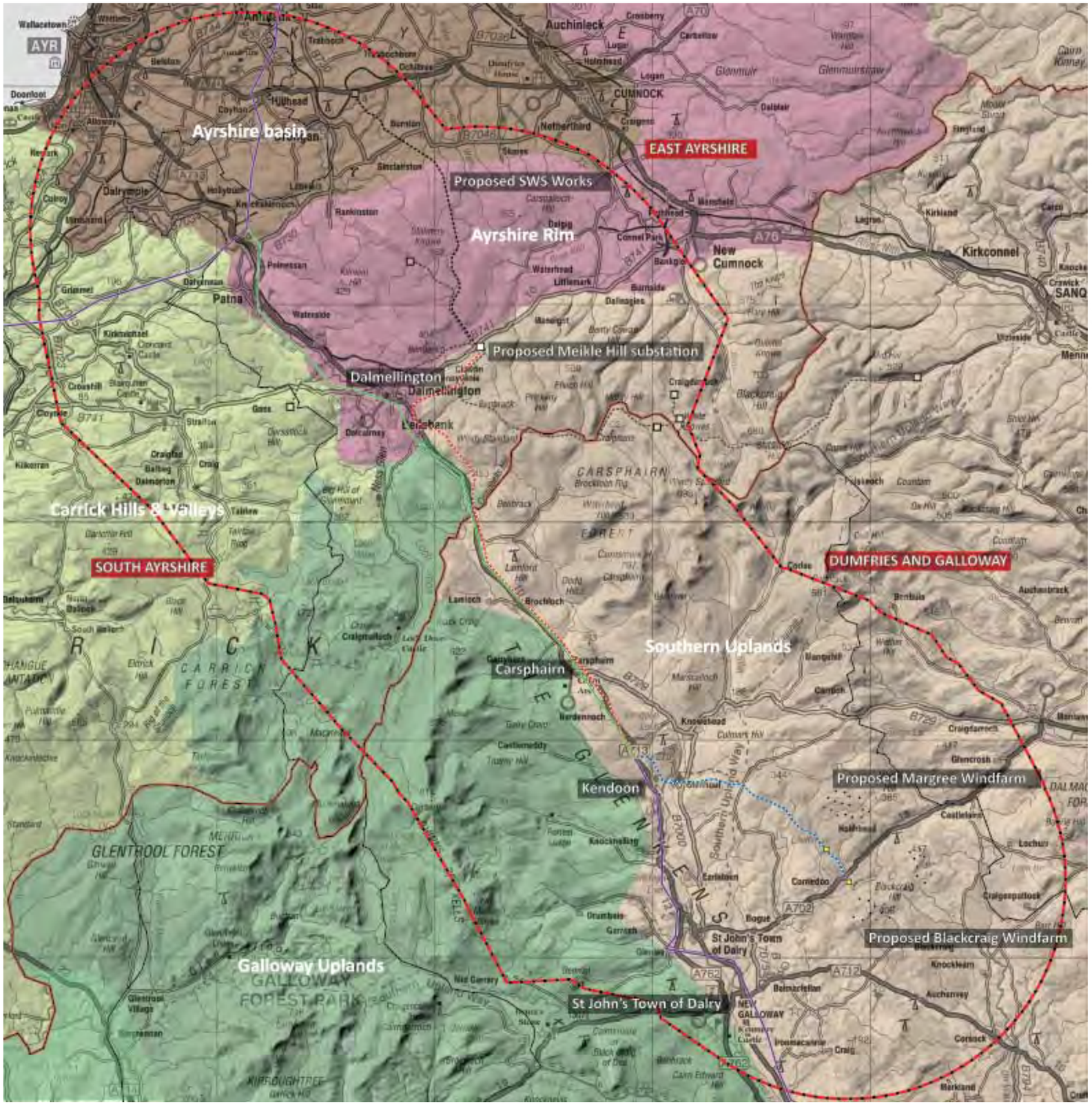
3 This area is described as enclosing the Ayrshire Basin and providing an extensive area of plateau moorland to the north of the Southern Uplands. The hills are broad and shallow sloped comprising areas of moss and blanket bog, appreciable areas of which are forested. The south-eastern part of this area is particularly noted for its coal-bearing rocks which have given rise to the history of industrial development.

Carrick Hills and Valleys

4 This is a complex area of hills and valleys forming a transition between the higher ground to the south (Galloway Uplands) and the Ayrshire Basin. The geology and particularly the Southern Upland Fault and a series of parallel fault lines running from south-west to north-east has given rise to a number of valleys These are small scale and settled pastoral valleys separated by areas of hills with moorland and forest.

7.3.9.1.3 Summary

1 The landscape character of the Study Area strongly reflects the characteristics of the landscape described by the Regional Character Areas and this provides a good overview of the more detailed characterisation provided by the landscape types defined and described below.



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km landscape Study Area boundary

Administrative boundaries

- Regional administrative boundary
- Local administrative boundary

Landscape characterisation

1. Ayrshire Basin
2. Ayrshire Rim
3. Southern Uplands
5. Galloway Uplands
6. Carrick Hills & Valleys

2.5km 7.5km
0m 5km 10km

Figure 7.05 - Regional Landscape Character Areas

7.3.9.2 Landscape Types

1 Table 7.03 sets out the landscape types within the Study Area. The numbers are provided to assist with this assessment and are not reflected in the source documents.

Table 7.03 - Schedule of Landscape Types

Dumfries and Galloway	Number adopted (occurrences within Study Area)	Ayrshire
Narrow Wooded Valley	**2 (a)**	
Drumlin Pastures	**4 (a)**	
Intimate Pastoral Valley	**5 (a)**	
Upland Glens	**6 (a, b)**	Upland Glen
Southern Uplands	**7 (a, b, c)**	Southern Uplands
Southern Uplands with Forest	**8 (a, b)**	Southern Uplands with Forest
Flooded Valley	**9 (a)**	
Upper Dale	**10 (a)**	
Foothills	**11 (a, b, c, d, e)**	Foothills
Foothills with Forest	**12 (a, b, c, d, e)**	Foothills with Forest
Rugged Granite Upland	**13 (a, b)**	Rugged Granitic Upland
Rugged Granite Upland with Forest	**14 (a)**	Rugged Granitic Upland with Forest
	17 (a)	Upland River Valley
Upland Basin	**18 (a, b)**	
	19 (a)	Ayrshire Lowlands
	20 (a, b)	Lowland River Valleys
	21 (a)	Middle Dale

2 The principal defining characteristics of each of the landscape types identified above are set out below. Within the assessments, 'guidelines' are included, and reference is made to this information where it is relevant to consideration of the proposed OHL. Figures 7.05 & 7.06 illustrate the distribution of the landscape types.

3 The fieldwork undertaken in the context of this landscape and visual assessment broadly concurs with the published character assessments. The principal defining characteristics of the landscape types within the Study Area, derived from the two landscape character assessments are set out below, with added detail provided of the specific landscape units within the Study Area. For further description, reference should be made to the original assessments.

7.3.9.2.1 Narrow Wooded Valley

1 These discrete, narrow, incised valleys that cut through more elevated landscapes are the result of fluvio-glacial erosion within areas of more resistant solid geology. The form of the valleys varies along their length from narrow steep-sided V-shapes at the head of the valley to the flat river floors of the lower reaches, although these still display steep valley sides. The lower reaches usually have flat valley floors within which the river meanders.

2 Woodlands are an essential feature of this landscape type; these create intimate enclosure and restrict views. They typically comprise a mixture of semi-natural woodlands, shelterbelts, farm and policy woodlands. Within the wooded structure of the valleys are small-scale pastures divided by hedges and drystone dykes. The valleys typically contain minor roads which follow the valley floor giving access to isolated houses, some with large gardens or designed parkland.

7.3.9.2.2 Drumlin Pastures

1 A landscape type of particularly distinctive topography, located in the area around St John's Town of Dalry, and typified by a range of elongated interlocking mounds that are up to 20m in height and run parallel to each other. This pattern of small mounds provides a strong, smooth relief and medium scale enclosure. Within this pattern there are also rugged knolls and small hill ranges. Minor watercourses wind between the drumlins and small lochs of kettle hole origin are present.

2 The landscape is typically cattle grazed, with a smooth, lush green appearance. The pastures are of medium size, enclosed by stone walls and hedges that accentuate the roller-coaster topography. Deciduous woodland breaks up the scenery, located along the water courses and between the drumlins. The landscape is settled with small settlements and farmsteads served by a network of minor roads.

7.3.9.2.3 Intimate Pastoral Valleys

1 A number of narrow valleys have been cut into the foothills and moorlands of the Ayrshire uplands including the Stinchar Valley, the Duisk Water Valley and the upper reaches of Girvan Valley, the latter of which is found within the Study Area. Generally these are medium to small scale valleys with steep slopes but relatively flat valley bottoms. Broadleaved woodland divides the valley pastures into small fields with drystone dykes and some hedges. Some settlements together with dispersed houses and farms are present, often located at key bridging points.

7.3.9.2.4 Upland Glen

1 This landscape type exists where glacial erosion has enlarged river valleys draining the Southern Uplands. A distinctive 'U'-shape glacial valley profile is created comprising steep, often craggy, valley slopes and a rounded valley floor containing a comparatively small 'misfit' river. Valley floors and some shallower, lower valley slopes comprise improved pastures enclosed within drystone dykes constructed from glacially rounded boulders. The scale of the enclosure reflects the width of the glen floor and changes along their length. Rough grassland and heather moorland occupies the higher slopes, contrasting in colour with the lush greens of the improved pasture on the valley floors. Broadleaf woodland is scarce. Small to medium scale conifer plantations are found on the valley slopes and more extensive plantations in the upper parts of some of these areas. Modern settlement is restricted to isolated stone farmsteads and access within this landscape type is limited to single roads, many of which are no through roads.

7.3.9.2.5 Southern Uplands

1 This landscape type ranges typically between 200m and 500m although reaching just shy of 800m at Cairnsmore of Carsphairn. It is characterised by large, smooth domed or conical shaped hills. Steep sided clefts and glens create a strong relief. The hill slopes are generally smooth but there are some incised gullies, rocky outcrops and screes.

2 The majority of this landscape type is covered by coarse grassland but the highest areas also display distinctive heather moorland. The mosaic of grasses, bracken, rushes and heather contribute to this character. Walled enclosures are generally absent and this landscape type has an exposed, remote quality. There are few trees, mostly confined to the courses of the incised burns. The legacy of generations of mineral extraction is evidenced by tunnels, chimneys, spoil heaps and tracks which are locally important local features.

7.3.9.2.6 Southern Uplands with Forest

1 Topographically the same as The Southern Uplands, the dominant forest landcover confers a distinctly different character. The visual influence of these forests extends over considerably larger areas than the forested footprint. The dark green of Sitka Spruce is contrasted by the light greens/ browns of Larch. The forests extend over the summits or are concentrated on the side slopes, leaving the domed peaks exposed. The rotational nature of commercial forest results in abrupt local changes to the landscape.

7.3.9.2.7 Flooded Valley

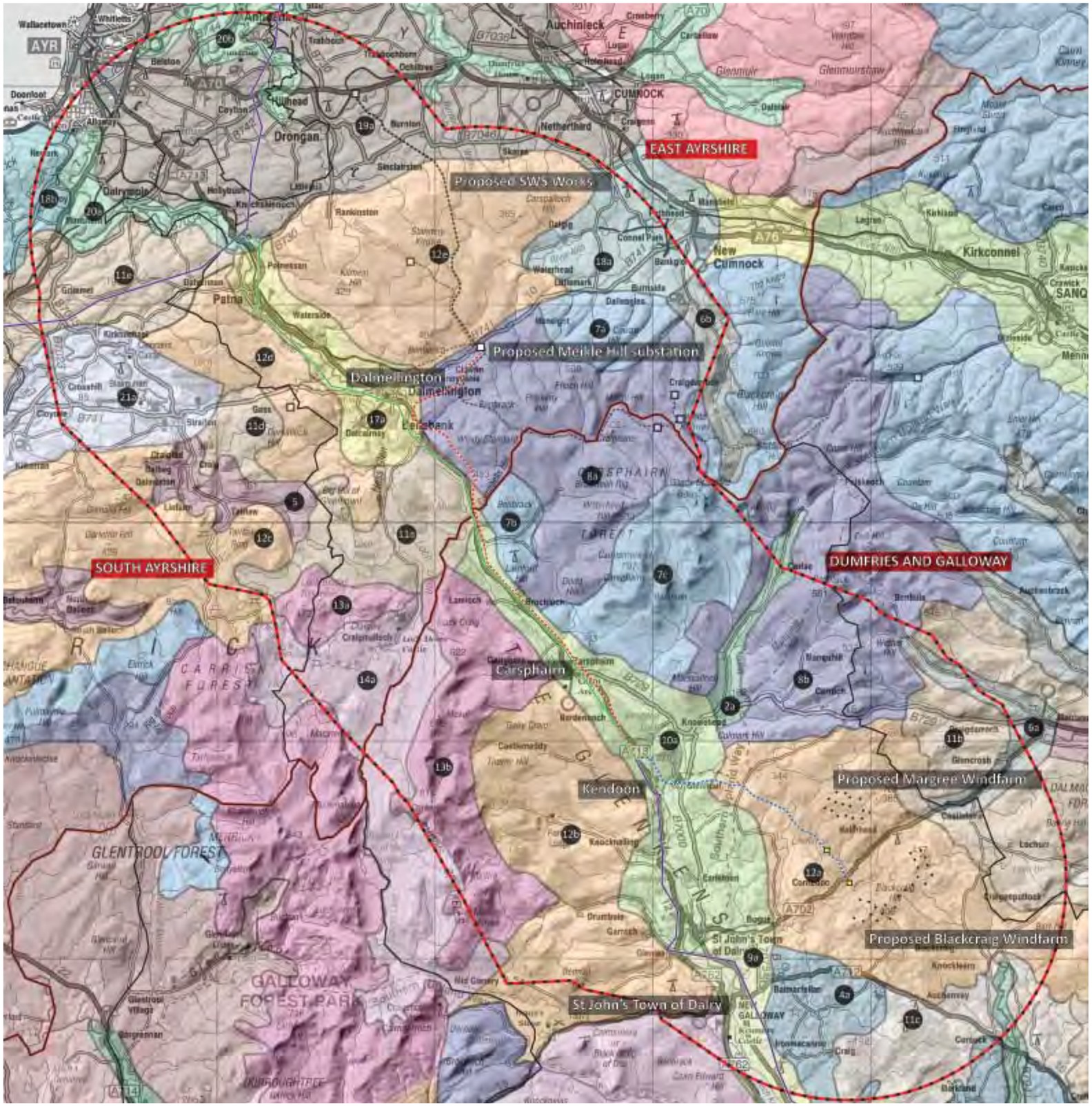
1 This landscape type at the southern edge of the Study Area is unique within Dumfries and Galloway, existing only along this lower section of the River Dee (the lower sections of the Water of Deugh/Ken). The lower sections of this landscape (outwith the Study Area) demonstrate obvious signs of glacial and fluvio-glacial erosion and deposition, containing drumlins, roches moutonnees and rocky ridges all of which indicate the direction of ice movement. The valley floor and flood plain are narrow and the original ribbon loch has been extended by construction of the hydro dams down river providing an extensive body of water with an irregular outline of bays and wetland fringes.

7.3.9.2.8 Upper Dale

1 This landscape type is found along the upper reaches of the water of Deugh/Ken as a broad v shaped valley cut into the more resistant geology, although with some flat areas on the valley floors especially to the north. The effects of glacial erosion are evident and the relationship with the adjacent uplands strong. These uplands provide the enclosure to the broad valley landscapes and form the main horizons to either side, although extensive views are possible along the length of the valleys between them.

2 The landscape is less cultivated and woodlands more limited, although with riparian woodlands along tributary channels, although with some areas of forest plantation. The pastures are locally improved on the valley floor but rising to rougher grazing on the valley sides. Fields are medium to large size and enclosed by dry stone dykes which are a key feature of this somewhat exposed landscape.

3 This area contains limited remote settlements like Carsphairn, although hydro schemes, power lines and communications routes follow the line of the valley landscapes. The hydro schemes in particular have modified the local landscape resulting in changes to the natural water courses, the presence of turbine houses, dams holding back sizable lochs, and the conspicuous tower at Kendoon.



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km landscape Study Area boundary
- Regional administrative boundary
- Local administrative boundary

Landscape character types

1 Coastal Granite Upland
2 Narrow Wooded Valley
3 Upland Fringe
4 Dispersed Pastures
5 Intimate Pastoral Valley
6 Upland Glens
7 Southern Uplands
8 Southern Uplands with Forest
9 Flooded Valley
10 Upper Dale
11 Foothills
12 Foothills with Forests
13 Rugged Granite Upland
14 Rugged Granite Upland with Forest
15 Plateau Moorland
16 Plateau Moorland with Forest
17 Upland River Valleys
18 Upland Basin
19 Ayrshire Lowlands
20 Lowland River Valley
21 Middle Dale

2.5km 7.5km
0m 5km 10km

Figure 7.06 - Landscape character types

7.3.9.2.9 Foothills

1 The Foothills are found at heights of between 150m and 400m AOD. The landform is generally undulating but with craggier peaks in the west where the influence of the underlying granite is apparent, and the highest points at Blackcraig Hill in the south. The hills are however divided into an elevated undulating landscape with gently rounded summits separated by numerous incised streams which dissect the landscape. Views within this landscape are limited; however there are local views out from these areas across the adjacent valley landscapes.

2 The land cover is generally semi-improved pasture with areas of rough pasture and heath. Enclosures are generally large and the land is grazed by sheep and occasionally by cattle. Field boundaries are typically stone dykes with hedges and hedgerow trees to some roads. Belts of mixed woodland occur along rivers with small plantations/ copses on some lower hills. Scattered farmsteads and small settlements occur throughout served by a network of minor roads. Numerous archaeological sites are present within this landscape. The extensive areas of forest in some areas have given rise to a subset of this landscape type, Foothills with Forestry.

7.3.9.2.10 Foothills with Forest

1 Closely related to the Foothills landscape type but with predominantly forest land cover. Dark swathes of almost uniform forests cover many of the rounded peaks and descend onto the lower slopes. The different stages of forest rotation are typically evident, mature conifers contrasting with young plantings.

2 Open ground is mostly rough or semi-improved pasture with patterns of dry stone dykes. Higher pastures are rougher and unenclosed. Old stone enclosures and forts are visible.

7.3.9.2.11 Rugged Granite/ic Uplands

1 This landscape type comprises the mountains centred on the Merrick at 843m, although more typically up to approximately 700m. They form the western edge of the Study Area and are locally steep and craggy. The large scale of these 'highland' mountains offer extensive panoramas but the topographic diversity also creates smaller scale enclosures with rugged confines and unexpected changes in views. White granite outcrops against the generally red-browns of the dominant heather amongst the rough grassland. There is little or no native woodland. Forest roads and hiking paths provide the only access. Forest is localised and peripheral.

7.3.9.2.12 Rugged Granite Uplands with Forest

1 Found on the lower slopes of the Merrick. The character of a highland forest is portrayed by the presence of rocky prominences, cliffs and boulders. An essential characteristic is the view of granite outcrops and of unforested peaks which are made distinctive by the contrasting colours of grey granite against dark heather and ochre grassland. Large parts of this landscape are designated as Forest Parks where facilities for visitors, such as parking and picnic sites, are important features.

7.3.9.2.13 Upland River Valley

1 This landscape type occurs on the north-western boundary of the Study Area and is represented by the upper section of the Doon Valley running through an area of coal measures, limestone and millstone grit near Dalmellington. The valley is broad in its upper section containing the important wildlife resource of Bogton Loch and the meandering course of the River Doon and its wetland habitats. Pastures on the lower valley slopes give way to rougher moorland on the upper slopes. Early exploitation of the mineral deposits has led to the development of coal mines, iron works, spoil tips, a mineral railway and industrial settlements. Large scale open cast coal mining is evident on the hills above Dalmellington.

7.3.9.2.14 Upland Basin

1 Present in only one location in South Ayrshire, the headwaters of the River Nith have created an open basin at the foot of the Southern Uplands, which is partially enclosed by foothills and moorland plateau to the north-west and north-east. Sitting outside the main Southern Uplands Fault, the landscape is shallow and subtle, comprising a series of low, smooth ridges and troughs, some of which contain with small lochs. To the south of this landscape type, the Southern Uplands rise as a steep scarp.

2 The landscape type is relatively elevated, at circa 200m AOD, and contains little in the way of prevailing vegetation, whilst field boundaries consist of Drystone dykes or gappy hawthorn hedges. Coal mining in the locale has had a distinct effect upon the landscape characteristics, with derelict and damaged land, old railway lines, and the pattern of development now echoing this continuing industrial activity.

7.3.9.2.15 Ayrshire Lowlands

1 This landscape type forms an extensive area of agricultural lowland, sitting at elevations of between 10 and 150m, and with a geology dominated by coal measures, sandstone, limestone, milstone grit and volcanic intrusions, which contribute to the features and practices to be found within it. It has a surprisingly complex landform, containing many burns and streams which create an undulating landscape. Landcover is predominantly pastoral, but in wetter areas, peat bogs and mires become more prevalent.

2 Field patterns through the area are often regular in shape and enclosed by well preserved beech or hawthorn hedges, which are often mature. Beech trees predominate, and the distribution of these trees give a wooded feel over many parts of the landscape, especially where they form avenues along minor roads. The area has a historic settlement pattern, with a number of towns and villages found throughout the lowlands, which generally contain historic cores surrounded by more modern development. The general character of the landscape shows only subtle changes across its extent, with variations often resulting from geological or topographical differences.

7.3.9.2.16 Lowland River Valleys

1 The post glacial changes in sea level not only resulted in the raised beaches found along the coast, but also caused rivers to down-cut and form a series of incised river valleys which cross the Ayrshire Lowlands. The Garnock, Annick Water, Irvine, Ayr and Doon all enter narrow valleys as they leave the bold landscapes of the uplands and flow east. The valleys are narrow, often no more than a few hundred metres wide, and are up to 30m deep. Within these valleys the rivers flow in tight meanders, often cutting further into the surrounding landscapes.

2 Settlement within the valleys is limited to a number of mills at strategic bridging points, whilst Ayr and Kilmarnock are located on the Ayr and Irvine respectively. The woodland within the river valleys has often been incorporated into the designed landscapes to be found along these watercourses.

7.3.9.2.17 Middle Dale

1 Occurring only once within Ayrshire, this landscape type exists in the middle reaches of the Water of Girvan. The valley here is formed by two parallel faultlines, with sandstone in the north giving way to limestone within the valley. Valley flanks slope gently towards the river and have subtle terraces and undulations, contributing towards the complex topography to be found here. The valley is predominantly pastoral in nature, whilst the parkland landscapes associated with the historic houses and castles found here gives the valley a richly wooded feel. Shelterbelts, plantations and parkland trees are complemented by a network of hedges and drystone dykes.

2 The Girvan Valley is a historically important corridor for communication, and its importance is demonstrated by the prevalence of defensive sites which range from hillforts to castles and large houses, including Dalquharran, Bargany and Brunston. There is a also a scatter of smaller farmsteads and hamlets, though settlement is dominated by the village of Dailly.

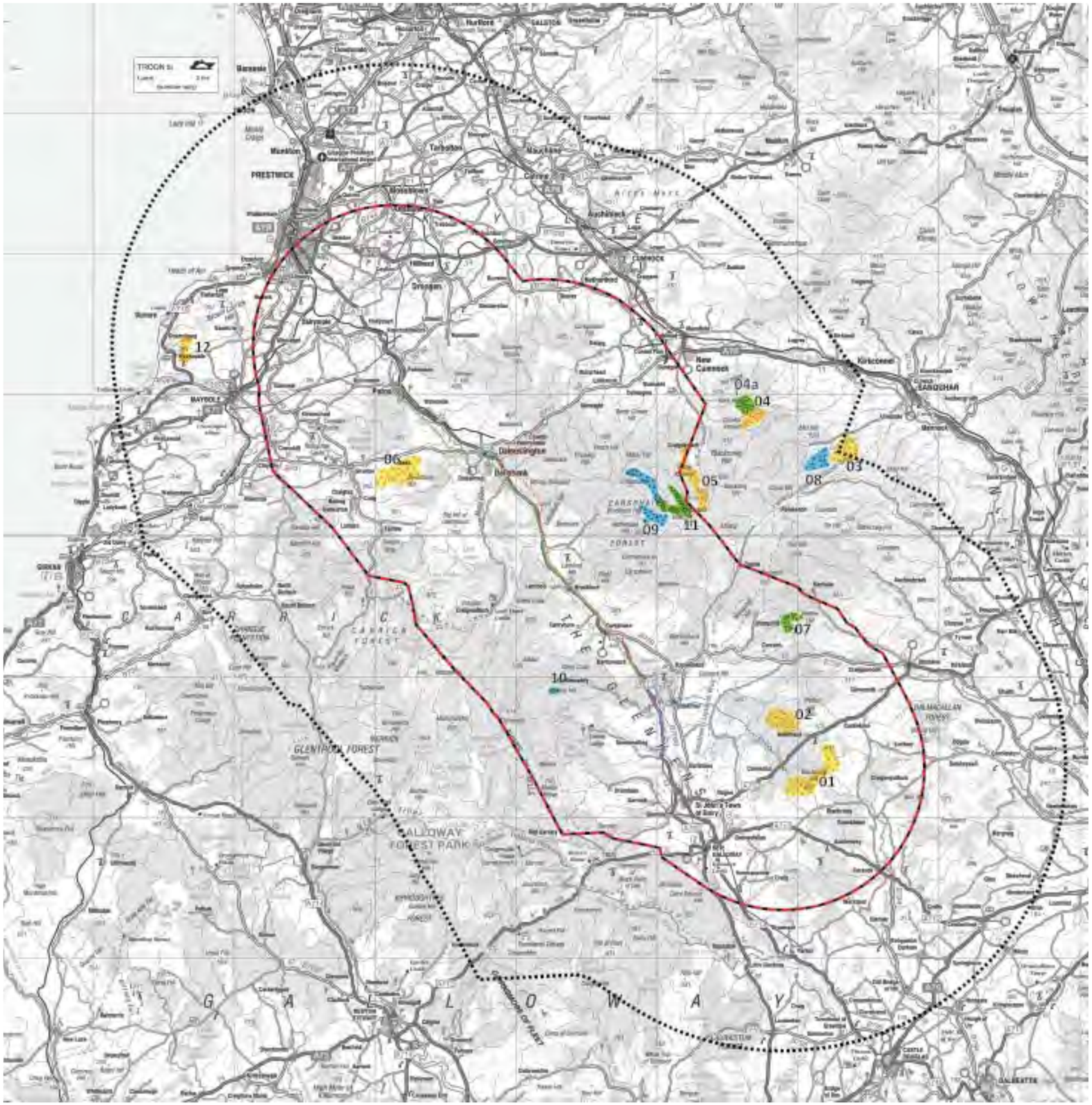
7.3.9.3 Landscape Character of the Study Area: Summary

1 As noted above, the landscape of the Study Area comprises a number of distinct landscape types within the broader regional landscape character areas. The landscape types are in many cases represented in both Ayrshire and Dumfries and Galloway and a single nomenclature and description has been provided relevant to the Study Area. The Study Area essentially comprises a core of elevated valley landscape (Upper Dale) contained to north-west and south-east by areas of more gentle upland landscape both with and without large scale forest (Foothills and Foothills with Forestry) and contained to the north-east by the elevated conical and domed landscapes of the Southern Uplands (Southern Uplands and Southern Uplands with Forestry) and to the south-west by the dramatic granite 'montane' landscapes of the Galloway Uplands including the Rhinns of Kells and the Merrick, both open and forested (Dramatic Granite/ic Uplands and Dramatic Granite Uplands with Forest).

7.3.10 Change within the landscape

1 The landscape of the Study Area has been shaped by a variety of forces over time, including both natural and human factors.

2 The open elevated landscapes are little changed over long periods, with these retaining a timeless wild land quality. There has been some recent encroachment on these areas with extensive peripheral afforestation bringing marked changes to the appearance of the landscape and the cyclical changes which accompany this land use.



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km landscape Study Area boundary
- 20km cumulative windfarm Study Area boundary

Cumulative windfarms

- Windfarm at application stage
- Consented wind farm
- Operational windfarm

01	Blackcraig Hill Windfarm
02	Margree Windfarm
03	Ulzieside Windfarm
04	Hare Hill Phase 2 Windfarm
04a	Hare Hill Windfarm
05	Afton Windfarm
06	Dersalloch Hill Windfarm
07	Wether Hill Windfarm
08	Whiteside Hill Windfarm
09	Windy Standard Extension Windfarm
10	Torrs Hill Windfarm
11	Windy Standard Windfarm
12	Knoweside Wind Farm

0m 05km 10km 15km 20km

N

Figure 7.07 - Cumulative windfarms within 20km

3 A number of high points within both the Southern Upland and adjacent landscapes have been developed, providing locations for both OHLs and windfarms. These elements of infrastructure locally alter the horizons from the lower and more populated valley landscapes reducing the sense of remoteness. The windfarms and potential windfarms on the lower slopes immediately above the valley landscapes (Dersalloch, Margree and Blackcraig) have the potential to further emphasise the development within these areas.

4 This change to the landscape is further emphasised by the extensive areas of forest which blanket areas of landscape masking the detail and smoothing the underlying topography. This forest whilst unnatural has become a characteristic part of the local landscape and defines some parts of this. The cyclical harvesting of this provides the opportunity to improve the relationship between the landscape and forest with a greater extent of broadleaf cover in appropriate locations and the former blanket coverage being replaced with a more sympathetic planting approach.

5 Within the valley landscapes the concentration of transport routes, transmission & distribution lines and the extensive network of hydro schemes further reduce the sense of remoteness of this landscape and detract from the experience of travelling through this on the principal routes.

6 The decline in viability of hill farming is gradually seeing the decline in land management practices such a drystone walling which form such important parts of the local landscape. Further decline of hill farming may result in additional development and extension of the forest estate.

7 The traditional pattern of settlement in limited villages and isolated farms is beginning to be eroded by the increasing sporadic ribbon development of new properties along the routes within the Study Area. This is occurring concurrently with the decline within the villages, with a number of the facilities these offer subject to recent closure.

8 The open cast mining activity carried out in the north of the Study Area adjacent to Dalmellington has resulted in large scale changes to the landscape and introduces extensive industrial activity to this formerly remote area. This industrial activity is however longstanding particularly within the Doon Valley.

9 Climate change is an ongoing process within the landscape and will affect all elements of this. The effects are difficult to predict, but with changes in the prevailing weather the vegetative structure of the area may be changed and along with this the patterns of landscape and potentially the viability of the agricultural and silvicultural practices currently seen may alter. These changes might bring substantial change to the landscape, and it is in response to this threat that the windfarms are proposed and as a result of which this grid connection is required.

7.3.11 Visibility

1 Visibility within the Study Area is largely defined by the local topography although somewhat modified by the areas of overlying forest cover. Typically within the foothills landscape there is extensive visibility from the highpoints of the hills to the surrounding landscapes. Within the valleys separating the hills however the visibility is appreciably more limited and the winding courses of the valleys prevents any extended views. The forest cover within some area of this further reduces the local visibility. From the edges of these areas there is often extensive visibility across the upland valley landscape which forms the core of the Study Area.

2 Within the upland valley landscape there is locally extensive visibility both across the broad form of the valley and along its length. This visibility is contained to either side by the viewsheds formed by the high ground of the Galloway Uplands to the west and the Southern Uplands to the east.

3 Within the elevated landscapes, the summits of the hills (in their different forms) provide panoramic views. Most importantly in the context of the proposed OHL they provide extensive views into the upland valley landscape, albeit at some distance from this.

7.3.12 Summary of Baseline

1 The Study Area comprises an extensive area of relatively remote upland landscape in south-west Scotland. It encompasses a range of landscape types from the foothills landscapes to parts of the high summits of the Southern Uplands and Galloway Uplands and the upland valley landscape which separates the two areas of true upland landscape.

2 Much of the landscape is open moorland from grass moorland on the lower slopes to heather moorland at increasing altitude. Parts of the landscape are occupied by extensive commercial forest and this has brought considerable change to the landscape.

3 Within the valley there are a number of small villages which provide the amenities for the area. Outwith these small villages however there is little other settlement, with this limited to scattered isolated farms, often with limited areas of enclosed improved pasture which provide a contrast of colour with the more typical upland landscape.

4 The valley landscape running between these upland areas provides an important transport route between Ayr and the Solway coast. In addition the watercourse within the valley has been developed as a series of hydro impoundments and the OHLs associated with this follow the line of the road along the valley.

5 Whilst the area is relatively remote, the main road through this and the associated infrastructure such as power lines, phone masts and windfarms appreciably diminish this sense, particularly to the east of the A713. This is further reinforced by the extensive areas of opencast mining to the north of Dalmellington. The presence of the detractors as part of the existing condition of the landscape to the east of the A713 are not generally present to the west and the elevated landscapes in this area have a particular quality of wildness.

7.4 Project description and mitigation

7.4.1 Project description

7.4.1.1 Nature and purpose of the proposed development

1 The proposed OHL is located in south-west Scotland in Dumfries and Galloway and East Ayrshire. The line is proposed to link the proposed Blackcraig and Margree Windfarms (currently the subject of separate consents applications) to the proposed SWS Project reinforcement at Meikle Hill substation.

2 The proposed OHL carrying the windfarm circuits terminates at the Meikle Hill Substation. This substation will provide the connection to the proposed SWS Project 400kV grid reinforcement currently the subject of a S37 application.

3 The proposed OHL extends from the substation at Blackcraig (at approximately 268936, 583529) to the substation at Margree (at approximately 268006, 584987) via Kendoon (at approximately 260563, 588101) to the substation at Meikle Hill (at approximately 252040, 608130), covering a distance of approximately 37km. The proposed OHL route is shown on Figure 7.01.

4 In seeking to provide connections for these windfarms SPT has been mindful of the available capacity that will be provided by the Meikle Hill substation and in anticipation of further applications in southern Dumfries and Galloway, additional capacity within the OHL (above that absolutely required for the two windfarms) is proposed between Meikle Hill and Kendoon. The proposed connection uses L7 Towers with paired conductors on each side (six conductors on each side). These towers are shown in detail in Chapter 5..

5 There will be substations at both windfarms which will 'step-up' the 33kV underground connections within the windfarm to 132kV for transmission by OHL. These substations are considered to be 'ancillary development' necessary to the working of the OHLs and will be included within the S37 applications for the OHL.

6 The Blackcraig substation will be approximately 72m x 35m, will be surrounded by a 2.74m fence and will contain a control building and transformer, busbars and a single strain gantry providing the start of the OHL. The tallest of these structures is the gantry at 8.6m.

7 The Margree substation will be approximately 72m x 50m, will be surrounded by a 2.74m fence and will contain a control building and transformer, buzz bars and a two strain gantries accepting the OHL from Blackcraig and providing the start of the OHL to Kendoon. The tallest of these structures are the gantries at 8.6m.

8 Previous single circuit 132kV OHL were typically carried on steel lattice towers of between 21 and 26m in height (such as the existing N-Route circuit). However, advances in design now mean that, where feasible, wood poles can be utilised to carry this voltage. See Chapter 5.

9 As only a single circuit (3 conductors) is required for the windfarms, the OHL section between Blackcraig Windfarm substation via Margree substation and a location close to Kendoon will comprise a heavy duty wood pole line. The form of this is shown in Figure 5.02 in Chapter 5.

7.4.2 Mitigation

1 The proposed grid connection has been developed through the iterative process of environmental assessment to minimise environmental effects as far as is possible within the technical constraints of a project of this nature. Mitigation has been undertaken at two levels:

- avoidance of potential effects; and
- reduction of potential effects.

2 The process of selection of the proposed route has been the most important and effective source of mitigation for the OHL. By employing appropriate routeing strategies, it has been possible to avoid a number of potential effects from occurring at the outset. This has been achieved through arriving at a proposed route which responds to the specific landscape and visual characteristics of the site, and which seeks to avoid specific locations that are deemed particularly sensitive to development of this type.

3 Another important factor in mitigating certain sections of the proposed OHL is advancement in technical design of the line itself, which means that single circuits at this voltage can now be carried on wood pole structures, approximately 16m in height, and with steelwork supporting the insulators and lines (as opposed to steel lattice towers). This new design of OHL has been used in North Wales, and has been shown to fit more comfortably within the scale of the local landscape and forest and through this to reduce both the visibility and perceptibility compared to the traditionally used steel lattice towers. It is proposed to use this line design between Blackcraig Windfarm and Kendoon. Images of this are included at Chapter 5.

4 It may be the case that following preconstruction survey minor tower location alterations are required as a result of requests from landowners or resulting from updated construction or survey information. To ensure the final positions of the line and associated works are not varied to such a degree as to cause an unacceptable change in the extent or significance of any landscape & visual effects compared with those identified in the ES, an infrastructure location allowance (ILA) is sought as described in Chapter 5.

5 Because of the environmental and technical studies that have been completed, micro-siting is considered unlikely to result in a significant change in the assessment. These studies have informed the routeing process, the identification of the proposed route and the identification of the likely location of tower positions. In addition the proposed route has been developed on the basis of an understanding of the ILA requirements and has taken account of this in the separation provided between the route and any particularly sensitive areas.

6 In some areas, such as at Glenhoul Glen, the OHL route has been designed to a detailed level to ensure that the climax oak Woodland located within this narrow gorge is retained without any loss in its extent. In locations such as this, there will be little, if any, room for further realignment of the route, and the ILA will therefore not be available. It does, however, provide comprehensive mitigation against the loss of Ancient Woodland in this area. This is described in greater detail at Chapter 6, Forestry.

7 The proposed route has been developed to pass through the landscape as sensitively as possible, and in doing so avoid a number of potential adverse landscape and visual effects that could occur. The introduction of an OHL such as this will almost inevitably result in effects on the landscape and visual resource. A well structured routeing using appropriately chosen and located elements that are legible and evolved in response to the landscape and other factors is an important consideration in the limitation of its effects and therefore potentially its acceptability.

7.5 Assessment of effects

7.5.1 Landscape Resource

7.5.1.1 Effects on the landscape resource

1 The introduction of an OHL into the landscape may result in changes to the landscape resource. Any change to the landscape resource will occur within the five landscape types through which the OHL route passes. Any changes to the landscape types beyond those that are directly, physically affected will be manifest as changes in the perception of the wider landscape resource. The latter are considered subsequently in this assessment. The effects of the proposed OHL on the landscape resource will therefore be restricted to the Foothills with Forest, Upper Dale, Foothills, Southern Upland with Forest and Upland River Valleys landscape types, through which the route passes.

2 In traversing the Upland River Valleys landscape type near to Dalmellington, the route passes through an area outlined within the adopted Ayrshire Development Plan as a 'Sensitive Landscape Area'. This is a non-statutory designation adopted by South Ayrshire Council to define those landscapes which are considered to be particularly sensitive to change and where protection and enhancement of the landscape will be given priority. As part of the preparation of the emerging Development Plan, this designation has been superseded by the creation of 'Scenic Areas', which identifies notable areas of particular landscape quality. It is noted, however, that in general, potential impacts on the environment and landscape will be considered even if the area is not specifically identified as being a designated scenic area.

3 In following the Upper Dale landscape type for much of its length, the Proposed Route also passes through the Galloway Hills Regional Scenic Area (RSA), a landscape designation which superseded the 'Areas of Great Landscape Value' designation, whose original aim was to '*safeguard the most outstanding beauty spots and encourage the provision of visitor facilities*' within these parts of Dumfries & Galloway. RSA is a non-statutory designation adopted by Dumfries and Galloway Council and identifies areas of scenic quality that are considered to be of regional importance. Regional Scenic Areas are designated at County level, whilst the boundaries are defined more accurately at Local level.

4 The effect of the proposed OHL will vary through the different phases of its life, (construction & operation) and these effects are described below. For the purposes of this assessment short-term effects, in the context of the OHL, are those associated with the construction period. All other effects will be for the life of the proposed connection and will be long term and reversible. Where any effect is identified, its duration will be described. As noted, in the context of the development of this OHL, all the significant landscape effects that have been identified are considered to be adverse effects, unless otherwise stated within the relevant assessment sections below.

7.5.1.1.1 General Effects

During Construction

1 The changes to the landscape types that will be physically affected by the development during construction will commence at the start of the construction period and extend for the duration of the 39 month construction period. Due to the linear nature of the development, and dependent upon the construction methodologies adopted, any effects upon these landscape types may not be experienced concurrently, and could occur at different periods during the construction programme.

2 Any changes will result from the introduction of personnel and plant into a landscape which currently does not contain these elements, or contains elements of a different nature. This change is however not entirely new to the Upper Dale, Upland River Valleys, Foothills, Foothills with Forest and Southern Upland with Forest LTs and should be viewed in the context of the existing forestry activity and construction operations associated with the proposed Blackcraig & Margree windfarms, and also the presence of the existing N-Route OHL found within many of the valley landscapes.

3 Within the forested areas at the extreme northern and southern ends of the route, both forestry and windfarm construction operations have previously introduced, or will introduce, personnel and large scale plant into the forest, at a similar or increased intensity to that which is expected during construction of the OHL. This change will be rapid and dynamic throughout the period of construction. Within the valley areas, essentially between Kendoon and Dalmellington, the existing OHL has been in situ for approaching 70 years, and although similar effects would have been experienced during construction of this line, the effects potentially experienced as a result of the proposed development will not be comparable to any activities occurring there now on a regular basis.

4 The built form of the OHL will become increasingly apparent throughout the construction period as increased lengths of the line are completed, whilst the construction element of the process will gradually move through the landscape, following the proposed route shown on Figure 7.01. The OHL will be constructed incrementally with sections of wood poles and lattice towers being installed followed by stringing of the conductors along the distinct sections of the route.

5 Upon completion of the wood pole and lattice tower sections of the route, the section of decommissioned N-Route, between Kendoon and Tower 101 near to Smithston, will require to be removed. This process will require the use of similar personnel and plant to the construction of the lattice tower line, and will also be undertaken incrementally along the length of the removed section. As such, the effects experienced as a consequence of this stage of the project are not expected to result in any more effects than those experienced during the construction phase. There will, however, be a period of time where both the proposed L7 Tower route and

the existing N-Route towers will be present within the landscape together, although this is expected to last less than 18 months.

6 Following completion of the construction and decommissioning phase, the construction activities will cease and all related personnel, plant and other equipment will be removed from site and post-construction/decommissioning reinstatement will be undertaken where necessary. More detail of the effects that will occur during the construction stage of the project is identified below.

During Operation

7 The changes to the landscape types to be physically affected by the development during operation and maintenance will commence immediately following the completion of the construction period and any associated machinery, vehicles or buildings have been removed. This period will extend for the operational life of the connection.

8 Any changes will result from the positioning of a linear route, some 37km long, of vertical wood pole structures and steel lattice towers carrying 132kV tensile electricity conductors through the landscape.

9 The operation and maintenance of the connection will result in the addition of a number of new elements within the landscape as follows:

- Substations at Blackcraig & Margree windfarms;
- Wood pole structures to carry the electrical conductors;
- Steel lattice towers to carry the electrical conductors;
- The conductors; and
- Local changes to the forest to facilitate the location of the route.

7.5.1.2 Southern Uplands with Forest (Landscape unit 8a)

Sensitivity:

1 The boundary between this landscape unit and that which neighbours it, Foothills, follows in part the Water of Muck valley and the A713. This is very much the transitional zone, and includes not only the road corridor but also the existing N-Route, which follows broadly the road alignment by criss-crossing this abrupt valley feature. Although within the transitional zone, the topography and nature of this portion of the landscape is typical of the character of this landscape type, although with more man made elements than is normally the case.

2 The large tracts of commercial forest on the upland areas outside the Water of Muck valley, and the numerous (although not perceived in areas offering perception of the OHL) windfarm developments that exist within this, and adjacent, landscape units, combine with the network of OHLs that serve these developments (and are assumed as baseline), to contribute to the man-modified nature of the landscape unit. The presence of these results from the somewhat limited sensitivity of the landscape unit to development of this nature. The local presence of the existing, or assumed, grid connection infrastructure serves to locally elevate the sensitivity to further local development of this type.

3 There is a very localised area of the landscape unit, towards Dalmellington, that falls within the Loch Doon Valley Sensitive Landscape Area (SLA), and as such is regionally important. Although this part of the landscape would consequently have an increased sensitivity to the proposed development, the area it covers is not thought sufficient to further increase the overall sensitivity of the landscape type as a whole.

Magnitude of Change:

4 In assessing the magnitude of change of this landscape unit, it is important to consider the baseline landscape and how this relates to the change expected as a result of the proposed development. In being an upland landscape outwith the Loch Doon Valley and Afton SLAs and the Galloway Hills Regional Scenic Area (RSA), it has attracted extensive windfarm development, and associated infrastructure. The windfarms at Afton and Windy Standard (& extension) are examples of this, and have already resulted in appreciable change to the underlying landscape.

5 The change expected as a result of the proposed OHL will add to this in the form of an additional length of steel lattice tower line, and the associated forest felling required through the largely commercially forested landscape. This felling will include the standard circa 80m width wayleave (& attendant windthrow).

6 The existing infrastructure associated with the windfarms and the SWS Project in this landscape unit (assumed as existing) is in the form of wood pole and steel lattice tower lines, and therefore the addition of the proposed L7 Tower route will constitute a change that is similar in appearance and scale to that which exists currently.

Effect:

7 Considering the somewhat elevated sensitivity of the local parts of the landscape unit, and the limited change expected to result from the addition of the proposed OHL, there is thought to be a locally **moderate effect** upon the landscape resource within this landscape unit. The nature of this effect is **adverse**. This effect is **significant**.

7.5.1.3 Upper Dale (Landscape unit 10a)

Sensitivity:

1 This landscape unit extends from St John' Town of Dalry, in a north-westerly direction, for approximately 20km towards Dalmellington, largely following the course of the Water of Deugh. This watercourse, and downstream, the Water of Ken, have been heavily altered by the Galloway Hydro Scheme to provide a sequence of Hydro-electricity stations. Resulting from this, the existing N-Route OHL is provided for the onward transmission of the electricity generated, and it follows this landscape unit in its entirety, linking to the wider electricity grid to the north of Dalmellington.

2 Aside from this development, the upland valley landscape contains little in the way of commercial scale development, either commercial forest or windfarm development, but does contain the A713, a major tourist route through this part of Scotland. The pattern of medium to large scale pasture land to be found within the relatively open and exposed valley floor is well preserved, and permits long distance views to the upland landscapes which surround it. The entirety of this landscape unit is also within the Galloway Hills RSA, making it a regionally important landscape within Dumfries & Galloway.

3 Notwithstanding the typical character of this landscape unit, and the large number of transient visitors travelling through on the A713, and the RSA designation, the existing presence of an OHL of a similar scale to that proposed results in this landscape unit not having a particularly elevated sensitivity to the replacement of the OHL in the areas already containing one. Elsewhere, where evidence of electrical infrastructure is more subtle, or avoided, the sensitivity is somewhat higher.

Magnitude of Change:

4 Considering the baseline condition within this landscape unit, which includes the existing N-Route OHL and the substation and associated electrical infrastructure at Kendoon, the change expected within large parts of this landscape unit will be limited. This change will constitute two main elements, the addition of the wood pole line that comes from the windfarms at Blackcraig & Margree and the L7 steel lattice tower line replacing much of the N-Route.

5 The wood pole line, as it crosses the transitional landscape between the Foothills with Forest landscape type and the Upper Dale landscape type will be contrasting in both scale and appearance to anything that currently exists within this relatively settled and, in some parts, exposed landscape. It is likely that in these areas, such as on the north-eastern side of Mackilston Hill, and descending to the portion of land around Glenhoul Farm, that these new elements within the landscape will be widely perceptible and evident. Their vertical nature, and also their dark colouring which contrasts with the subtle colours of the underlying landscape, will result in an appreciable change within these areas. This contrast will reduce over time as the colouring of the poles becomes more muted.

6 As the wood pole line reaches the Carse of Dundeugh, and onwards across the northern part of the Dalshangan estate, the prevalence of both commercial forest operations and other mature tree cover, combined with the topography and existing electrical infrastructure in the area, will result in the line becoming less perceptible and constituting less of a change to the existing character.

7 From Dalshangan northwards, the OHL will be carried on L7 steel lattice towers, similar in size and appearance to the existing N-Route which traverses this valley landscape. Once the proposed line has been built, and the existing, decommissioned, line removed, the resulting change to this part of the landscape will be limited, albeit the new line is larger line and will follow a slightly different route, and will therefore appear slightly different in some views to the existing.

Effect:

8 The underlying sensitivity of this landscape unit is locally decreased, primarily owing to the presence of the existing N-Route. This sensitivity, combined with the limited magnitude of change expected (appreciable in very local locations) as a result of the proposed OHL results in a **minor effect** upon it, which is **not significant**, and which refers to the areas where the OHL replaces the existing N-Route**.** The nature of this effect is **neutral**. In remaining parts of the landscape unit, there is expected to be a **moderate effect**, which is **significant.** The nature of this effect is **adverse**.

7.5.1.4 Foothills (Landscape unit 11a)

Sensitivity:

1 The Foothills type is characterised by improved pasture and gently rolling hills and summits and incised stream valleys. The portion of this landscape type through which the proposed route passes contains a semi-forested landscape which is more akin to the subset landscape type, Foothills with Forest, although this is largely due it being a transitional area between this landscape unit and the Southern Uplands with Forest landscape type, which in this area is largely forested and contains large tracts of commercial forest.

2 The existing N-Route, which is a common feature throughout this extended valley landscape, features prominently as it runs alongside the A713 in this location. Along with commercial forest operations and the road, the presence of this line serves to reduce the sensitivity of this localised portion of the landscape unit to the proposed development. The remainder of the landscape unit, which corresponds to approximately 90% of its total area, would have a higher sensitivity owing to the general lack of existing electrical infrastructure or other man-made detractors. The Sensitive Landscape Area designation which covers the large majority of this landscape type would also suggest an elevated sensitivity.

Magnitude of Change:

3 The specific area of the landscape unit through which the proposed OHL runs includes commercial scale forest, the A713 road corridor, which is a well travelled tourist route in this part of south-west Scotland, and the existing N-Route OHL, all of which identify the man-influenced nature of this part of the landscape, as opposed to the nature of the landscape unit as a whole, which in general is more natural and unaffected by such elements.

4 The change to occur within this landscape unit will be the addition of the L7 steel lattice tower route, which will be on a different alignment to the existing, being more upslope and further away from the road, and also the removal of the existing N-Route. There will, however, be the requirement for forest felling in this area, both to facilitate the route, but also as part of normal, and ongoing, forest operations. This will result in the character of this localised area being changed, with what was an almost entirely forested area becoming an area characterised by felled (& replanted) trees, and the unique character that this portrays.

5 The magnitude of the change resulting, therefore, from the addition of the L7 Tower line and the subsequent removal of the existing decommissioned N-Route, combined with the required forest felling, will be limited, and in the context of the entire landscape unit, very limited.

6 To the south-west of the upland areas over which the proposed route runs, the existing N-Route traverses this landscape unit within the Water of Muck valley. As a result of the proposed development, this section of line will be decommissioned and removed, resulting in this area of the landscape unit changing also, but in a markedly different nature to the more upland areas.

Effect:

7 There is not thought to be a particularly elevated sensitivity within this part of the landscape unit, and this, combined with the limited magnitude of change expected as a result of the proposed OHL, results in there being a **minor effect** upon the landscape resource, which is **not significant**. The nature of this effect is **neutral**. Within the Water of Muck valley, where the removal of the existing N-Route OHL will be a notable change, there will be a locally **major effect**, which is therefore **significant**. The nature of this effect is **beneficial**.

7.5.1.5 Foothills with Forest (Landscape unit 12a)

Sensitivity:

1 This landscape unit is typical of the landscape type, containing large tracts of upland commercial forest at its core, with areas of semi-improved grazing land on its periphery. The windfarms at Blackcraig and Margree are (assumed) recent additions to the landscape unit, adding to the already commercial scale influences which define the character type. These windfarms will cover approximately 10% of the landscape unit, although they will be visible throughout the majority of the remaining area, increasing their relative influence.

2 Operations associated with commercial forest, and the different elements of commercial windfarm operations such as those at Blackcraig & Margree, including turbines, access tracks and substations, all serve to limit the sensitivity of the landscape unit to the proposed OHL development. The landscape unit is also not subject to any statutory or non-statutory designation that might serve to increase this sensitivity.

Magnitude of Change:

3 This largely forested landscape is already subject to a number of manmade features otherwise not historically present. The Blackcraig & Margree windfarm developments and the infrastructure associated with these developments will be clearly evident features within the landscape in this area. New forest tracks, control buildings and vertical elements (turbines, etc) will be part of this development, and form the baseline landscape in this area. The presence of the proposed OHL, and the substations serving the two windfarms, will add to the range of manmade structures evident within parts of this Landscape, and will result in appreciable change to the remaining areas of forest left intact following the development of the two windfarms. The substations, and their associated access tracks and control buildings, etc, will be different in nature to anything currently present within this landscape unit, but not so in light of the windfarms which are considered as baseline in this area.

4 As the route continues in a north-westerly direction, it traverses the peripheral zones of the landscape unit, which do not display the same nature of development and are largely devoid of commercial forest operations. As such, within these localised areas the change presented through the development of the OHL will be more marked as the line becomes more readily identifiable and in contrast with the underlying landscape and land use.

5 To facilitate the OHL within the forested areas surrounding the Blackcraig & Margree windfarms, additional forest felling to that required for the windfarms, will be required. These 'wayleaves', which will be a minimum of 80m in width (40m either side of the line) will appear as pathways through the commercial forest, and as such will be evident from some vantage points within the landscape unit. Details of this felling are provided within Chapter 6 of this Environmental Statement.

Effect:

6 Although having a slightly reduced sensitivity to the proposed OHL development, the appreciable local change to the landscape resulting from the development confirms a locally **moderate effect,** which is therefore **significant**. The nature of this effect is **adverse**. This effect will be limited to within those parts of the landscape unit where it is appreciated.

7 Within the remaining areas of the landscape unit there will be a **minor effect**, which is **not significant**. The nature of this effect is **adverse**.

7.5.1.6 Upland River Valley (Landscape unit 17a)

Sensitivity:

1 This landscape unit is represented by the wide and flat bottomed valley of the River Doon. This contains a number of ecological areas, at Dalmellington Moss and Bogton Loch, the latter of which is a SSSI. Outside of these marshy/wetland areas, the valley contains relics from early industry and ongoing mining works associated with the nearby Scottish Coal area, and settlements that emerged to supply the historic workings at Dalmellington, Patna and Waterside.

2 The whole of the landscape unit is covered by the Loch Doon Valley SLA, including not only the landscape and biodiversity value of the valley landscape, but also the more upland areas that surround it. As with large numbers of valleys, historic communication and transport routes have tended to follow the River Doon valley, and this includes the A713, which provides access to Dalmellington from the south, and also the existing N-Route OHL which runs along the course of the river towards its junction at Knockshinnoch. Other OHL infrastructure is present within the valley linking the Dersalloch Windfarm to the Meikle Hill substation.

3 The presence of the SSSI and Sensitive Landscape Area designations suggest an elevated sensitivity to the development of OHLs, although the presence of the existing N-Route and the assumed link to Dersalloch somewhat reduce this sensitivity.

Magnitude of Change:

4 Although the building of the proposed OHL will result in the construction of a new line in only a very small percentage of the landscape unit, the wider effects of the proposal extend through the entire length of the unit, to the northern extent near to Knockshinnoch. In this context, the specific changes to occur are twofold.

5 To the south-east of Dalmellington, the change will include the addition of a length of L7 steel lattice towers, from just to the north of the Mossdale Tourist Information Point, breaking eastwards as it turns north-eastwards, away from the A713 and Muck Water Valley, towards the higher ground and ultimately the Meikle Hill substation. This section of the line, in running through areas of commercial forest, will require an amount of forest felling to accommodate it.

6 The other fundamental change to the landscape unit as a result of the proposed OHL will be the removal of the N-Route, from Dalmellington, northwards, to Tower 101 near to Knockshinnoch. This is a length of approximately 12km which will be removed entirely from the landscape.

7 The magnitude of change within the landscape unit, therefore, is appreciable but with only a very small part of this being the addition of a new OHL, or any associated forest removal.

Effect:

8 The limited sensitivity of this landscape unit, combined with the large magnitude of change resulting from the removal of a large length of the N-Route running through it, results in there being a **moderate effect** resulting from the proposed removal of the N-Route north of Dalmellington. The nature of this effect is **beneficial**. This effect is correspondingly **significant**. To the south-east of Dalmellington, the presence of the L7 Tower route crossing the SLA within this landscape unit, results in a very local **moderate effect**, which is also **significant**. The nature of this effect is **adverse**.

7.5.1.7 Summary of effects upon landscape resource

1 Table 7.04 below outlines the summary of effects upon the landscape resource as a result of the Blackcraig & Margree Grid Connection.

Table 7.04 - Summary of Effects upon the landscape Resource

Landscape Type	Landscape Unit	Effect	Nature of effect (Beneficial, Neutral, Adverse)	Notes	Significance
Southern Uplands with Forest	**8a**	Locally Moderate	Adverse		Significant
Upper Dale	**10a**	Minor	Neutral	Where N-Route is replaced by L7 OHL route	Not Significant
		Moderate	Adverse	Elsewhere within landscape unit	Significant
Foothills	**11a**	Locally Major	Beneficial	Where N-Route is removed from Water of Muck valley	Significant
		Minor	Neutral	Remaining areas of landscape unit	Not Significant
Foothills with Forest	**12a**	Locally Moderate	Adverse	Where OHL crosses open grassland landscapes	Significant
		Minor	Adverse	Remaining areas of landscape unit	Not Significant
Upland River Valley	**17a**	Moderate	Beneficial	Where N-Route is removed from landscape and not replaced by L7 OHL route	Significant
		Moderate	Adverse	Remaining areas of landscape unit	Significant

2 The proposed route, as can be seen within the table above, is considered to result in a number of significant effects upon the landscape resource. These effects result from the addition of the wood pole and L7 Tower sections of the proposed route, and also the removal of the N-Route from Dalshangan to Tower 101 near to Smithston. For a number of the landscape types, the effects experienced as result of the different elements of the grid connection vary markedly, and as such, the effects of these have been assessed, and noted in the table above, separately.

3 Significant effects of the proposed OHL development are variously both adverse and beneficial across the Study Area. Significant adverse effects are spread across the length of the proposed route, and are found within all of the landscape types through which the route runs, except for the Foothills landscape type at the northern end of the route near to Glenmuck. These effects occur generally where the OHL is evident within a landscape area or zone where there is no existing development of this type, and where, consequently, the sensitivity of the landscape is increased, and the magnitude of change is perceived as being more marked.

4 This can be seen within the Upper Dale & Foothills with Forest landscape types around Glenhoul and Dalshangan and spreading up to Butterhole Bridge, where the addition of the wood pole line in a landscape largely devoid of other infrastructure of this type, constitutes an appreciable change, and detractor. Within the Upland River Valleys landscape type, near to Dalmellington, the proposed L7 Tower section of the OHL passes through an area of 'virgin' forested landscape within the Loch Doon Valley Special Landscape Area, which consequently has an elevated sensitivity to development of this type, and therefore the change to it is more marked and perceptible, resulting in a significant effect.

5 Conversely, the addition of elements of the OHL to landscape types which already contain electrical infrastructure of the type and scale to that proposed, result in only minor effects, which are not significant. This reflects the situation along much of the Upper Dale landscape type, and within the Foothills landscape type, where the existing N-Route follows a similar alignment to the proposed OHL, and the resulting change relative to the baseline landscape is more limited and not as readily noticeable or perceptible.

6 Exceptions to this general pattern of effects are to be found within the Southern Uplands with Forest landscape type, where the proliferation of existing infrastructure associated with the SWS Project (which is assumed as baseline) has resulted in the landscape type becoming inherently sensitive to further development of this nature. Although the scale and nature of the landscape type would suggest a reduced sensitivity, it is considered that the addition of further infrastructure of the size and type proposed would result in a change to the landscape which could not be accommodated without appreciable change to the local character of the underlying landscape.

7 Significant beneficial effects on the landscape resource are to be found over northern portions of the Study Area, and relate to the removal of the existing N-Route in locations where it is not replaced (on the same alignment, or at all) by the proposed L7 section of the proposed OHL. Locations where this occurs are limited to the Water of Muck valley, where the alignment of the L7 Towers lies further east, and to the north of Dalmellington, where the scheme proposals result in the removal of 12km of the N-Route entirely from this sensitive landscape.

7.5.2 Effects on the perception of the wider landscape resource

1 The perception of the landscape resource is the appreciation of the wider landscape resource as observed and discerned from different locations within it in the light of cultural and other non-visual associations.

2 As has been described previously, the landscape resource of the Study Area which contains the OHL may be locally changed, and this includes principally the landscape types Upper Dale, Southern Uplands with Forest and Foothills with Forest, and to a lesser degree Foothills and Upland River Valley.

3 This change will have no effect on the defining characteristics of the wider landscape resource. It will however potentially affect the perception of these other character areas and the wider composition of landscape types and other particular receptors within the Study Area - such as designated areas, routes through the landscape and the wider perception of the local, and (potentially) the regional landscape.

7.5.2.1 Effects on adjacent Landscape Types

1 The effects of the proposed OHL on the wider landscape resource are dependent on the different temporal stages of the OHL. The effects commence at the outset of construction and continue for the lifetime of the line. The effects on the perception of the wider landscape resource reported here are therefore those observed from the start of construction and during the operating lifetime of the OHL.

2 The presence of the OHL has the potential to change the perception of the wider landscape resource of the Study Area, from the landscape types beyond those in which it is located. The degree to which these landscape types will be affected depends on the context of the perception of the OHL within the landscape resource, but will in general respond to the distance of any view and the degree to which any area of changed landscape character (Upper Dale, Southern Uplands with Forest, Foothills with Forest, Foothills, Upland River Valley) contributes to the overall perception of the landscape resource from within that element of the landscape resource.

3 The potential visibility of the landscape containing the OHL from landscape types throughout the Study Area is identified on Figure 7.08, which identifies those landscape types or parts thereof from which there will be theoretical/perceptible visibility to the OHL and therefore where potential exists for changes to the perception of the landscape resource. As noted the ZTV identifies theoretical/perceptible visibility based on a bareground topographic model, excluding any consideration of the screening effects of trees and buildings. In reality, the visibility will be appreciably more limited, with a number of atmospheric and other factors reducing the theoretical visibility predicted by the ZTV. In addition, changes to the perception of the landscape resource may occur where intermittent or sequential visibility from a route or within an area results in a perception that is more widespread than the visibility may suggest.

4 Each landscape type within the Study Area is considered. Each landscape type is numbered for ease of reference. The numbering employed differs from that used within the landscape assessments prepared by SNH. Where a landscape type appears

in more than one location within the Study Area (i.e. as a landscape unit), numbers are used in conjunction with the letters (e.g. 9a, 9b, 9c etc) to identify the various locations. In the case of each landscape type an assessment is made as to whether the proposed OHL will have an effect on the wider landscape resource.

5 Figures 7.05 & 7.06 show the landscape types present within the Study Area.

7.5.2.1.1 Narrow Wooded Valley (2)

1 This landscape type occurs at one location within the Study Area as follows:

2a

2 Situated to the north of Kendoon, this landscape unit contains the upper reaches of the Water of Ken before this watercourse enters the Loch above the Kendoon power station. The eastern side of this valley feature remains unforested, unlike the western side which contains large areas of commercial forest, which extend for upwards of 6km from Kendoon loch to Strahanna Bridge.

3 Small areas of visibility are located within this landscape unit, and these relate to both the wood pole and L7 sections of the OHL as it crosses different parts of the landscape, and is generally from the more elevated valley sides as would be expected given the prevailing topography. The prevalence of forest on the western side of the valley would certainly preclude most of the bareground visibility that is potentially available on these slopes, but it is also likely that much of the visibility from the eastern side would be restricted by this, and other forest elements within the immediate locale.

4 The landscape unit does not sit within any designated landscape areas, and is not subject to large amounts of visitors, either residents of the local area, or tourists, and as such does not have an elevated sensitivity the proposed development. The narrow nature of the landscape restricts the influence of external landscape units upon the perception of the landscape resource, which further reduces the sensitivity.

5 Given the limited amount of theoretical visibility available within this landscape type, and thus the limited magnitude of change experienced as a result of this, combined with the limited sensitivity of the landscape unit, there is expected to be **no effect** upon the perception of the landscape resource within this landscape unit.

7.5.2.1.2 Drumlin Pastures (4)

1 This landscape type occurs at one location within the Study Area as follows:

4a

2 There is no theoretical visibility of the L7 or wood pole sections of the OHL, or the removal of the N-Route north of Dalmellington, from this landscape unit, and therefore **no effect** upon the perception of the landscape resource.

7.5.2.1.3 Intimate Pastoral Valley (5)

1 This landscape type occurs at one location within the Study Area as follows:

5a

2 The theoretical visibility of the L7 Tower OHL from within this landscape unit is available at between 8 and 10km, meaning elements of the grid connection that are visible, and visible as backclothed elements, are beyond the limits of perceptibility being used for this study. Elements visible as skylined within any views would potentially be visible and perceptible, but given the elevated nature of the landscape beyond the proposed OHL, this is highly unlikely.

3 The amount of visibility is also extremely limited, with only circa 5% of the landscape unit registering any theoretical visibility at all. It is also likely that this visibility will be further reduced when considering the elevated elements in the landscape that exist between the areas of theoretical visibility and the OHL. In terms of sensitivity, this landscape is within the Loch Doon Valley Sensitive landscape Area, so it does have a slightly increased sensitivity to the proposed OHL.

4 In consideration of the small amounts of visibility (and thus magnitude of change), and the distances over which this potential visibility occurs, and notwithstanding the slightly elevated sensitivity of this landscape unit, there is expected to be **no effect** upon the perception of the landscape resource from within it.

7.5.2.1.4 Upland Glens (6)

1 This landscape type occurs at 2no. locations throughout the Study Area as follows:

6a

2 There is no theoretical visibility of the L7 or wood pole sections of the OHL, or the removal of the N-Route north of Dalmellington, from this landscape unit, and therefore **no effect** upon the perception of the landscape resource.

6b

3 There is no theoretical visibility of the L7 or wood pole sections of the OHL, or the removal of the N-Route north of Dalmellington, from this landscape unit, and therefore **no effect** upon the perception of the landscape resource.

7.5.2.1.5 Southern Uplands (7)

1 This landscape type occurs at 3no. locations throughout the Study Area as follows:

7a

2 This portion of the landscape, although conforming to the Southern Upland landscape type, lies in a small pocket within a much larger area of the subset of this landscape type, Southern Uplands with Forest. As such there are appreciable areas of forest adjacent to and surrounding the landscape unit, which has a direct impact on any wider visibility from within it towards the proposed OHL. It is therefore likely that the visibility illustrated, even though at times is within 4km, will be less than that shown and possibly even totally restricted by surrounding forest.

3 Appreciable change has already occurred within adjacent landscape units through the development of the SWS Project, as a result of which the development of OHLs and associated substation infrastructure has changed the character of large parts of them. This development is considered to have increased the sensitivity of landscape unit 7a to the proposed OHL due to the potential change being similar in appearance to that which now exists. The perception of change resulting from the Blackcraig & Margree grid connection will, however, be very limited in the context of this existing development.

4 Although this landscape unit has a slightly increased sensitivity owing to its presence within the Afton SLA, the limited magnitude of change resulting from the proposed development will result in there being **no effect** upon the perception of the landscape resource from within this landscape unit.

7b

5 This landscape unit appears as a distinct area of moorland, surrounded on all sides by commercial forest, and covered by the subset landscape type, Southern Uplands with Forest. It contains the high points of Lamford Hill and Benbrack, which are joined by a ridgeline running in a broadly north-south orientation. This landscape forms the upper valley sides of the Water of Deugh valley, and lies within the Galloway Hills Regional Scenic Area, thus elevating its sensitivity to the proposed OHL. Although containing little in the way of existing electrical infrastructure or other man-made features, the existing N-Route is a visible element of the landscape when looking in a westerly direction.

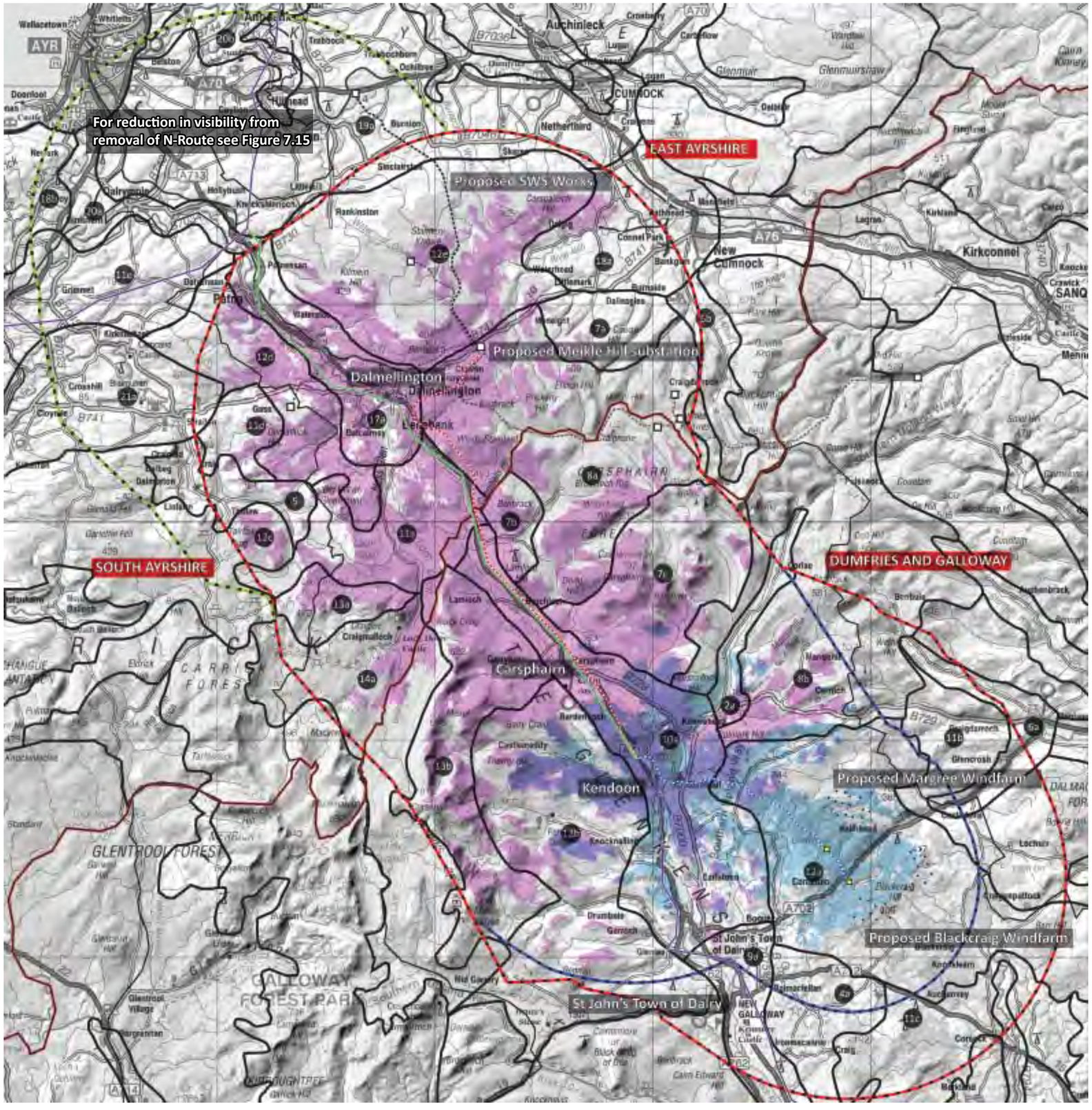
6 The pattern of theoretical visibility available (of the L7 Tower route) within this landscape type broadly corresponds to this topography, with appreciable visibility available on the western sides of the ridge and high points, with the area of landscape to the east being largely screened from the proposed development. This landscape unit is in close proximity to the unit through which the proposed OHL runs, and as such this visibility is experienced at close range, at under 750m, but also, at longer distances of up to 8km.

7 Over 50% of the landscape unit has theoretical visibility towards the OHL, and with the lack of any appreciable vertical influence within it, either built form or trees/ commercial forest, this indication of visibility is considered largely commensurate with what would be experienced in reality.

8 Taking into consideration the existing N-Route, which follows a route very similar to the proposed OHL route, and notwithstanding the Regional Scenic Area designation, there is deemed to be a reduced level of sensitivity upon the perception of the landscape resource from within this landscape unit, especially when views are orientated in a westerly direction. Although the majority of the visibility experienced is within 1.5km, considering the reduced sensitivity the effect upon the perception of the landscape resource within this landscape unit is considered to be **minor**, and therefore **not significant.** The nature of this effect is **neutral**.

7c

9 This landscape unit is one of the largest within the Study Area, covering an area of landscape stretching from Carsphairn to New Cumnock, which corresponds to approximately 20km. The landscape is typified by large expanses of upland moorland and contains the highest peaks in The Glenkens, including Cairnsmore of Carsphairn and Beninner, which lie approximately 5km to the north-east of the proposed OHL.



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km landscape Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Administrative boundaries

- Regional administrative boundary
- Local administrative boundary

Theoretical visibility

- L7 Tower line section visible
- Wood Pole line section visible
- Wood Pole and L7 sections visible

Note: For character type identification see Figure 7.06

2.5km 7.5km
0m 5km 10km

Figure 7.08 - Landscape types overlaid with ZTVs showing visibility of Wood Pole and L7 Tower sections of overhead line

Given their size and location, these areas of high ground largely dictate the pattern of visibility experienced within the wider landscape unit, with visibility to the north-east of them being largely screened.

10 Although not within the landscape unit, the existing N-Route runs along its western edge and is visible as it runs along the Water of Deugh valley, on a similar line to the proposed connection. Other electrical infrastructure within the landscape unit is limited to the grid links associated within the windfarms at Windy Standard, Brockloch and Afton, which are located in the more eastern portions of the landscape unit, and thus have no cumulative effect when considering the visibility theoretically available of the proposed OHL.

11 The landscape unit largely comprises moorland vegetation without any appreciable commercial or other tree planting, and as such intervisibility within it will be expansive. Combined with this, only limited tree planting exists within the Upper Dale landscape type, such that screening of the development will be apparent over limited areas of the lower slopes of landscape unit 7c.

12 Although large areas of the landscape unit display theoretical visibility of the OHL, this visibility needs to be taken in the context of the visibility already available from these areas of the existing N-Route, which, given the broadly similar route followed by the proposed line will be broadly commensurate. In consideration of this limited magnitude of change, and notwithstanding the coverage of much of this landscape unit by the Galloway Hills RSA, which serves to increase the sensitivity of it, there is expected to be only a **minor effect** upon the perception of the landscape resource, which is therefore **not significant**. The nature of this effect is **adverse**.

7.5.2.1.6 Southern Uplands with Forest (8)

1 This landscape type occurs at 2no. locations throughout the Study Area as follows, although the unit across which the proposed route traverses (8a) is assessed above:

8b

2 Another of the largest landscape units within the Study Area, unit 8b stretches from Knowehead to the Nith Valley, a distance of approximately 25km. The landscape is broadly typical of the landscape type, containing large tracts of commercial forest on the upper slopes and summits. The topography of the landscape largely dictates the patterns of visibility experienced, which is available of both the proposed wood pole and L7 Tower sections of the OHL, both individually and collectively. The visibility, therefore, is centred on the south-western facing high points and upper slopes, at a distance of up to 10km.

3 Given the prevalence of forest in many of the areas over which this potential visibility is identified, however, it is likely to be somewhat reduced in reality.

4 Where visibility is available, that which is solely of the L7 section of the proposed development would currently be experienced of the existing N-Route, at a similar distance, which would correspondingly reduce the sensitivity of the landscape unit to the proposed change in this area. This is not the case where visibility of the wood pole sections is available. In these areas, the development will be visible as an entirely new element in the landscape, suggesting an elevated sensitivity to its inclusion within it.

5 Considering the slightly elevated sensitivity of parts of this landscape unit, there is expected to be a **minor effect** upon the perception of the landscape resource, which is therefore **not significant**. The nature of this effect is **adverse**.

7.5.2.1.7 Flooded Valley (9)

1 This landscape type occurs at one location within the Study Area as follows:

9a

2 Situated within the extremities of the Study Area, this valley feature is associated with the Water of Ken as far up its course as St John's Town of Dalry. The landscape unit includes the large valley floor, which includes a flood plain area alongside this largely man-controlled watercourse, and also the valley side as it extends north-eastwards towards the B7075. The highest point within this area is Mulloch Hill (170m AOD), and it is on the northern slopes of this hill that a limited amount of theoretical visibility is available, at a distance of between 8 & 10km, of parts of the L7 steel lattice tower portion of the proposed route.

3 This development as viewed from this location will be backclothed, and as such is beyond the limit of normal perceptibility for a development of this type. The magnitude of change therefore to the perception of the wider landscape resource will be limited. In consideration of this, and combined with the limited sensitivity of this landscape type owing to the absence of any specific landscape designation or other features of note, it is considered that there will **no effect** upon the perception of the landscape resource.

7.5.2.1.8 Foothills (11)

1 This landscape type occurs at 5no. locations throughout the Study Area as follows, although the unit across which the proposed route traverses (11a) is assessed above (Section 7.5.1.4):

11b

2 This landscape unit is located in proximity to the windfarms at Blackcraig & Margree, in the south-eastern portion of the Study Area, and although largely containing areas of semi-improved grassland and moorland typical of the landscape characterisation, includes the Dalmaclellan Forest near Moniaive. The topography is typical of the landscape type, containing gently rolling hills and incised river valleys. Large parts of the landscape unit are covered by the Galloway Hills RSA, which suggests an elevated sensitivity to changes to the perception of the landscape resource.

3 Only small parts of the landscape unit fall within the Study Area, and only a very limited percentage (<5%) of this contains any theoretical visibility of the wood pole section of the OHL. This visibility is also between 4 and 6km, which is approaching the limit of visibility and perceptibility of this type of development. In reality, it is unlikely that any visibility would actually be experienced given the largely forested landscape within the intervening landscape, meaning only a very limited magnitude of change is expected to occur.

4 In light of the expected limited change to the perception of the landscape resource, and notwithstanding the elevated sensitivity to the proposed development, there is considered to be **no effect** upon the perception of the landscape resource from within this landscape unit resulting from the proposed development.

11c

5 There is no theoretical visibility of the L7 or wood pole sections of the OHL, or the removal of the N-Route north of Dalmellington, from this landscape unit, and therefore **no effect** upon the perception of the landscape resource.

11d

6 This landscape unit is situated in the north-western portion of the Study Area, and is a small unit surrounded by a diverse landscape, including Intimate Pastoral Valley, Middle Dale and Foothills with Forest landscape types. The landscape unit contains the proposed Dersalloch Windfarm (assumed as part of the baseline), which at 26 turbines in size, covers the large majority of it, and provides the defining character within it. The Loch Doon Valley Sensitive Landscape Area (SLA) encompasses the landscape unit, and confirms there is some sensitivity attached to it.

7 Theoretical visibility within the landscape unit is restricted to the western areas, and covers approximately 15-20% of the total area of the unit, at a distance of between 6 and 10km. Given the elevated nature of the unit, and in consideration of the backdrop against which the proposed development would be viewed, the proposed OHL will be viewed only as a backclothed element, and as such will be all but imperceptible in terms of the criteria laid out for this assessment. Given the distances over which any visibility would be experienced, and taking account of the character of the intervening landscape, there is also likely to be some reduction in overall visibility to that which is illustrated.

8 Also of note is the length of existing N-Route north of this landscape type which will be removed as part of the scheme. This area of landscape will be visible from very small portions of this landscape unit, and a degree of change to its perception will be experienced. Given the limited visibility this change will only be very small.

9 Taking account of these visibility characteristics and in consideration of the presence of the existing N-Route, which follows broadly the same line as the proposed line, there is considered to be **no effect** upon the landscape resource resulting from the replacement of the existing N-Route with the L7 Tower OHL. The removal of the N-Route north of Dalmellington will result in a locally **minor effect**, which is **not significant**. The nature of this limited effect is **beneficial**.

11e

10 There is no theoretical visibility of the L7 or wood pole sections of the OHL from this landscape unit, and therefore **no effect** upon the perception of the landscape resource resulting from their addition within the landscape. There will, however, be visibility of the removed section of the N-Route as it approaches Tower 101 near to Smithston, resulting in a perceptible change from within the landscape unit. Small areas of the landscape unit lie within the Loch Doon Valley SLA, thus raising the sensitivity of these localised parts. It is therefore considered that the removal

of the N-Route from this part of the landscape will have a **minor effect** upon the perception of the landscape resource, which is **not significant**. The nature of this effect is **beneficial**.

7.5.2.1.9 Foothills with Forest (12)

1 This landscape type occurs at 5no. locations throughout the Study Area as follows, although the unit across which the proposed route traverses (12a) is assessed above (section 7.5.1.5):

12b

2 Landscape unit 12b encompasses the landscape to the south-west of the proposed OHL, between the Upper Dale landscape type, and the Rugged Granite Upland landscape of the Galloway Forest Park. This landscape strongly reflects the Foothills characterisation, and includes large tracts of commercial forest, which extend all the way to the abrupt slopes at the base of the more defined upland areas, spread over an undulating and comparatively subtle area of topography. The entire landscape unit is within the Galloway Hills RSA, and there is little in the way of built form or infrastructure, except for small numbers of isolated and individual properties.

3 A number of minor ridges extend from the upland areas, in a north-west/south-east orientation, which are divided by the Polmaddy and Polharrow Burns, and these in large part define the patterns of theoretical visibility illustrated on Figure 7.08. This visibility is experienced at a distance of between 1.5 and 8km, predominantly from the north-eastern facing slopes and summits, and is likely to be appreciably less than that shown when intervening forest, both within this and other landscape units, is taken into consideration. Longer distance visibility is also evident, up to the maximum 10km, from some of the more elevated slopes on the peripheral south-western edge of the landscape unit.

4 The elements of the grid connection visible from this landscape unit include, in the majority, the L7 Tower section (& N-Route removal) between Dalshangan and Meikle Hill, although it is also likely that limited visibility of the wood pole sections would be possible, but over distances close to the limit of visibility/perceptibility used for this assessment relative to backclothed and skylined elements.

5 In light of the presence of the existing N-Route, and the route and nature of the proposed development relative to this, the actual change within any views from this landscape unit will be limited. Add to this the reduction in visibility that will result from the large areas of commercial forest within this landscape unit, and there is considered to be **no effect** upon the perception of the landscape resource.

12c

6 Situated on the periphery of the Study Area, the theoretical visibility from within this landscape unit is experienced at between 8 and 10km, meaning any visibility is at the limit of perceptibility for the L7 Tower sections of the proposed OHL. Given the elevated nature of the parts of the landscape unit from which the line is visible, it is likely that the portions of line visible will appear as backclothed elements, and thus be imperceptible.

7 The landscape in this area is within the Loch Doon valley SLA designation, resulting in a slightly elevated sensitivity to the proposed development. Unlike many of the other landscape units subject to potential effects upon their landscape resource, only limited lengths of the existing N-Route would be visible from this unit due to part of it running within the Water of Muck valley and therefore being hidden from view. This lack of visibility of the existing OHL would suggest further a modest increase in sensitivity.

8 Also of note is the length of existing N-Route north of Dalmellington which will be removed as part of the scheme. This area of landscape will be visible from small portions of this landscape unit, and a degree of change to its perception will be experienced. Given the limited visibility this change will only be very small.

9 In line with the landscape characterisation, the majority of this landscape unit (within the Study Area boundary) comprises forested landscape, and therefore any visibility identified on Figure 7.08 is likely to be greater than would be actually be the case. In light of this, and also the distances over which any theoretical visibility would be experienced, and notwithstanding the slightly elevated sensitivity of the landscape unit, there is only considered to be a **minor effect** upon the perception of the landscape resource resulting from the replacement of the existing N-Route OHL with the L7 Tower OHL. This effect is considered, therefore, to be **not significant**. The nature of this effect is **adverse**.

10 The removal of the N-Route north of Dalmellington will result in there being a **minor effect** upon the perception of the landscape resource, which is also **not significant**. The nature of this effect is **beneficial**.

12d

11 This landscape unit sits alongside the Upland River Valleys landscape unit in the north of the Study Area, and takes in the elevated landscape forming the south-western valley side of the Loch Doon Valley. It is also within the Loch Doon Valley SLA, which covers the portion of the landscape identified as having the most appreciable theoretical visibility. The topography of the landscape unit, which generally slopes from west to east towards the River Doon valley, and thus the proposed OHL (& removed N-Route), ensures that extensive areas of theoretical visibility are potentially available. Up to 85% of the landscape unit within the Study Area contains some theoretical visibility, and this exists between 2.5 and 10km.

12 The actual visibility available, however, will be appreciably less than this when consideration is given to the large areas of commercial forest that are present within, and partly define, this landscape type. Although this only represents circa 50% of the land cover, it will have a distinct effect on the actual pattern of visibility resulting from the proposed OHL development.

13 The River Doon Valley north of Dalmellington, from which 12km of the existing N-Route will be removed as part of the proposals, will be widely visible from the northern parts of this landscape type, and changes to the landscape resource will be clearly evident, and relatively appreciable, given the close range over which this visibility is experienced.

14 Although being within the Loch Doon Valley SLA will serve to increase the sensitivity to the proposed OHL, there are already similar infrastructure elements within the visual envelope from the landscape unit, which would conversely reduce this sensitivity. Examples of this include the existing N-Route, which runs along the north-eastern edge of the landscape unit, and the link from Meikle Hill substation to Dersalloch windfarm, which crosses the landscape unit near to Gass. There will also be appreciable windfarm development within the visual envelope, including the windfarm at Dersalloch, which although don't have a direct effect upon the sensitivity of the landscape unit relative to the development of OHLs, do contribute to the man-made features within the view.

15 The landscape unit is not considered to have an increased sensitivity to the proposed OHL, and in consideration of this, and the minor change in visibility resulting from the proposed L7 section of the OHL, there is thought to be only a **minor effect** upon the perception of the landscape resource, which is therefore **not significant**. The nature of this effect is **adverse**. The removal of the N-Route north of Dalmellington, and the changes to the perception of the landscape resource that will result from this, ensure that there will be a **minor effect** upon it, which is **not significant**. The nature of this effect is **beneficial**.

12e

16 Constituting the last of the more upland landscape types before the elevation decreases towards the coastal zone, this landscape unit forms a transitional zone in the context of Ayrshire as a whole. The area within and adjacent to this landscape unit is heavily influenced, and now characterised, by the opencast coal operations which cover large parts of this landscape. The peaks of Kelmein Hill, Benbeoch Hill, Stannery Knowe and Carsgailoch Hill form a ridgeline through this landscape unit, in a west-east orientation, with the landscape to the north of this falling gradually towards the Ayrshire Lowlands, and ultimately, Ayr.

17 These peaks range from 363m to 464m AOD, and the theoretical visibility identified corresponds to the distribution of higher ground, with visibility to the north-west of these peaks being limited. From the B741, there is a zone of up to 10km in width, spreading in a north-westerly direction where visibility is available at between <750m and 10km, which covers large parts of the landscape unit. The distribution within this area of commercial forest, and also the landscape and topography changes brought about through the opencast coal mining operations, mean the actual visibility obtainable will be appreciably less than that illustrated.

18 Visibility of the River Doon Valley from the western parts of this landscape type is extensive, and as such the removal of the existing N-Route from this landscape will constitute a discernible and perceptible change to the perception of the landscape resource. This change will be over a close range (circa 2-4km), and in some views will be clearly noticeable.

19 Although from within this landscape unit the existing N-Route is visible in the western portions, it is the new electrical infrastructure associated with the SWS Project works which is widely visible both within the landscape unit, and also in south-westerly views from it. These elements serve to elevate the sensitivity of landscape unit 8a to further change of this type, as do the windfarm developments within key views from within it.

20 Considering the baseline within this area, which contains appreciable existing electrical infrastructure and windfarm development, and the somewhat fragmented visibility that will be available of the proposed L7 OHL, there is expected to be only a **minor adverse effect** upon the perception of the landscape resource, which is therefore **not significant,** as a result of the addition of this element. The removal of the N-Route from the River Doon Valley, and the level of change to the perception of the landscape resource resulting from this, specifically in some local areas, will result in a **minor effect**, which is also **not significant**. The nature of this effect is **beneficial**.

7.5.2.1.10 Rugged Granite Upland (13)

1 This landscape type occurs at 2no. locations throughout the Study Area as follows:

13a

2 Landscape unit 13a is an isolated area of high, craggy moorland which sits between approximately 300 and 525m AOD, and circa 5km to the west of the proposed OHL. The prevailing topography and land cover is typical of the landscape character type, whilst the area sits outwith the Galloway Hills RSA, but within the Loch Doon Valley SLA. The unit contains a number of peaks, which ensure the pattern of visibility is focussed on the north-eastern slopes which face towards the development, and covers approximately 50% of the landscape unit's area. Given the height of this location, and on account of the open nature of the landscape, this theoretical visibility is considered to be an accurate representation of that which would result from the proposed development.

3 Although there is likely to be visibility from within this landscape unit, this will be at distances of between 4 and 10km, and in the large majority backclothed by the Glenkens, and therefore imperceptible under the assessment criteria identified. The actual change to views from this location will be limited, with the proposed OHL route following a very similar line to the existing N-Route, which is of a similar size and scale to the proposed line.

4 Although there is appreciable visibility of the OHL from this landscape unit, and an elevated sensitivity courtesy of the Loch Doon Valley SLA designation, the change within any views when looking towards the proposed development will be minor. As such there is expected to be **no effect** upon the perception of the landscape resource from within this landscape unit resulting from the proposed development.

13b

5 Taking in the key peaks within the Rhinns of Kells, this landscape unit is situated between 1 and 10km from the proposed development, and contains some of the most dramatic scenery and topography within the Study Area. The peaks of Black Craig, Coran of Portmark, Meaul, Corserine and Meikle Millyea form a prominent semi-circular ridge through the landscape unit, and in large part define the pattern of theoretical visibility that is presented. This visibility constitutes upwards of 60% of the landscape unit area, and is focussed on the north and east facing slopes and summits, although as the landscape unit descends towards the Upper Dale landscape unit towards Lamloch, and the character of the landscape becomes more lowland in nature, this pattern of visibility becomes more widespread.

6 It is also the case that from many of the more distant areas where theoretical visibility is available, i.e. above 6km, the line is likely to be visible as a backclothed element, and therefore not perceptible.

7 As with many of the landscape units within this part of the Study Area, any views towards the proposed L7 sections of the development will contain a baseline which includes the existing N-Route running along a broadly similar line, meaning the change to these views will be limited.

8 Notwithstanding the elevated sensitivity presented by the coverage of the area by the Galloway Hills RSA and the large areas of theoretical visibility presented, the change to views from within this landscape unit will only be limited when one considers the presence of the existing N-Route, and its size, scale and alignment. As such, there is considered to be **no effect** upon the perception of the landscape resource.

7.5.2.1.11 Rugged Granite Upland with Forest (14)

1 This landscape type occurs at one location within the Study Area as follows:

14a

2 Situated to the south of Loch Doon, and containing part of this appreciable local feature, this landscape unit lies to the west of the ridgeline described within landscape unit 13b, above, and as such is screened from much of the proposed development by it. It is a largely forested landscape, commensurate with the landscape type, and as such, any identified theoretical visibility is likely to be considerably lower than that initially identified. Exceptions to this would include people who are using the loch, who would experience much more open and expansive views towards the proposed OHL.

3 The availability of theoretical visibility is restricted to areas in the north of the landscape unit, where the screening afforded by the ridgeline mentioned above does not occur. This visibility is available between 6 and 10km, and where backclothed, the proposed OHL would therefore not be perceptible. Given the location of the Glenkens behind any views of the proposed development, backclothing is likely within all of the areas displaying theoretical visibility.

4 Parts of the landscape unit are within the Galloway Hills RSA and some within the Loch Doon Valley SLA, both of which increase the sensitivity of this landscape unit to the proposed development. Although this is the case, the negligible change that is expected within any views, and considering the very limited visibility that is expected to be available, there is thought to be **no effect** upon the perception of the landscape resource as a result of the proposed development within this landscape unit.

7.5.2.1.12 Upland Basin (18)

1 This landscape type occurs at two locations within the Study Area as follows:

18a

2 This landscape unit is situated in the very north-western portion of the Study Area, and contains the headwaters of the River Nith, and the town of new Cumnock. The landscape is different in nature to many other parts of the Study Area, containing a subtle and smooth topographic character, with medium to large fields bounded by gappy hawthorn hedgerows and dry stone dykes. There is also evidence of opencast coal mining so prevalent in the adjacent landscape type, Foothills with Forest, and there unit is not subject to any prevailing landscape designations.

3 The theoretical visibility present within the landscape unit is limited to small areas on its north-eastern edge, which coincide with the peripheral parts of the elevated ridge that is described above in landscape unit 12e. Only very short sections of the line are potentially visible from these locations, and although probably not backclothed, the prevalence of commercial forest within the intervening landscape would appreciably limit any visibility.

4 In light of the limited visibility of the proposed development, and considering the appreciable change that has already occurred within the locale as a result of the SWS Project works, there is expected to be **no effect** upon the perception of the landscape resource from within this landscape unit as a result of the proposed OHL.

18b

5 There is theoretical visibility to the removal of the N-Route from this area, however at this distance and in the context of the wider landscape this will result in **no effect**.

7.5.2.1.13 Ayrshire Lowlands (19)

6 This landscape type occurs at one location within the Study Area as follows:

19a

7 There is no theoretical visibility of the L7 or wood pole sections of the OHL from this landscape unit, and therefore **no effect** upon the perception of the landscape resource resulting from their addition within the landscape. There will, however, be visibility of the removed section of the N-Route as it approaches Tower 101 near to Smithston, resulting in a perceptible change from within the southern parts of the landscape unit. Small areas of the landscape unit lie within the River Ayr Lugar Water SLA & River Ayr RSA, but it is unlikely that visibility will be experienced from these localised parts, meaning there is not a particularly elevated sensitivity. It is considered that the removal of the N-Route north of Dalmellington will therefore have a **minor effect** upon the perception of the landscape resource, which is **not significant**. The nature of this effect is **beneficial**.

7.5.2.1.14 Lowland River Valleys (20)

1 This landscape type occurs at 2no. locations within the Study Area as follows:

20a

2 There is no theoretical visibility of the L7 or wood pole sections of the OHL from this landscape unit, and therefore **no effect** upon the perception of the landscape resource resulting from their addition within the landscape. There will, however, be some visibility of the removed section of the N-Route as it approaches Tower 101 near to Smithston, resulting in a limited perceptible change from within the south-eastern parts of the landscape unit. Large areas of this landscape unit lie within the Loch Doon Valley SLA, and visibility will experienced from these parts, resulting in an

elevated sensitivity in these areas. It is considered that the removal of the N-Route north of Dalmellington will therefore have a **minor effect** upon the perception of the landscape resource, which is **not significant**. The nature of this effect is **beneficial**.

20b

3 There is no theoretical visibility of the OHL from this landscape unit, and therefore **no effect** upon the perception of the landscape resource.

7.5.2.1.15 Middle Dale (21)

1 This landscape type occurs at one location within the Study Area as follows:

21a

2 There is no theoretical visibility of the L7 or wood pole sections of the OHL, or the removal of the N-Route north of Dalmellington, from this landscape unit, and therefore **no effect** upon the perception of the landscape resource.

7.5.2.1.16 Summary

1 Table 7.05 below outlines the summary of effects upon the landscape resource from adjacent landscape types as a result of the Blackcraig & Margree Grid Connection.

Table 7.05 - Summary of effects upon the perception of the landscape resource from adjacent landscape types

Landscape Type	Landscape Unit	Effect	Nature of effect (Beneficial, Neutral, Adverse)	Notes	Significance
Narrow Wooded Valley	**2a**	**No Effect**	-		**Not Significant**
Drumlin Pastures	**4a**	**No Effect**	-		**Not Significant**
Intimate Pastoral Valley	**5a**	**No Effect**	-		**Not Significant**
Upland Glens	**6a**	**No Effect**	-		**Not Significant**
	6b	**No Effect**	-		**Not Significant**
Southern Uplands	**7a**	**No Effect**	-		**Not Significant**
	7b	**Minor**	Neutral		**Not Significant**
	7c	**Minor**	Adverse		**Not Significant**
Southern Uplands with Forest	**8b**	**Minor**	Adverse		**Not Significant**
Flooded Valley	**9a**	**No Effect**	-		**Not Significant**
Foothills	**11b**	**No Effect**	-		**Not Significant**
	11c	**No Effect**	-		**Not Significant**
	11d	**No Effect**	-	Where L7 OHL replaces N-Route	**Not Significant**
		Minor	Beneficial	Where N-Route removed north of Dalmellington	**Not Significant**
Foothills with Forest	**12b**	**No Effect**	-		**Not Significant**
	12c	**Minor**	Adverse	Where L7 OHL replaces N-Route	**Not Significant**
		Minor	Beneficial	Where N-Route removed north of Dalmellington	**Not Significant**
	12d	**Minor**	Adverse	Where L7 OHL replaces N-Route	**Not Significant**
		Minor	Beneficial	Where N-Route removed north of Dalmellington	**Not Significant**
	12e	**Minor**	Adverse	Where L7 OHL replaces N-Route	**Not Significant**
		Minor	Beneficial	Where N-Route removed north of Dalmellington	**Not Significant**
Rugged Granite Upland	**13a**	**No Effect**	-		**Not Significant**
	13b	**No Effect**	-		**Not Significant**
Rugged Granite Upland with Forest	**14a**	**No Effect**	-		**Not Significant**
Upland Basin	**18a**	**No Effect**	-		**Not Significant**
	18b	**No Effect**			**Not Significant**
Ayrshire lowlands	**19a**	**No Effect**	-	Where L7 OHL replaces N-Route	**Not Significant**
		Minor	Beneficial	Where N-Route removed north of Dalmellington	**Not Significant**
Lowland River Valleys	**20a**	**No Effect**	-	Where L7 OHL replaces N-Route	**Not Significant**
		Minor	Beneficial	Where N-Route removed north of Dalmellington	**Not Significant**
	20b	**No Effect**			**Not Significant**
Middle Dale	**21a**	**No Effect**	-		**Not Significant**

2 The effect of the proposed Blackcraig & Margree grid connection on the perception of the landscape resource from adjacent landscape types is limited throughout the Study Area, resulting in no significant effects. This is largely due to the OHL running through a number of landscape areas that already contain electrical infrastructure of the size, scale and type of the L7 sections of the proposed development, which follows a broadly similar alignment. This results in the magnitude of change experienced in views towards the proposed development being lower than would be the case if the line comprised an entirely new element. It is also the case that along the parts of the route where the proposed L7 OHL and the existing N-Route are consistent, neutral effects occur whereby the change experienced is not considered either beneficial or adverse in the context of the baseline landscape.

3 The situation within the south-western portion of the Study Area is different, where the wood pole section of the proposed development will be present as an entirely new element, the extensive size of the landscape unit through which this portion of the line traverses, combined with the visibility and perceptibility limitations discussed previously, ensure that any effects are generally restricted to this landscape unit.

4 There are peripheral landscape units where the pattern of theoretical visibility, especially visibility that corresponds to the wood pole section of the OHL, results in locally minor changes to the perception of the landscape resource, but these are limited to only 4 of the 13 adjacent landscape types, and include only those landscape units in close proximity to the proposed development. It is also pertinent that large numbers of the landscape units assessed contain varying degrees of commercial forest coverage, which ultimately has a distinct effect upon the actual visibility that would be experienced from these locations, and would in some cases reduce the actual visibility to nil.

5 In the northern portions of the Study Area, in the locale around Dalmellington, the SWS Project grid improvement works and the windfarms which these OHLs supply, will appreciably change the underlying landscape character of large areas of land so that they display entirely different characteristics than the descriptions identified in guidance documentation (on the assumption that they are assumed as baseline). In general, this change in character has served to increase the sensitivity of these landscapes such that they are approaching their capacity for infrastructure, and also views towards these landscapes, when considering development such as the proposed Blackcraig & Margree grid connection.

6 As part of this proposal, the existing N-Route will be removed for approximately 12km north of Dalmellington, and the change to result from this has resulted in a number of landscape units in this locale being subject to beneficial effects. These all fall within the minor category, and are therefore not significant, but it is an important effect given the appreciable new, and proposed, grid infrastructure within the area. Significant effects to result from this removal are limited to the landscape unit through which the existing N-Route runs, which is outlined above in Table 7.04.

7.5.2.2 Effects on Route corridors

1 In many cases landscape is most acutely observed as the viewer travels through it, with the transitions between different character areas often most readily appreciated when passing from one to another. To this end, this assessment of the effects on the perception of the landscape resource includes consideration of a number of the principal routes that run through the Study Area. These include both the major transport corridors and a number of more minor routes and principal footpaths.

2 In almost all cases these routes pass through a number of different landscape types (and landscape units) and these, together with adjacent areas broadly define the type and extent of views available and, therefore, the perception of the landscape resource.

3 A change to the perception of the landscape resource at any point along a route may result in a change to the experience of that route that persists beyond the area within which the effect is located. This will be the case, in particular, where there are a number of other OHLs contributing to cumulative effects. The implication of this change to the wider experience of any routes, beyond the extents of the Study Area boundary, is not within the scope of this assessment.

4 The principal routes within the Study Area and their theoretical visibility are shown on Figure 7.09. An identification of visibility of the OHL from the route does not indicate that there will be a significant effect on the perception of the landscape resource from this location, but simply that some part of the OHL may be visible. Where effects along a part of a route are identified in the following text, this relates only to those parts of the route which the ZTV has shown as providing theoretical views to the proposed OHL.

5 In all cases the effects described below relate to theoretical bareground visibility. This will in many cases appreciably overstate any effects, with roads often bounded and screened either by local topography or by trees and hedges which will in all cases (where present) reduce the visibility and therefore the perception, often very appreciably. Similarly the direction of travel and therefore the view will often completely change the perception of the landscape and this is highlighted where it is most marked. The consideration of cumulative effects is undertaken on the same basis as that described previously.

7.5.2.2.1 A713 (Castle Douglas to Ayr)

1 The A713, also known as the Galloway Tourist Route, runs from Castle Douglas in the south to Ayr in the north, covering a length of approximately 80km. This road provides one of the main points of access to, and through, the central area of south-west Scotland, linking settlements such as Dalmellington, Patna, Carsphairn and St John's Town of Dalry to each other and the wider region. Principal tourist locations, including the Galloway Forest Park and Loch Doon are all facilitated by this route.

2 The road runs through the length of the Study Area, in a north-south direction, covering the circa 45km from St John's Town of Dalry to Patna. In taking this route, the road runs through the Galloway Hills Regional Scenic Area (RSA) and Loch Doon Valley Sensitive Landscape Area (SLA), which cover the road corridor and much of the surrounding landscape. These designations, combined with the importance of this road for both tourist and local access alike, suggest a generally elevated sensitivity to the proposed OHL.

3 This elevated sensitivity, however, has to be taken in the context of the existing electrical infrastructure associated with the Galloway Hydro Scheme, which over much of its length follows a broadly similar line to the A713. This is certainly the case through the Study Area, where the existing N-Route follows much of the line of the road in very close proximity.

4 Of the 45km of this route which traverses the Study Area, theoretical visibility is available across all but the extreme northern and southern 2-5km of it, and over the large proportion of this length this visibility is potentially available at close range, generally within 750m, making the OHL not only visible, but also perceptible, whether viewed as a backclothed or skylined element.

5 Within the southern portion of the Study Area, between approximately St John's Town of Dalry and Kendoon, the theoretical visibility identified is sporadic, and will consist primarily of potential views of the wood pole section of the proposed development, and at distances of between 0 and 6km. The more distant views, which are located in proximity to Earlstoun Loch, will be at the outer limit of visibility for this type of development, and given the prevalence of roadside, and other, vegetation in this area, is likely to be appreciably less than that shown. In more close range views, as the road approaches Kendoon, the development will become increasingly visible, with some areas backclothed and some skylined, and with the distribution of vegetation less dense than elsewhere, this visibility is more likely to be realised. With the lack of any existing developments of this type within the area over which the visible elements will be located, the localised magnitude of change in this area is considered to be elevated.

6 As the road approaches Dalshangan, the location at which the wood pole section and L7 section of the proposed route join, the OHL will be a distinct and visible element, being located directly adjacent to the road. Although there is already appreciable OHL development within this locale, including the N-Route and a network of smaller distribution lines, the proximity of the new elements to the road, and their apparent visibility, will constitute an appreciable change.

7 As the route progresses north, over the length of the road between Kendoon and Dalmellington, the L7 Towers run alongside the road, at a distance of between 0 and 1km. Considering the general openness of this landscape, little screening will be available to reduce the theoretical visibility identified. Compared to the existing baseline condition, which contains the existing N-Route over this complete length, the magnitude of change as a result of the proposed OHL will however be limited.

8 From Dalmellington north, the theoretical visibility identified extends as far as Waterside, and is available at between 0 and 8km for those travelling in a southerly direction. The large majority of this visibility will be of backclothed elements, as the L7 Tower route crosses Court Knowes and follows up the Parrie Burn towards Meikle Hill. Appreciable forest cover is present within these parts of the landscape, reducing the actual visibility to be expected. There is also built form alongside the road, especially as the road runs through Dalmellington, which will further reduce this. The main change over this section of the A713, however, will result from the removal of the existing N-Route as part of the proposals, which will see the River Doon Valley between Dalmellington and Smithston become devoid of any large scale infrastructure, and benefit from the positive change this brings.

9 In summary, although the A713 will experience large amounts of actual visibility of the OHL, and this over an appreciable distance, the main areas where this will occur forms part of a landscape which already contains electrical infrastructure of a similar size and scale to that which is proposed. As such, the magnitude of change experienced as a result of the development, will in the most part be only limited. Exceptions to this include parts of the road to the south of Kendoon, where new elements of wood pole development will be visible crossing the landscape, and also in as the road passes near to Dalshangan, where the proximity of the OHLs, and particularly the join between the wood pole and L7 Tower sections, will constitute a locally moderate change. To the north of Dalmellington, the removal of 12km of the existing N-Route from the River Doon Valley will also result in a moderate change, but of a differing nature to the other changes experienced.

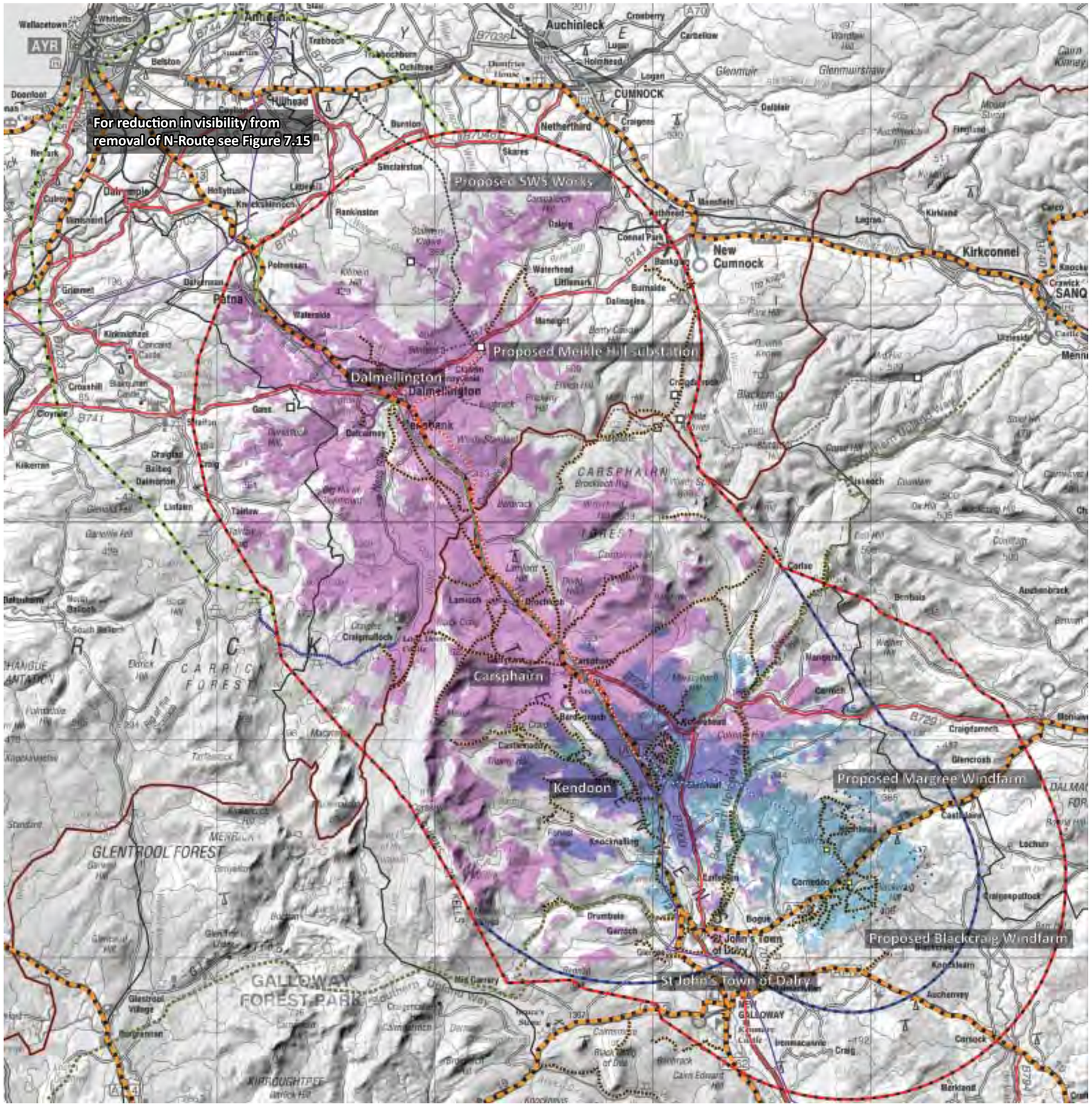
10 Overall, the minor change experienced over the length of the A713 affected, combined with the elevated sensitivity of the receptor courtesy of the large numbers of people known to use the route, results in a **minor effect** upon the perception of the landscape resource, which is locally **moderate** as described above. The effects to the A713 between Dalmellington and Kendoon will be **adverse** in nature, whereas north of Dalmellington, the removal of the N-Route will result in **beneficial** effects. These effects are therefore locally **significant**.

7.5.2.2.2 A702 (St John's Town of Dalry to Thornhill)

1 The A702 provides a link between St John's Town of Dalry in the west and Thornhill in the east, via Moniaive. Being one of the few A roads in the locale, it provides an important access between Nithsdale & The Glenkens and Moniaive & Dalry. The route is subject to no prevailing landscape, or other designations, as it crosses the Study Area, but further north-east it crosses the Thornhill Uplands RSA, which is likely to have an effect upon the perception of users travelling through this area, and serve to increase its sensitivity. The road, as it passes through the Study Area, also has a distinct feeling of remoteness, which further elevates this sensitivity. The local windfarm development at Blackcraig & Margree will serve to decrease this sensitivity given the size of the turbines and their proximity to the road corridor.

2 The road runs through the southern portion of the Study Area for a length of circa 15km, and passes between the windfarms at Blackcraig & Margree, which will be clearly visible from much of the road corridor. Over this 15km length, theoretical visibility of the proposed OHL is available for approximately 5km, and this is centred on the location at which the proposed wood pole line crosses the road as it passes between the Blackcraig and Margree windfarm substations.

3 The landscape within this 5km zone predominantly comprises commercial forest, which extends for the most part to within 10m of the road itself. This predominance of forest, particularly within proximity to the OHL crossing, will provide appreciable screening for users of the road towards the OHL. Where the development is actually visible, which is expected to be within about 0.5km either side of the crossing point, it is likely that relatively large numbers (up to 50) of wood poles could potentially be



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km landscape Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Administrative boundaries

- Regional administrative boundary
- Local administrative boundary

Routes

- A roads
- B roads
- Southern Upland Way
- Forest track
- Scotways routes

Theoretical visibility

- L7 Tower line section visible
- Wood Pole line section visible
- Wood Pole and L7 sections visible

2.5km 7.5km
0m 5km 10km

Figure 7.09 - Public access overlaid with visibility & perceptibility

seen. At the crossing point itself, views will be available that contain the wayleaves provided to accommodate the line, resulting in locally modest changes to the views at this point (that will only be evident at the actual crossing point and not beyond). This change will be evident over a very short length of the road, and for a very short period of time, and therefore is not consistent with the level of change that will be experienced over the remainder of the road within the Study Area.

4 The considered elevated sensitivity of the route, combined with the generally limited change to the visibility along the route's length, ensures that only a **minor effect** upon the landscape resource would be experienced by users of this road. This effect is **not significant**. The nature of this effect is **adverse**.

7.5.2.2.3 A712 between New Galloway and Corsock

1 There is no theoretical visibility from this road, and therefore **no effect** upon the perception of the landscape resource.

7.5.2.2.4 B741 (Straiton to New Cumnock)

1 This road travels south-west north-east through the northern part of the Study Area, linking Dalmellington to New Cumnock. It is a well travelled road, especially by those working within the large tracts of commercial forest adjacent to the road and the Scottish Coal opencast mining operations nearby. Parts of the road near to Dalmellington are within the Loch Doon Valley SLA, and parts near Cumnock the Afton SLA, suggesting a slightly elevated sensitivity in these areas. Providing a further increase in general sensitivity over parts of this route are the SWS Project grid infrastructure works, and the windfarm developments that these support. These developments have resulted in the addition of appreciable lengths of OHL and turbines into large areas of the landscape surrounding this road.

2 The theoretical visibility available along this route extends from Dalmellington, north-eastwards, for approximately 7.5km, and constitutes the L7 section of the proposed route as it approaches the Meikle Hill substation. This section of road comprises two distinct characters. The first, from Dalmellington to Clawfin Bridge is open and permits views to the surrounding hills, whilst from Clawfin Bridge to Nith Lodge, the commercial forest extends to the road edge, restricting any views from within this dense corridor. The resulting reduction in actual visibility from within this second section will be appreciable, whilst the potentially visible sections of the proposed route in this location, in passing through commercial forest, further reduces the actual visibility from both of these sections of the road.

3 There will be areas along this forested section, however, where the wayleaves and deforestation that have been created for the SWS Project works and the proposed development (assumed as baseline), will permit close range views of both existing and proposed electrical infrastructure, including both substations and OHLs. This will particularly be the case at the Meikle Hill substation, the situation at which is represented by assessment Viewpoint 26.

4 The section of this road between Straiton and Cumnock will have very limited visibility of the L7 Tower OHL, although will have uninterrupted views towards the section of the N-Route north of Dalmellington due to be removed as part of the proposals. This visibility will result in locally perceptible changes to the perception of the landscape resource, primarily within the River Doon Valley near to Bogton Loch, where the current OHL crosses the road.

5 Along the length of this road, when consideration is given to the existing baseline condition and the appreciable electrical infrastructure within it, the magnitude of change to result from the proposed L7 section of the OHL is considered reduced, even when close range views of it are permitted. When considered alongside the elevated sensitivity of this area generally, there is considered to be a **minor effect** upon the perception of the landscape resource, which is **not significant**. The nature of this effect is **adverse**. Within the River Doon valley, where the N-Route will be removed from views of the wider landscape, there will be **locally moderate effects**, which will be **significant** where experienced. The nature of this effect is **beneficial**.

7.5.2.2.5 B7000/B729 (St John's Town of Dalry to Carsphairn)

1 This road provides a link between St John's Town of Dalry in the south and Carsphairn in the north, via Glenhoul, Earlstoun and Knowehead, with this link being an alternative to the A713 which sits further west. This is only a minor road, and as such does not have large traffic volumes, but provides an important access to the smaller outlying settlement areas listed above. The area through which the road runs is within the Galloway Hills RSA, which serves to elevate the sensitivity to the proposed OHL development. Along the length of this road, however, electrical infrastructure and other man-made features such as the windfarms at Blackcraig & Margree and the communication towers on top of Dundeugh Hill provide a reference to the man-influenced nature of the surrounding landscape, and the correspondingly reduced sensitivity that results.

2 The theoretical visibility available from this road includes that of the wood pole and the L7 Tower sections of the development, and it extends from Carsphairn, southwards, to approximately 2km north of St John's Town of Dalry. Both separate elements of the grid connection would be visible over the majority of this length of the road, whilst the visibility theoretically available is between 0 and 10km.

3 The actual reduction in this visibility through forest and other screening features differs over the length of the road, with those areas south of High Bridge of Ken being within an open landscape which affords views on both sides of the road, and those areas north of this point being variously forested and thus containing appreciable portions of screening of the development.

4 The magnitude of change to the views experienced over the length of this road will vary corresponding to the particular element of the grid connection within the view. Where the new L7 section is the predominant element, this will be viewed in an area which currently contains the existing N-Route OHL, and therefore any changes will be limited and neutral. Conversely, where the wood pole section of the grid connection is visible, this will be seen as a new element, and the magnitude of change will be more marked. These areas will be generally restricted to areas to the south of the High Bridge of Ken, with those areas with theoretical visibility to the north of this being predominantly within forested areas. The most appreciable change experienced would be at the point at which the wood pole line crosses the road at Whitehill.

5 Considering the baseline landscape and the potential changes as identified above, there is considered to be generally a **minor effect** upon the perception of the landscape resource, which in localised areas will be **moderate**, and therefore **locally significant**. The nature of these effects is **adverse**. These areas correspond to where the wood pole section of the proposed grid connection are visible as new elements within the landscape.

7.5.2.2.6 B730 (Polnessan to Drongan)

1 There is no theoretical visibility from this road, and therefore **no effect** upon the perception of the landscape resource.

7.5.2.2.7 B7046 between Drongan and Cumnock

1 There is no theoretical visibility from this road, and therefore **no effect** upon the perception of the landscape resource.

7.5.2.2.8 Minor road providing access to Loch Doon

1 Except during the summer months, when the Galloway Forest Drives are open, this minor road is a no through road serving the small number of residential properties found here, the Loch Doon Castle and those wishing to visit the Loch for other recreation purposes. The road starts at the Mossdale Visitor Information Point on the A713, and continues to Craigmalloch Cottage which is situated approximately 2km from the southern tip of the Loch. Being within the Loch Doon Valley SLA, there is an increased sensitivity to the proposed development from this road.

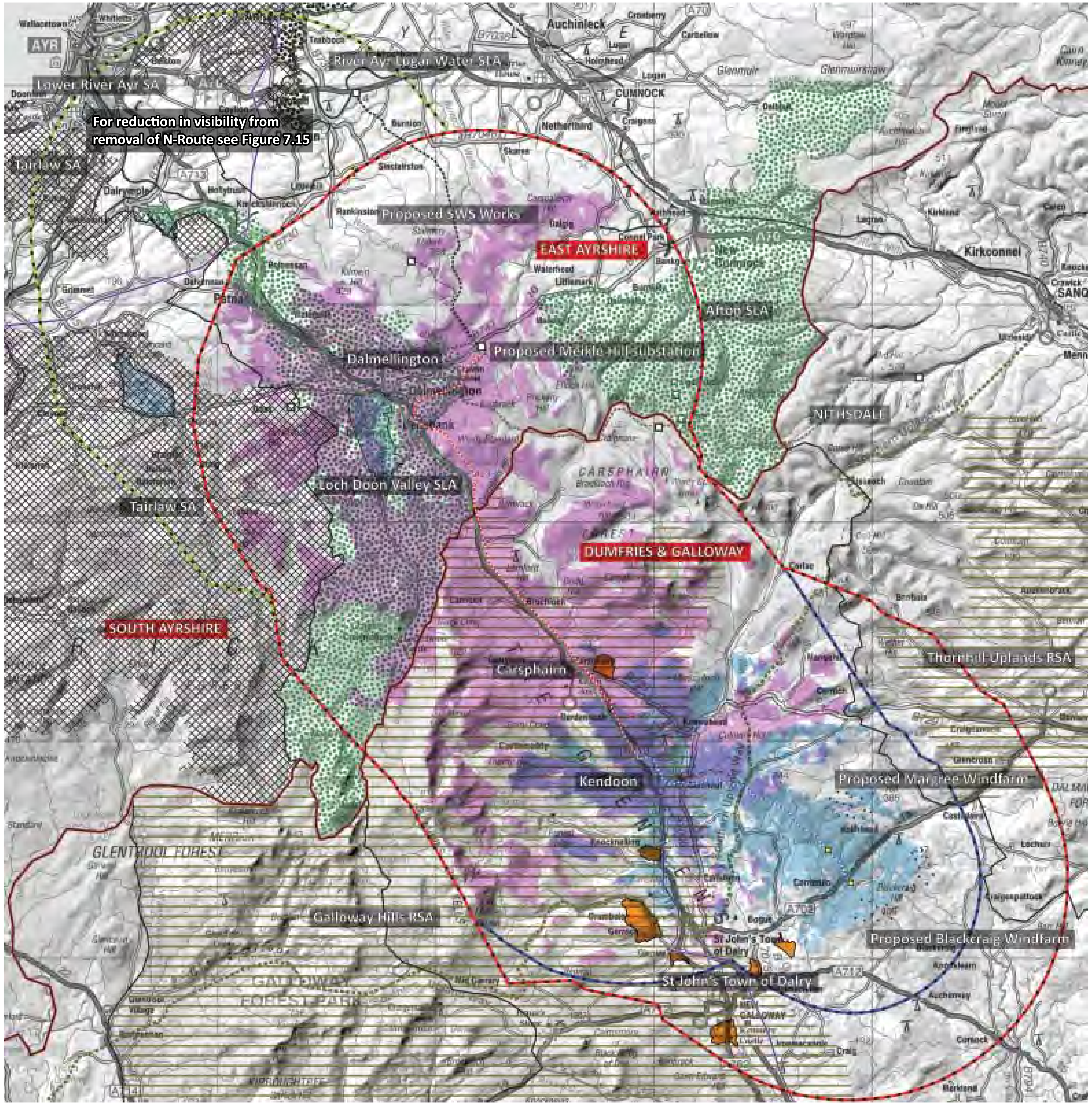
2 Theoretical visibility is illustrated for a long length of this road, and stretches from Loch Doon Castle northwards to the dam wall at the northern end of the loch. This visibility is of the L7 sections of the proposed grid connection and permits views of between 2.5 and 8km. Owing to the elevated nature of the Glenkens which lie beyond the proposed OHL, the development will appear as a backclothed element against this, and as such the majority of it (that >3km) will be imperceptible using the criteria for this assessment. It is also the case that the existing N-Route has broadly the same visual envelope as the proposed OHL from these areas, as the route it takes is similar to the proposed line. The magnitude of change, therefore will be limited as experienced from this road, and neutral in nature.

3 The landscape of and around the Loch is open and permits long distance views, and there is limited forest, or other vertical influences, that would restrict the theoretical visibility, in real terms, from these areas.

4 In light of the limited change that will be evident within views from this road, there is considered to be **no effect** upon the perception of the landscape resource from any part of it.

7.5.2.2.9 Minor roads around New Cumnock

1 A number of minor roads to the west and south of New Cumnock fall within the outer edges of the Study Area. These roads provide access to isolated farms and residential properties, and are thus lightly trafficked and do not provide access to any notable tourist destinations, although to the south of New Cumnock Glen Afton



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km landscape Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route
- Regional administrative boundary
- Local administrative boundary

South Ayrshire

- Scenic Areas

East Ayrshire

- Sensitive Landscape Areas

Dumfries & Galloway

- Regional Scenic Areas
- Non-inventory designed landscapes
- Inventory designed landscapes

Theoretical visibility

- L7 Tower line section visible
- Wood Pole line section visible
- Wood Pole and L7 sections visible

2.5km 7.5km
0m 5km 10km

N

Figure 7.10 - Broad scale landscape designations overlaid with ZTVs for Wood Poles and steel lattice towers

is accessed via one of these roads, and is covered by the Afton SLA, which provides a degree of elevated sensitivity in this localised area.

2 The theoretical visibility available from these roads is extremely limited, with only one area presenting visibility at between 6 and 10km. It is likely also that this visibility would be further reduced when the large tracts of intervening forest in the adjacent landscape types is taken into consideration. This area of visibility is outwith the SLA designated area.

3 On account of the very limited change to any views, which when considering actual visibility may be no change, and the neutral sensitivity of the area within which this visibility potentially occurs, there is expected to be **no effect** upon the perception of the landscape resource from these minor roads.

7.5.2.2.10 Minor roads between Milnmark, Cuckoostone Cottage and Auchenstroan Craig

1 This minor road provides access to some of the more remote areas within the south-eastern portion of the Study Area, including Lochinvar, Corseglass, and the area around Mackilston Hill, and the small numbers of isolated farmsteads and residential properties in this area. There is also access provided to a length of the SUW, which for approximately 1.5km follows the alignment of the road. There is very little other tourist interest within this area, although the Corseglass School (ruin of) is identified as a feature of interest on the 1:25,000 mapping.

2 Small parts of the area are covered by the Galloway Hills RSA, but the majority of it contains no formal landscape designation, and there is not considered to be a particularly raised sensitivity to the proposed development relative to this. There are, however, areas where long ranging and high quality views are experienced, especially around the Lochinvar waterbody and in areas where views are available at distance towards the Galloway Forest area in the east. These views, and the current lack of any electrical infrastructure of the scale and size proposed in this area, result in a correspondingly raised sensitivity. The presence of the commercial forest, and the windfarms at Blackcraig & Margree, will however serve to decrease any sensitivity where they are available in views. Overall it is considered that the area has a slightly raised sensitivity to the proposed development.

3 The pattern of theoretical visibility within this area reflects the slightly fragmented nature of the topography and landform that prevails. The most appreciable potential visibility is found in proximity to where the proposed OHL crosses the minor road and Southern Upland Way near to Butterhole Bridge, where clear views across an open landscape will be available of an extended length of the line. As distance increases from this crossing, however, the alignments of the roads, in following the generally lower topographical features (valleys and watercourses), results in only fragmented views of between 1.5 and 8km being potentially available.

4 The potential visibility identified in this area is in large part toward the wood pole element of the grid connection, which for much of its length to the east of Butterhole Bridge, runs within commercial forest and will therefore be appreciably less visible than that identified from certain sections of these roads. Conversely, the line runs west across open moorland from Butterhole Bridge to Glenhoul, ensuring that visibility of this section will be more marked.

5 The magnitude of change in the views from these roads will vary between appreciable, where the roads are in close proximity to the OHL, to limited and negligible, where screening afforded by topography and forest provides only glimpsed views towards it. This magnitude of change, when considered with the slightly increased sensitivity of the area through which the roads run, results in there being a **locally major effect** upon the perception of the landscape resource, with this level of effect limited to very localised areas. This effect is **locally significant**. The nature of this effect is **adverse**.

7.5.2.2.11 Minor road at Tairlaw

1 There is no theoretical visibility from this road, and therefore **no effect** upon the perception of the landscape resource.

7.5.2.3 Effects on other specific receptors

7.5.2.3.1 Southern Upland Way

1 The Southern Upland Way (SUW) crosses the Study Area, in a north-west south-east direction, between Benbrack and Mid Garrary, in the eastern portion of the Study Area near to St John's Town of Dalry. A long distance walking route (also used for horse riding and cycling in areas), the SUW provides a route from Scotland's east coast at Cockburnspath to its west coast at Portpatrick.

2 The portion of the route through the Study Area is well visited and St John's Town of Dalry represents one of the main overnighting locations along the route. It is a well signposted route, and links well to other tourist features within the local area, including the Youth Hostel at Blackwater Bridge, which lies in close proximity to the proposed OHL.

3 Theoretical visibility is available over approximately a 10km length of the route within the Study Area, from 0 to 8km from the proposed line. The proposed wood pole section of the line crosses the SUW near to Butterhole Bridge, and it is this element of the grid connection to which most of the theoretical visibility refers, although there are parts of the SUW to the west of this, near to Blackwater Bridge, where visibility is theoretically available of the L7 Tower section of the line.

4 The prevailing landscape character of the areas where visibility is potentially available includes Southern Uplands with Forest, Foothills with Forest and Upper Dales landscape types, although the prevalence of forest areas within the former two landscape types is less than would be expected given the character descriptions and surrounding areas. As such, the theoretical visibility is probably quite an accurate representation of the actual visibility that would be experienced from these areas towards the proposed development.

5 The current baseline within the area surrounding the SUW contains little in the way of major electrical infrastructure, although along its length the prevalence of windfarm developments, at Wether Hill, Blackcraig & Margree, along with the commercial forest areas, provide a reference towards the man-modified nature of this landscape generally. Although these would suggest a reduced sensitivity to the proposed development, they are generally seen as distant skylined elements, or are generally more subtle than the presence of the OHL when viewed at close range, as will be the case for sections of the SUW within the Study Area.

6 It is considered, therefore, that in areas where the visibility of the OHL, especially the wood pole section, is viewed at close range and with little in the way of intervening screening, there will be an appreciable change to the perception of the landscape resource. As distance from the OHL increases, and views of the development become more fragmented, this change will be less marked, especially where the line becomes imperceptible. When combined with the slightly increased sensitivity to the proposed development, resulting from the large numbers of users of this walking route, and the nature of the landscape over which it crosses, there is considered to be a **locally major effect** upon the perception of the landscape resource, which is therefore **locally significant**. This is not widespread, with the majority of the route experiencing little or no effect upon this perception. The nature of this effect is **adverse**.

7.5.2.3.2 Historic Gardens and Designed Landscapes - Inventory and Non-Inventory Sites

1 There are 4no. Inventory sites, and 9no. Non-Inventory site within the Study Area.

2 The ZTV has been used to identify any theoretical visibility of the proposed grid connection from Inventory and Non-Inventory Sites within the Study Area. Site visits, plans and 3D modelling technology have been used to confirm the potential for actual visibility and to establish whether or not the proposed development will alter the setting of any of these designated sites.

Inventory sites

Craigengillan

3 Craigengillan House and Estate is located adjacent to, and to the west of, Dalmellington, with the house itself located some 3km south of the town. According to Historic Scotland's assessment of this property, it is a *'rare example of a complete and unfragmented estate landscape, started in the 16th century and held by one family (McAdam) for almost 400 years'*. The house is a Category A Listed Building, whilst the other features of the estate, including the varied gardens and landscapes are adjudged as being of 'Outstanding Value'. The estate comprises *'formal gardens, walled garden, Japanese garden, garden buildings and notable drystone walling, extensive policy woodland, rocky gorge, and industrial archaeological remnants'*.

4 The house and surrounding landscape also sit within the Loch Doon Valley SLA, potentially elevating the sensitivity of it.

5 The ZTV indicates visibility of the landscape containing the OHL is available from much of this landscape, although with areas on its eastern boundary being largely screened by Bellsbank Plantation and Town's Common. The visibility available is generally towards the more elevated sections of the L7 line, particularly where it crosses Court Knowes and travels up the Parrie Burn, and is present at a distance of between 1.5 and 4km.

6 Both within and adjacent to the estate, commercial, riparian and policy woodland, such as that at Bellsbank Plantation and along the River Doon, will serve to screen the development from some areas of the estate displaying theoretical visibility.

The sections of the proposed OHL which are generally theoretically visible also run through areas of commercial forest, reducing further the available visibility of it from the surrounding landscape.

7 There will undoubtedly be some visibility from within the designed landscape, but when the screening afforded by forest and other tree planting is accounted for, this is not expected to be extensive. Any visibility that is achieved will also render the visible sections of the line perceptible, i.e. they will be visible either backclothed at under 3km or visible skylined at up to 10km, increasing the potential for effects.

8 Within the north of the HGDL, the existing N-Route crosses the landscape in proximity to Bogton Loch as it routes towards Waterside and Patna. As part of the proposed development, this section of the N-Route will be removed and decommissioned, resulting in a positive change to the landscape resource in this area.

9 Considering the expected level of visibility within the HGDL at Craigengillan as described above of the proposed L7 OHL where it replaces the existing N-Route, there is considered to be a **minor effect** upon the perception of the landscape resource, which is **not significant**. The nature of this effect is **adverse**. The perception of the landscape resource from which the N-Route will be removed (River Doon valley north of Dalmellington) is considered to result in a **minor effect**, which is also **not significant**. The nature of this effect is **beneficial**.

Blairquhan castle

10 There will be no visibility of the proposed OHL from within this NIDL, and therefore **no effect** upon the perception of the landscape resource.

Skeldon House

11 There will be no visibility of the proposed OHL from within this NIDL, and therefore **no effect** upon the perception of the landscape resource resulting from it. There will, however, be a reduction in visibility of OHL infrastructure resulting from the removal of the existing N-Route north of Dalmellington. This reduction would be over a distance of approximately 5km, and would therefore be subtle and would only constitute a **minor effect**, which would be **not significant**. The nature of this effect is **beneficial**.

Rozelle (La Rochelle)

12 There will be no visibility of the proposed OHL from within this NIDL, and therefore **no effect** upon the perception of the landscape resource.

Non-Inventory sites

Knockgray Park

13 The Non-Inventory Designed Landscape (NIDL) at Knockgray Park is situated circa 1km to the east of Carsphairn, and accessed from the B729. Not publicly accessible, this property and associated landscape spread from the road, upslope towards Quantans Hill for approximately 1km, whilst the land holding of the estate spreads over a much wider area. The NIDL sits within the Galloway Hills RSA, further elevating its sensitivity.

14 Given the proximity of the NIDL to the L7 section of the proposed OHL, the theoretical visibility identified covers the entire area of the NIDL at a distance of under 1.5km, which whether backclothed or skylined would be perceptible. Although this is the case, this needs to be taken in the context of the existing electrical infrastructure currently present within the locale, and specifically within views from the NIDL. The existing N-Route follows a broadly similar line to the proposed OHL in this location, and any views of the proposed development will be largely the same, although of a slightly larger structure and over a slightly shorter distance, to that which exists currently.

15 Whilst the theoretical visibility appears extensive, the NIDL at Knockgray contains large areas of deciduous and evergreen tree and shrub planting, which over parts of the NIDL will appreciably limit views of the proposed OHL. It is therefore likely that the peripheral areas of this landscape will be those which experience the most noticeable change, having limited or no screening from surrounding woodland or other vegetation.

16 In light of the limited magnitude of change resulting from the proposed OHL, and notwithstanding the slightly elevated sensitivity of the NIDL, there is expected to be only limited change upon the perception of the landscape resource, and therefore a **minor effect** on the setting of this NIDL. This effect is correspondingly **not significant**. The nature of this effect is **neutral**.

Kenmure Castle

17 There will be no visibility of the proposed OHL from within this NIDL, and therefore **no effect** upon the perception of the landscape resource.

Knocknalling

18 This NIDL will experience theoretical visibility of the OHL at between 2.5 and 6km, with this being views of the wood pole section of the proposed development as it crosses the high ground at Craigencorr and Glenshimmeroch Hills to the north-east. With the limit of perceptibility for this type of development being 2.5km, the proposed development will not be perceptible from any part of this NIDL. In light of this, there will be **no effect** upon the perception of the landscape resource.

Hannaston

19 The ZTV at Figures 7.13 & 7.14 (outline) and 7.17 - 7.37 (detail) illustrate that there will be visibility of the proposal at between 4 and 6km from this NIDL. Given the location of this landscape relative to the different sections of the development, this visibility represents a potential view of the L7 Tower sections of the route, which will be backclothed given the elevated nature of this property. The OHL will therefore not be perceptible, with the perceptibility limits for this type of development being between 2 and 3km when viewed as a backclothed element. There will therefore be **no effect** to the perception of the landscape resource.

Garroch

20 There will be no visibility of the proposed OHL from within this NIDL, and therefore **no effect** upon the perception of the landscape resource.

Glenlee

21 There will be no visibility of the proposed OHL from within this NIDL, and therefore **no effect** upon the perception of the landscape resource.

The Holme

22 There will be no visibility of the proposed OHL from within this NIDL, and therefore **no effect** upon the perception of the landscape resource.

Barscobe House

23 There will be no visibility of the proposed OHL from within this NIDL, and therefore **no effect** upon the perception of the landscape resource.

Big Drumfork

24 There will be no visibility of the proposed OHL from within this NIDL, and therefore **no effect** upon the perception of the landscape resource.

7.5.2.3.3 Regional Scenic Areas (RSAs)

Galloway Hills RSA

1 The Galloway Hills RSA spreads across a large portion of the south-west of the Study Area, extending from the Galloway Uplands, north-eastwards into the Carsphairn Forest, and taking in the Water of Deugh valley and the A713. This therefore represents the easternmost edge of the designated area, although there is a 'tongue' of the area which spreads into the Carsphairn Forest, and which covers the high points of Beninner and Cairnsmore of Carsphairn. The existing N-Route runs through this portion of the RSA, where it broadly follows the road corridor.

2 The presence of these man-made elements serve to reduce the sensitivity of this part of the designated area to the proposed development, although only within the areas where they are present. The visibility of the proposed OHL is extensive over the area of designation within the Study Area, although the increase in visibility compared to that which exists of the existing N-Route is very limited.

3 In light of this limited change to the visibility resulting from the proposed OHL, and considering the reduced sensitivity of the part of the designated landscape within the Study Area, there is considered to be no change to the perception of the landscape resource, and therefore **no effect**.

Thornhill Uplands RSA

4 There will be no visibility of the proposed OHL from within this designated landscape, and therefore **no effect** upon the perception of the landscape resource.

7.5.2.3.4 Sensitive Landscape Areas (SLAs)

Loch Doon Valley SLA

1 This designated area lies in the northern part of the Study Area, around Dalmellington and Loch Doon. The Study Area contains upwards of 90% of the extent of the designation, presenting the potential for large scale effects upon the perception of the landscape resource. The existing N-Route currently runs through the north-western

extent, and along its north-eastern boundary, consistent with the A713 corridor. This presence of electrical infrastructure serves to lower the sensitivity to the proposed OHL in light of any effect upon the perception of the landscape resource.

2 The effect of the proposed development will be experienced in two distinct parts over this part of the route corridor. Where the L7 Towers replace the existing N-Route, the visibility of the line, and therefore the change to the perception of the landscape resource, will be broadly similar, although slightly different in nature given the different extents of backclothing and screening between the N-Route (which runs in the Water of Muck valley) and the new L7 line (which runs over higher ground).

3 Conversely, to the north of Dalmellington, where the N-Route will be removed from the landscape (and not replaced), there will be a reduction in comparative visibility that will have a more distinct change to the perception of the landscape resource, and which will be positive in nature.

4 In light of the changes in visibility, primarily to the north of Dalmellington, there is considered to be a **locally moderate effect** upon the perception of the landscape resource, which is therefore **significant**. The nature of this effect is **beneficial**.

Afton SLA

5 There will be extremely limited visibility of the proposed OHL from within this designated landscape, and therefore **no effect** upon the perception of the landscape resource.

River Ayr Lugar Water SLA

6 There will be no visibility of the proposed OHL from within this designated landscape, and therefore **no effect** upon the perception of the landscape resource.

7.5.2.3.5 Scenic Areas (SAs)

Tairlaw SA

1 The Tairlaw SA is situated in South Ayrshire, in the western portion of the Study Area and covers large parts of the Carrick Hills to the south of Ayr. The designated area abuts the Loch Doon Valley Sensitive Landscape Area, ensuring the entire landscape between Dalmellington and the coast is subject to either the SA or SLA designation. The area of landscape subject to this designation is remote in nature, especially in the south, and contains little in the way of existing electrical or road infrastructure. In light of this, and the extent of general designation in this area, there is considered to be an elevated sensitivity to the proposed OHL when considering the perception of the landscape resource.

2 The change in visibility from within this designated area differs dependent upon the element of the proposed scheme being considered. The visibility resulting from the replacement section of the OHL will be broadly similar to that of the existing N-Route, making any change to the perception of the landscape resource minimal. The removal of the N-Route, however, will result in a loss of visibility in the northern part of the Study Area, from the peripheral eastern areas of the designation where the higher ground descends towards the River Doon valley.

3 Considering elevated sensitivity to the proposed OHL, and the minor changes to the visibility as described above, there is considered to be a **minor effect** upon the perception of the landscape resource, which is therefore **not significant**. The nature of this effect is **beneficial**.

Lower River Ayr SA

4 There will be no visibility of the proposed OHL from within this designated landscape, and therefore **no effect** upon the perception of the landscape resource.

7.5.2.4 Summary of effects on other receptors of perception landscape resource

1 Table 7.06 below outlines the summary of effects upon the landscape resource from route corridors and other specific receptors as a result of the Blackcraig & Margree Grid Connection.

Table 7.06 - Summary of effects on the perception of the landscape resource from route corridors & other specific receptors

Landscape Receptor	Effect	Nature of effect (Beneficial, Neutral, Adverse)	Notes	Significance
Route Corridors				
A713	Locally Moderate	Adverse	South of Dalmellington	**Significant**
	Locally Moderate	Beneficial	North of Dalmellington	**Significant**
A702	Minor	Adverse		**Not Significant**
A712	No Effect	-		**Not Significant**
B741	Minor	Adverse		**Not Significant**
B7000/B729	Locally Moderate	Adverse		**Significant**
B730	No Effect	-		**Not Significant**
B7046	No Effect	-		**Not Significant**
Minor road to Loch Doon	No Effect	-		**Not Significant**
Minor roads around new Cumnock	No Effect	-		**Not Significant**
Minor roads between Milnmark, Cuckoostone Cottage and Auchenstroan Craig	Locally Major	Adverse		**Significant**
Minor roads at Tairlaw	No Effect	-		**Not Significant**
Other receptors				
Southern Upland Way	Locally Major	Adverse		**Significant**
Craigengillan GDL	Minor	Adverse	Where L7 OHL replaces N-Route	**Not Significant**
	Minor	Beneficial	Where N-Route removed north of Dalmellington	**Not Significant**
Blairquhan Castle GDL	No Effect	-		**Not Significant**
Skeldon House GDL	Minor	Beneficial		**Not Significant**
Rozelle GDL	No Effect	-		**Not Significant**
Knockgray Park NIDL	Minor	Neutral		**Not Significant**
Barscobe House NIDL	No Effect	-		**Not Significant**
Kenmure Castle NIDL	No Effect	-		**Not Significant**
Knocknalling NIDL	No Effect	-		**Not Significant**
Glenlee NIDL	No Effect	-		**Not Significant**
The Holme NIDL	No Effect	-		**Not Significant**
Big Drumfork NIDL	No Effect	-		**Not Significant**
Hannaston NIDL	No Effect	-		**Not Significant**
Garroch NIDL	No Effect	-		**Not Significant**
Galloway Hills RSA	No Effect	-		**Not Significant**
Thornhill Uplands RSA	No Effect	-		**Not Significant**
Loch Doon Valley SLA	Locally Moderate	Beneficial	Where N-Route removed north of Dalmellington	**Significant**
Afton SLA	No Effect	-		**Not Significant**
River Ayr Lugar Water SLA	No Effect	-		**Not Significant**
Tairlaw SA	Minor	Beneficial		**Not Significant**
Lower River Ayr SA	No Effect	-		**Not Significant**

2 The proposed grid connection will result in a limited number of significant effects upon the perception of the landscape resource from route corridors & other specific receptors, with the majority of receptors experiencing an effect which is not significant. The majority of these significant effects will be adverse, although there a number of beneficial effects, both significant, and not.

3 Of the range of route corridors which run through the Study Area, the main one is the A713 Galloway Tourist Route, which will experience a number of locally significant adverse and beneficial effects. Those effects that are adverse are experienced where the new L7 OHL runs close to the road corridor, and its increased size relative to the existing N-Route, or its closer proximity to the road, result in a more acute change to this sensitive receptor. Beneficial effects occur to the north of Dalmellington, where the removed N-Route is not replaced by the L7 line, and the net loss of electrical infrastructure will be readily perceptible.

4 Elsewhere, other significant effects upon route corridors are limited to small parts of the B7000/B729 to the east of Dundeugh Hill, where the wood pole section of the OHL crosses the road near to Glenhoul, and very localised sections of the minor roads between Milnmark, Cuckoostone Cottage and Auchenstroan Craig where the OHL runs in close proximity to, or crosses, the road corridor.

5 The Southern Upland Way, in proximity to Butterhole Bridge, experiences localised significant effects. In crossing this sensitive receptor, the change to the perception, albeit very localised, will be marked, with the OHL becoming a readily perceptible and noticeable feature within the immediate surrounding landscape. The significant effect in this location arises also from the effect upon the link track which provides access from the SUW southwards towards the Youth Hostel at Blackwater Bridge.

6 The only other significant effect upon the perception of the landscape resource is experienced by the Loch Doon Valley Sensitive Landscape Area. To the north of Dalmellington, the removal of the N-Route from this sensitive valley landscape results in beneficial effects along this 12km length, with the resulting landscape and views along the valley being less influenced by the presence of electrical infrastructure of this nature.

7 In summary it can be seen that the significant effects identified upon the route corridors are limited to only very localised sections of them, and for one of the four occurrences, the effect is beneficial. The effects upon other specific receptors is equally localised, with only a short section of the Southern Upland Way displaying significant adverse effects.

7.5.3 Visual amenity

7.5.3.1 Visibility within the Study Area

7.5.3.1.1 General visibility

1 Visibility and visual amenity within the Study Area are a function, in part, of the number of landscape types which, in turn, relate closely to the topography. The Study Area comprises a diverse topographical range, from the rugged uplands of the Galloway Forest Park in the west, to the Flooded Valley and Dale landscapes running through the centre of the Study Area, to the typical Southern Upland Landscapes to the east of the Study Area. This juxtaposition of the elevated and lowland landscapes forms the basis for the patterns of visibility observed within the Study Area, and which is shown on the ZTV and Perceptibility drawings at Figures 7.13 - 7.16. Other important features of the landscape of the Study Area, such as the extensive areas of commercial forest, and the disposition of mature woodland vegetation associated with some of the larger individual properties, at times moderate the visibility toward the OHL. The views typically available within the Study Area are as follows:

- Viewpoints from forest tracks and highpoints within forested areas (Viewpoints 5 & 29).
- Views from locations that are likely to be visited by visitors to the area, such as the tourist information point/picnic site at Mossdale (Viewpoints 7 & 24).
- Views from highpoints and walking routes within the Study Area which are likely to attract hikers and other visitors (Viewpoints 12, 23, 27 & 36).
- Viewpoints alongside roads, both minor and major (including laybys), which provide views of the proposed development for short, and sometimes more protracted periods. (Viewpoints 2, 4, 13, 16, 18, 21, 22, 25, 26 & 35).
- Views from populated areas (Viewpoint 33).

2 The majority of public routes are found within the more accessible valley or dale landscapes and thus the views from within and from the edges of the valleys tend to be those most often gained by viewers. The backdrop of the elevated landscapes also provides an important component of many of the views within the area. By contrast the elevated landscapes themselves have few routes through them, highlighting the sense of remoteness that some of these viewpoints offer.

7.5.3.1.2 Key visibility

3 The theoretical visibility of the OHL has been determined through the production of a computer generated ZTV map (bare ground) based on the visibility of the new OHL, and illustrates the number of wood-poles/towers theoretically visible. See Figures 7.13 - 7.14 (outline) and 7.17 - 7.37 (detail). The ZTV indicates that visibility of the proposed OHL is generally focussed on a number of distinct areas as follows:

- In close proximity to the OHL where topography does not restrict views. The more elevated the landscape becomes, such as at the extreme northerly and southerly ends of the route, the more fragmented views of the OHL become;
- The north-easterly facing slopes of the Galloway Uplands;
- The south-westerly facing slopes and high points within the Carsphairn Forest Area;
- The village of Carsphairn and peripheral areas of the town of Dalmellington; and
- The A713 and other more minor routes in close proximity to the OHL.

4 The ZTVs identify the areas of visibility on the basis of a bareground model where the screening effects of woodland, forest and built form are assumed to be absent. In combination with providing the overall theoretical visibility of the OHL, the Figures 7.15 - 7.16 (outline) and 7.38 - 7.51 (detail) also illustrate the theoretical perceptibility of the OHL from any location within this zone of theoretical visibility. As outlined above, the theoretical perceptibility of the OHL is a key determinant in assessing any effects, and at times may be appreciably different from the theoretical visibility.

5 In the case of this proposal the ZTV appreciably overstates the visibility that will be experienced in a number of locations along the route. Within the areas of forest, there will only be limited visibility to the proposed OHL rather than the broad areas shown on the ZTVs. Similarly the areas of forest provide appreciable screening of theoretical views outwith the forest, and this will very markedly reduce the overall visibility within the landscape in these areas.

6 The assessment of the effects of the proposed OHL on visual amenity has been undertaken on the basis of a number of viewpoints that provide a representative selection of the OHL and its relationship with the visual amenity within the Study Area. This approach allows an understanding of the degree to which the ZTVs overstate the visibility that will be experienced.

7 The selection of viewpoints has been undertaken to concentrate on the proposed OHL. There are no views included to specifically show just the removal of the additional 12km of N-Route removal north of Dalmellington, although parts of this are included in a number of views of the northern part of the proposed OHL. In addition it must be noted that the assessments were carried out in near ideal weather conditions which would allow the OHL to be more visible than is often the case.

8 In all cases the views described are those that will result during the operational life of the OHL and are considered to be permanent. The effects during construction will result in the gradual increment of elements within the landscape until at completion the OHL is apparent in its entirety. For the purposes of this assessment, due to the uncertainty of the stage during construction at which any effect may, or may not, become significant, it has been assumed that the effects associated with the operational phase will persist fully for the construction phase.

9 The effects assessed include all of the components of the OHL, although references are predominantly to the wood poles (and their associated steelwork) or steel lattice towers as these are often the most visible and perceptible components of the development. Other elements such as forest changes and the conductors themselves are mentioned where they are relevant, as are the substations at the Blackcraig & Margree windfarms. The removed section of the N-Route is also identified where it is an important component of the change to the view.

10 As with the consideration of effects on the perception of the landscape resource, the assessment of the visual amenity assumes the presence of parts of the SWS Project grid infrastructure reinforcement and the presence of windfarms at Blackcraig and Margree.

11 The landscape type within which each viewpoint is located is noted. The principal landscape types over which the proposed OHL will be viewed and those which will be visible beyond the proposed OHL (Backdrop) are also noted where appropriate. The distances provided for each viewpoint are in all cases to the nearest wood pole or steel lattice tower.

12 This assessment of individual specific effects on the representative viewpoints, as outlined above, allows a summary view to be drawn regarding the more general effects of the proposed development on the visual amenity throughout the Study Area. This summary view is presented in the final stage of the assessment.

13 The selected viewpoints are shown in Figure sets 7.52 - 7.70. A baseline photograph (with the windfarms at Blackcraig and Margree & Dersalloch and the SWS Project grid works added as required), a wireline and a photomontage are included. This is described in more detail at 7.2.4.5.

14 The viewpoint numbering employed below reflects the full range of viewpoints considered for the project, and is therefore not sequential given the viewpoints that were discounted as part of the ongoing assessment.

7.5.3.2 Substation visibility

1 The substations at Blackcraig & Margree are as identified within Chapter 5, and will contain structures within them of up to 9m high. These higher parts of the development will be Strain Gantries, whilst the remaining structures within the compounds, including control buildings, transformers and other electrical elements will be lower.

2 The ZTVs shown below illustrate the worst case theoretical visibility of the two substations, and as outlined earlier represent theoretical visibility as if the entire substation footprint were 9m high. They have also been calculated on a bareground model, and do not therefore take account of forest cover.

3 The two substations at Blackcraig & Margree, proposed as part of this project, will constitute new structures within the landscape, the type and form of which there is little precedent for within this locale.

7.5.3.2.1 Blackcraig substation

1 As can seen below the extent of the visibility is restricted generally to an area within 2-3km from the substation, with any visibility outwith this range constituting visibility from higher ground and nearby hill summits. The position of the substation to the south of a small area of slightly higher ground at Wallace's Rig also restricts visibility to the north and north-east.

2 Given the location of the substation within an area of coniferous forest, the majority of which is over the 9m height of the tallest part of the substation, any visibility indicated of the substation on the figure below will, in reality, be appreciably reduced. This is notwithstanding the felling that will occur within this area to facilitate the wood pole OHL.

3 The wood pole line in this locale, with structures of up to 16m high, and running across much larger areas of the landscape, will be appreciably more visible as a new element within the landscape than either of the proposed substations.

7.5.3.2.2 Margree substation

1 Comparative to the substation at Blackcraig, the Margree substation will be more extensively visible owing to its position on the flank of Shield Willie Hill. The higher ground at Margree and Knockman Hill does, however, restrict visibility to the north-east and south-west, with the pattern of visibility generally north-west south-east in orientation, along the area of lower ground.

2 As with the substation at Blackcraig, the location of the substation within the coniferous forest areas ensures that the true visibility will in fact be appreciably less, again, notwithstanding the felling required to facilitate the OHL.

3 As highlighted above, the proposed OHL will constitute a much more visible element within the landscape in this area.

Figure 7.11 - Blackcraig substation ZTV

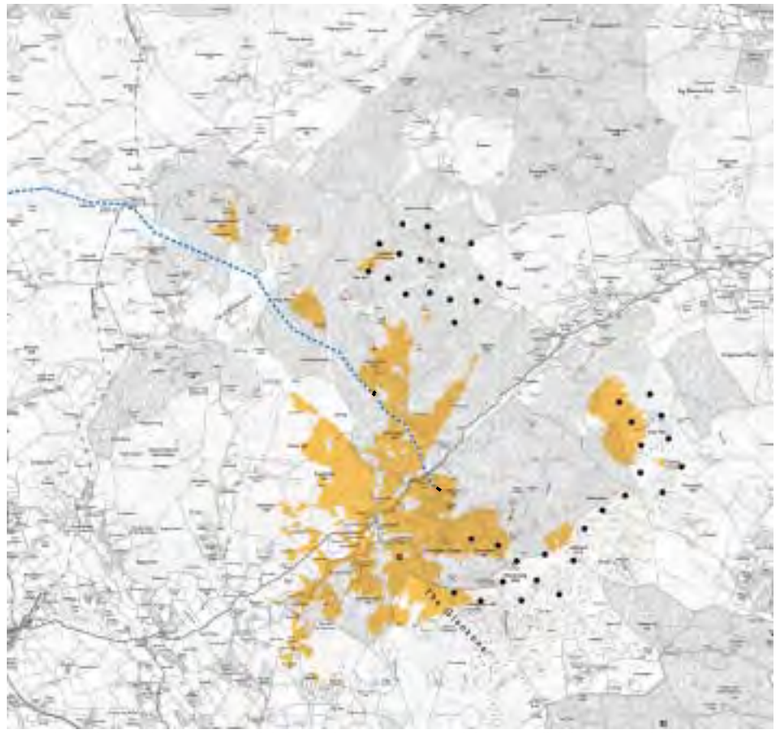
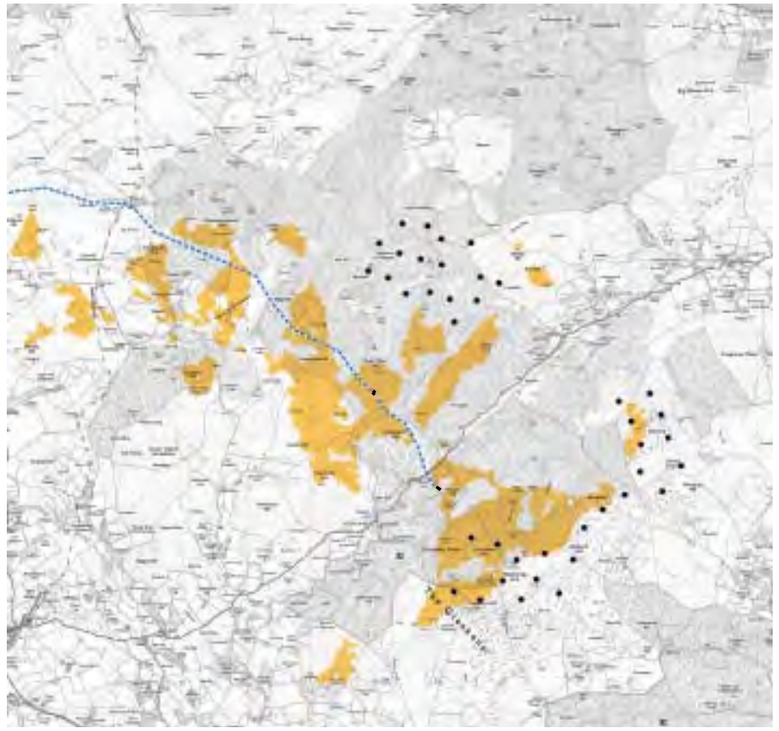
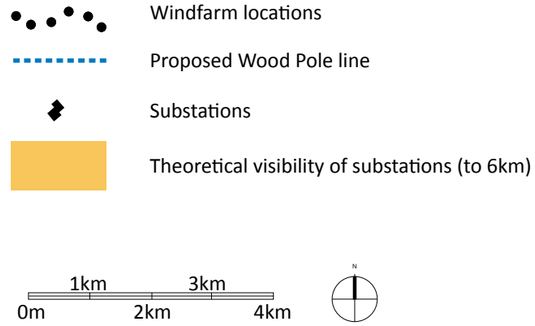
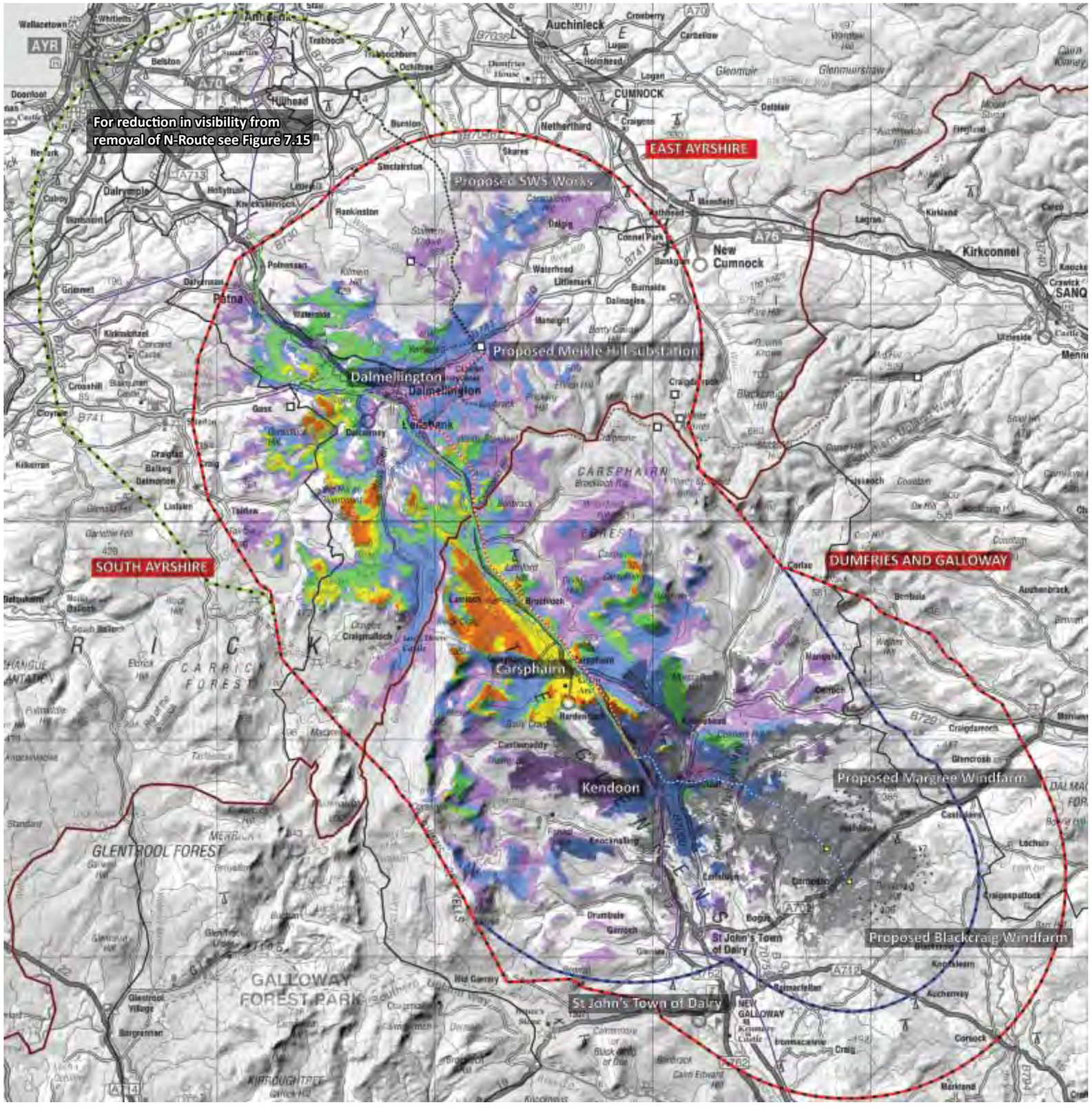


Figure 7.12 - Margree substation ZTV







Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km landscape Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Administrative boundaries

- Regional administrative boundary
- Local administrative boundary

Theoretical visibility

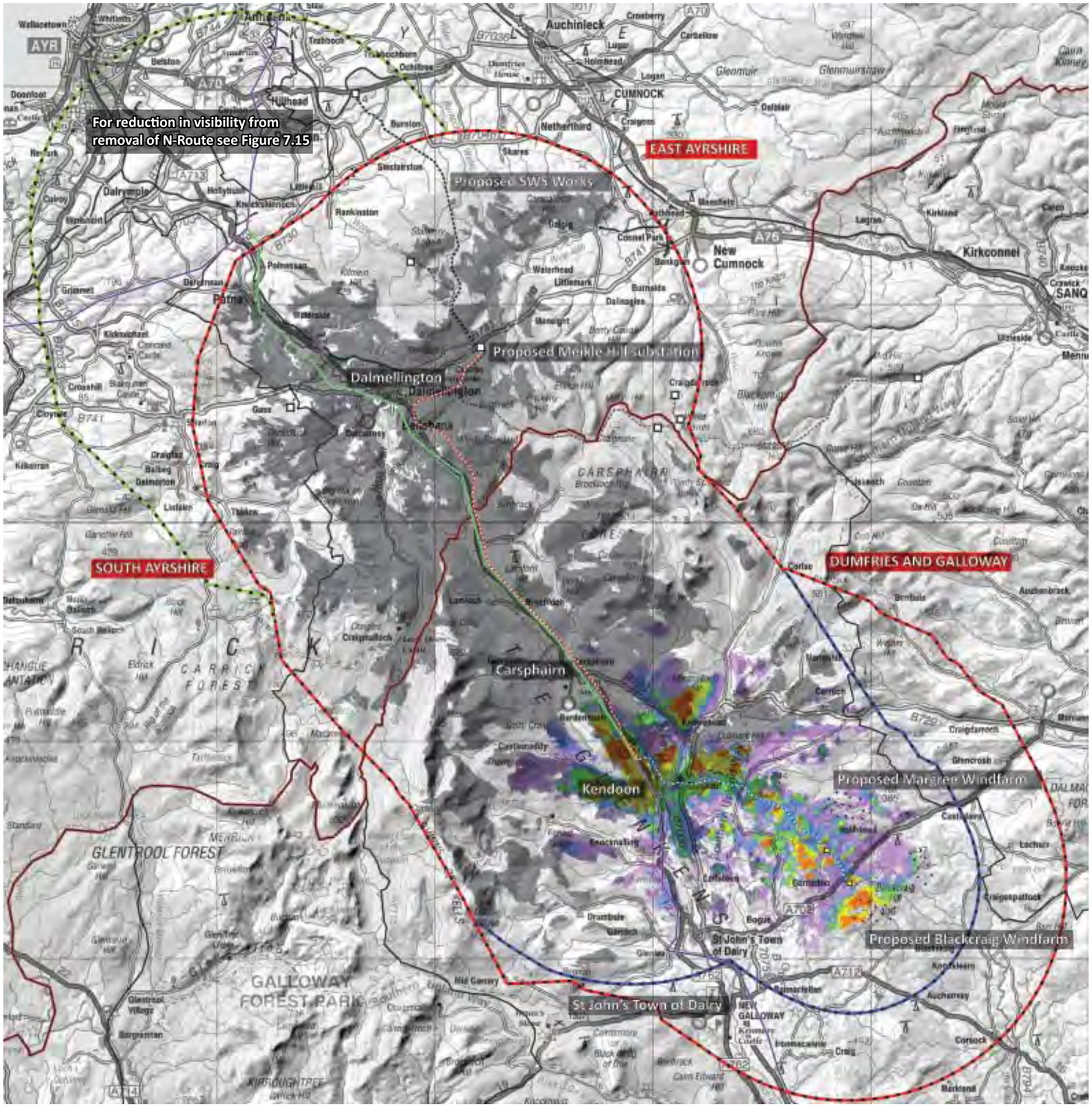
- 1-10 towers visible
- 11-20 towers visible
- 21-30 towers visible
- 31-40 towers visible
- 41-73 towers visible
- Visibility of Wood Pole tower section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.

Note 2: Numbers of towers visible relates to the maximum number of towers potentially visible at any one place within the Study Area (73). Total numbers of towers for the whole scheme = 102.

2.5km 7.5km
0m 5km 10km

Figure 7.13 - ZTV - L7 Tower section



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km landscape Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Administrative boundaries

- Regional administrative boundary
- Local administrative boundary

Theoretical visibility

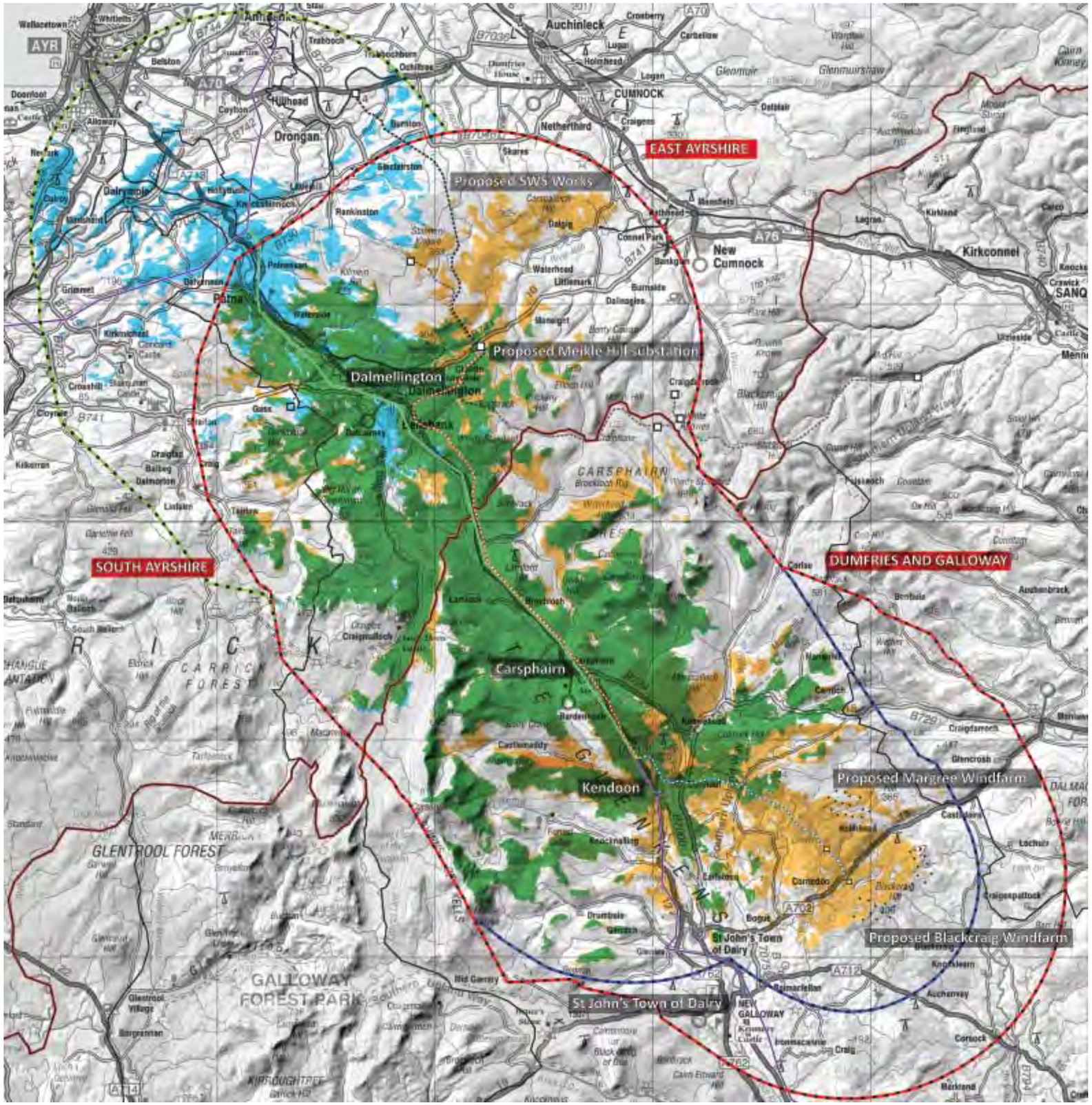
- 1-13 Wood Poles visible
- 14-26 Wood Poles visible
- 27-39 Wood Poles visible
- 39-52 Wood Poles visible
- 52-106 Wood Poles visible
- Visibility of L7 Tower section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.

Note 2: Numbers of Wood Poles visible relates to the maximum number of poles potentially visible at any one place within the Study Area (106). Total numbers of poles for the whole scheme = 159.

2.5km 7.5km
0m 5km 10km

Figure 7.14 - ZTV - Wood Pole section



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km landscape Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Administrative boundaries

- Regional administrative boundary
- Local administrative boundary

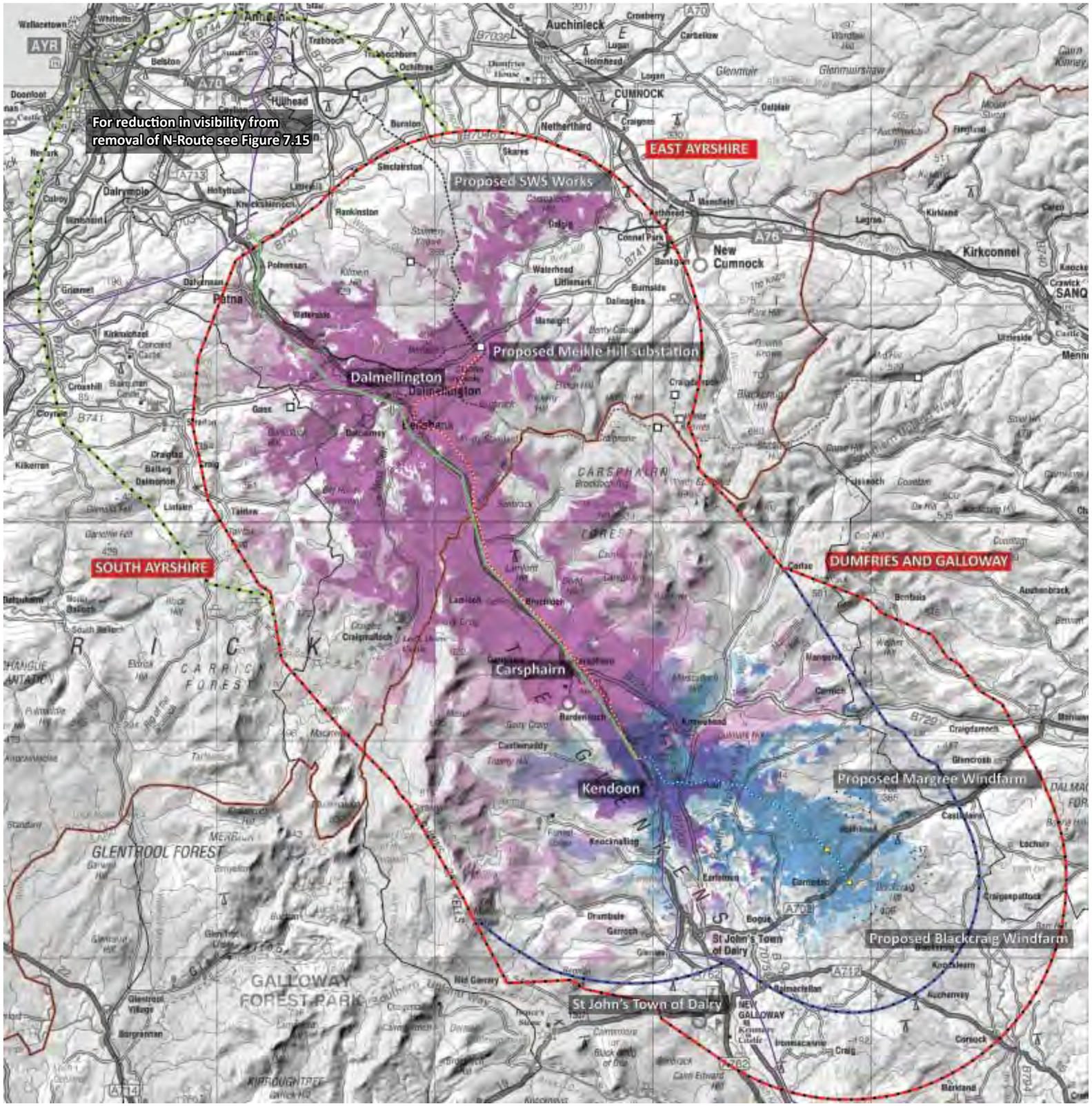
Theoretical visibility

- Areas where removed N-Route visibility replaced with proposed route visibility (Wood Poles or towers)
- New areas of visibility resulting from proposed route Wood Poles or towers
- Areas where previous N-Route visibility is not replaced by visibility of proposed route (Wood Poles or towers)

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.

0m 2.5km 5km 7.5km 10km

Figure 7.15 - ZTV-Comparison of visibility of proposed overhead line compared with removed sections of N-Route



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km landscape Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Administrative boundaries

- Regional administrative boundary
- Local administrative boundary

Theoretical perceptibility

- L7 Tower line section **Perceptible**
- L7 Tower line section theoretically visible but **Not Perceptible**
- Wood Pole line section **Perceptible**
- Wood Pole line section theoretically visible but **Not Perceptible**
- L7 Tower & Wood Pole line section **Perceptible**
- L7 Tower & Wood Pole line section theoretically visible but **Not Perceptible**

Note: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.

0m 2.5km 5km 7.5km 10km

Figure 7.16 - Visibility and Perceptibility of elements of the proposed overhead line

Legend

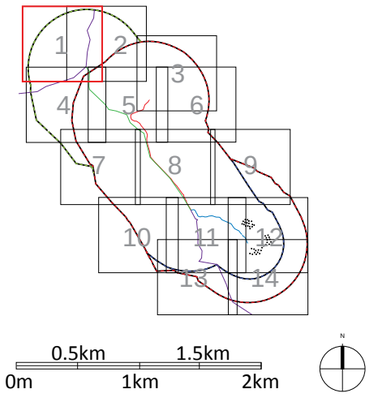
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Theoretical visibility

- 1-10 towers visible
- 11-20 towers visible
- 21-30 towers visible
- 31-40 towers visible
- 41-73 towers visible
- Visibility of Wood Pole section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of towers visible relates to the maximum number of towers potentially visible at any one place within the Study Area (73). Total numbers of towers for the whole scheme = 102.



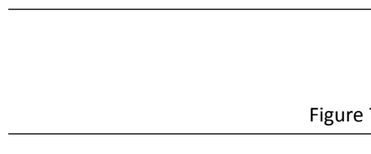


Figure 7.17 - L7 Section ZTV detail 1 of 14

Legend

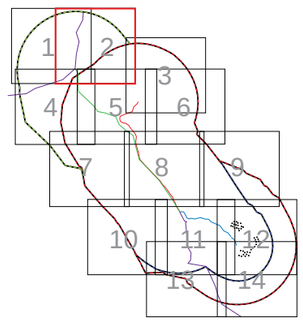
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Theoretical visibility

- 1-10 towers visible
- 11-20 towers visible
- 21-30 towers visible
- 31-40 towers visible
- 41-73 towers visible
- Visibility of Wood Pole section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of towers visible relates to the maximum number of towers potentially visible at any one place within the Study Area (73). Total numbers of towers for the whole scheme = 102.



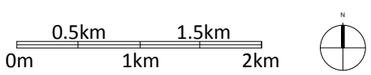
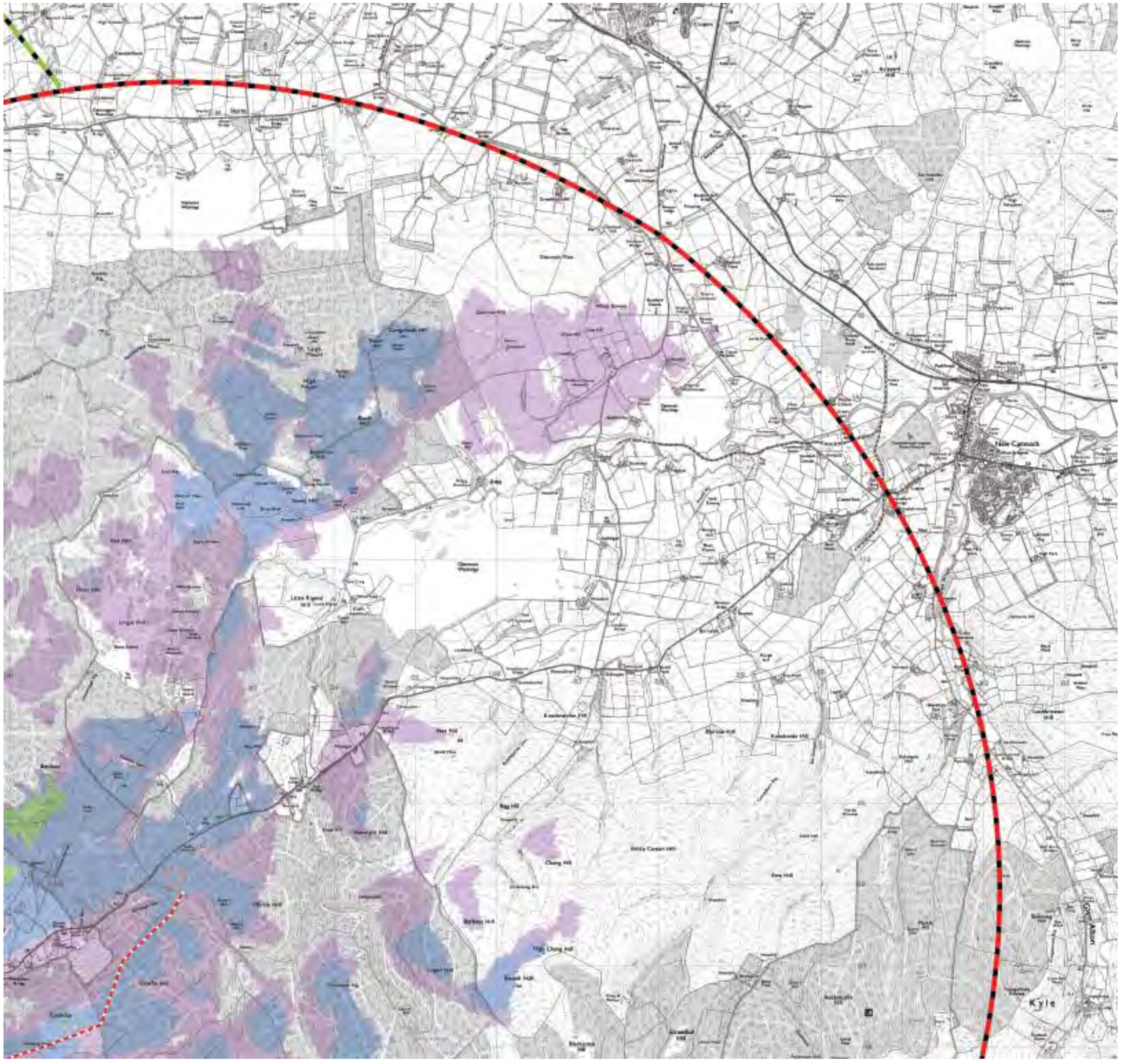


Figure 7.18 - L7 Section ZTV detail 2 of 14



Legend

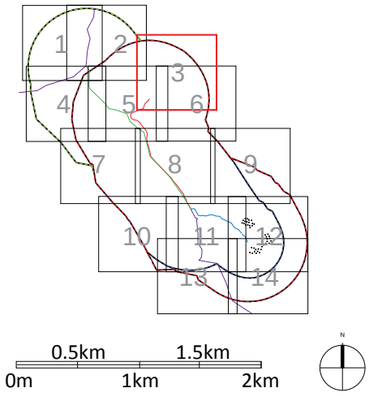
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Theoretical visibility

- 1-10 towers visible
- 11-20 towers visible
- 21-30 towers visible
- 31-40 towers visible
- 41-73 towers visible
- Visibility of Wood Pole section

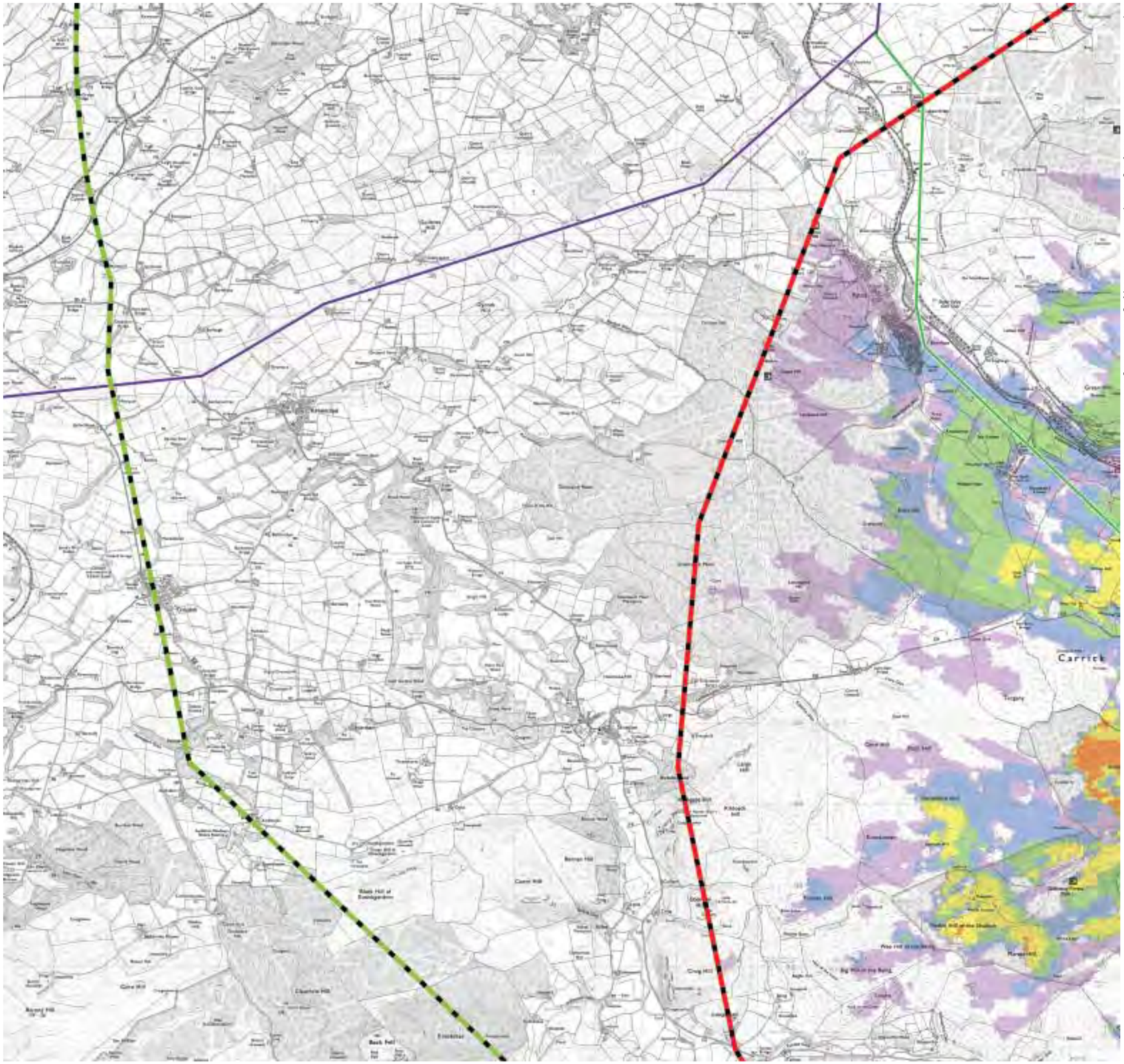
Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of towers visible relates to the maximum number of towers potentially visible at any one place within the Study Area (73). Total numbers of towers for the whole scheme = 102.



0.5km 1.5km
0m 1km 2km

N

Figure 7.19 - L7 Section ZTV detail 3 of 14



Legend

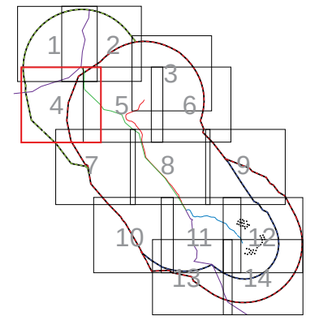
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Theoretical visibility

- 1-10 towers visible
- 11-20 towers visible
- 21-30 towers visible
- 31-40 towers visible
- 41-73 towers visible
- Visibility of Wood Pole section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of towers visible relates to the maximum number of towers potentially visible at any one place within the Study Area (73). Total numbers of towers for the whole scheme = 102.



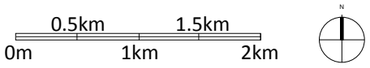
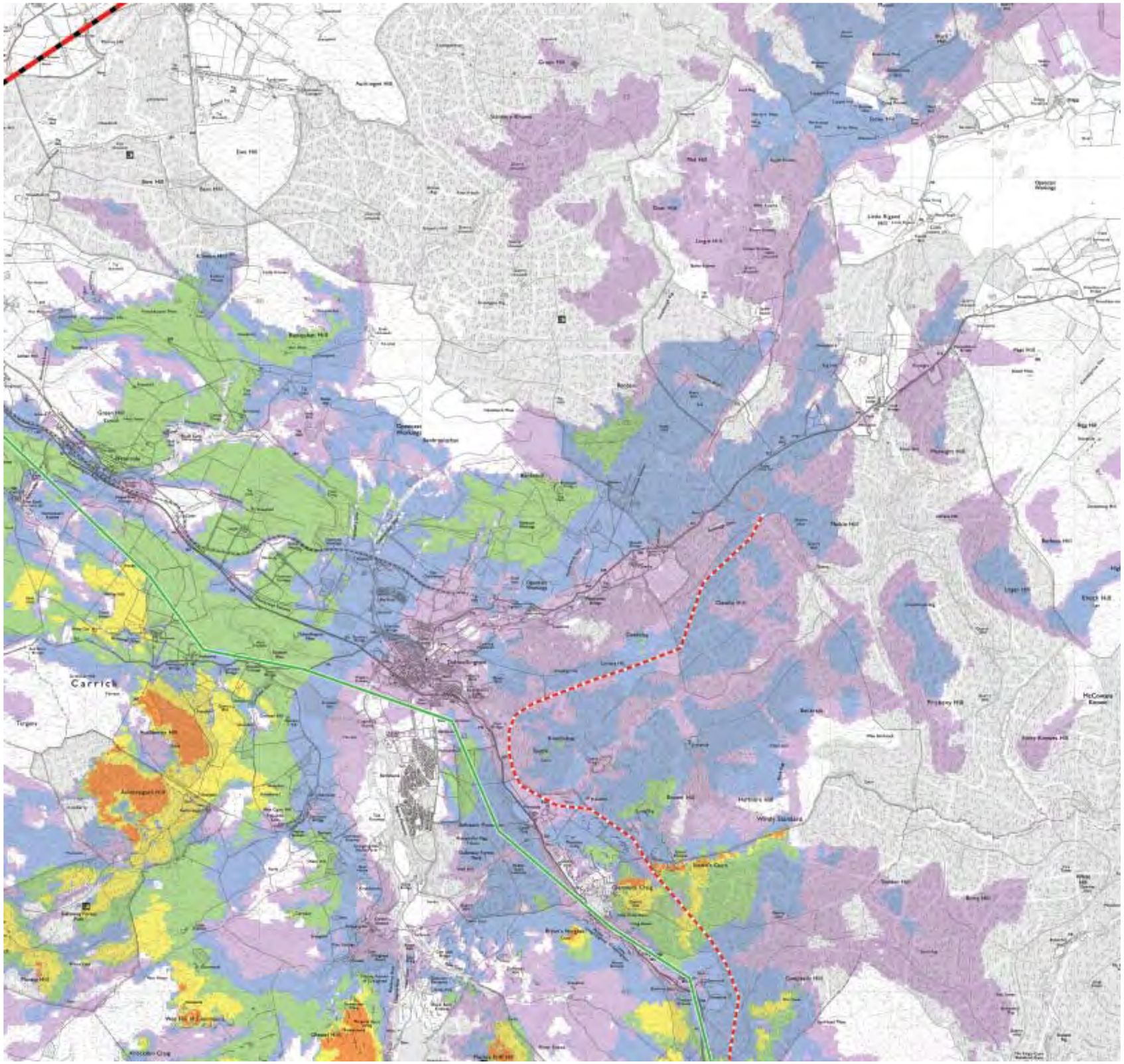


Figure 7.20 - L7 Section ZTV detail 4 of 14



Legend

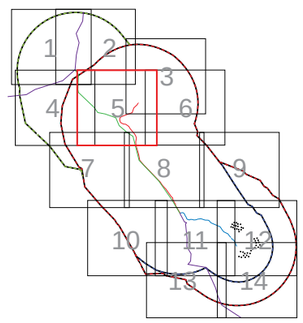
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Theoretical visibility

- 1-10 towers visible
- 11-20 towers visible
- 21-30 towers visible
- 31-40 towers visible
- 41-73 towers visible
- Visibility of Wood Pole section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of towers visible relates to the maximum number of towers potentially visible at any one place within the Study Area (73). Total numbers of towers for the whole scheme = 102.



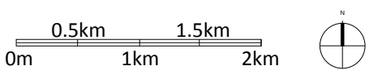


Figure 7.21 - L7 Section ZTV detail 5 of 14

Legend

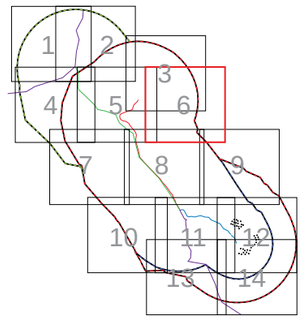
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Theoretical visibility

- 1-10 towers visible
- 11-20 towers visible
- 21-30 towers visible
- 31-40 towers visible
- 41-73 towers visible
- Visibility of Wood Pole section

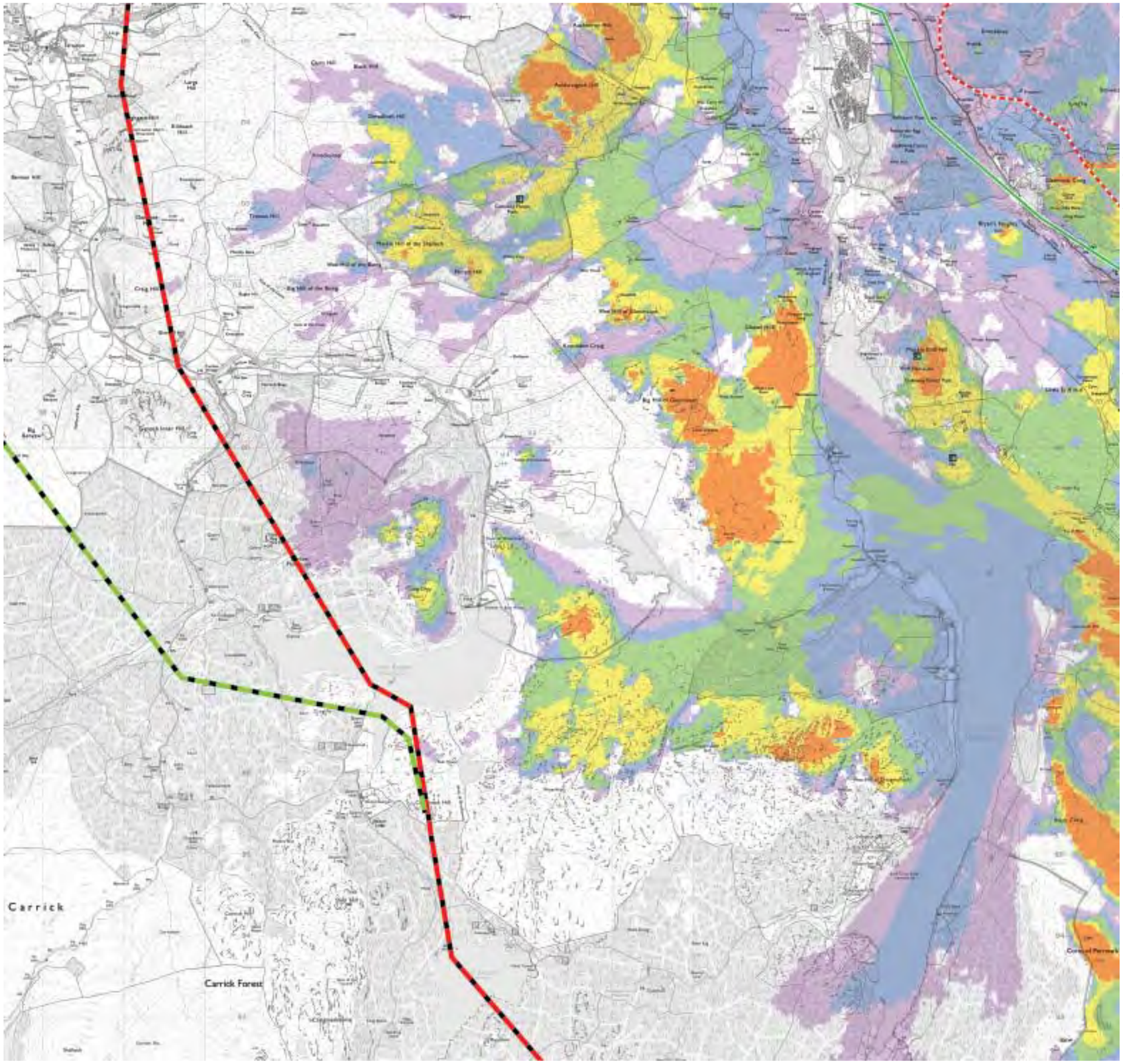
Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of towers visible relates to the maximum number of towers potentially visible at any one place within the Study Area (73). Total numbers of towers for the whole scheme = 102.



0m 1km 2km
0.5km 1.5km

N

Figure 7.22 - L7 Section ZTV detail 6 of 14



Legend

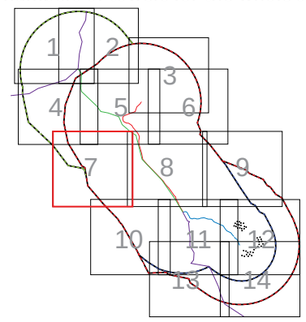
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Theoretical visibility

- 1-10 towers visible
- 11-20 towers visible
- 21-30 towers visible
- 31-40 towers visible
- 41-73 towers visible
- Visibility of Wood Pole section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of towers visible relates to the maximum number of towers potentially visible at any one place within the Study Area (73). Total numbers of towers for the whole scheme = 102.



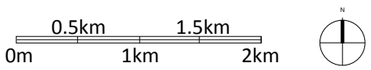
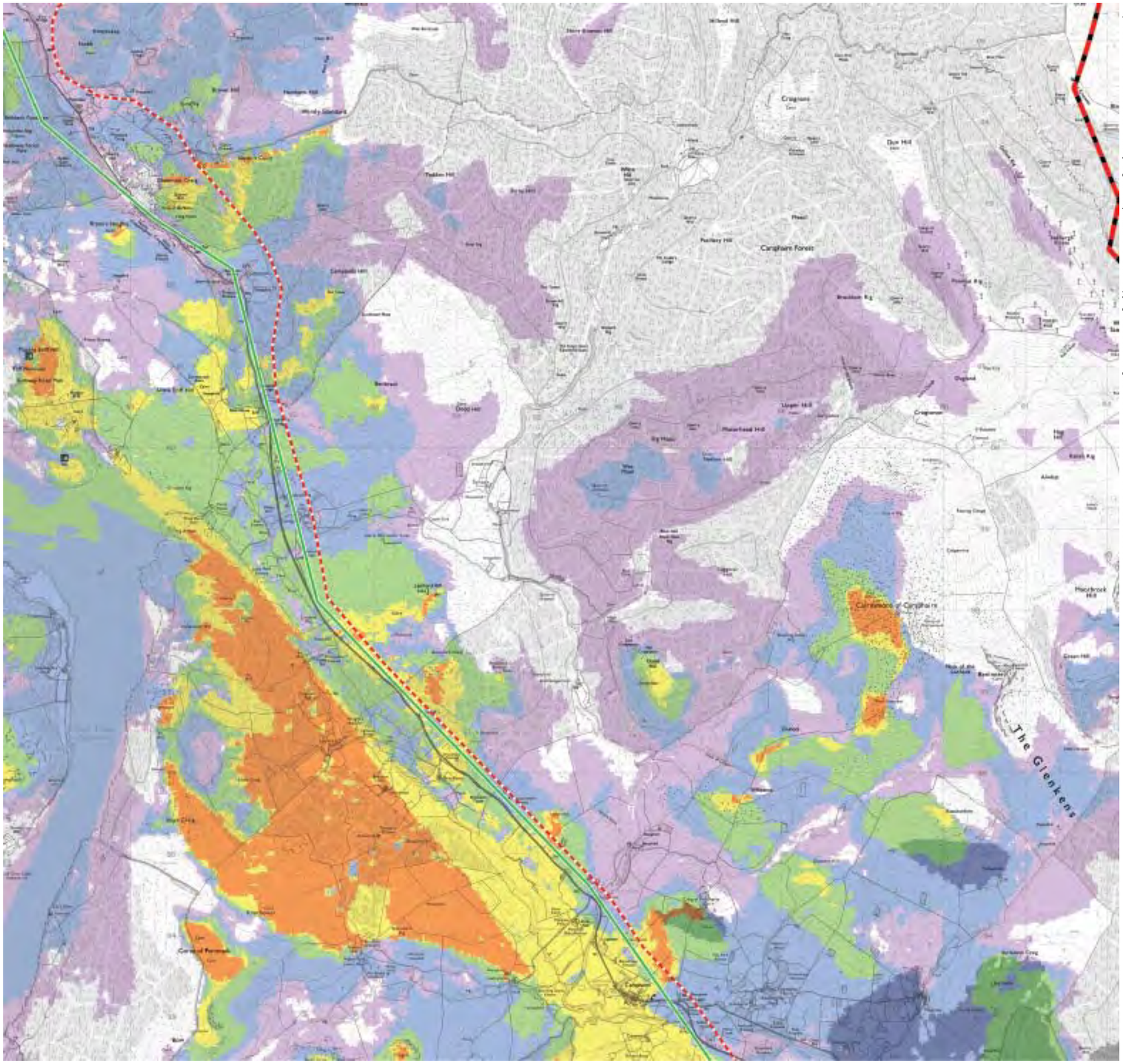


Figure 7.23 - L7 Section ZTV detail 7 of 14



Legend

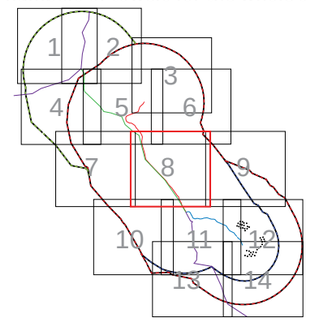
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical visibility

- 1-10 towers visible
- 11-20 towers visible
- 21-30 towers visible
- 31-40 towers visible
- 41-73 towers visible
- Visibility of Wood Pole section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of towers visible relates to the maximum number of towers potentially visible at any one place within the Study Area (73). Total numbers of towers for the whole scheme = 102.



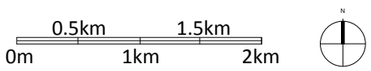


Figure 7.24 - L7 Section ZTV detail 8 of 14

Legend

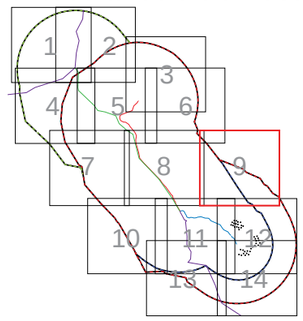
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical visibility

- 1-10 towers visible
- 11-20 towers visible
- 21-30 towers visible
- 31-40 towers visible
- 41-73 towers visible
- Visibility of Wood Pole section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of towers visible relates to the maximum number of towers potentially visible at any one place within the Study Area (73). Total numbers of towers for the whole scheme = 102.



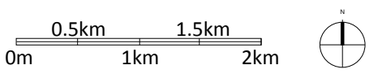
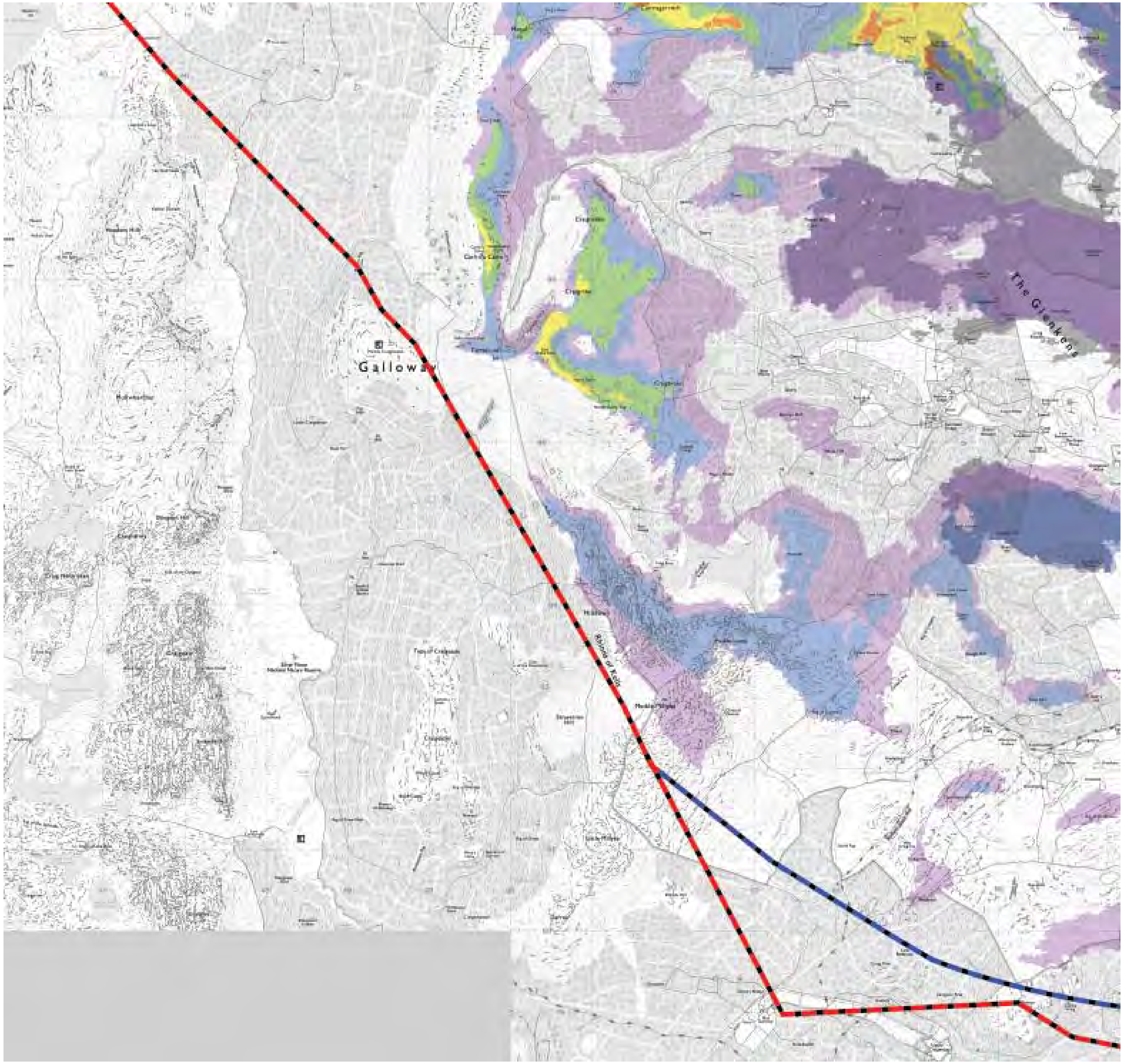


Figure 7.25 - L7 Section ZTV detail 9 of 14



Legend

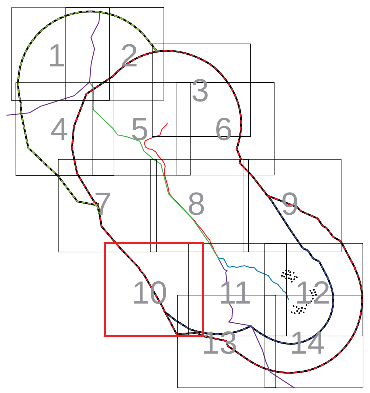
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical visibility

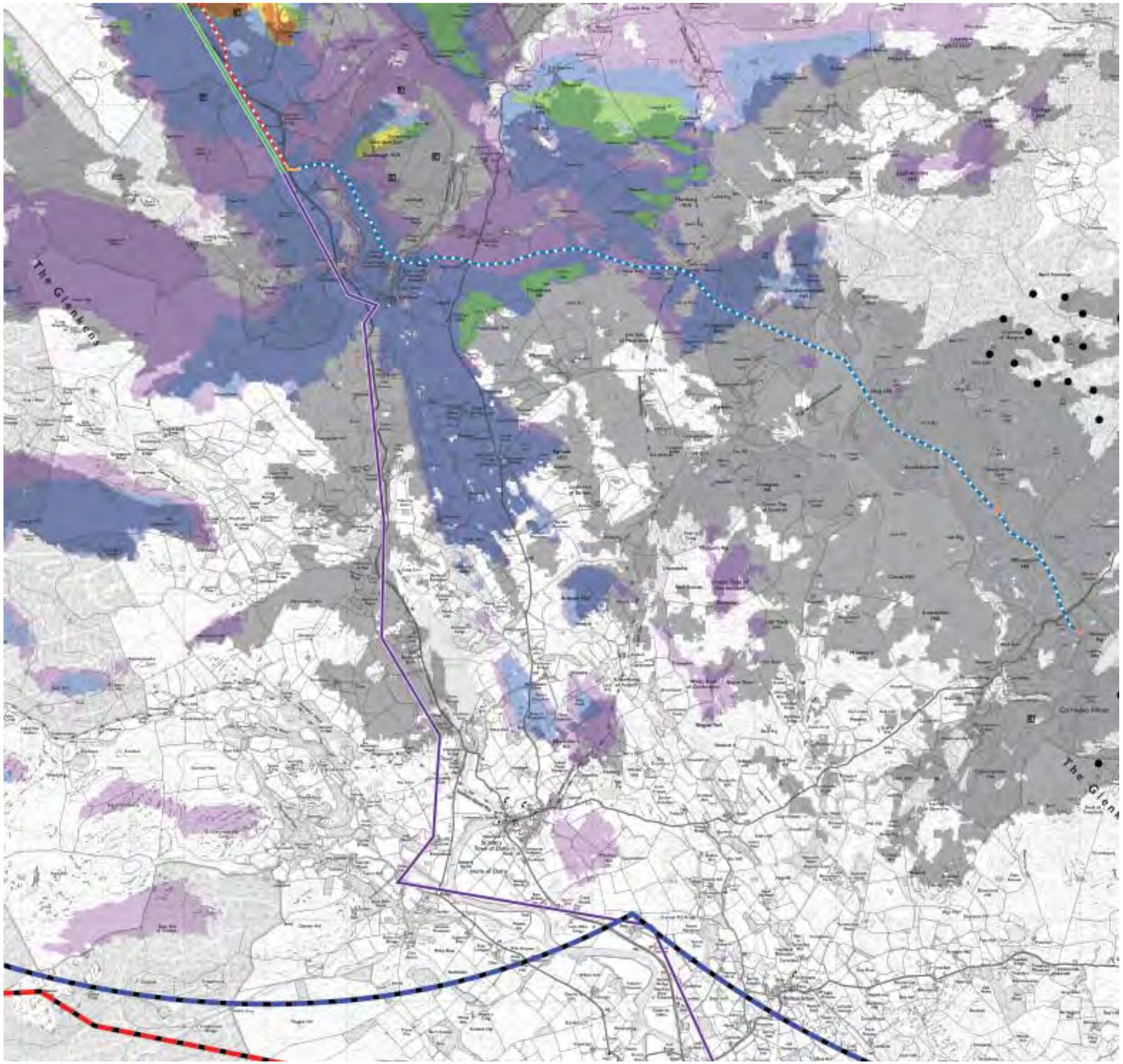
- 1-10 towers visible
- 11-20 towers visible
- 21-30 towers visible
- 31-40 towers visible
- 41-73 towers visible
- Visibility of Wood Pole section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of towers visible relates to the maximum number of towers potentially visible at any one place within the Study Area (73). Total numbers of towers for the whole scheme = 102.



0.5km 1.5km
0m 1km 2km

Figure 7.26 - L7 Section ZTV detail 10 of 14



Legend

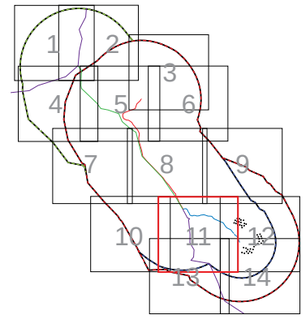
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical visibility

- 1-10 towers visible
- 11-20 towers visible
- 21-30 towers visible
- 31-40 towers visible
- 41-73 towers visible
- Visibility of Wood Pole section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of towers visible relates to the maximum number of towers potentially visible at any one place within the Study Area (73). Total numbers of towers for the whole scheme = 102.



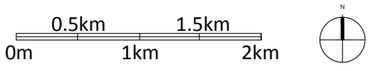
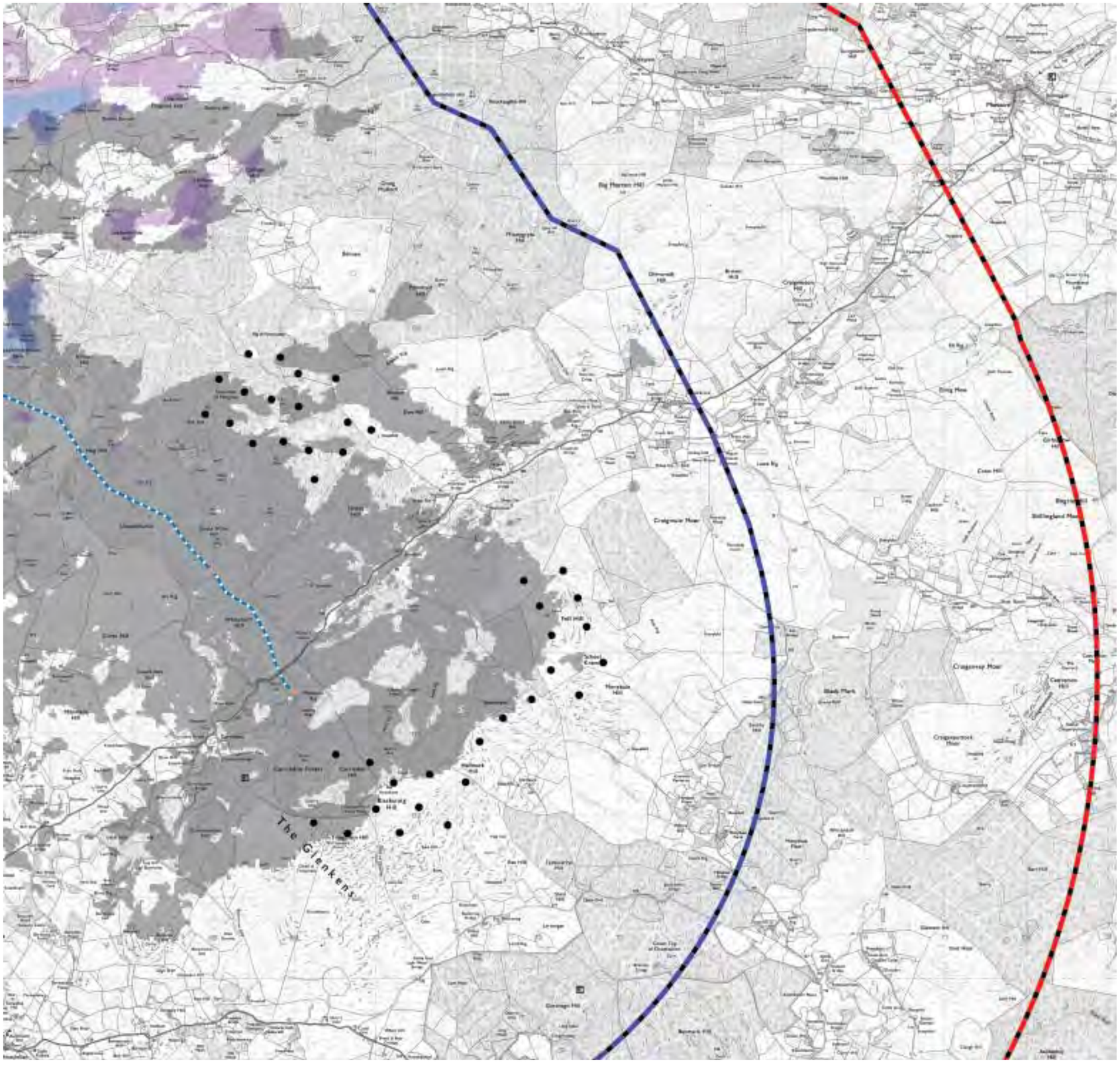


Figure 7.27 - L7 Section ZTV detail 11 of 14



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical visibility

- 1-10 towers visible
- 11-20 towers visible
- 21-30 towers visible
- 31-40 towers visible
- 41-73 towers visible
- Visibility of Wood Pole section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of towers visible relates to the maximum number of towers potentially visible at any one place within the Study Area (73). Total numbers of towers for the whole scheme = 102.

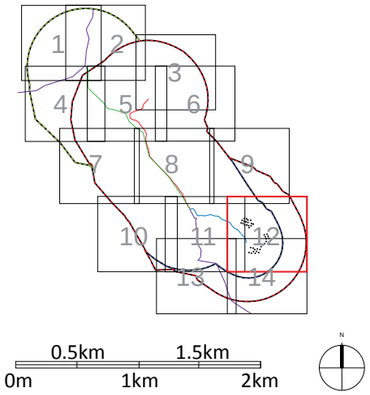
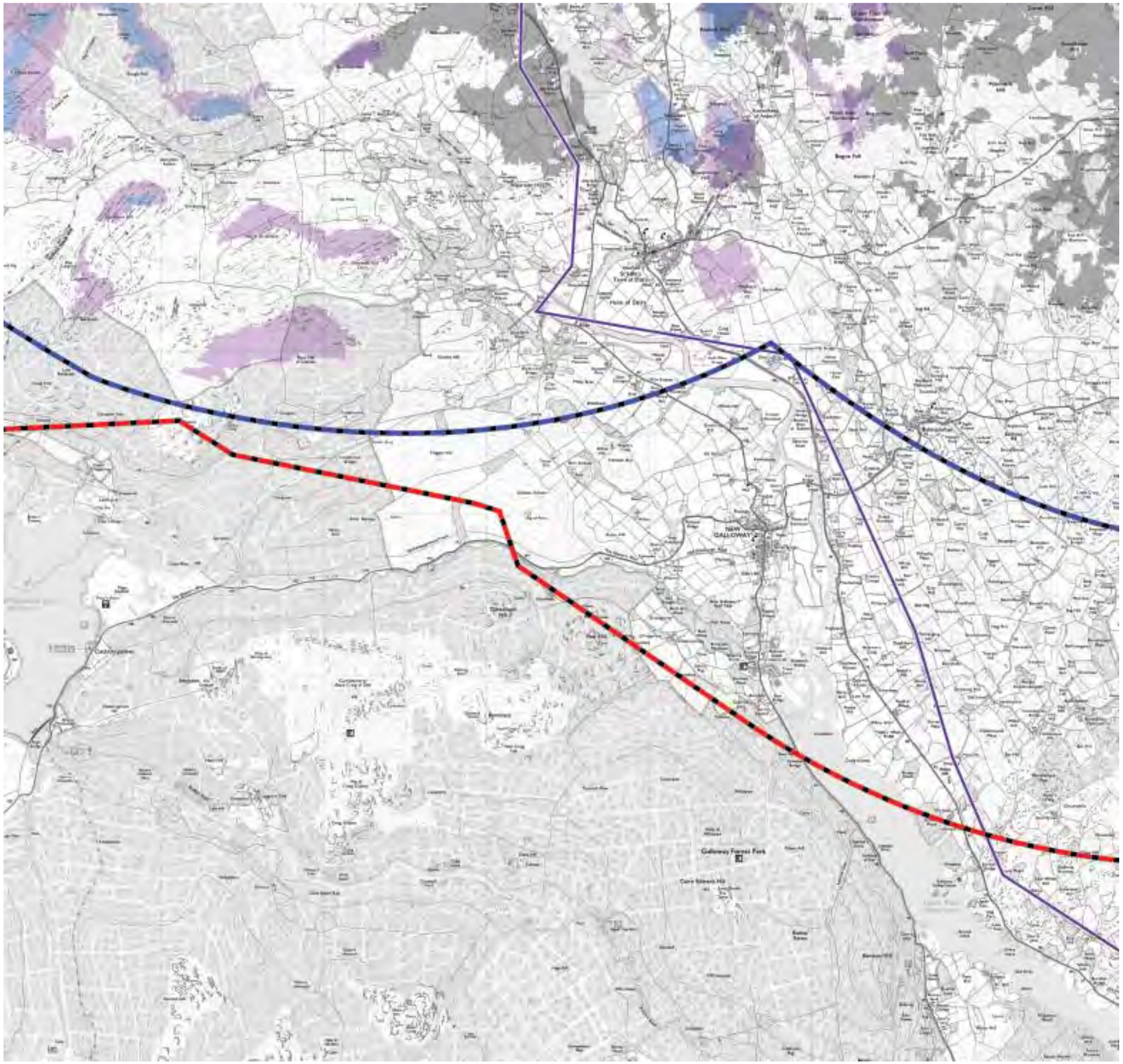


Figure 7.28 - L7 Section ZTV detail 12 of 14



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical visibility

- 1-10 towers visible
- 11-20 towers visible
- 21-30 towers visible
- 31-40 towers visible
- 41-73 towers visible
- Visibility of Wood Pole section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of towers visible relates to the maximum number of towers potentially visible at any one place within the Study Area (73). Total numbers of towers for the whole scheme = 102.

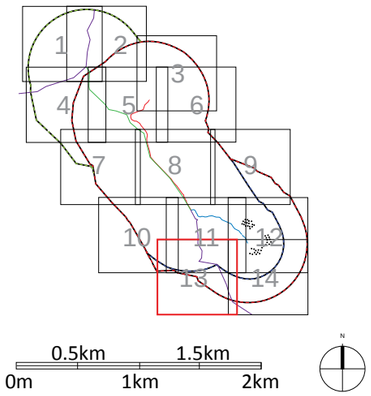
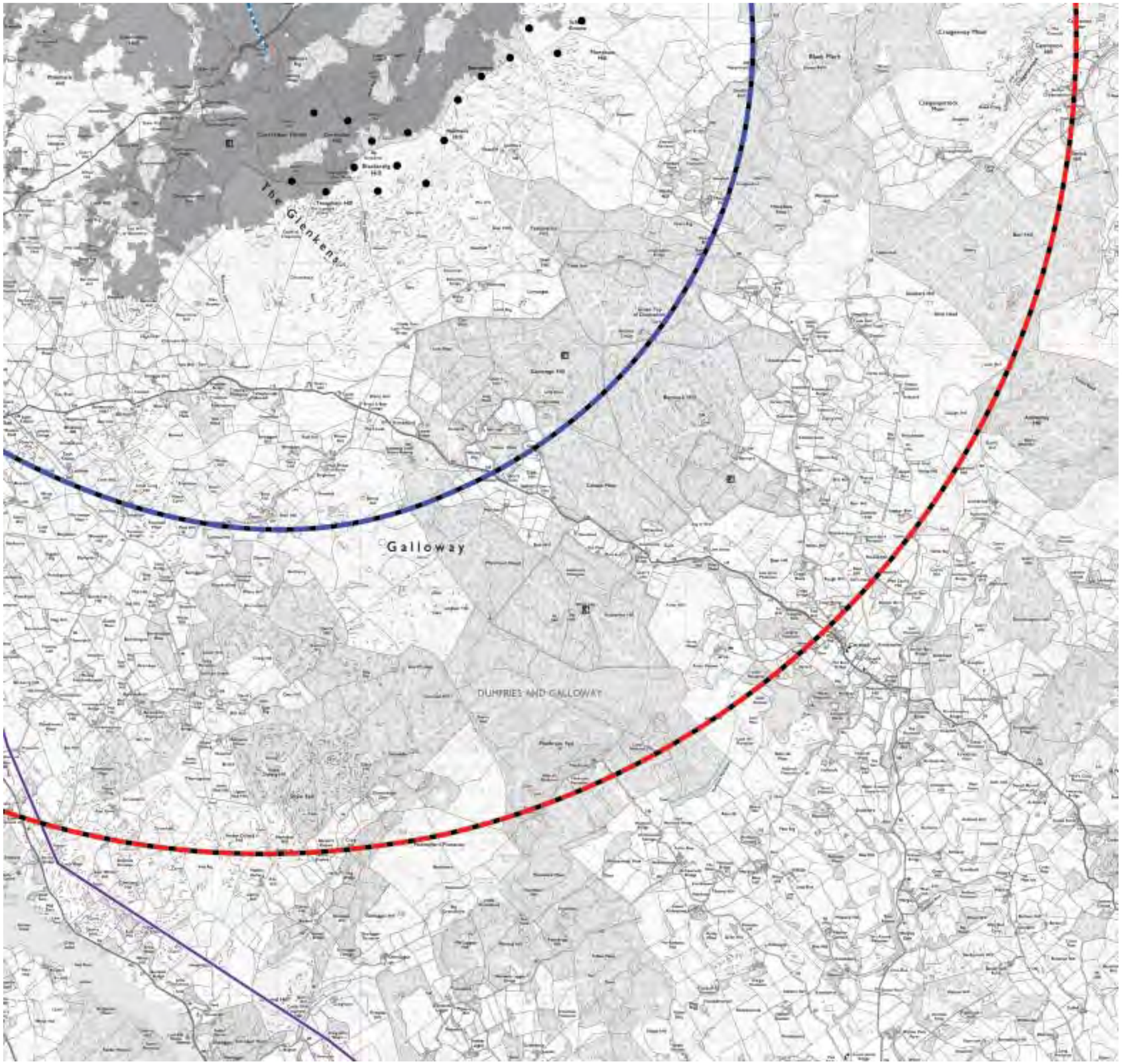


Figure 7.29 - L7 Section ZTV detail 13 of 14



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical visibility

- 1-10 towers visible
- 11-20 towers visible
- 21-30 towers visible
- 31-40 towers visible
- 41-73 towers visible
- Visibility of Wood Pole section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of towers visible relates to the maximum number of towers potentially visible at any one place within the Study Area (73). Total numbers of towers for the whole scheme = 102.

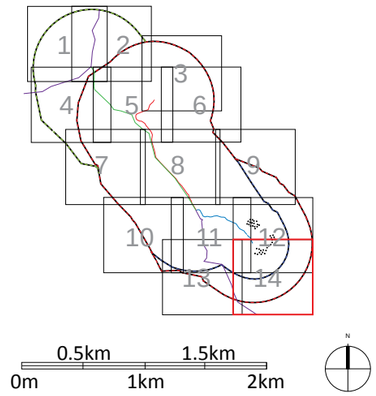
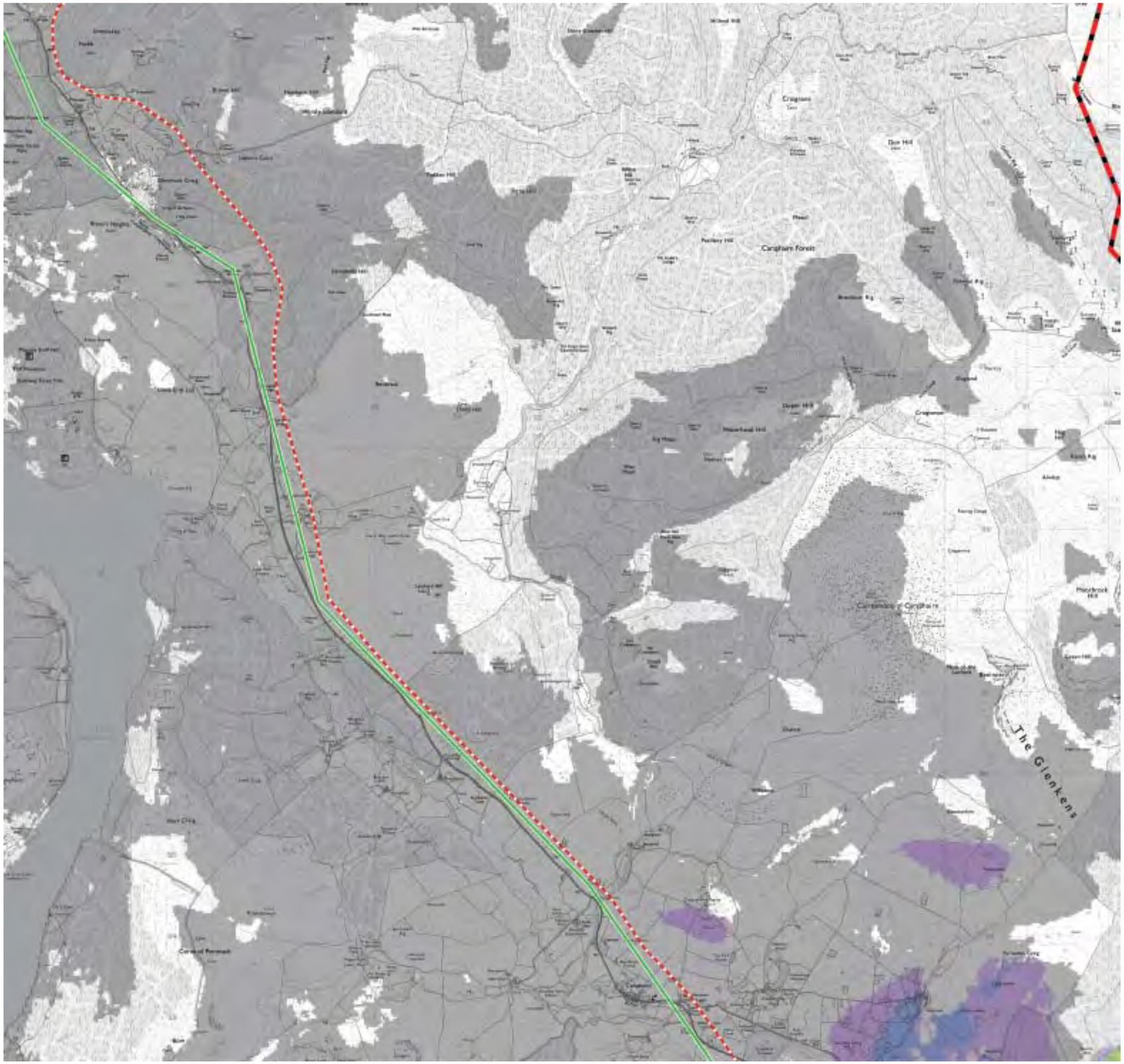


Figure 7.30 - L7 Section ZTV detail 14 of 14



Legend

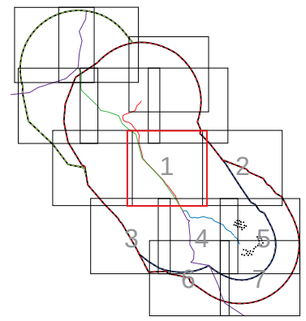
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical visibility

- 1-13 Wood Poles visible
- 14-26 Wood Poles visible
- 27-39 Wood Poles visible
- 39-52 Wood Poles visible
- 52-106 Wood Poles visible
- Visibility of L7 Tower section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of Wood Poles visible relates to the maximum number of poles potentially visible at any one place within the Study Area (106). Total numbers of poles for the whole scheme = 159.



0.5km 1.5km
0m 1km 2km

N

Figure 7.31 - Wood Pole ZTV detail 1 of 7

Legend

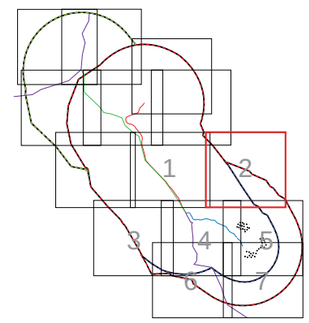
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical visibility

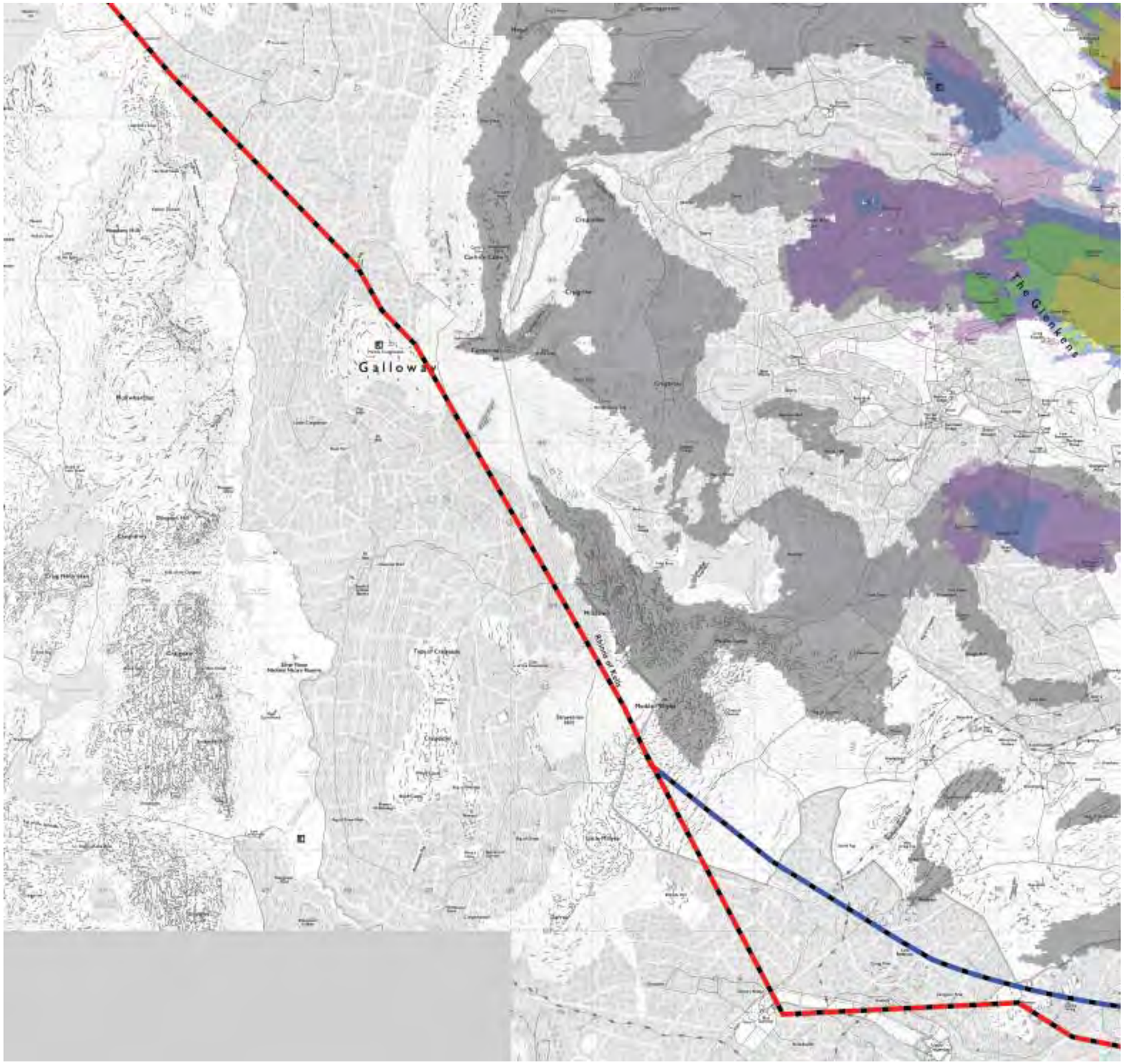
- 1-13 Wood Poles visible
- 14-26 Wood Poles visible
- 27-39 Wood Poles visible
- 39-52 Wood Poles visible
- 52-106 Wood Poles visible
- Visibility of L7 Tower section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of Wood Poles visible relates to the maximum number of poles potentially visible at any one place within the Study Area (106). Total numbers of poles for the whole scheme = 159.



0.5km 1.5km
0m 1km 2km

Figure 7.32 - Wood Pole ZTV detail 2 of 7



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical visibility

- 1-13 Wood Poles visible
- 14-26 Wood Poles visible
- 27-39 Wood Poles visible
- 39-52 Wood Poles visible
- 52-106 Wood Poles visible
- Visibility of L7 Tower section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of Wood Poles visible relates to the maximum number of poles potentially visible at any one place within the Study Area (106). Total numbers of poles for the whole scheme = 159.

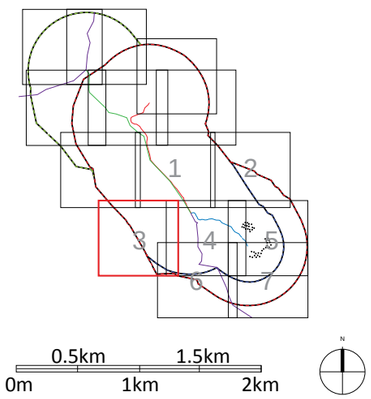
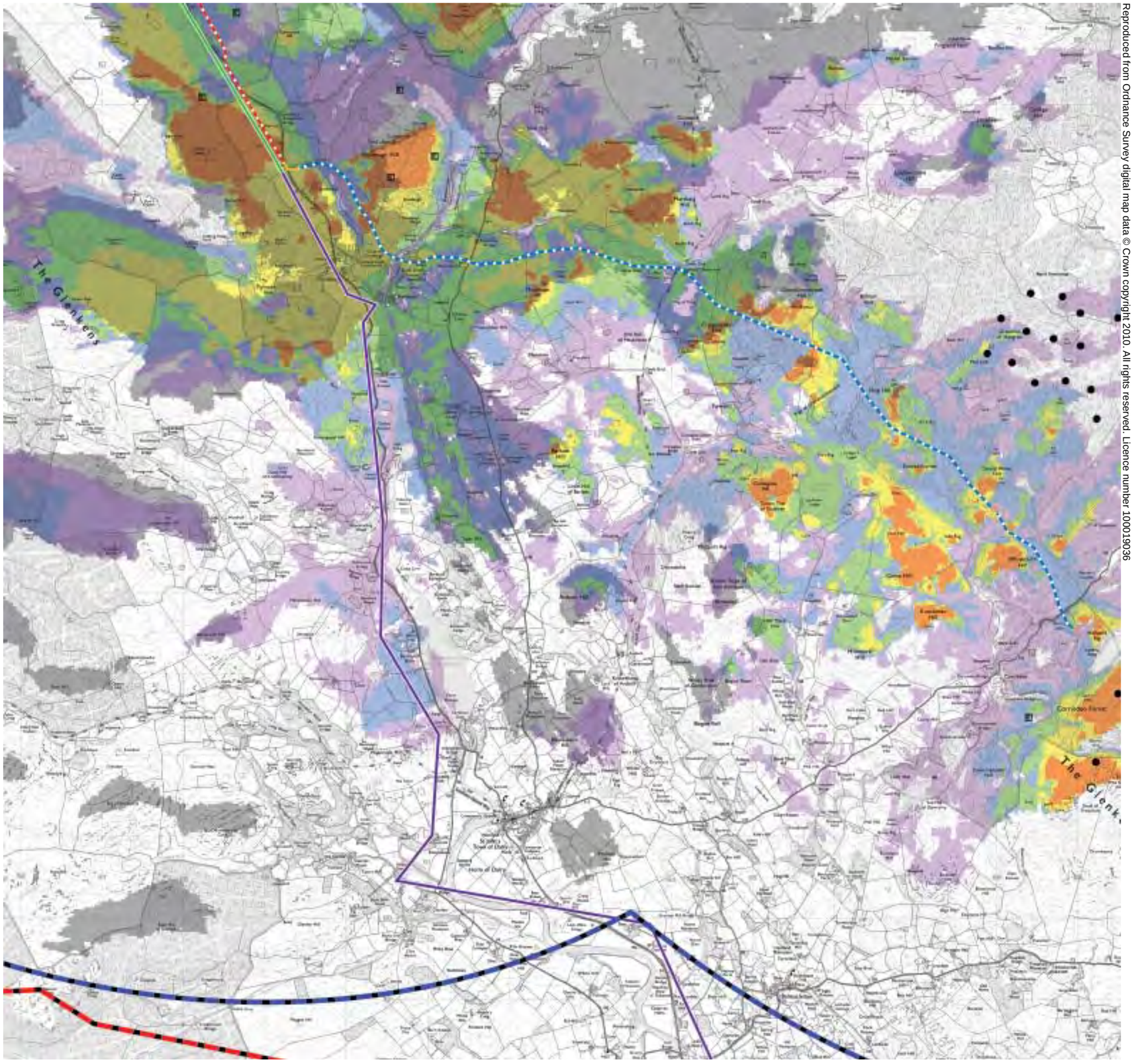


Figure 7.33 - Wood Pole ZTV detail 3 of 7



Legend

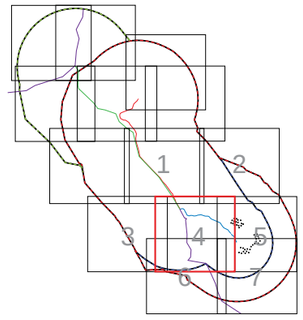
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical visibility

- 1-13 Wood Poles visible
- 14-26 Wood Poles visible
- 27-39 Wood Poles visible
- 39-52 Wood Poles visible
- 52-106 Wood Poles visible
- Visibility of L7 Tower section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of Wood Poles visible relates to the maximum number of poles potentially visible at any one place within the Study Area (106). Total numbers of poles for the whole scheme = 159.



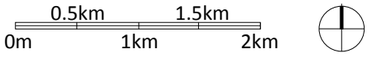
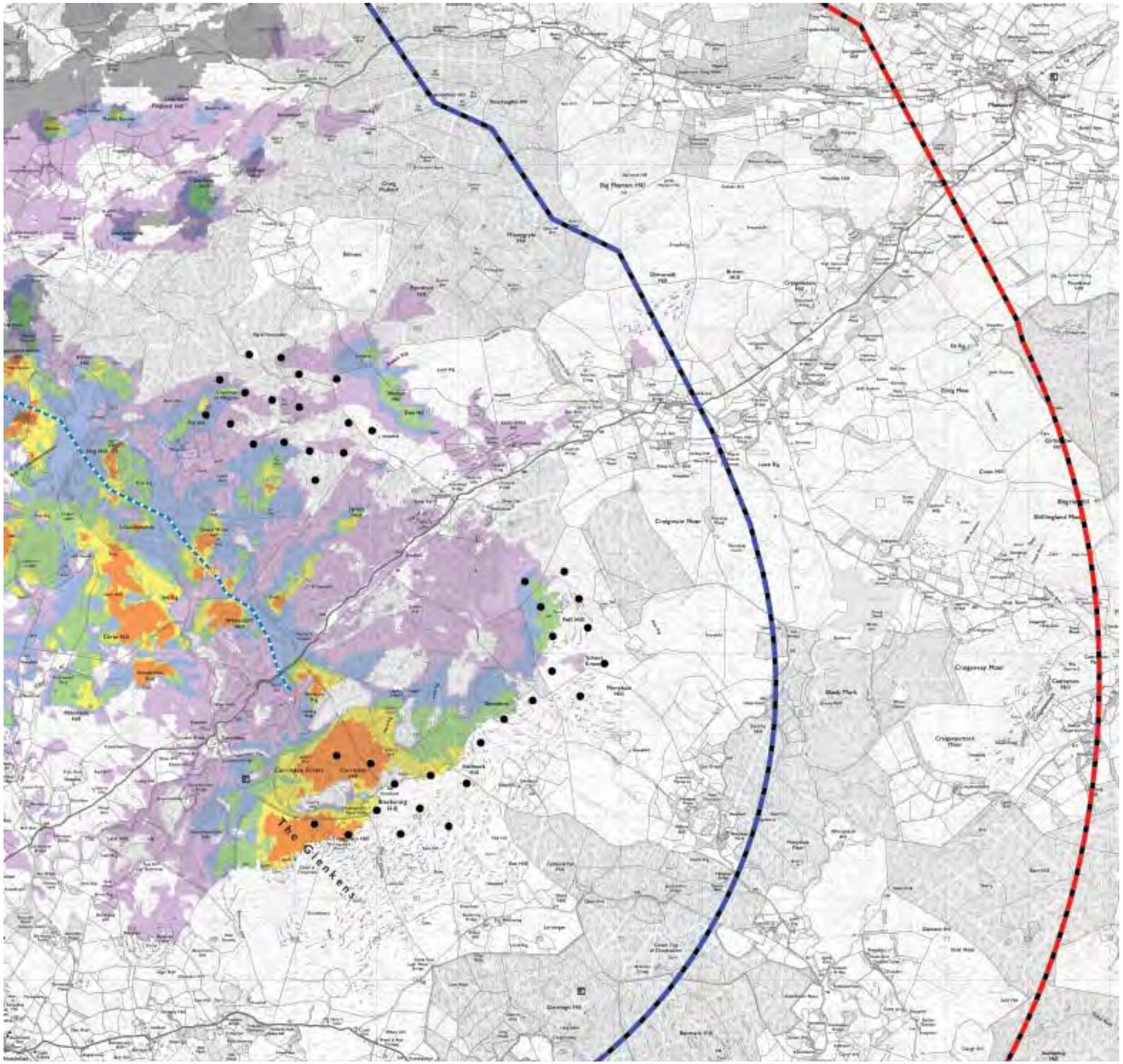


Figure 7.34 - Wood Pole ZTV detail 4 of 7



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical visibility

- 1-13 Wood Poles visible
- 14-26 Wood Poles visible
- 27-39 Wood Poles visible
- 39-52 Wood Poles visible
- 52-106 Wood Poles visible
- Visibility of L7 Tower section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of Wood Poles visible relates to the maximum number of poles potentially visible at any one place within the Study Area (106). Total numbers of poles for the whole scheme = 159.

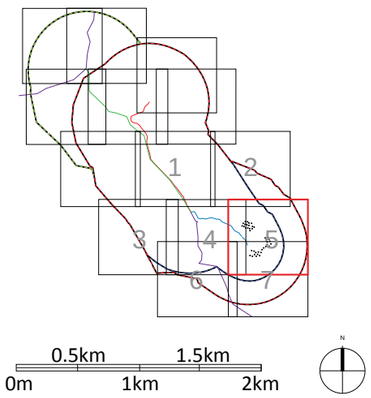
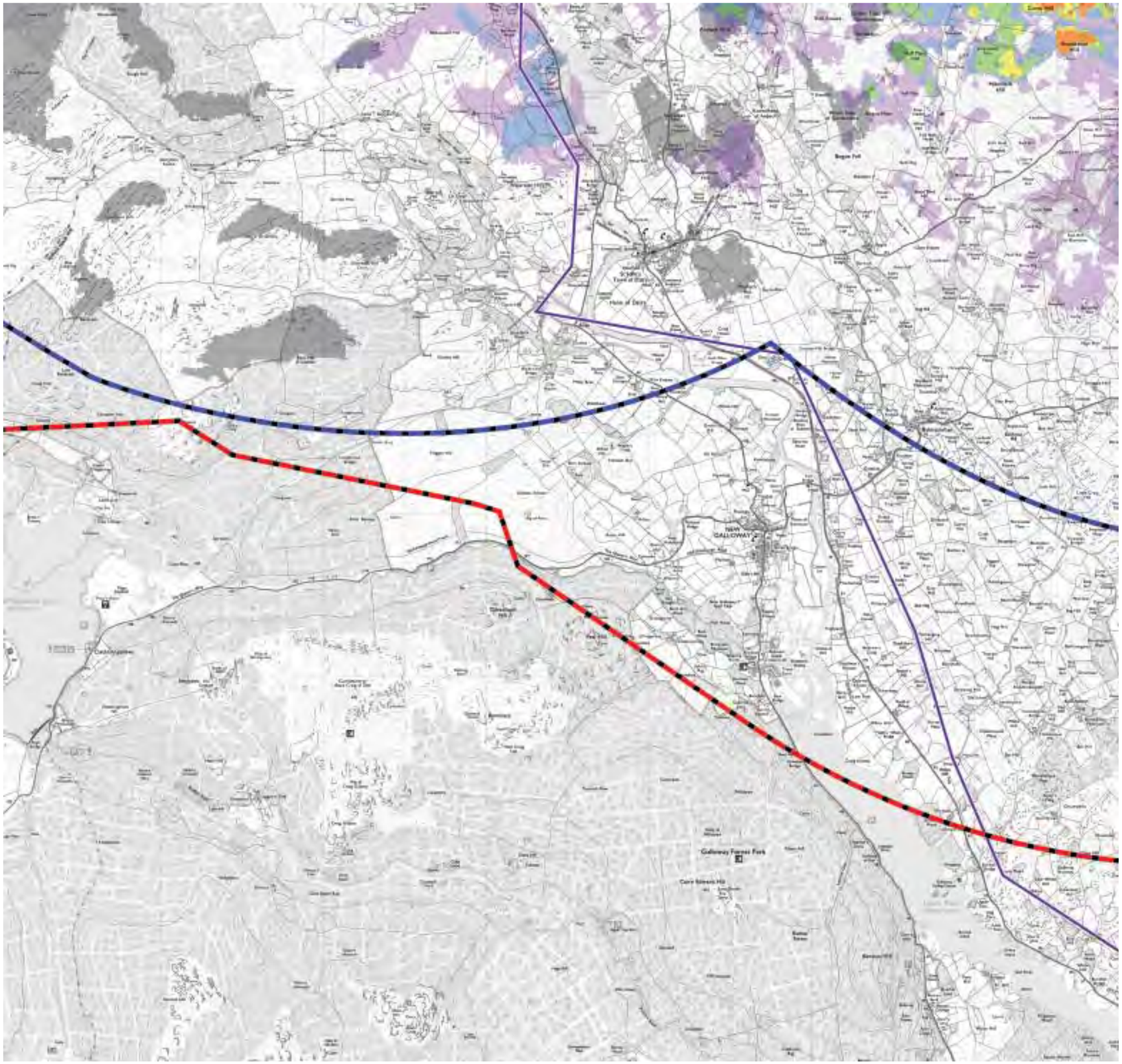


Figure 7.35 - Wood Pole ZTV detail 5 of 7



Legend

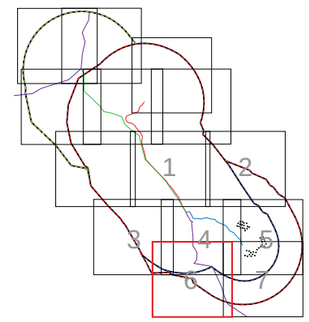
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical visibility

- 1-13 Wood Poles visible
- 14-26 Wood Poles visible
- 27-39 Wood Poles visible
- 39-52 Wood Poles visible
- 52-106 Wood Poles visible
- Visibility of L7 Tower section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of Wood Poles visible relates to the maximum number of poles potentially visible at any one place within the Study Area (106). Total numbers of poles for the whole scheme = 159.



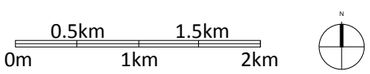
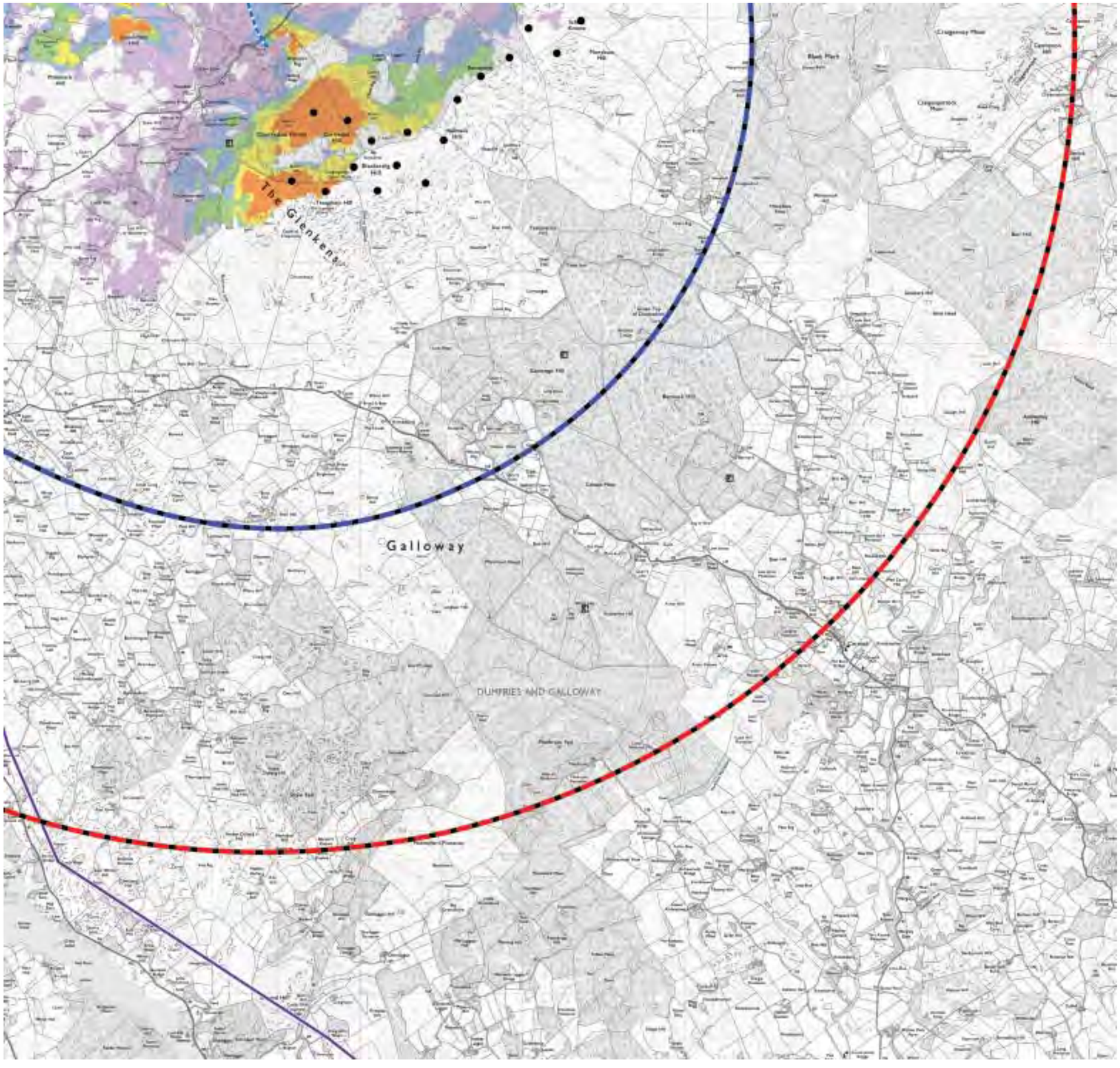


Figure 7.36 - Wood Pole ZTV detail 6 of 7



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical visibility

- 1-13 Wood Poles visible
- 14-26 Wood Poles visible
- 27-39 Wood Poles visible
- 39-52 Wood Poles visible
- 52-106 Wood Poles visible
- Visibility of L7 Tower section

Note 1: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.
Note 2: Numbers of Wood Poles visible relates to the maximum number of poles potentially visible at any one place within the Study Area (106). Total numbers of poles for the whole scheme = 159.

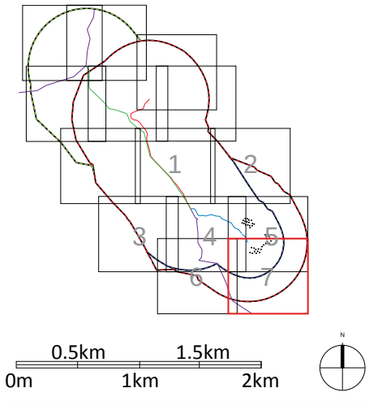


Figure 7.37 - Wood Pole ZTV detail 7 of 7

Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Theoretical perceptibility

- L7 theoretically visible but **not perceptible**
- L7 only **perceptible**
- Wood Pole theoretically visible but **not perceptible**
- Wood Pole only **perceptible**
- Wood Pole and L7 lines **perceptible**
- Wood Pole and L7 lines theoretically visible but **not perceptible**
- Wood Pole theoretically visible but **not perceptible** and L7 **perceptible**
- Wood Pole **perceptible** and L7 theoretically visible but **not perceptible**

Note: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.

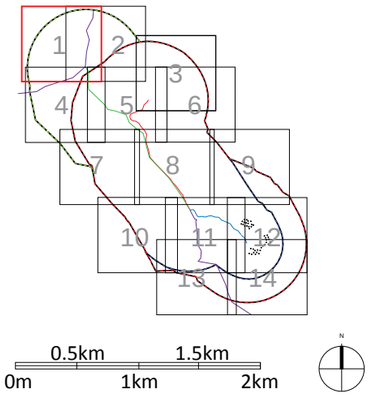


Figure 7.38 - Perceptibility detail 1 of 14

Legend

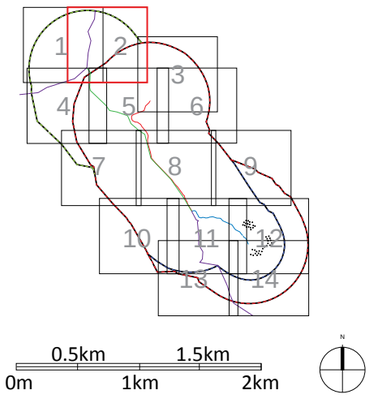
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Theoretical perceptibility

- L7 theoretically visible but **not perceptible**
- L7 only **perceptible**
- Wood Pole theoretically visible but **not perceptible**
- Wood Pole only **perceptible**
- Wood Pole and L7 lines **perceptible**
- Wood Pole and L7 lines theoretically visible but **not perceptible**
- Wood Pole theoretically visible but **not perceptible** and L7 **perceptible**
- Wood Pole **perceptible** and L7 theoretically visible but **not perceptible**

Note: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.



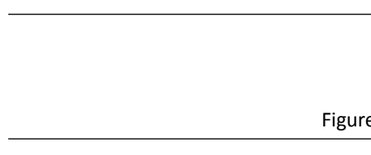
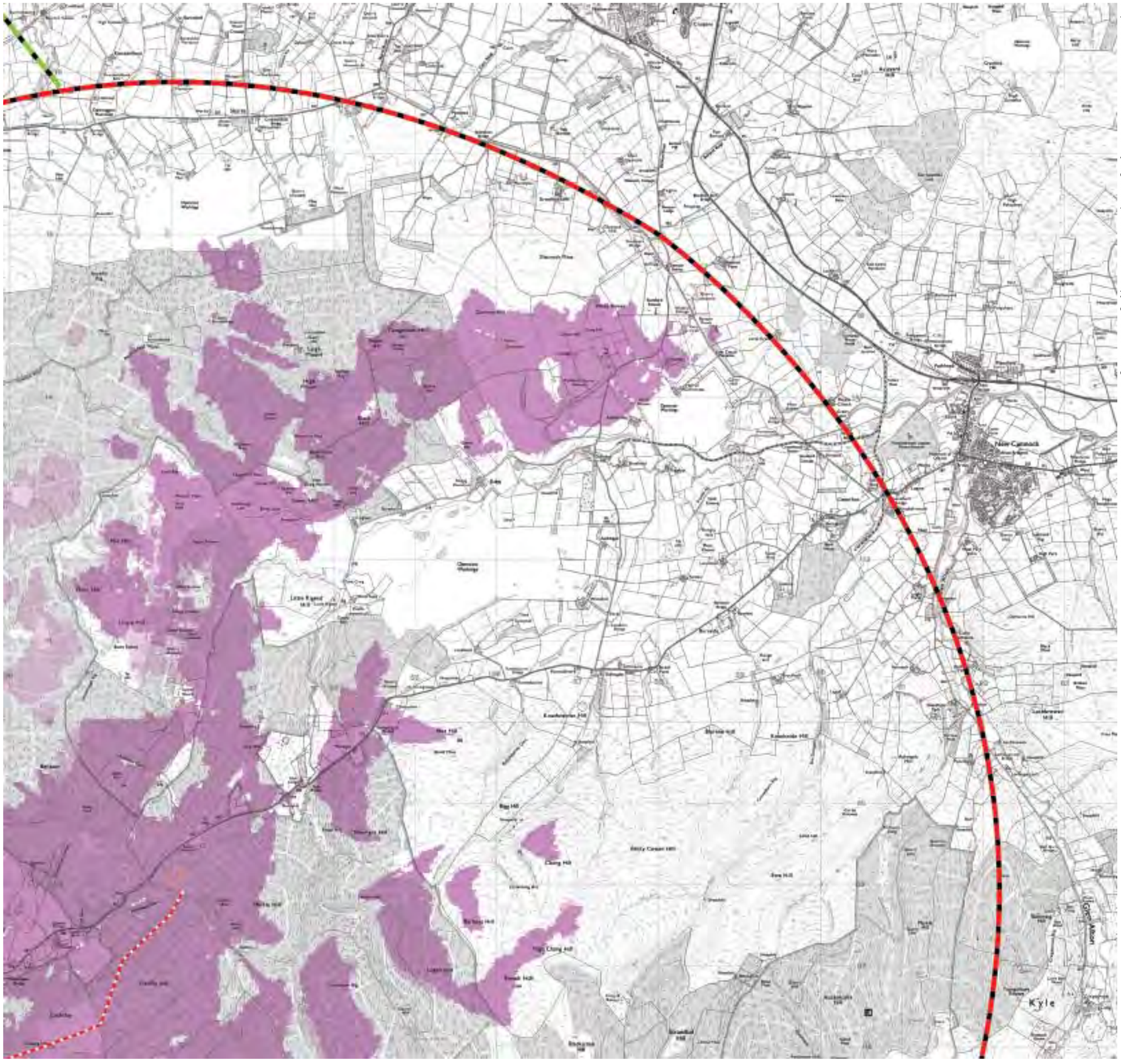


Figure 7.39 - Perceptibility detail 2 of 14



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Theoretical perceptibility

- L7 theoretically visible but **not perceptible**
- L7 only **perceptible**
- Wood Pole theoretically visible but **not perceptible**
- Wood Pole only **perceptible**
- Wood Pole and L7 lines **perceptible**
- Wood Pole and L7 lines theoretically visible but **not perceptible**
- Wood Pole theoretically visible but **not perceptible** and L7 **perceptible**
- Wood Pole **perceptible** and L7 theoretically visible but **not perceptible**

Note: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.

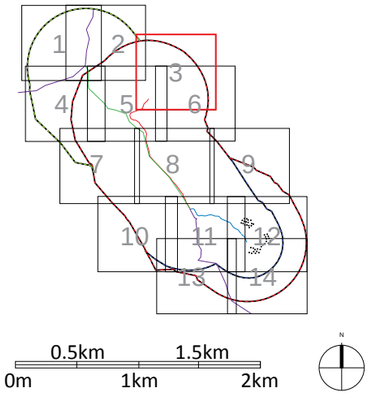
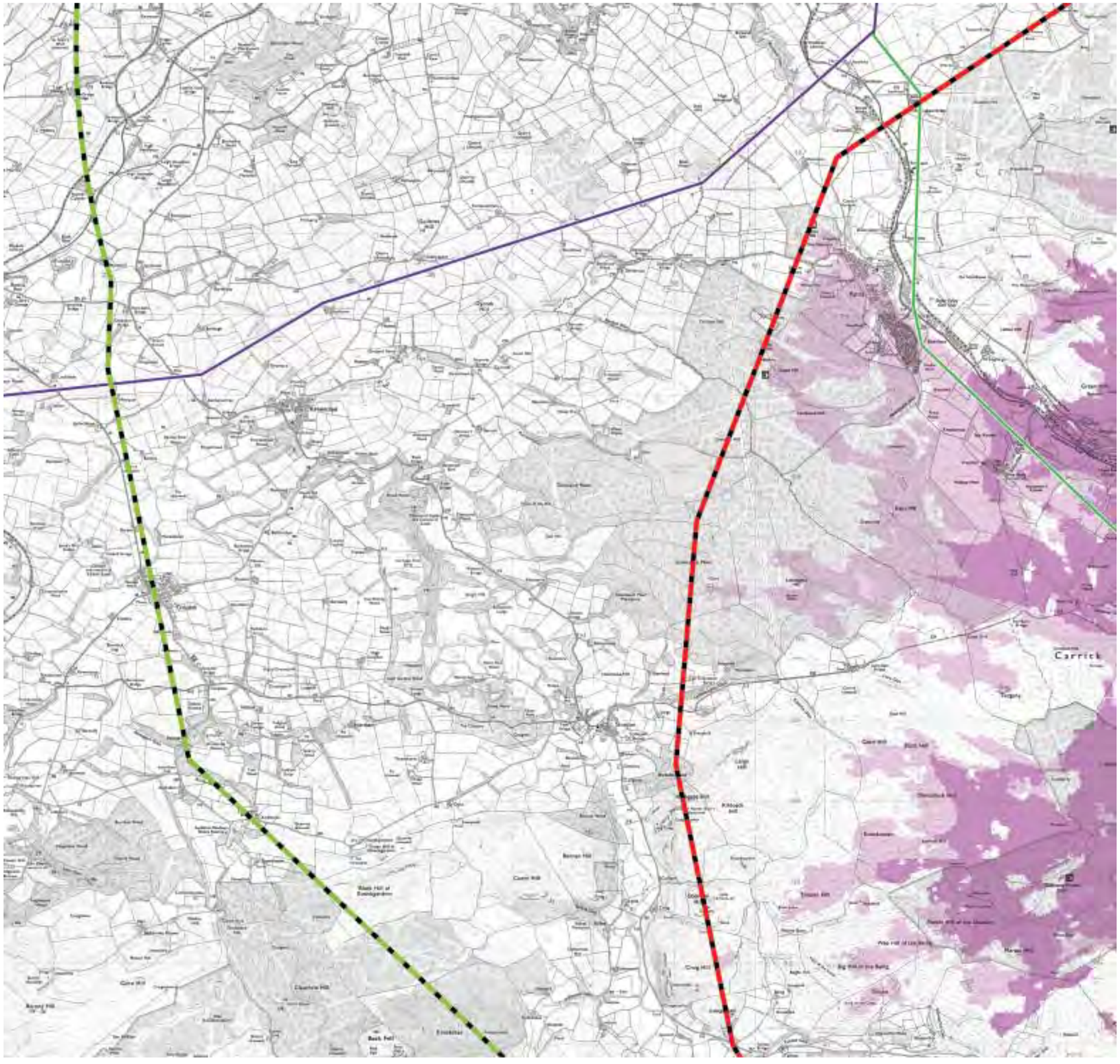


Figure 7.40 - Perceptibility detail 3 of 14



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Theoretical perceptibility

- L7 theoretically visible but **not perceptible**
- L7 only **perceptible**
- Wood Pole theoretically visible but **not perceptible**
- Wood Pole only **perceptible**
- Wood Pole and L7 lines **perceptible**
- Wood Pole and L7 lines theoretically visible but **not perceptible**
- Wood Pole theoretically visible but **not perceptible** and L7 **perceptible**
- Wood Pole **perceptible** and L7 theoretically visible but **not perceptible**

Note: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.

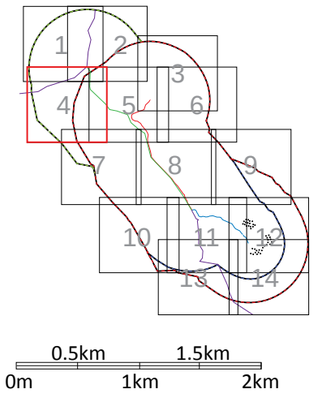
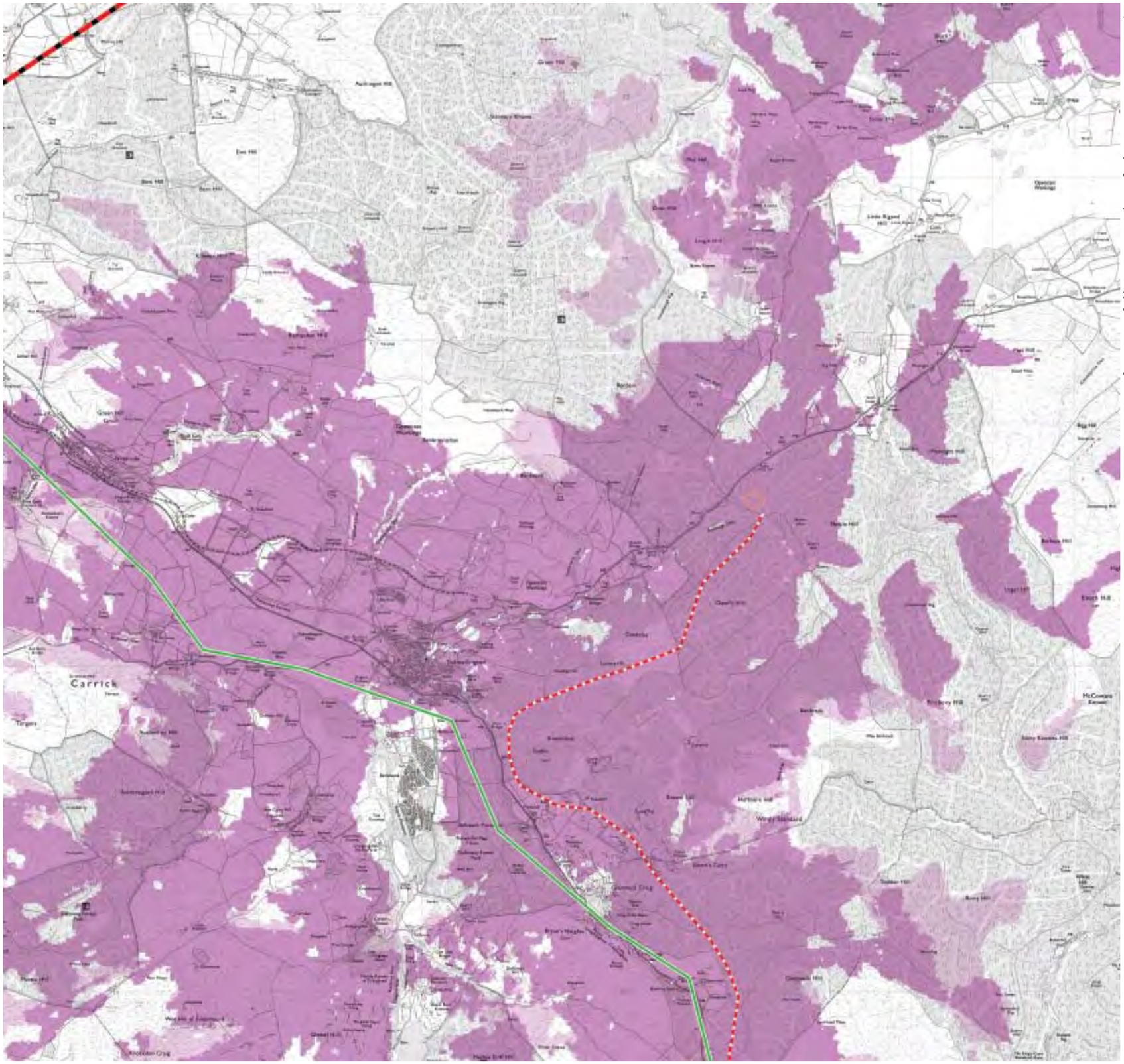


Figure 7.41 - Perceptibility detail 4 of 14



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Theoretical perceptibility

- L7 theoretically visible but **not perceptible**
- L7 only **perceptible**
- Wood Pole theoretically visible but **not perceptible**
- Wood Pole only **perceptible**
- Wood Pole and L7 lines **perceptible**
- Wood Pole and L7 lines theoretically visible but **not perceptible**
- Wood Pole theoretically visible but **not perceptible** and L7 **perceptible**
- Wood Pole **perceptible** and L7 theoretically visible but **not perceptible**

Note: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.

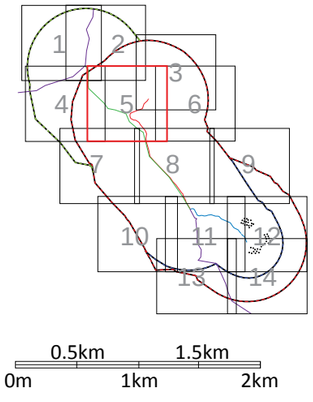


Figure 7.42 - Perceptibility detail 5 of 14

Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical perceptibility

- L7 theoretically visible but **not perceptible**
- L7 only **perceptible**
- Wood Pole theoretically visible but **not perceptible**
- Wood Pole only **perceptible**
- Wood Pole and L7 lines **perceptible**
- Wood Pole and L7 lines theoretically visible but **not perceptible**
- Wood Pole theoretically visible but **not perceptible** and L7 **perceptible**
- Wood Pole **perceptible** and L7 theoretically visible but **not perceptible**

Note: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.

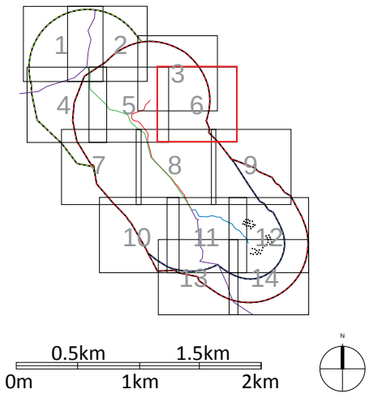
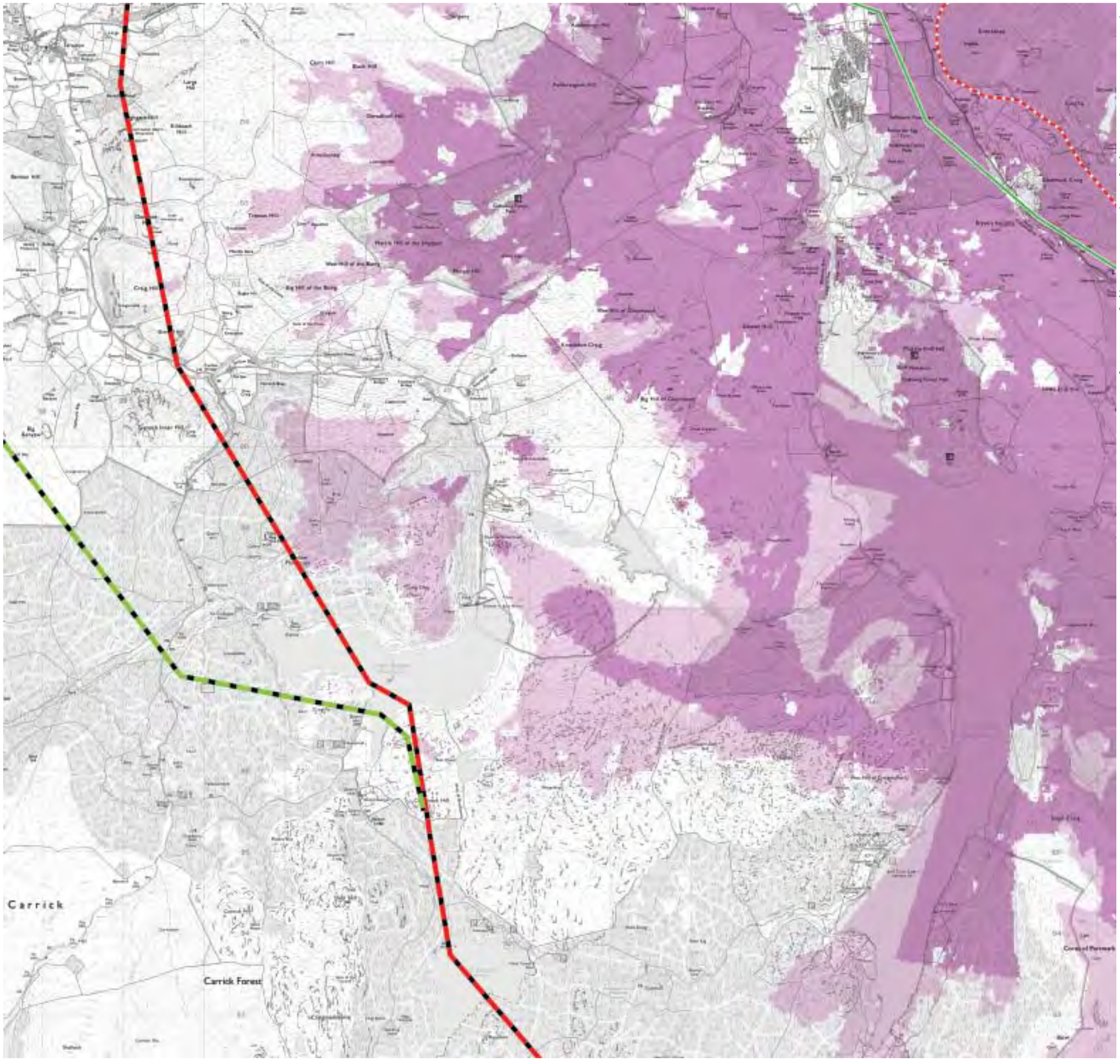


Figure 7.43 - Perceptibility detail 6 of 14



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles
- 10km visibility Study Area for removal of N-Route

Theoretical perceptibility

- L7 theoretically visible but **not perceptible**
- L7 only **perceptible**
- Wood Pole theoretically visible but **not perceptible**
- Wood Pole only **perceptible**
- Wood Pole and L7 lines **perceptible**
- Wood Pole and L7 lines theoretically visible but **not perceptible**
- Wood Pole theoretically visible but **not perceptible** and L7 **perceptible**
- Wood Pole **perceptible** and L7 theoretically visible but **not perceptible**

Note: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.

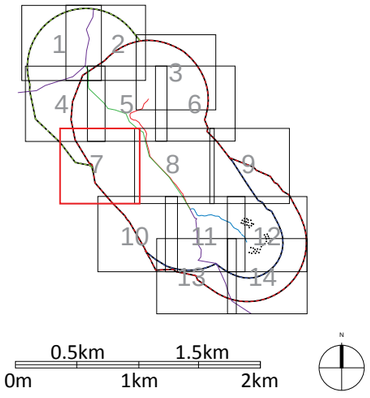
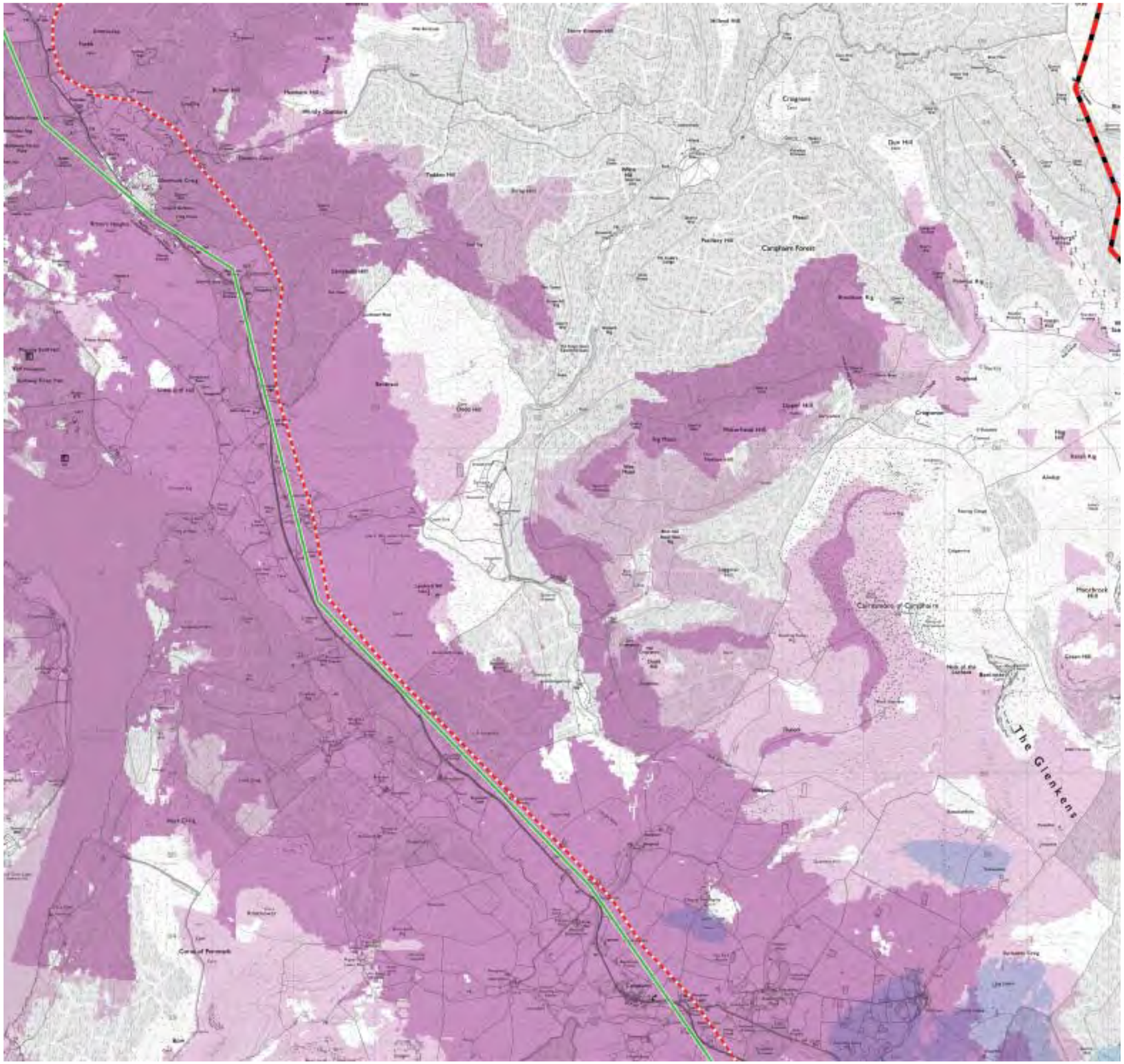


Figure 7.44 - Perceptibility detail 7 of 14



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical perceptibility

- L7 theoretically visible but **not perceptible**
- L7 only **perceptible**
- Wood Pole theoretically visible but **not perceptible**
- Wood Pole only **perceptible**
- Wood Pole and L7 lines **perceptible**
- Wood Pole and L7 lines theoretically visible but **not perceptible**
- Wood Pole theoretically visible but **not perceptible** and L7 **perceptible**
- Wood Pole **perceptible** and L7 theoretically visible but **not perceptible**

Note: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.

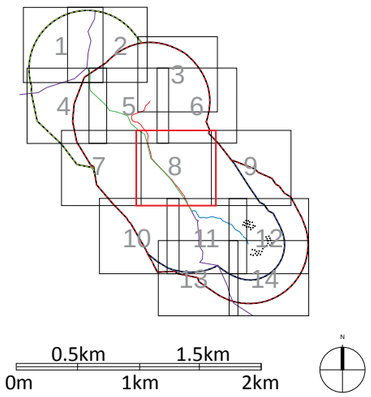


Figure 7.45 - Perceptibility detail 8 of 14

Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical perceptibility

- L7 theoretically visible but **not perceptible**
- L7 only **perceptible**
- Wood Pole theoretically visible but **not perceptible**
- Wood Pole only **perceptible**
- Wood Pole and L7 lines **perceptible**
- Wood Pole and L7 lines theoretically visible but **not perceptible**
- Wood Pole theoretically visible but **not perceptible** and L7 **perceptible**
- Wood Pole **perceptible** and L7 theoretically visible but **not perceptible**

Note: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.

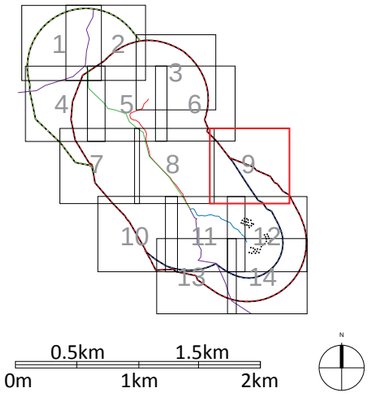
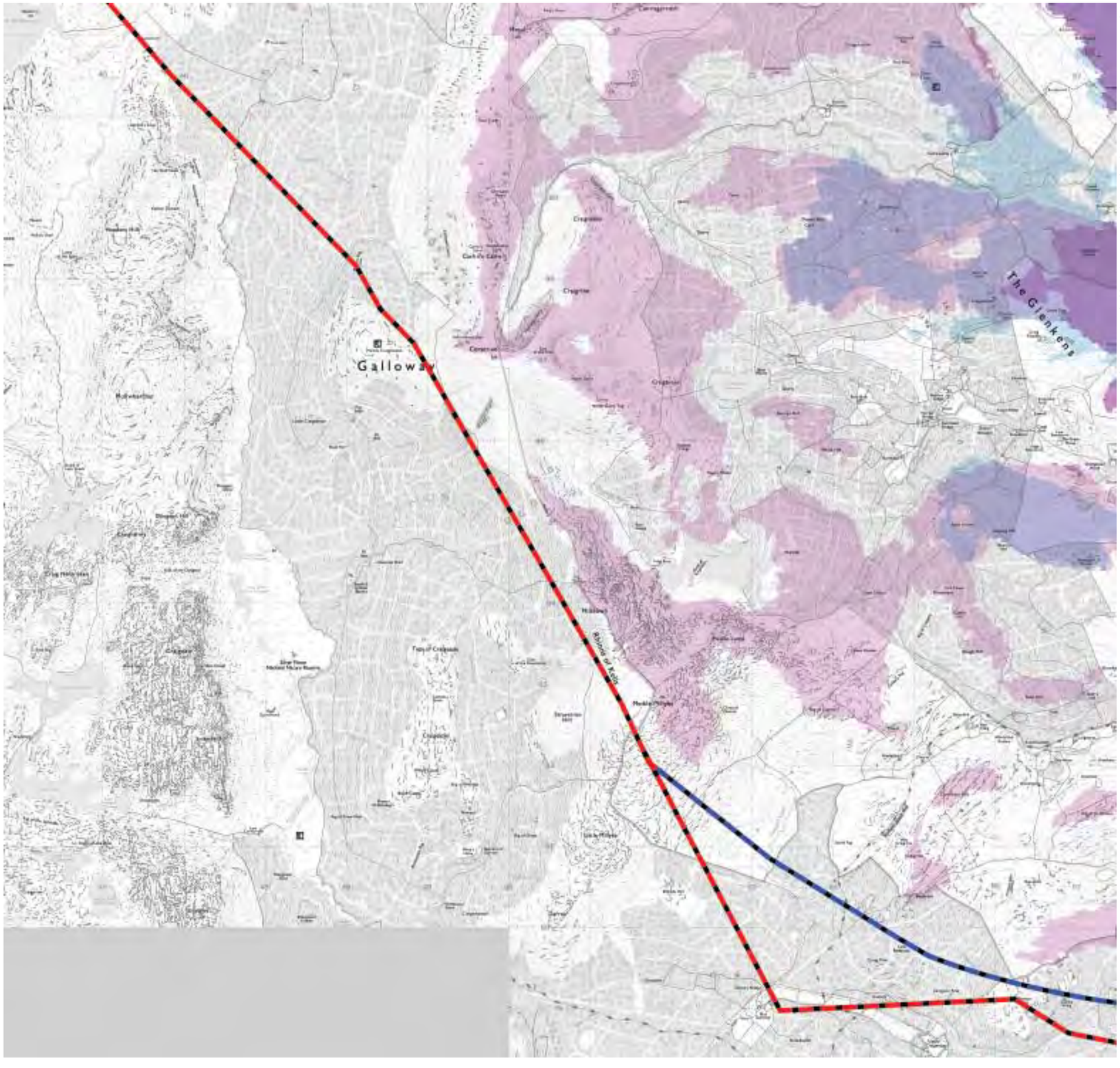


Figure 7.46 - Perceptibility detail 9 of 14



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical perceptibility

- L7 theoretically visible but **not perceptible**
- L7 only **perceptible**
- Wood Pole theoretically visible but **not perceptible**
- Wood Pole only **perceptible**
- Wood Pole and L7 lines **perceptible**
- Wood Pole and L7 lines theoretically visible but **not perceptible**
- Wood Pole theoretically visible but **not perceptible** and L7 **perceptible**
- Wood Pole **perceptible** and L7 theoretically visible but **not perceptible**

Note: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.

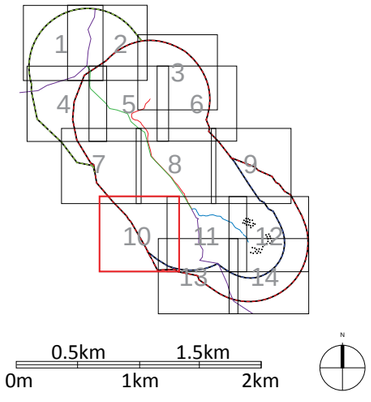
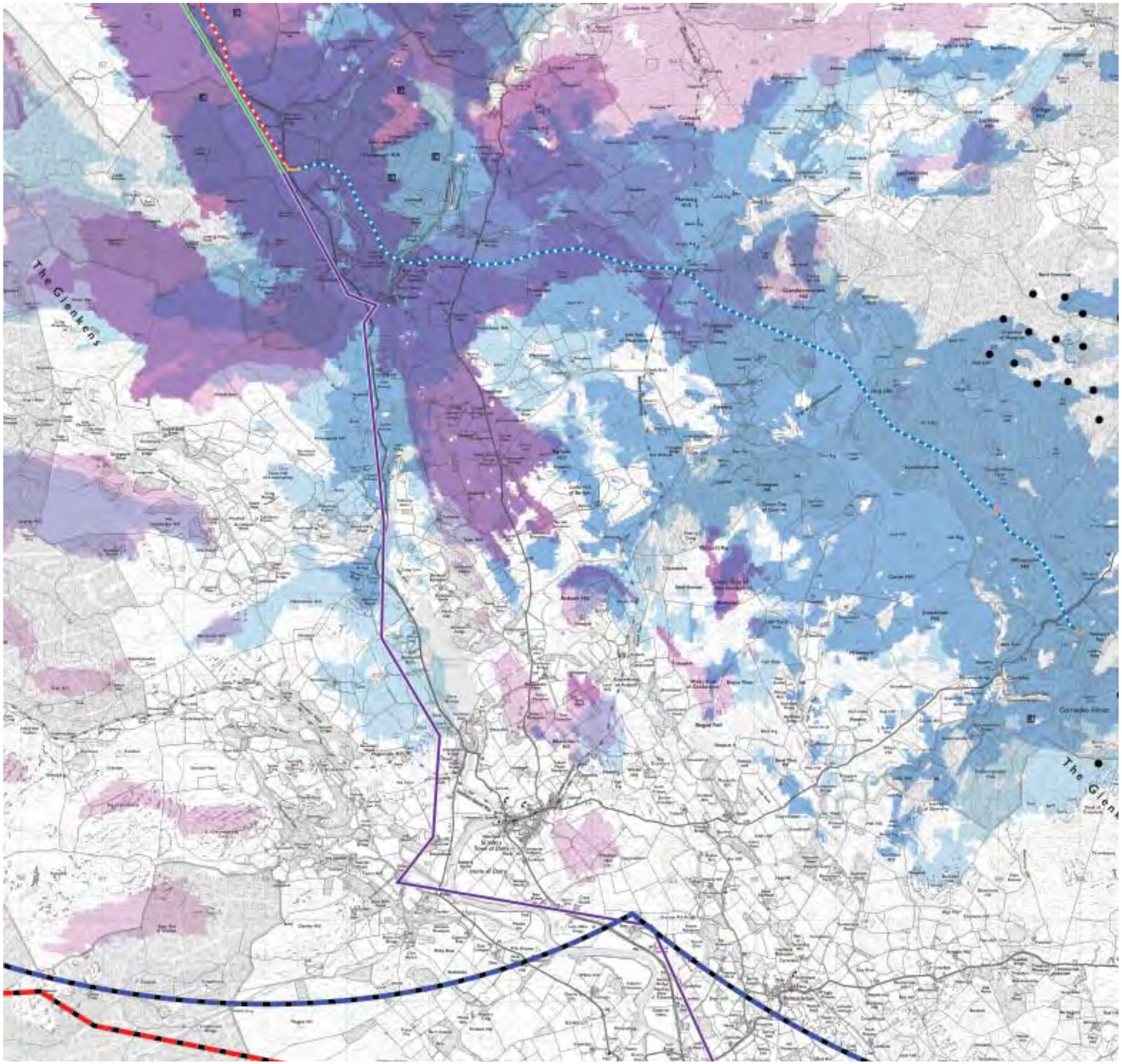


Figure 7.47 - Perceptibility detail 10 of 14



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical perceptibility

- L7 theoretically visible but **not perceptible**
- L7 only **perceptible**
- Wood Pole theoretically visible but **not perceptible**
- Wood Pole only **perceptible**
- Wood Pole and L7 lines **perceptible**
- Wood Pole and L7 lines theoretically visible but **not perceptible**
- Wood Pole theoretically visible but **not perceptible** and L7 **perceptible**
- Wood Pole **perceptible** and L7 theoretically visible but **not perceptible**

Note: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.

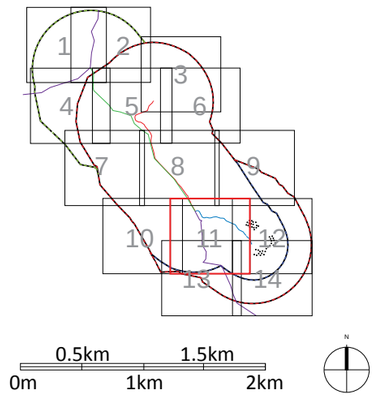
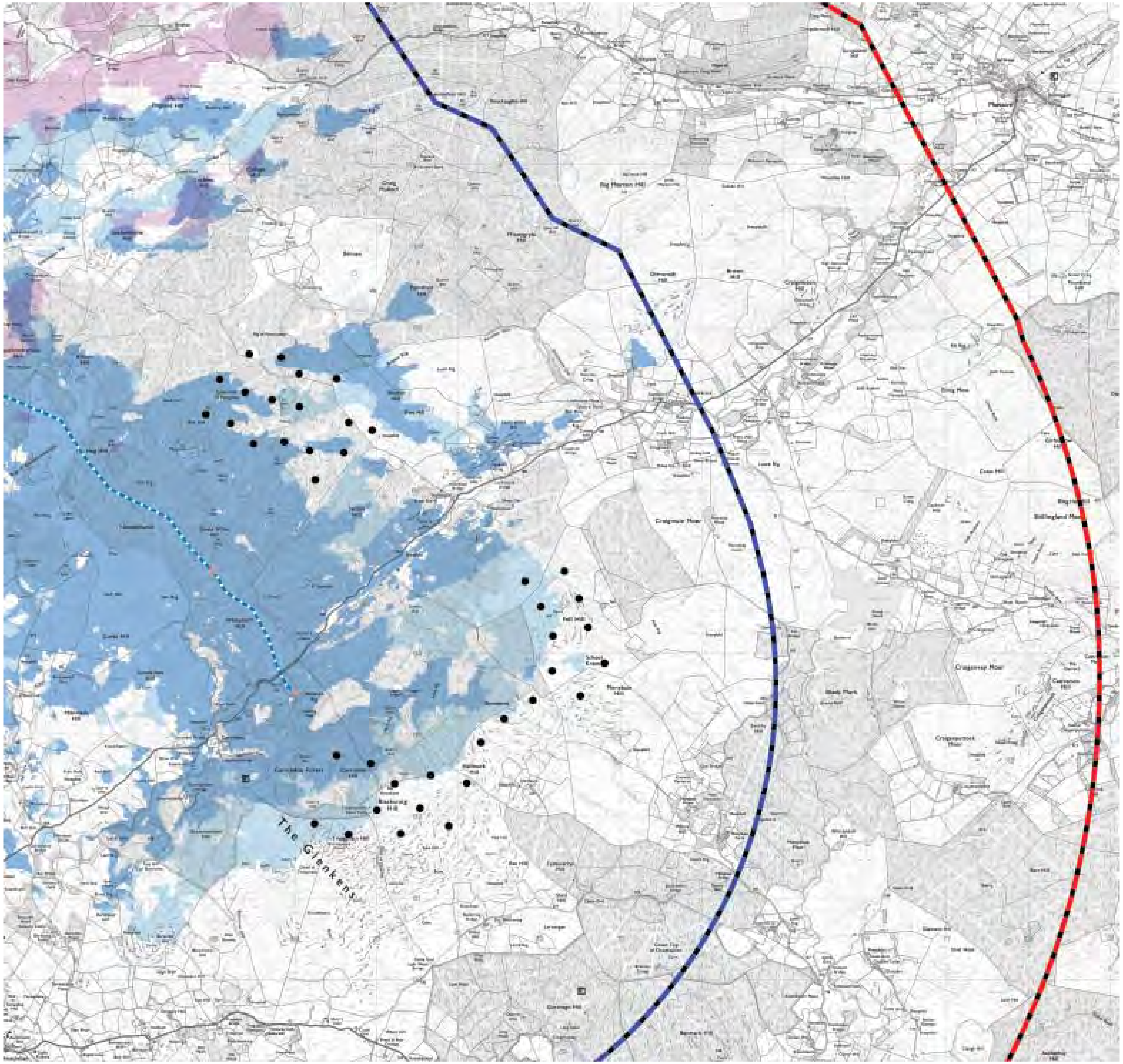


Figure 7.48 - Perceptibility detail 11 of 14



Legend

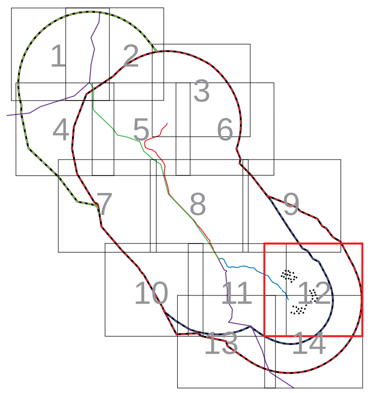
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical perceptibility

- L7 theoretically visible but **not perceptible**
- L7 only **perceptible**
- Wood Pole theoretically visible but **not perceptible**
- Wood Pole only **perceptible**
- Wood Pole and L7 lines **perceptible**
- Wood Pole and L7 lines theoretically visible but **not perceptible**
- Wood Pole theoretically visible but **not perceptible** and L7 **perceptible**
- Wood Pole **perceptible** and L7 theoretically visible but **not perceptible**

Note: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.

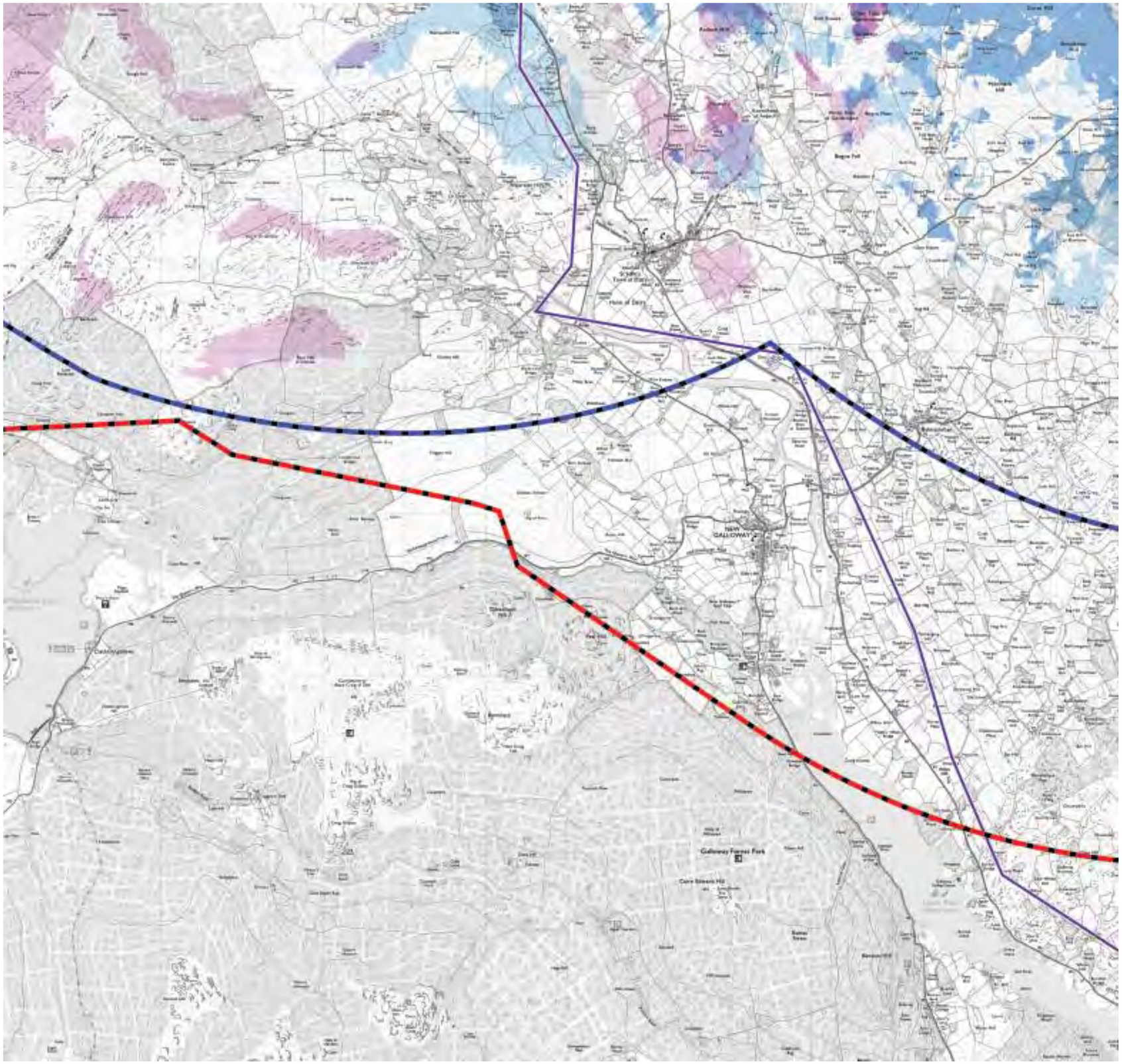


0.5km 1.5km

0m 1km 2km

N

Figure 7.49 - Perceptibility detail 12 of 14



Legend

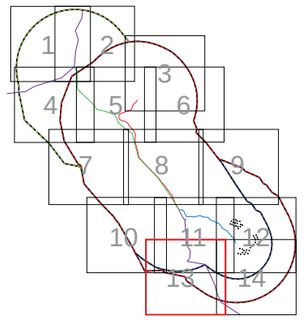
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical perceptibility

- L7 theoretically visible but **not perceptible**
- L7 only **perceptible**
- Wood Pole theoretically visible but **not perceptible**
- Wood Pole only **perceptible**
- Wood Pole and L7 lines **perceptible**
- Wood Pole and L7 lines theoretically visible but **not perceptible**
- Wood Pole theoretically visible but **not perceptible** and L7 **perceptible**
- Wood Pole **perceptible** and L7 theoretically visible but **not perceptible**

Note: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.



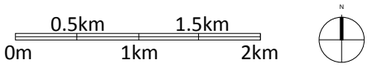
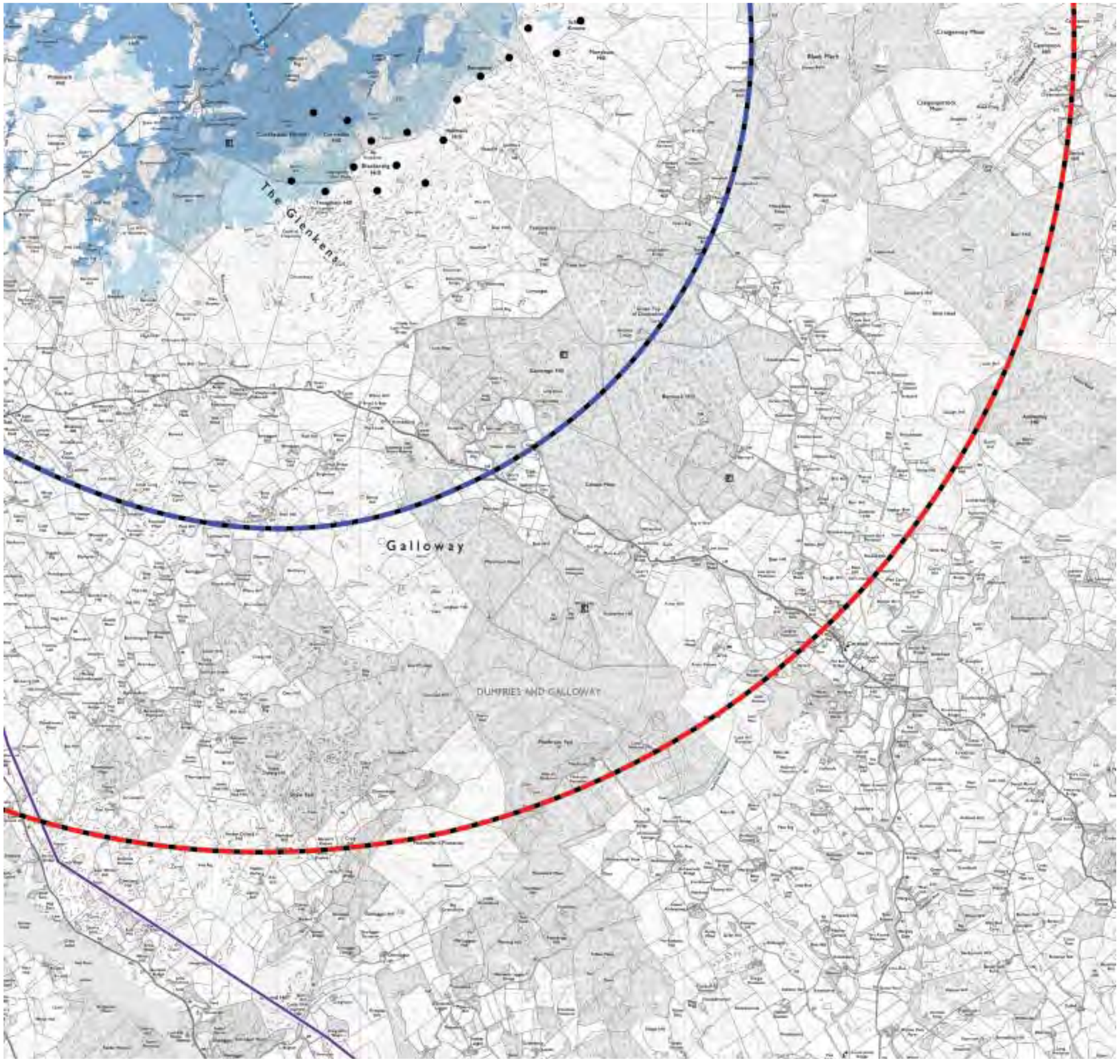


Figure 7.50 - Perceptibility detail 13 of 14



Legend

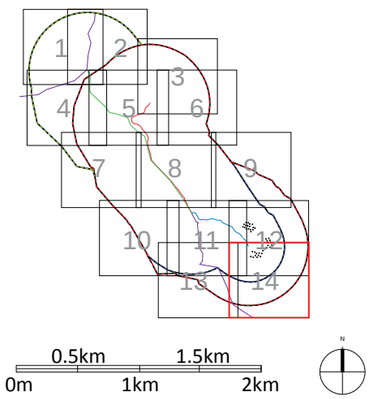
Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- N-Route section retained
- N-Route removed
- 10km visibility Study Area boundary
- 6km visibility Study Area for Wood Poles

Theoretical perceptibility

- L7 theoretically visible but **not perceptible**
- L7 only **perceptible**
- Wood Pole theoretically visible but **not perceptible**
- Wood Pole only **perceptible**
- Wood Pole and L7 lines **perceptible**
- Wood Pole and L7 lines theoretically visible but **not perceptible**
- Wood Pole theoretically visible but **not perceptible** and L7 **perceptible**
- Wood Pole **perceptible** and L7 theoretically visible but **not perceptible**

Note: Visibility mapped at up to 10km for L7 Towers and up to 6km for Wood Poles.



0.5km 1.5km
0m 1km 2km

Figure 7.51 - Perceptibility detail 14 of 14

7.5.3.3 Viewpoint 2 – A702 near Corriedoo (GR 268845, 583775)

Within: Foothills with Forest

Looking across: Foothills with Forest

Description of Baseline

1 This viewpoint is situated on the A702 which links Moniaive in the north-east to St. John's Town of Dalry in the south-west. The route is well travelled and is one of the few 'A' roads crossing the upland fringe landscapes in this area. The view is orientated approximately south-west and encompasses the road corridor and the consistently forested landscape on either side of the road, and includes the less dense forest fringe to the left of the view.

2 Visibility outwith the immediate road corridor and forest fringe is limited to middle distance views of Knockman Hill (centre of the view) and Whitecairn Hill (centre-right) which provide the limit of visibility in this direction at about 2km and 1km respectively.

3 The view from this location is typical of the Foothills with Forest landscape type, containing a predominantly uniform land cover, with hills of a rounded nature under varying stages of a commercial forest crop. As such it is a view very much influenced by the hand of man, a theme that is continued with the road corridor and dry stone wall to the centre of the view.

4 Commercial forest provides the defining character within the view, although the road corridor and associated dry stone wall in the centre of the view draw the eye along its route and provide a prominent focal point. There is no built development within the view (aside from the road) and the view is one of a rural (and remote) nature, notwithstanding the man-altered nature of it.

5 It is likely also that turbines at both Blackcraig and Margree windfarms would be visible from this viewpoint if looking in the opposite direction, changing the perception of the view as described above to a less remote nature.

Sensitivity

6 The view includes an appreciable amount of commercial forest and a road corridor, and as such is already heavily influenced by non-natural processes and features. This suggests a decreased sensitivity to the presence of an OHL. The presence of the windfarms at Blackcraig and Margree, which would be evident if viewing in the opposite direction, would further reduce this sensitivity and increase the perception of being within an already man-modified landscape. The remoteness of the location however, and the lack within the view of any built form or settlement, would suggest an elevated sensitivity.

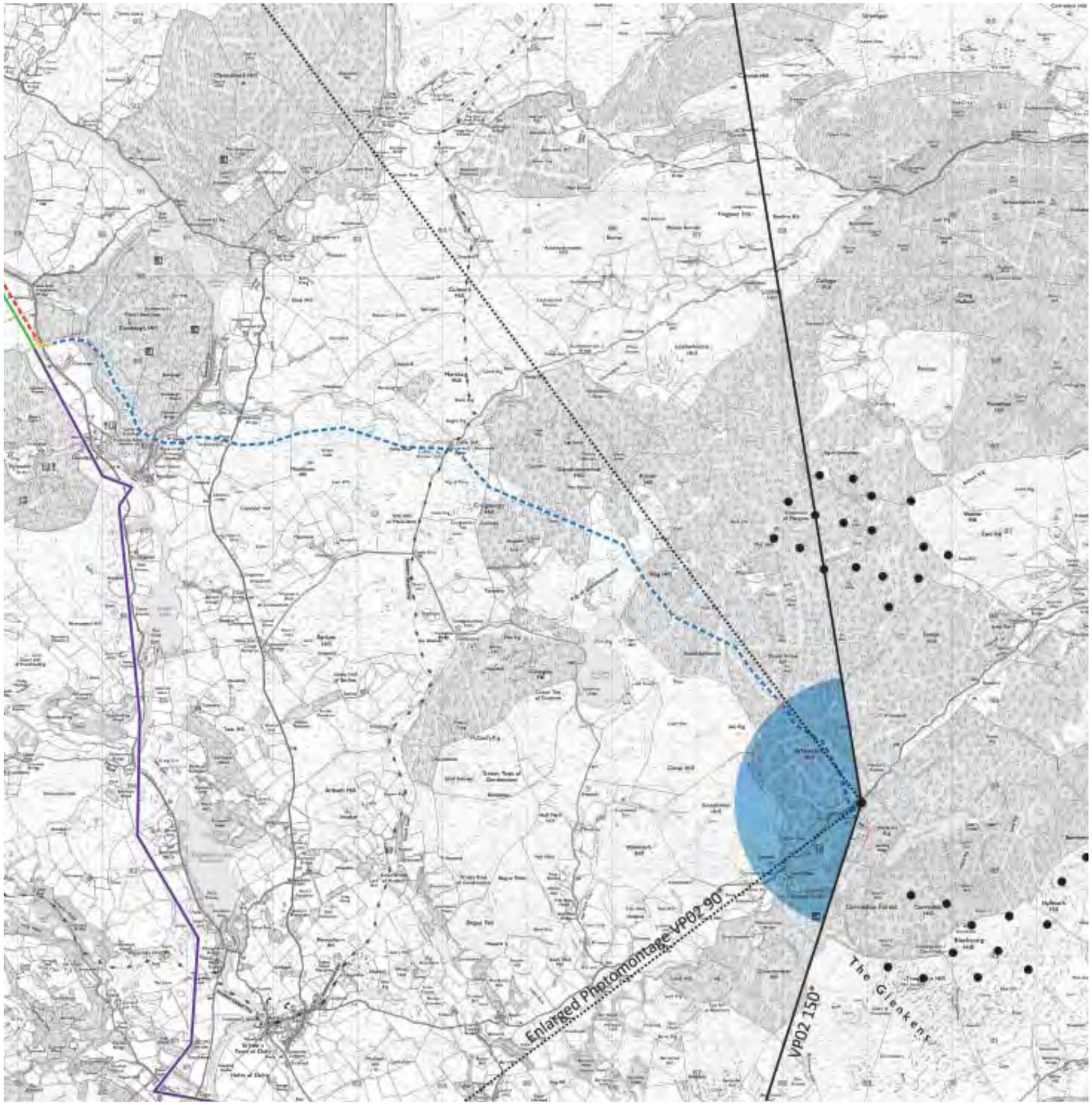
Change to the view

7 The change to the view from this location will result from the addition of a section of the wood pole OHL crossing the road in the immediate foreground. It is possible that up to 9 pole structures would be visible, at distances of between 85 and 550m, although it is likely that the forest surrounding the road in this location would restrict views towards many of these. The nearest portions of the development would appear as skylined elements, whilst much of the route would be backclothed as it runs away from the viewpoint, in a northerly direction, through the forest wayleave on the flanks of Whitecairn Hill. This forest wayleave, which is required to be up to 80m in width, and any additional resultant felling as indicated within Chapter 5, would also constitute a change to the view, but this would appear more in line with the current baseline landscape compared to the addition of the OHL although this wayleave corridor running across the road would be a prominent feature of the local landscape. The scale of the wood pole line is also consistent with the forest through which it runs, reducing the overall magnitude of change compared to the steel lattice towers, which would have historically been used.

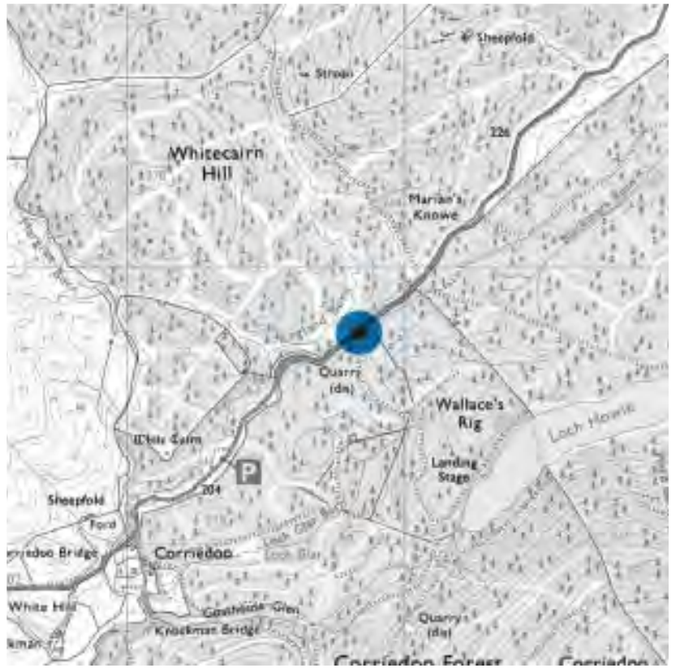
8 The change to the view would be experienced by those travelling in both directions along the road, and given the transient nature of receptors the view would only be experienced for a short time. This change, in the context of the existing baseline landscape and the potential screening this affords, is considered not to be appreciable. The containment of this view in not extending beyond approximately 2km also ensures any change to the view is only experienced in the context of the immediate locality.

Effect

9 Considering the modest sensitivity of this viewpoint, as described above, and the limited local level of change expected within the view, the effect upon this viewpoint is assessed as **moderate**, which is therefore **significant**. This effect will be **adverse** in nature. Although the viewpoint is representative of the A702, this significant effect remains localised to the area in close proximity to the OHL crossing.



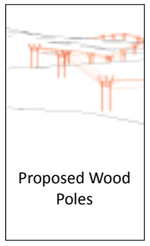
Viewpoint	02- A702 near Corriedoo	
Coordinates	X-268845	Y-583775
Included Angle	150°	
Elevation	229m AOD	
Bearing	245°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	



Windfarm in planning

Consented Windfarm

Operational Windfarm


Proposed Wood Poles

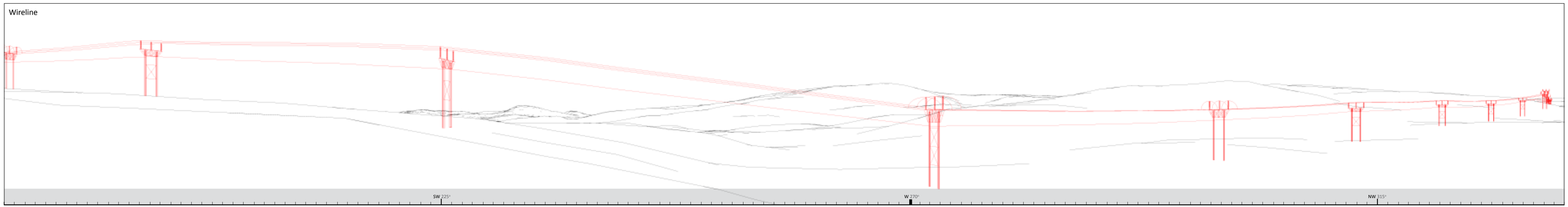

Existing Wood Poles (SWS)


L7 Towers
Red - Proposed
Maroon - Existing
(SWS)

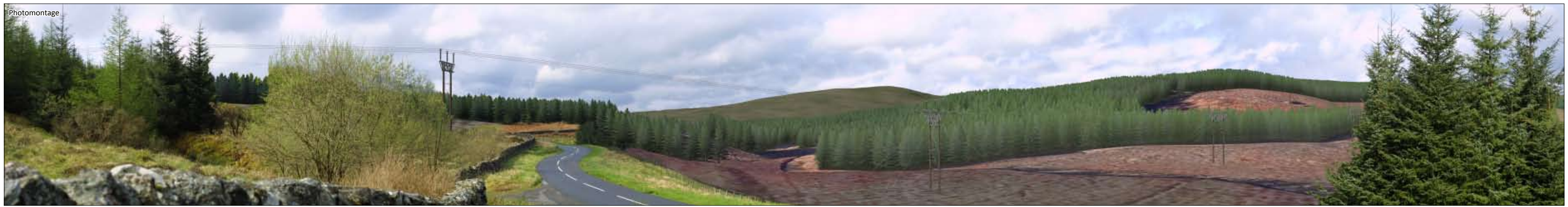
Figure set 7.52 - Viewpoint 02, A702 near Corriedoo

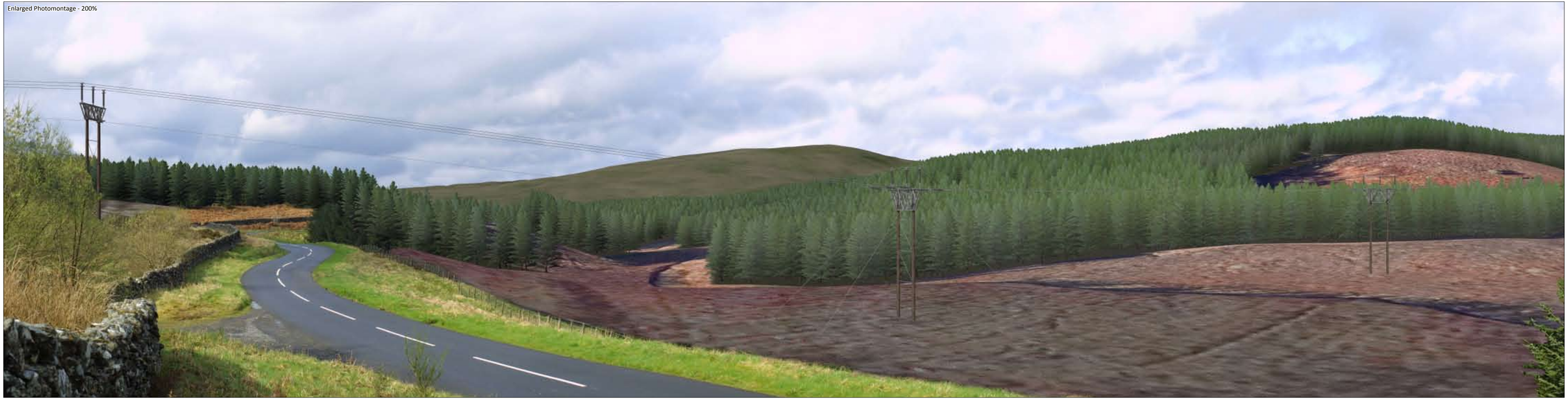
Current View

Wireline



Photomontage





SW 225°

W 270°

7.5.3.4 Viewpoint 4 – Lochinvar (GR 265684, 585513)

Within: Foothills with Forest

Looking across: Foothills with Forest

Description of Baseline

1 This view is taken from a minor road linking the A702 at Mill Hill to the B7000 at Cuckoostone Cottage, and is a single track road with a limited number of private properties situated along it. The view is taken from the edge of Lochinvar waterbody, in a broadly north-easterly direction and takes in the loch and the wider upland landscape beyond. Apart from potential access to the Southern Upland Way and the Corseglass School ruin historic site, which both lie between 1-2km to the west, there would be expected limited use of this road by visitors to the area.

2 The view takes in the extent of the loch, with the forested landscape at Hog Hill and Glenshimmeroch Hill forming the backdrop in the centre of the view, whilst to the right of the view the Blackcraig Hill ridge forms a prominent and discernible horizon. The windfarms at Blackcraig and Margree will be prominent elements within the view and will be visible over approximately one third of the view selected. The turbines will be viewed at a distance of circa 2.5km for Margree and 5km for Blackcraig, and will be largely skylined.

3 Although within the Foothills with Forest landscape type, this viewpoint lies at the southern edge of the landscape unit, and near to the adjoining landscape type Upper Dale. It is therefore very much a transitional landscape, and the view experienced from this location confirms this. The forested and elevated areas typical of the Foothills with Forest landscape type can be seen within the view, but are not in the immediate foreground, but rather the middle and distant portions of the view.

4 Lochinvar is a man-made reservoir and private water supply, and provides the main focus and character within the view, whilst the woodland blocks visible on the elevated landscape in the left of the view ensure that there is no perception of this being a wild and unmanaged landscape.

5 Owing to the topography of the landscape in this area, and the fact the viewpoint sits in a dip in the landscape where the loch is situated, the extent of the view from this point is relatively confined given the lack of commercial forest in the immediate proximity, and is limited to approximately 5km when looking in a south-easterly direction towards Blackcraig Windfarm.

Sensitivity

6 The main features of the view affecting its sensitivity are the windfarms at Blackcraig and Margree and the expanse of Lochinvar in the foreground. Notwithstanding the obvious attractiveness of the view created by the loch and the landscape beyond, the assumed presence of the windfarms over an appreciable portion of the view (circa one third), and to a lesser degree the forest blocks on the left of the view, confirm that the view is one that is already considerably man-modified.

7 In considering the sensitivity of the view, the presence of the loch and the general attractiveness of the view would generally increase this sensitivity, whereas the obviously man-modified nature of large parts of the view would correspondingly decrease it.

Change to the view

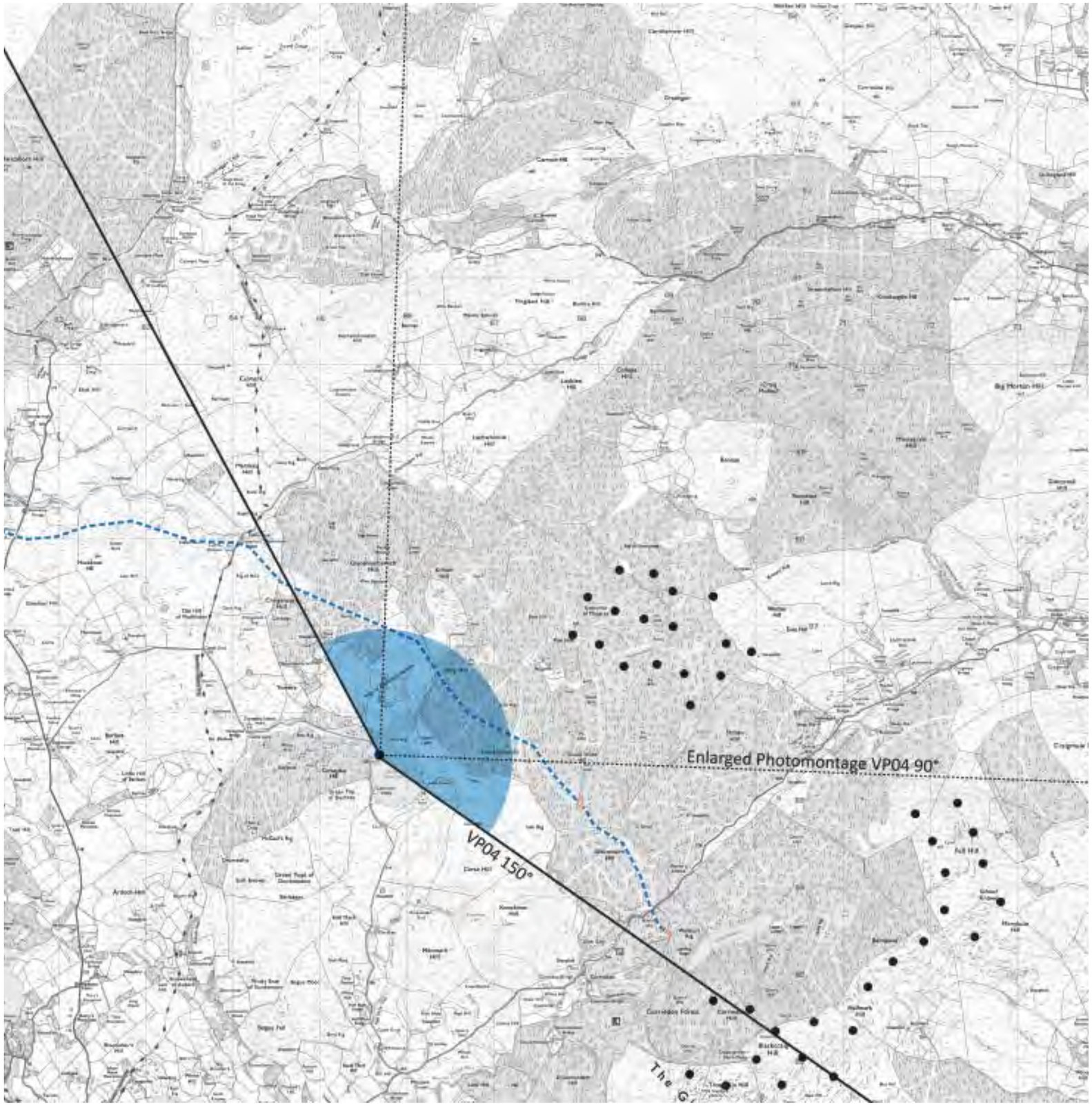
8 From this viewpoint, the change resulting from the proposed development would be the addition of the wood pole OHL crossing approximately half of the view, at a distance of circa 1 – 1.5km. Across this extent, the development would appear as a backclothed element, therefore reducing, relatively, the magnitude of change resulting from its addition. Approximately two thirds of the route passes through the forested landscape on the flank of Hog Hill, and will therefore benefit from the screening that these commercial blocks of forest would afford. The changes to the forest would only be marginally visible and would not be increased by certain sections of the visible OHL containing bird flight diverters..

9 The distances over which the remaining elements of the grid connection are viewed is close to the limit of normal perceptibility of backclothed wood pole structures (1.5km), and when combined will the complexity in colour and makeup of the underlying landscape over which this section of the route runs, and the similarity in scale between the forested landscape and the wood pole structures, suggests a reduced magnitude of change will result from the addition of these elements within the view.

10 Overall the magnitude of change from this viewpoint is considered not to be appreciable.

Effect

11 Taking account of the limited of change expected within the view, and the neutral level of sensitivity of the viewpoint, the effect upon this viewpoint is considered to be **minor**, and therefore **not significant**. This effect will be **adverse** in nature.

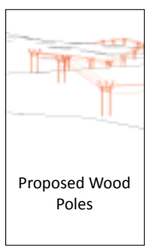


Viewpoint	04- Lochinvar	
Coordinates	X-265684	Y-585513
Included Angle	150°	
Elevation	231m AOD	
Bearing	50°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

Windfarm in planning

Consented Windfarm

Operational Windfarm



Proposed Wood Poles

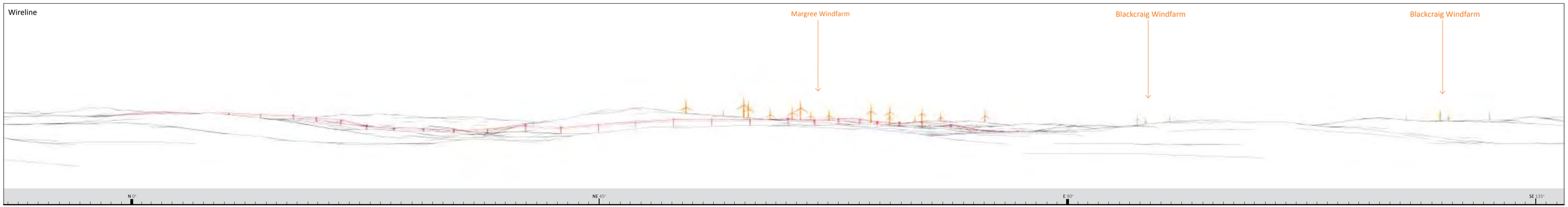
Existing Wood Poles (SWS)

L7 Towers
Red - Proposed
Maroon - Existing (SWS)

Figure set 7.53 - Viewpoint 04, Lochinvar

Current View

Wireline



Photomontage


Enlarged Photomontage - 200%


N 0°
NE 45°

7.5.3.5 Viewpoint 5 – Hog Hill (GR 266758, 586430)

Within: Foothills with Forest

Looking across: Foothills with Forest; Upper Dale; Southern Uplands with Forest; Rugged Granite Upland with Forest

Description of Baseline

1 This viewpoint is situated within the forest area at Margree, although the specific location of the viewpoint is in a clearing on top of the hill, and is surrounded by recently cleared forest. The view is in a south-westerly direction and takes in a broad view including the entirety of Lochinvar in the middle distance in the centre of the view, and in the far distance the impressive massif of the Galloway Uplands which stretches across approximately half of the view.

2 The viewpoint is located within a private forest landscape, and as such people experiencing this view (or similar) will be limited to those working within the forest, or those potentially visiting the Margree Windfarm which sits directly behind the viewpoint.

3 To the left of the view the Blackcraig Hill ridge (& windfarm) forms the horizon at circa 5-6km, whilst to the right of the view Glenshimmeroch Hill is prominent in the middle distance and glimpses are available of the Southern Uplands landscape beyond. The broad scale of the view permits long distance views, up to 15km and beyond, but views at this distance are focussed on the centre of the view whilst the visual limits in other parts of the view ranges from 2 – 5km.

4 The view is typical of the peripheral landscape units of this landscape type, in that it comprises the elements distinctive of the landscape type in which it sits - forest cover in different stages of management and rounded hills - but also comprises more transitional zones such as the landscape around Lochinvar in the middle distance and distant hills and valleys.

5 The topography within the view is extremely diverse, with a relatively gently undulating landscape falling towards Lochinvar and beyond towards the Upper Dale landscape around St John's Town of Dalry. Beyond this, the landscape rises again through the corresponding landscape type on the opposite side of the valley, before rising appreciably into the landscape of the Galloway Forest Park. In the left of the view there is the distinct ridge of Blackcraig Hill (& the windfarm) which is different in character, being more rugged and stark, than the other landscapes within the view.

6 A key feature of the view from this point, although not fully represented in the sector of the view shown, is the presence of both Blackcraig & Margree Windfarms on the hills to the left, and immediately behind, the viewpoint. These windfarms will be important features within the view, with turbines situated between 1km and 6km from the viewer, and will appear as large moving man made objects on the horizons and in the fore and middle ground.

7 Other built from within the view is limited, with a number of dry stone walls, very distant farmsteads and the house on the bank of Lochinvar the only discernible evidence.

Sensitivity

8 The view from this location is a striking and diverse one, taking in focus points in the middle distance at Lochinvar and at long distance with views of the Galloway Forest Park. The sensitivity of the view is reduced through the presence of the windfarms and the forest at Blackcraig & Margree, although the view in the direction chosen, which will include the development of the OHL, still retains an elevated sensitivity owing to its diversity, interest and availability of long distance views.

9 This elevated sensitivity is confirmed through the presence within the view of the Galloway Forest Park which covers the more elevated, distant portions of the view.

Change to the view

10 The change to the view presented by the addition of the wood pole OHL would be experienced across much of the extent of this view, from the Blackcraig substation in the south-east, to where it descends the Foothills landscape towards Kendoon and Dundeugh Hill. Although running within a forested landscape between the substation and Hog Hill, the view of the proposed line will be oblique, and therefore will not benefit from any forest screening. Instead, the line will be visible over an extended length, and the wayleave required for the line will be clearly evident as a swathe through the otherwise forested landscape. The elements of the OHL visible at beyond 2.5km, in being backclothed, will be imperceptible from this viewpoint.

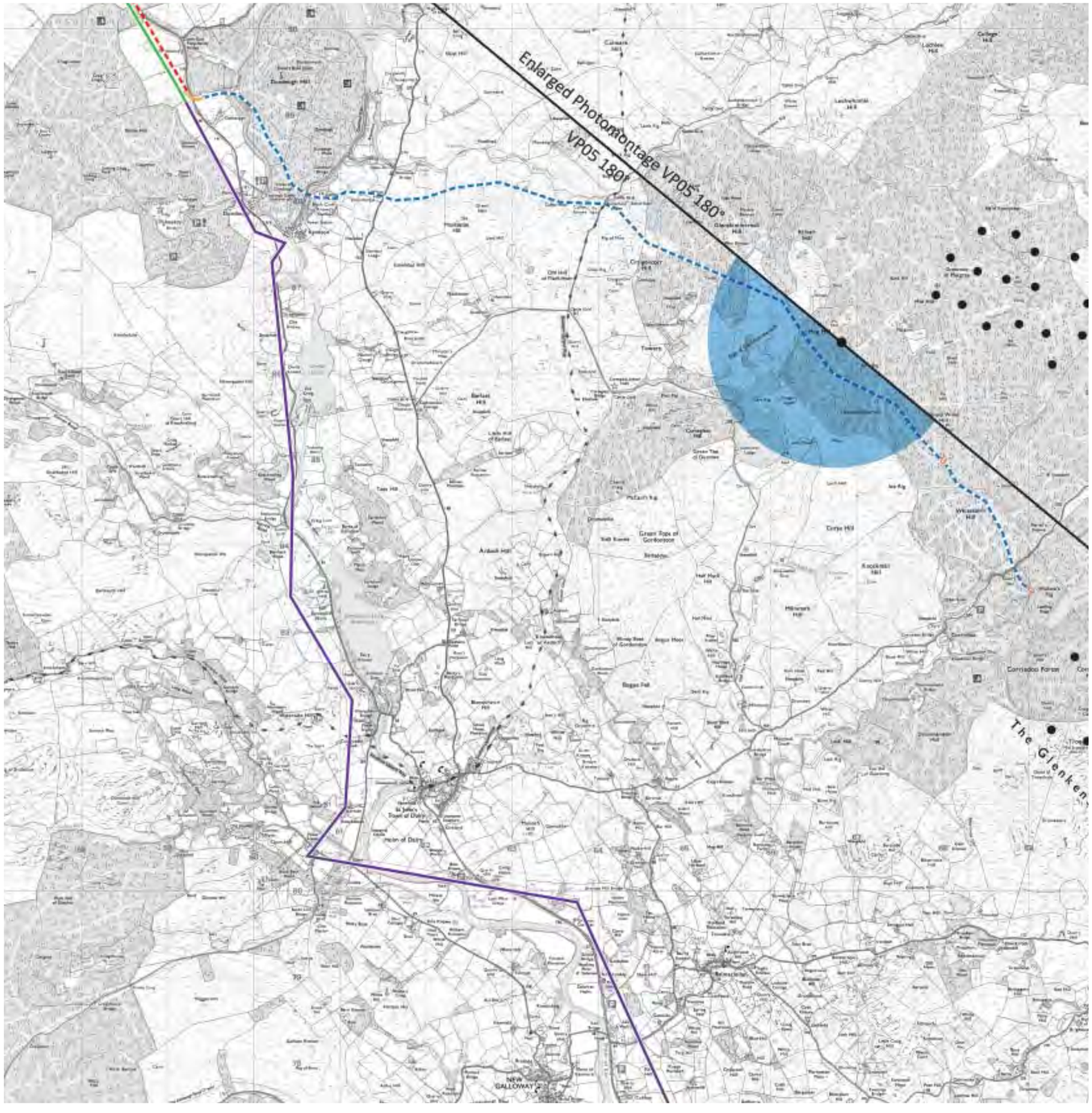
11 From Hog Hill north-eastwards, the extent of forest cover is less in the fore and middle ground, and the line will be visible as a backclothed element as it runs towards Glenshimmeroch Hill. Given this visibility will be at less than 2.5km, the line will be perceptible. Beyond this, the line enters the forested landscape once more, and being backclothed and benefitting from forest screening, will be largely not visible, and where visible, largely imperceptible.

12 The OHL will be backclothed over the entire view, and will therefore only be perceptible within 2.5km from the viewpoint. Visibility within this section of the view, however, is relatively clear, with forest felling and open improved grassland landscapes permitting views. Forest felling to facilitate the development will be visible across the full width of the view. To the south-east, the new wayleave corridor will be visible as a part of a larger area of forest loss currently defined by an existing ride. Across the centre of the view, the forest edge beyond the broadleaves will be lost. To the north-west, the corridor will be evident through the forest in the middle distance. Over this section parts of the OHL will have bird flight diverters.

13 These changes to the forest combine with the OHL to result in a considerable change to this view.

Effect

14 The viewpoint has an elevated sensitivity to the proposed development, and the extent of change that is expected to result from the proposed development, will result in a **major effect**, that is therefore **significant**. This effect will be **adverse** in nature.

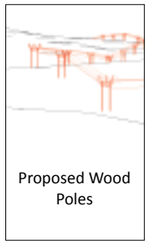


Viewpoint	05- Hog Hill	
Coordinates	X-266758	Y-586430
Included Angle	180°	
Elevation	306m AOD	
Bearing	220°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

Windfarm in planning

Consented Windfarm

Operational Windfarm



Proposed Wood Poles

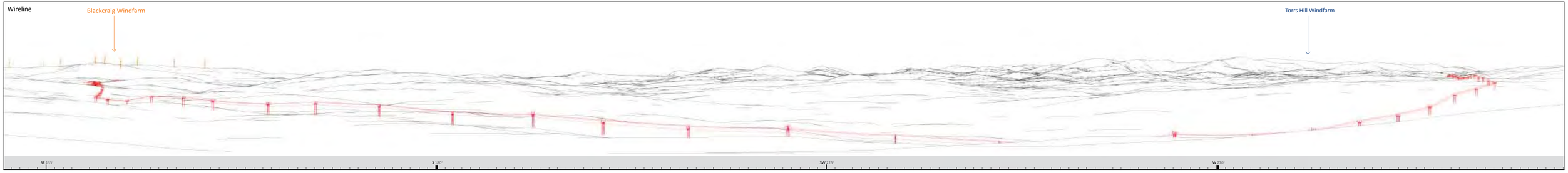
Existing Wood Poles (SWS)

L7 Towers
Red - Proposed
Maroon - Existing (SWS)

Figure set 7.54 - Viewpoint 05, Hog Hill

Current View

Wireline



Photomontage

Enlarged Photomontage - 200%

SE 135° S 180° SW 225° W 270°

7.5.3.6 Viewpoint 7 – Blackwater Valley SUW link (GR 263792, 588141)

Within: Foothills with Forest

Looking across: Foothills with Forest; Upper Dale; Rugged Granite Uplands

Description of Baseline

1 Although not located on the Southern Upland Way (SUW) itself, this viewpoint is located on a marked link path between the SUW and a Youth Hostel to the west on the B7000. Both the SUW and this path are well used, and signposted, and the view is likely to be experienced by appreciable numbers of people taking advantage of the Youth Hostel's position relative to this important walking route.

2 Taken in a southerly orientation, this view provides a relatively uniform view of the transitional landscape type between the Foothills with Forest landscape type and the Upper Dale landscape type, the boundary of which lies approximately 1km to the west of the viewpoint. The predominant land cover evident within the view is one of semi-improved pasture and rough grazing, separated by dry stone walls and other field boundary types, whilst the lack of forest comparative to other areas of the landscape unit confirm its status as a transitional zone with the Upper Dale. The more upland parts of the landscape unit can be seen in the left of the view, where the forested slopes of Glenshimmeroch Hill can clearly be identified.

3 The view is generally limited to within circa 1.5km, although longer distance views are available within the right hand portion of the view, where views of up to circa 15km are available towards the massif of the Galloway Forest Park. Neither Blackcraig nor Margree windfarms will be visible within the view, although other visual foci are present, such as the distant hills mentioned above and the Blackwater River and stone dyke in the foreground. Generally, however, the view is uniform in nature and contains little specific focus.

4 The topography within the view could be described as gently rolling, and is atypical of the peripheral zone of the landscape type within which it sits.

Sensitivity

5 The view is one relatively absent of man-made influences, save for the limited forest areas visible around Glenshimmeroch Hill and the dry stone dykes in the foreground. The lack of other infrastructure, such as OHLs, windfarms and roads serves to increase the sensitivity of this viewpoint to the development of an OHL.

6 The use of this pathway as a link from the Southern Upland Way to the Youth Hostel in the south-west, and the longer distance views towards the Galloway Forest Park when walking in this direction, further confirms this elevated sensitivity.

Change to the view

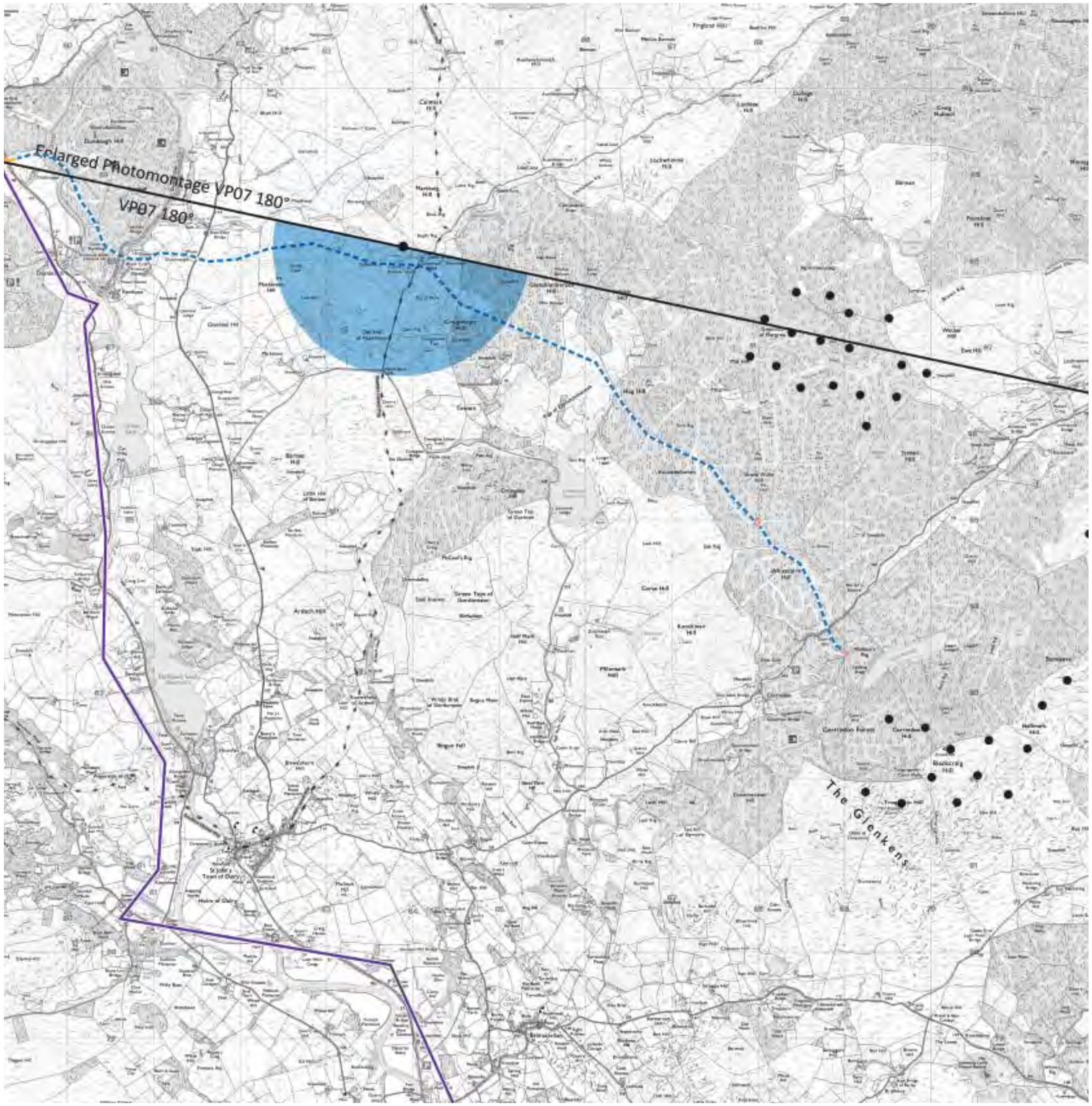
7 The current view contains little diversity, and takes in a uniformly toned landscape of semi-improved grassland and occasional forest and long distant views. The change to occur within the view results from the addition of the wood pole OHL crossing the extent of it, at a distance of between 1 and 1.5km. Although predominantly backclothed, these distances mean the line will be a clearly perceptible element across the entire view, with up to 32 poles visible.

8 There will be very limited changes to the foresty in this view, with the end of the forest wayleave just visible to the north of Craigencour Hill

9 The magnitude of change within the view, in consideration of the large numbers of poles visible, and the short distances over which they will be viewed, is considered to be appreciable. The lack of any screening vegetation, or other vertical structures, confirms this magnitude.

Effect

10 The elevated sensitivity of this viewpoint, combined with the appreciable magnitude of change expected form this viewpoint, results in a **major effect** upon this viewpoint, which is therefore **significant**. This effect will be **adverse** in nature.

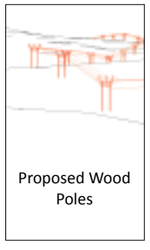


Viewpoint	07- Blackwater Valley	
Coordinates	X-263792	Y-588141
Included Angle	180°	
Elevation	219m AOD	
Bearing	190°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

Windfarm in planning

Consented Windfarm

Operational Windfarm



Proposed Wood Poles

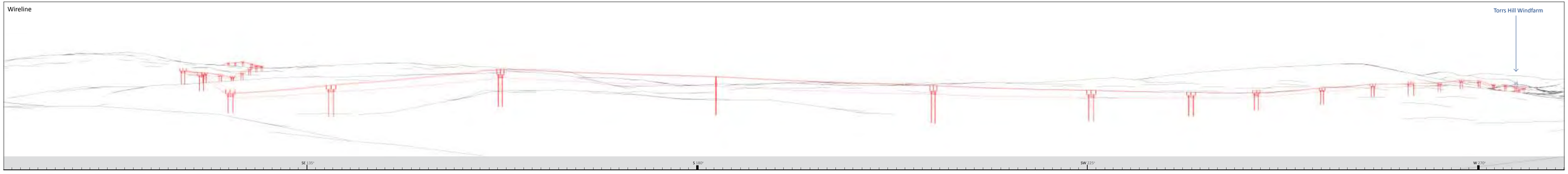
Existing Wood Poles (SWS)

L7 Towers
Red - Proposed
Maroon - Existing
(SWS)

Figure set 7.55 - Viewpoint 07, Blackwater Valley

Current View

Wireline



Photomontage

Enlarged Photomontage - 200%

SE 135° S 180° SW 225° W 270°

7.5.3.7 Viewpoint 12 – Dundeugh Hill (GR 260383, 589427)

Within: Upper Dale

Looking across: Upper Dale; Foothills with Forest

Description of Baseline

1 This viewpoint sits near the summit of Dundeugh Hill, and is to be found on the forest track leading up to the telecommunications building located there. Although not publicly accessible by car, this area of forest is widely used by people walking dogs, especially those living nearby at Kendoon and Polmaddy. The presence of the ruined castle on the Carse of Dundeugh is also likely to attract small numbers of visitors, but in being further down the slope, these visitors are less likely to experience this particular view.

2 The view taken is in a south-easterly direction, and takes in a broad swath of landscape which includes the upland forested landscapes of Glenshimmeroch (and beyond) in the left of the view, across the Upper Dale landscape towards St John's Town of Dalry, and including parts of the Rhinns of Kells towards the right of the view. In taking in this panorama, the transition between the key landscape types of the upper Dale and the Foothills with Forest is clearly evident in the change of land cover and prevalence of built form and infrastructure.

3 The viewpoint is located within the Galloway Hills RSA, which extends from this location in a westerly direction towards the Galloway Forest Park.

4 As expected given the elevated nature of this viewpoint, the views are far reaching in all directions. Visibility up to, and beyond, 10km is available consistently, and only middle ground topography (such as Mackilston Hill) restricts views in some directions to less than this.

5 Key features within the view include Kendoon Power Station with its conspicuous water tower and Carsfad Loch within the valley landscape in the centre of the view, whilst the long distance views of the Rhinns of Kells and hills further afield provide distant foci on the horizon. To the left of the view, the windfarms of Wether Hill (but not included in the view represented here), Blackcraig and Margree (assumed) are all visible on the horizon of the upland landscapes, and are between 10 and 15km from the viewpoint. The portion of the view containing windfarms on the horizon is between a quarter and a third, making them an appreciable element within the view when looking in this direction.

6 Aside from the forest, which is visible in the immediate foreground on the Carse of Dundeugh and more widely on the more upland landscapes in the left and right hand portions of the view, there is only subtle evidence of man-made features or built form within the view, except for the sporadic settlement within the valley landscape (predominantly along the A713), and isolated farmsteads toward the more upland areas. The Kendoon Power station is also evident within the view, although is primarily screened by foreground forest. The loch at Carsfad, built as part of the Galloway Hydro Scheme, is a key feature of the view, although its man-made nature is not immediately evident.

Sensitivity

7 As outlined above, there is appreciable evidence within the view of a man-modified landscape, although in the most part this is subtle and would not be recognisable to the casual viewer. The exceptions to this are the windfarms on the left hand horizon of the view, (which, in extending up to a quarter of the way across the view, are appreciable elements of it) and also the forest cover in the varying locations within the view. Although the presence of these elements within the view would suggest a reduced sensitivity to the development of an OHL, the expanse of the view and the large parts of the view which are void of man-made elements and other detractors, combined with the long distance views that are available over the Galloway Hills RSA and other upland areas suggest a more elevated sensitivity over the whole view.

8 The nature of the transitions across the landscape, from a pastoral, more settled landscape in the centre of the view, through the upland fringes and then into the uplands themselves, provides a level of visual interest that is often difficult to perceive, except when viewing from elevated locations such as this. This is considered to further increase the sensitivity of the view.

Change to the view

9 The change to the view from this location will include the addition of the proposed wood pole line as it routes from Craigencorr Hill to the Carse of Dundeugh, covering a length of 5.5 – 6km. Over parts of this length the OHL would have bird flight diverters on it. The potential views of the line would be experienced at between 1 and 5km, and would, over the large majority of this length, be of backclothed elements. Those elements of the grid connection beyond 2.5km would be imperceptible, and includes circa half of the potential visibility available.

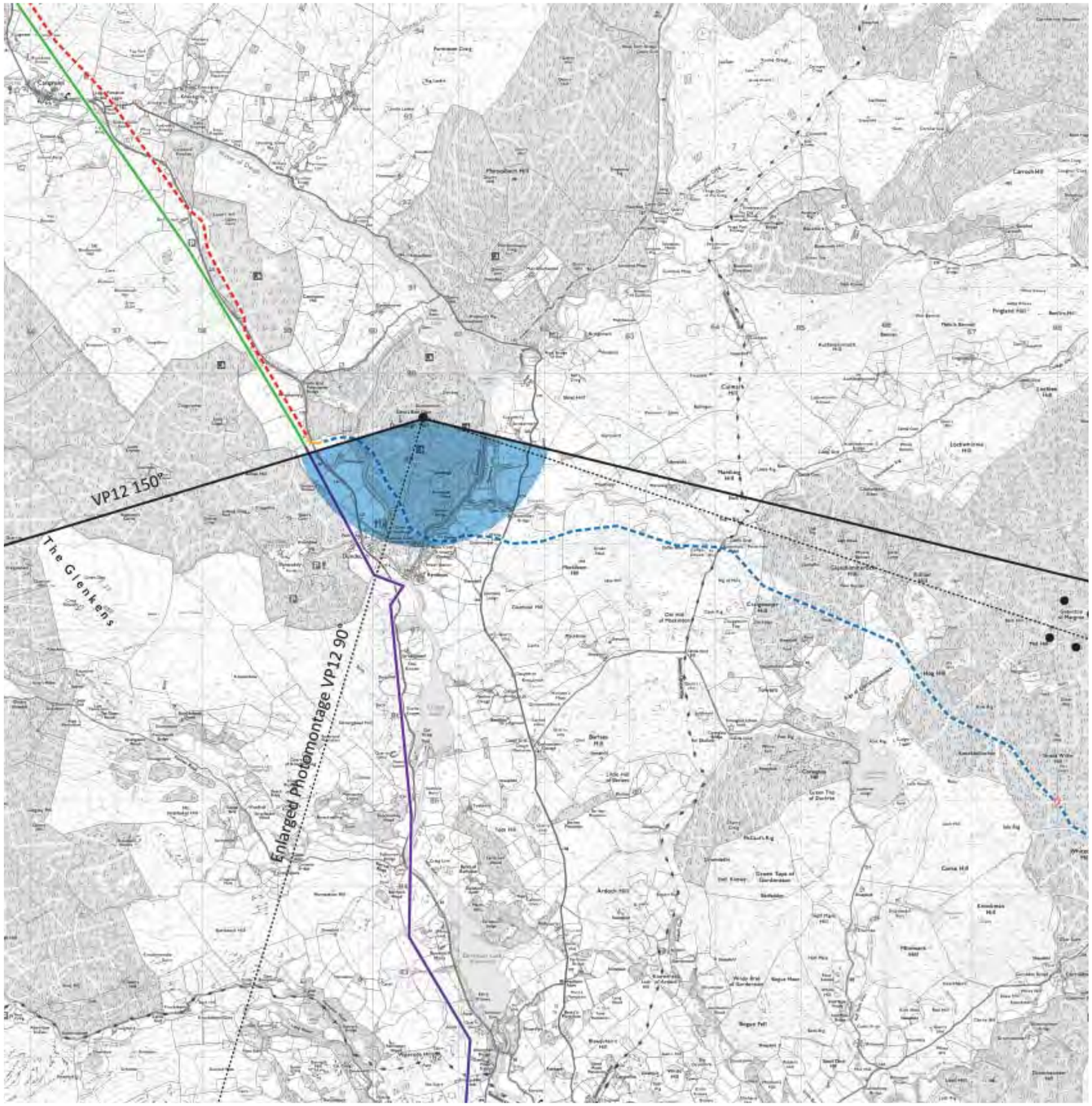
10 This means therefore, that the OHL would become perceptible as it flanks Mackilston Hill, in the south-eastern portion of the view, and begins to descend into the more complex landscape around Glenhoul and the Carse of Dundeugh. Within this landscape, the forest and parkland landscapes around Glenhoul Farm and on the Carse of Dundeugh will provide an element of screening of the OHL, meaning the actual change to the view will in some parts be quite limited.

11 The changes to the forest will be evident both locally as the wayleave crosses the Carse of Dundeugh (although this is largely in areas recently cleared or young plantation) and where the route crosses the Water of Ken to the north of the water tower at Kendoon. In addition the location where the wayleave enters the forest landscape further west to the north of Craigencorr Hill will be evident.

12 The line will cross close (within 1km) to the viewpoint, and it is likely that this visibility would result in the line being 'followed' within the view until it became imperceptible around Mackilston Hill. As such, and in consideration of the amount of imperceptible change expected within the view, the magnitude of change is considered to be rather more limited than might have been expected.

Effect

13 In consideration of the modest magnitude of change expected from this viewpoint, and despite the increased sensitivity of the view, the effect upon this viewpoint is considered to be **minor**, and therefore **not significant**. This effect will be **adverse** in nature.

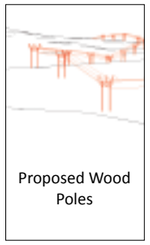


Viewpoint	12- Dundeugh Hill (near summit)	
Coordinates	X-260383	Y-589427
Included Angle	150°	
Elevation	262m AOD	
Bearing	180°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

Windfarm in planning

Consented Windfarm

Operational Windfarm



Proposed Wood Poles

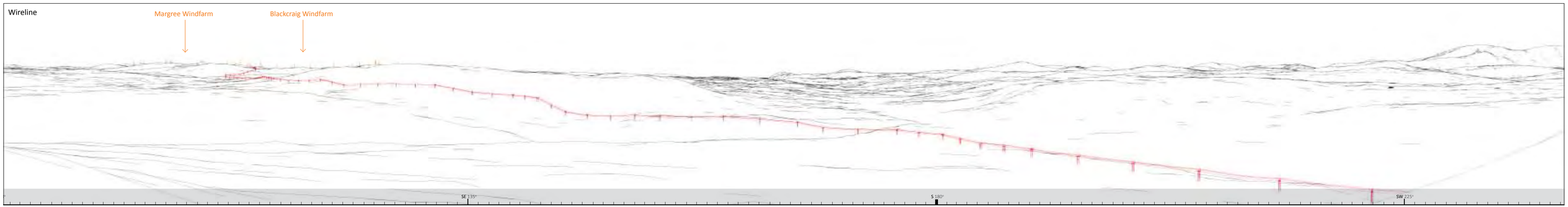
Existing Wood Poles (SWS)

L7 Towers
Red - Proposed
Maroon - Existing
(SWS)

Figure set 7.56 - Viewpoint 12, Dundeugh Hill near summit

Current View

Wireline



Photomontage

Enlarged Photomontage - 200%

SE 135°

S 180°

7.5.3.8 Viewpoint 13 – Linnfraig (GR 259328, 589067)

Within: Upper Dale

Looking across: Upper Dale

Description of Baseline

1 This viewpoint is representative of the view experienced from the A713 to the north-west of Dundeugh Hill, and is taken from a layby near to the entrance to Dalshangan House. The A713, known as the Galloway Tourist Route, is a main tourist route from Castle Douglas to Ayr, and as such is well travelled by people crossing this part of south-west Scotland. The route runs along the Water of Deugh valley, and in this location passes through the Upper Dale landscape type.

2 The view is in a broadly north direction, and takes in solely the landscape type within which it sits, with the forest and other woodland prevalent in this part of the landscape restricting most other longer distance views. The only exception to this is in the right hand portion of the view, where Marscalloch Hill is visible on the skyline. Aside from this, the view is generally restricted to less than 5km, with the majority of the view under 1km.

3 The view is one very much dominated by the influence of man, with the A713 road corridor and the layby major features within it, whilst the forest at Gordon's Knowe forms a backdrop to a large proportion of the view. The key feature across the wider view, however, is the existing N-Route OHL, which spreads over more than half of the view. There are also a number of lower voltage OHLs which run alongside the N-Route, and contribute to the man-influenced nature of the view. Aside from the presence of the OHLs and the road, other built form within the view is limited, with no properties or residences visible.

4 The topography within the view is uniform and restricted to the gently undulating landscape of the Upper Dale of the Water of Deugh, although further afield some increased topography, such as that at Cairnsmore of Carsphairn, is evident.

Sensitivity

5 The view is characterised by the road corridor and the existing N-Route OHL running across it, giving an impression of a heavily man-modified landscape in which appreciable change is both present and ongoing. The lack of any long distance views added to the obvious presence of the existing N-Route OHL and other minor electricity infrastructure indicates a reduced sensitivity to development of this type.

6 Slightly raising the sensitivity, however, are the large numbers of visitors who use not only the layby, but also the A713 (Galloway Tourist Route) and the presence of the viewpoint within the peripheral areas of the Galloway Hills RSA.

Change to the view

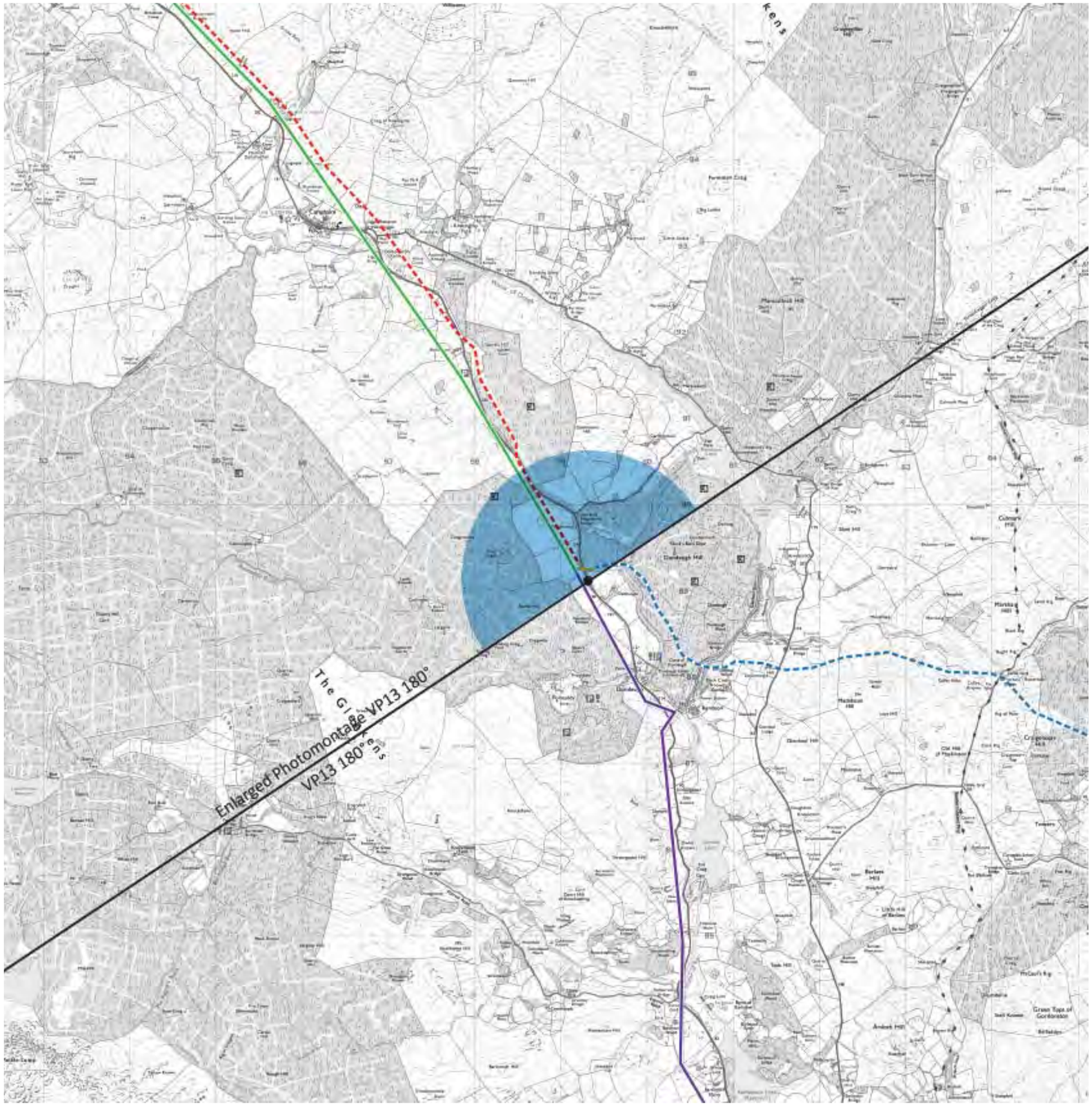
7 The change to the view when looking north from this layby will result from the addition of the final five structures of the wood pole section of the proposed OHL and also the termination tower, and associated floor level sealing end compound, of the L7 route as it travels south from Dalmellington. These structures will be visible at close range, at between 145 and 400m, and will in the majority be skylined, with some of the wood poles being backclothed by commercial forest beyond. As the route continues towards Dalmellington, the line of L7 Towers will be seen end on, and will appear as a main detractor within the view.

8 The change to the view from this location will be appreciable, with large infrastructure elements comprising the main focus and character within it. This change also has to be taken in context of the existing N-Route, which although being removed from this point northwards, is still evident as it transfers onto the western side of the L7 termination tower in the immediate foreground.

9 Changes to the local forest will be evident from this location, with areas of forest to the north adjacent to the existing N-Route being removed to provide the corridor for the new L7 OHL. This clearance will open a larger break in this forest which currently forms an almost unbroken horizon to the north.

Effect

10 Although this viewpoint has limited sensitivity to the proposed development, the appreciable change to the view results in there being a **major effect** upon the viewpoint, which is therefore **significant**. This effect will be **adverse** in nature.

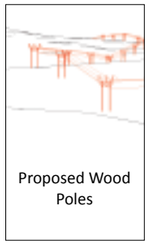


Viewpoint	13- Linnfraig Layby	
Coordinates	X-259328	Y-589067
Included Angle	180°	
Elevation	153m AOD	
Bearing	330°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

Windfarm in planning

Consented Windfarm

Operational Windfarm



Proposed Wood Poles

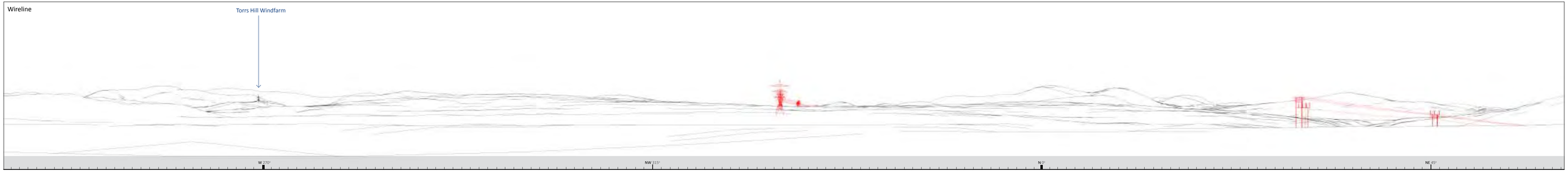
Existing Wood Poles (SWS)

L7 Towers
Red - Proposed
Maroon - Existing (SWS)

Figure set 7.57 - Viewpoint 13, Linnfraig Layby

Current View

Wireline



Photomontage

Enlarged Photomontage - 250%

W 270° NW 315° N 0° NE 45°

7.5.3.9 Viewpoint 16 – North Liggat (GR 257134, 593120)

Within: Upper Dale

Looking across: Upper Dale; Foothills with Forest; Rugged Granite Upland

Description of Baseline

1 This viewpoint is located alongside the B729, just to the east of the village of Carsphairn. This minor road links Carsphairn to Knowehead, and then beyond to Glenhoul and Earlstoun, and eventually St John's Town of Dalry. Given the presence of the parallel running A713 (to the west), this route is relatively lightly travelled save for people using the road for access to individual properties within the small hamlets/settlements listed above, and also a number of more distant farmsteads and properties.

2 The view experienced is in a south through north orientation, and includes within the view some of the mature woodland associated with the Knockgray Park Non-Inventory designed landscape which sits to the left of the view, takes in the Upper Dale landscape within the centre of the view, and provides long distance views towards the massif of the Galloway Forest Park in the right of the view. The panorama provided allows the transition between the differing landscape types within the view to be understood, through both the land use and land cover prevalent, and also takes in a large area of the Galloway Hills RSA landscape designation.

3 There is a varied topography within the view, from the more subtle rolling landscape of the Upper Dale in the fore and middle ground, through the occasionally forested Foothills with Forest landscape type, and rising towards the much more upland type landscape, characterised by steep slopes and a uniform moorland landscape, of the Rugged Granite Upland within the Galloway Forest Park. The wide expanse of the view allows this varied topography to be clearly visible, and the variance between it identified.

4 The wide expanse of the view and the slightly elevated nature of the viewpoint relative to the surrounding landscape permit far reaching views of up to 10km over approximately half of the view. Elsewhere across the view the topography at Bardennoch Hill and the forest at Cumnock Knowes restrict views to between 1 and 2km.

5 Key features within the view include the Water of Deugh and its riparian environment running through the centre middle ground of the view, and the massif of Galloway Forest Park in the more distant portions of it. The distinct, vibrant colours evident within this riparian zone illustrates the more fertile nature of this part of landscape and highlights the variances between this and the more barren and hardy upland landscapes surrounding it. The existing N-Route crosses the view at a distance of between approximately 400m and 1km, but only where the line is skylined, to the left of the view near Bardennoch Hill and on the right hand side as it crosses the flank of Craig of Knockgray, is it a noticeable constituent of the view. Elsewhere across the view, the line is backclothed and is thus much less perceptible. The view from this location in fact demonstrates effectively the difference in visibility between an element that is skylined and one that is backclothed.

6 Aside from the existing N-Route, built features or other infrastructure within the view is limited. The A713 with its traffic can be seen in the middle of the view, and the minor road from which the view is taken in the left and right hand extremes of the view, whilst the cottages at North Liggat can be seen amongst the trees in the right of the view.

Sensitivity

7 The view is one of a rural, and in some distant parts, an increasingly remote landscape, containing little in the way of either built form or infrastructure given the expanse of the view. This apparent lack of built form and infrastructure, combined with the settled portion of the landscape within the fore and middle ground of the view and the long distance views available of the Galloway Forest Park, suggest an elevated sensitivity to the development of the OHL. A moderating factor is however the presence of the existing (but to be removed) N-Route.

8 The presence of the viewpoint within, and the view experienced over, the Galloway Hills RSA confirm this elevated sensitivity.

Change to the view

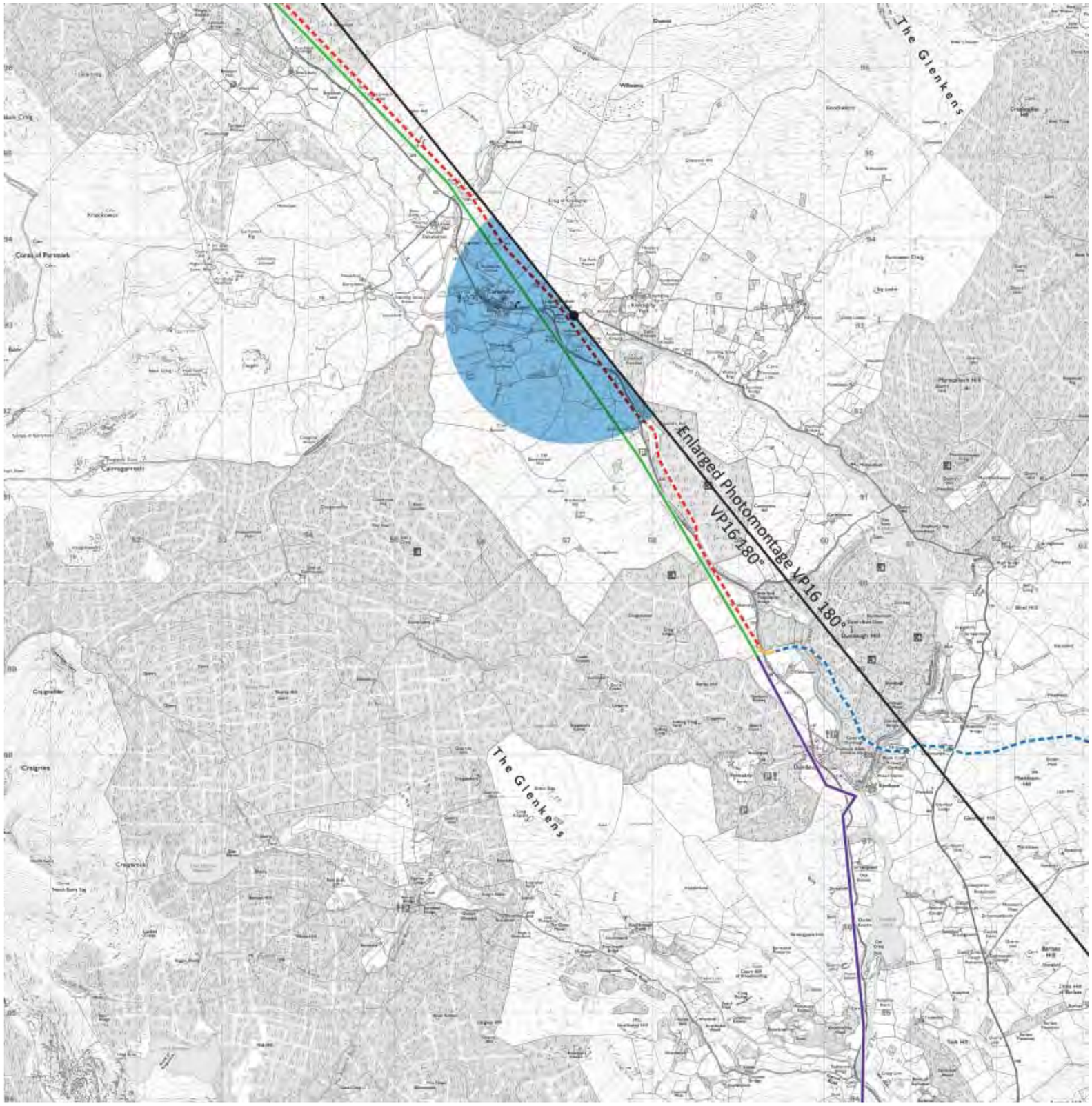
9 The change to the view from this location is twofold. The existing N-Route will be removed from the view, whilst the L7 Tower route which replaces this will be present within the view, although in closer proximity than the existing. The overall change to the view is therefore relatively limited, with the principal change being the proximity of the L7 Towers, and the additional skylining of a number of the closer elements of the grid connection that result from this. There will also be a decrease in the number of skylined elements in the more distant portions of the view, near to Bardennoch. With visibility of the OHL restricted to 1 – 2km, any visibility available of the OHL will be perceptible, whether backclothed or skylined, and bird flight diverters will be visible on some sections of it.

10 The nearest L7 Tower to the viewpoint would be circa 140m, compared to 340m for the existing N-Route, and this change results in both the visibility and influence of this structure being appreciably more marked within the view. Overall, there is expected to be a limited change to the view from this location, although the change in some parts will be very limited.

11 The felling required for the wayleave to the south will be evident, with a small block of skyline forest (beyond Bardennoch) being felled to accommodate the new line (this area is already divided from the larger forest area to the east by the wayleave of the distribution line).

Effect

12 The viewpoint has an elevated sensitivity to the proposed development, and considering this, and the locally more appreciable change that is expected to result from the addition of the grid connection elements, there is considered to be a **major effect** upon this viewpoint, which is consequently **significant**. This effect will be **adverse** in nature.

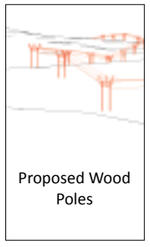


Viewpoint	16- North Liggat	
Coordinates	X-257134	Y-593120
Included Angle	180°	
Elevation	187m AOD	
Bearing	228°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

Windfarm in planning

Consented Windfarm

Operational Windfarm



Proposed Wood Poles

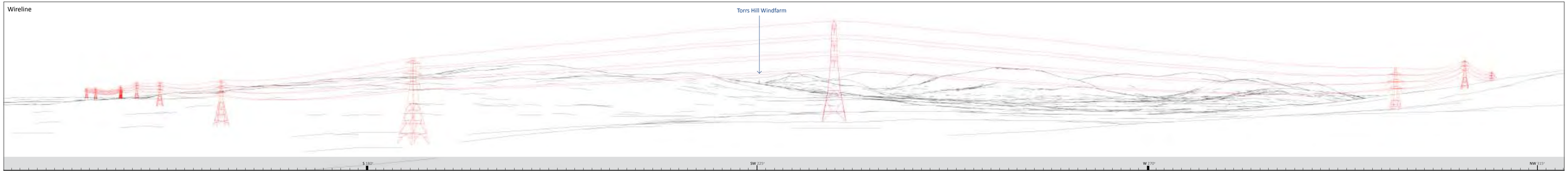
Existing Wood Poles (SWS)

L7 Towers
Red - Proposed
Maroon - Existing
(SWS)

Figure set 7.58 - Viewpoint 16, North Liggat

Current View

Wireline



Photomontage

Enlarged Photomontage - 200%

S 180° SW 225° W 270° NW 315°

7.5.3.10 Viewpoint 18 – Holm Hill (GR 255434, 594676)

Within: Upper Dale

Looking across: Upper Dale; Foothills with Forest; Southern Uplands

Description of Baseline

1 The viewpoint at Holm Hill is another viewpoint providing a representative view from the Galloway Tourist Route, the A713, and illustrates the view of people travelling in a south-easterly direction from Dalmellington to Carsphairn. The view itself is located immediately adjacent to the road, within the grass verge just to the south-east of the forest block which crosses the road.

2 The view is centred on the road corridor and is broadly south-eastern in orientation, taking in Holm Hill in the left of the view, which lies within the Southern Uplands landscape type, and traversing across the Upper Dale of the Water of Deugh before rising again into the occasionally forested landscape at the foothills of the Galloway Forest park uplands. The view illustrates clearly the topographical transition between the different landscape types, following from right to left a pattern of Upland-Dale-Foothills. The dominant land uses also confirm the landscape typologies, with open moorland within the upland landscape, tree cover and well organised field boundaries within the dale landscape and occasional forest within the foothills area.

3 The viewpoint is situated within the Galloway Hills Regional Scenic Area, and the expanse of landscape taken in by the view all falls within this designated landscape area.

4 The views from this location are restricted to between 4 and 5km by the diversity of the topography within the view, with the views in the centre being the longest ranging, towards the forested hills around Craigenwallie and Bardennoch. Visibility across the Upper Dale landscape type, which at this point is at its narrowest point, is limited through the prevalence of woodland blocks, both of a coniferous and deciduous nature.

5 The road corridor is the key feature within the view, although the appreciable size of Holm Hill forms a focal point in the left of the view. Also visible across the centre-left of the view is the existing N-Route, but being backclothed it does not constitute a major feature, and beyond about 1km becomes difficult to identify against the backdrop of Holm Hill. It is however visible (skylined) more distantly as it crosses the eastern flank of Bardennoch Hill.

6 The road corridor and the N-Route are the only built elements within the view, with any sporadic farmsteads or residences within the view screened by intervening vegetation or topography. Notwithstanding this, the road corridor is a dominant element of the view, and clearly points to this view being within a more settled landscape type. Forest and dry stone walls are the only other man-made elements within the view.

Sensitivity

7 The dominant feature of the view is the A713 as it runs towards Carsphairn. Also evident within the view, the existing N-Route OHL contributes to the man-influenced nature of parts of this view. These two features in combination serve to reduce the sensitivity to the proposed development, whilst the remainder of the view, in being settled and typical of its landscape type would lead to a slightly elevated sensitivity. The presence of the view within the Galloway Hills RSA, and the fact that the expanse of the view falls within this designated area and is taken from the Tourist Route, further increases this sensitivity.

Change to the view

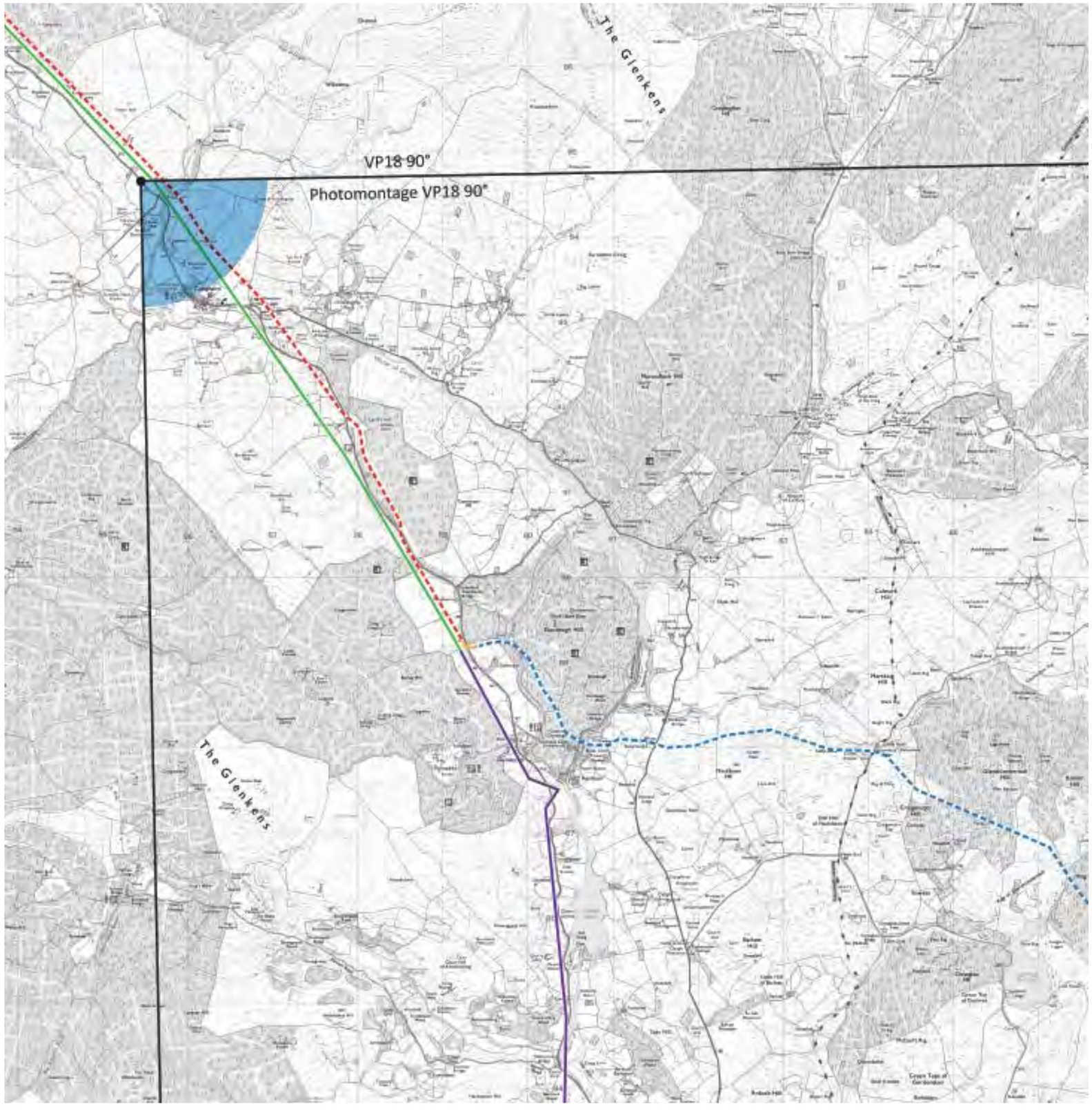
8 The L7 section of the proposed grid connection in this area follows a broadly similar alignment to the existing N-Route, which will be removed from the view as part of the proposed development. The new route will run on the eastern side of the existing line, and as such will be further away from the road, and this viewpoint. In following this alignment, the proposed OHL runs further upslope the flank of Holm Hill, which results in slightly more of the route being skylined from this location, at a distance of circa 700m. This increases the visibility of the route from here, but only to a limited degree.

9 In the more distant views of the proposed OHL, which extends up to approximately 3km, the route runs over the ridge near to Bardennoch, and becomes skylined once again (although lower in the landscape than the existing N-Route), but at a distance and scale where it is difficult to identify given the intervening vegetation and some backclothing commercial forest. There will be a limited change to the forest on the distant horizon of this view. The small area of forest apparently to the east of the existing N-Route as it crosses the skyline will be removed to create the wayleave for the new route.

10 Overall, the change to the view from this location is considered to be limited.

Effect

11 The limited magnitude of change to the view, combined with the sensitivity of the viewpoint, confirms there will be a **minor effect** upon this viewpoint, which is **not significant**. This effect will be **neutral** in nature.

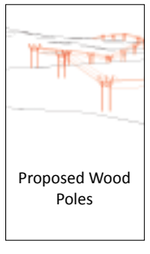


Viewpoint	18- Holm Hill	
Coordinates	X-255434	Y-594676
Included Angle	90°	
Elevation	213m AOD	
Bearing	135°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

Windfarm in planning

Consented Windfarm

Operational Windfarm



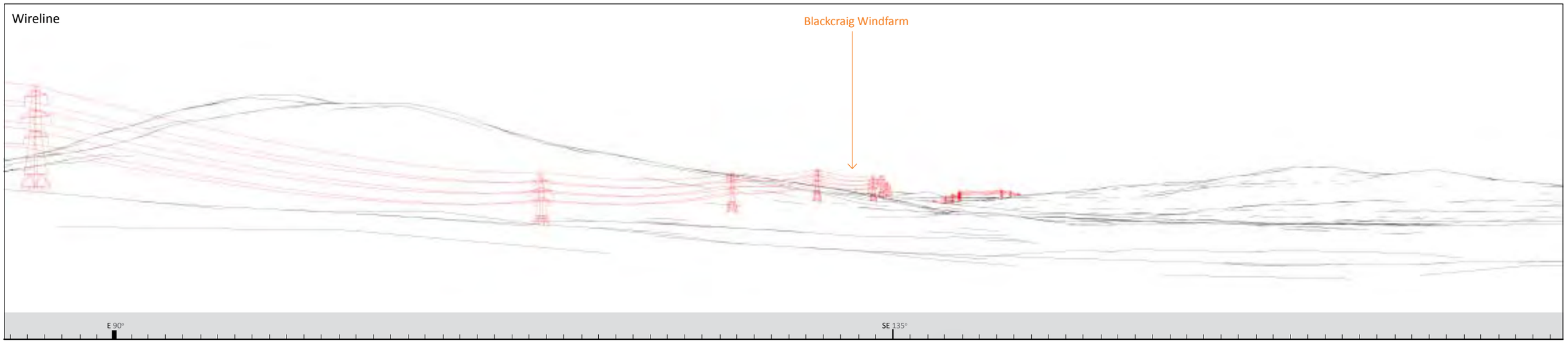
Proposed Wood Poles

Existing Wood Poles (SWS)

L7 Towers
Red - Proposed
Maroon - Existing (SWS)

Figure set 7.59 - Viewpoint 13, Holm Hill

Current View



Photomontage

E 90°

SE 135°

7.5.3.11 Viewpoint 21 – Loch Muck (GR 251431, 601467)

Within: Foothills

Looking across: Foothills; Southern Uplands; Southern Uplands with Forest

Description of Baseline

1 Taken from alongside the A713 near to Loch Muck, this viewpoint is on the well travelled Galloway Tourist Route and takes in the landscape within the immediate vicinity of the road. Travelling from Dalmellington, this is the first location where the road emerges from the Muck Valley, a steep sided gorge with very limited views, into the wider landscapes more typical of the Foothills and Upper Dale landscape types. This transitional zone between the Upland River Valley landscape types to the north-west of Dalmellington and the Upper Dale landscape towards Carsphairn provides the only location within the Study Area where this route passes through what could be considered an 'Upland' landscape type, and the view experienced reflects this.

2 The view is in a north-easterly orientation, taking in large blocks of commercial forest adjacent to the road corridor, with longer distance views of more upland areas within the Galloway Forest Park evident to the south-east. Views generally are limited to within 2km owing to the appreciable forest cover within the locale.

3 The Foothills landscape type is characterised by 'an elevated undulating landscape with rounded hills' and this in part is echoed within this view. Given the prevalence of forest cover in this area, however, the view could be considered more typical of the landscape type Foothills with Forestry. Notwithstanding this, the topography generally is typical of these landscape types although probably less diverse than other areas of it. Areas not under forest cover have a vegetation type dominated by semi-improved grassland and heath moorland.

4 Aside from the large tracts of forest within the view, the main visual foci includes the A713 road corridor and the existing N-Route OHL, both of which are evident across the full extent of the view. Some long distant views of the Galloway Forest Park are evident to the right of the view, although these only make up a small portion of the view, and are at the extremes of it.

5 Man-made features within the view include the road corridor and the existing N-Route OHL, whilst the forest cover also points to this view being one heavily dominated by the influence of man.

Sensitivity

6 Key elements within this view include the large tracts of forest more normally associated with the landscape type Foothills with Forestry, the A713 road corridor and the existing N-Route OHL, all of which serve to reduce the sensitivity of this viewpoint to the development of an OHL through their obviously man-made nature. Even though the forest is of a commercial, and therefore temporary nature, the other elements are prevalent over such an extent of the view that they still in large part define it.

7 The view will be experienced by large numbers of people travelling the Galloway Tourist Route, which indicates a slightly increased sensitivity, but it is considered that the view would retain a reduced sensitivity to the proposed development.

8 The road in this location forms the eastern edge of the Loch Doon Regional Scenic Area, but in consideration of the view being focussed away from this designated area, this does not serve to raise the sensitivity of the viewpoint.

Change to the view

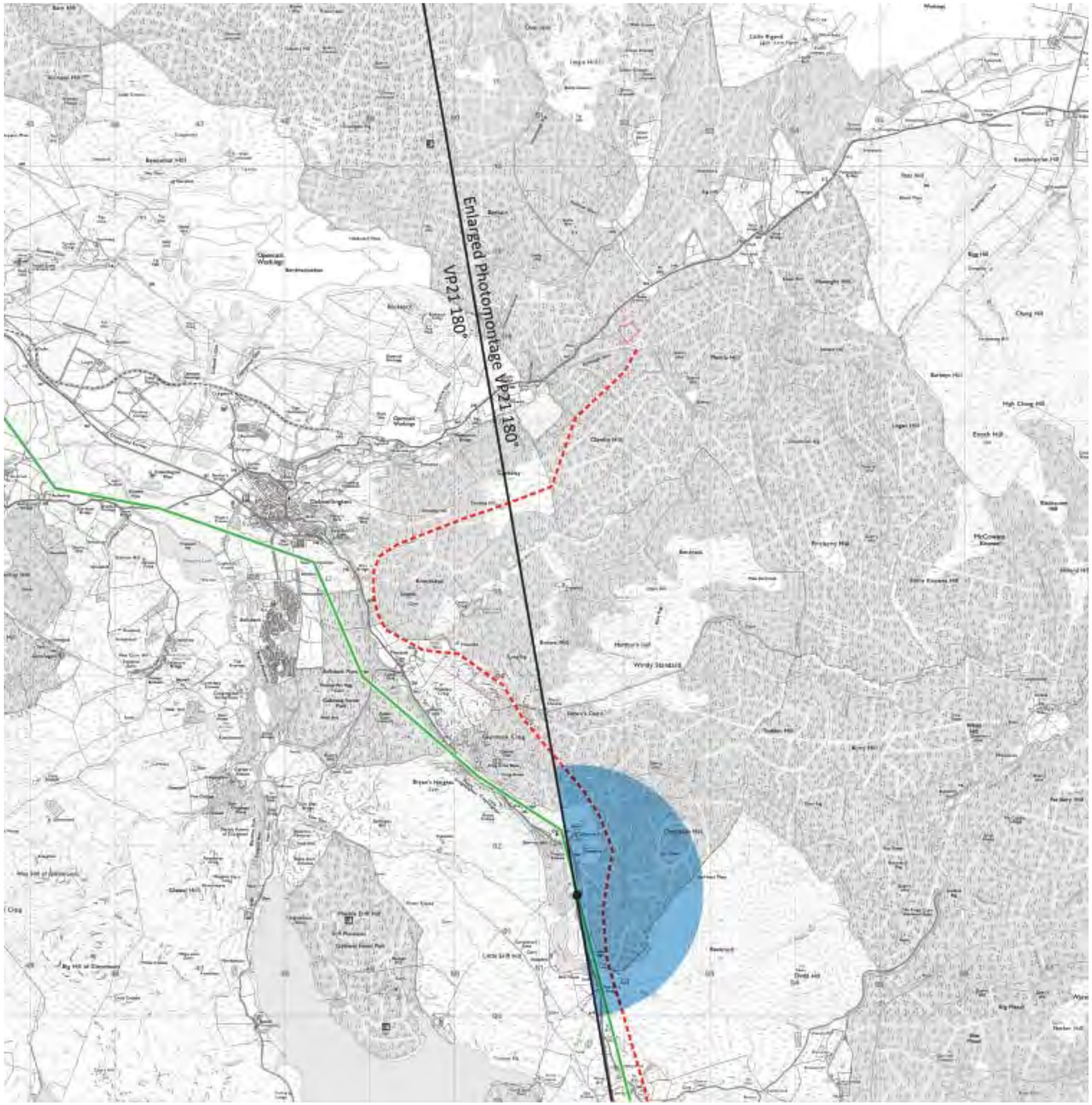
9 The change to the view from this viewpoint results from the replacement of the existing N-Route with the L7 Tower route on its eastern side. This change is apparent over the extent of the view, where the new route is visible at between 300m and 2km. The existing N-Route is aligned much closer to the A713 in this location, and follows a line which runs over the top of the viewpoint location. As a result of this, the proposed line is seen as more of a backclothed feature and benefits from being seen against the higher ground of Campbell's Hill, although this does not provide backclothing of the entire route.

10 As a consequence of following an alignment further from the road, far greater numbers of the L7 Towers (12 against 3), relative to the existing N-Route, are visible within the view, and these extend across more of the view owing to the existing N-Route routeing along the Water of Muck valley and therefore not being visible.

11 There will be appreciable change to the forest cover observed in this view. To the south (south of the forest access road connecting to the A713) the block of commercial forest will be felled to facilitate the wayleave. The immediate foreground trees in the centre of the view will however be retained, with the local felling contained within a forest block beyond these (these trees can be retained as they are separated from the block to be felled by an existing wayleave corridor). Further north there are other minor changes to the forest, but these will only be marginally visible.

Effect

12 The reduced sensitivity of this viewpoint, combined with the appreciable magnitude of change, results in there being a **moderate effect** upon this viewpoint, which is therefore **significant.** This effect will be **neutral** in nature.

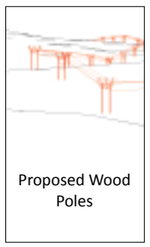


Viewpoint	21- Loch Muck	
Coordinates	X-251431	Y-601467
Included Angle	180°	
Elevation	304m AOD	
Bearing	70°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

Windfarm in planning

Consented Windfarm

Operational Windfarm



Proposed Wood Poles

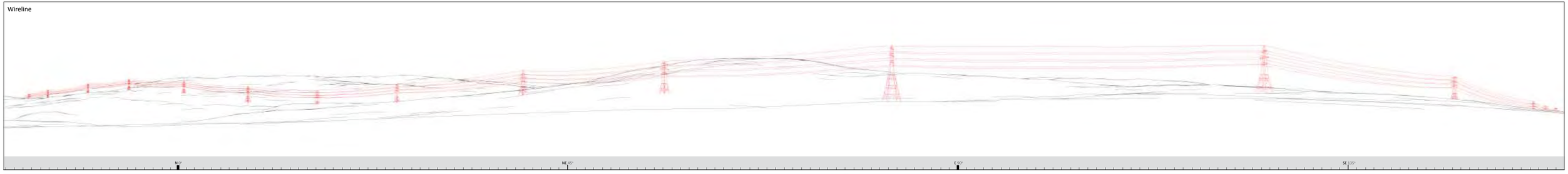
Existing Wood Poles (SWS)

L7 Towers
Red - Proposed
Maroon - Existing (SWS)

Figure set 7.60 - Viewpoint 21, Loch Muck

Current View

Wireline



Photomontage

N 0° NE 45° E 90° SE 135°

7.5.3.12 Viewpoint 22 – Glen Muck (GR 250799, 602371)

Within: Foothills

Looking across: Foothills; Southern Uplands with Forest

Description of Baseline

1 Taken from within the narrow, incised Muck Water valley, this viewpoint represents the view as experienced when travelling along the A713 towards Dalmellington. The view itself is located immediately adjacent to the road, within the grass verge, and is only a short distance from the town of Dalmellington.

2 The view is in a north-westerly orientation, and is channelled in this direction by the distinct topography that characterises this valley feature. The road in this location provides the boundary between two distinct landscape types, with the land to the left of the view within the Foothills landscape type (& the Loch Doon Valley SLA), and that in the right of the view within the Southern Uplands with Forest landscape type (outwith the Loch Doon Valley SLA). The land cover evident in these different portions of the view serve as in an indication to this change in character, with the forest areas to the right of the view clearly evident.

3 The topography within the view is distinct, with steeply sloping valley sides descending down to the road corridor and watercourse in the valley bottom. This distinct topography ensures this part of the Study Area is markedly different in character from that to be found elsewhere, and as such will be more noticeable and evident to visitors travelling along the A713 than other, more subtle parts of the landscape. The topography also restricts views from this location to within circa 1km.

4 Features within the view include the road corridor and the existing N-Route OHL, both of which run down the centre of the valley, with the OHL slightly upslope and to the right. Given the distinct V-shaped nature of the valley, the OHL running down the centre of it, and to a lesser degree the road, draw the eye along it.

5 Man-made features within the view include the road and associated signage and other infrastructure, the existing N-Route OHL and also some smaller wood poles supporting cables. All of these items are positioned within the base of the valley and as such ensure this portion of the view is one distinctly man-influenced.

Sensitivity

6 Key elements affecting the sensitivity of the viewpoint to the development of an OHL include the dramatic topographical nature of the view experienced, and the presence within the view of the road corridor and the existing OHL. The uniqueness of this view within the local area, specifically with regards to topography, indicates a slightly elevated sensitivity to the OHL, as would the large numbers of visitors who use this route. Conversely to this, the presence of the road corridor, the existing line and the other minor pieces of infrastructure within the view serve to reduce this sensitivity.

7 Notwithstanding this, the view is considered to have a slightly increased sensitivity to the proposed development, which is confirmed by the presence within the view of areas subject to the Loch Doon Valley SLA designation.

Change to the view

8 Within this viewpoint the only change to the view will result from the removal of the existing N-Route. The proposed route of the OHL runs within the more upland landscapes to the north-east, and is therefore not visible. The change this will bring to this view is considered to be appreciable, with the resulting view containing no electrical infrastructure of the size and scale to that which exists at present.

Effect

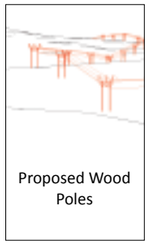
9 With the viewpoint considered of elevated sensitivity, and with an appreciable magnitude of change, which is positive, the resulting effect upon the viewpoint is **moderate**, and therefore **significant**. This effect will be **beneficial** in nature.

Viewpoint	22-Glenmuck	
Coordinates	X-250799	Y-602371
Included Angle	90°	
Elevation	269m AOD	
Bearing	315°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

Windfarm in planning

Consented Windfarm

Operational Windfarm



Proposed Wood Poles

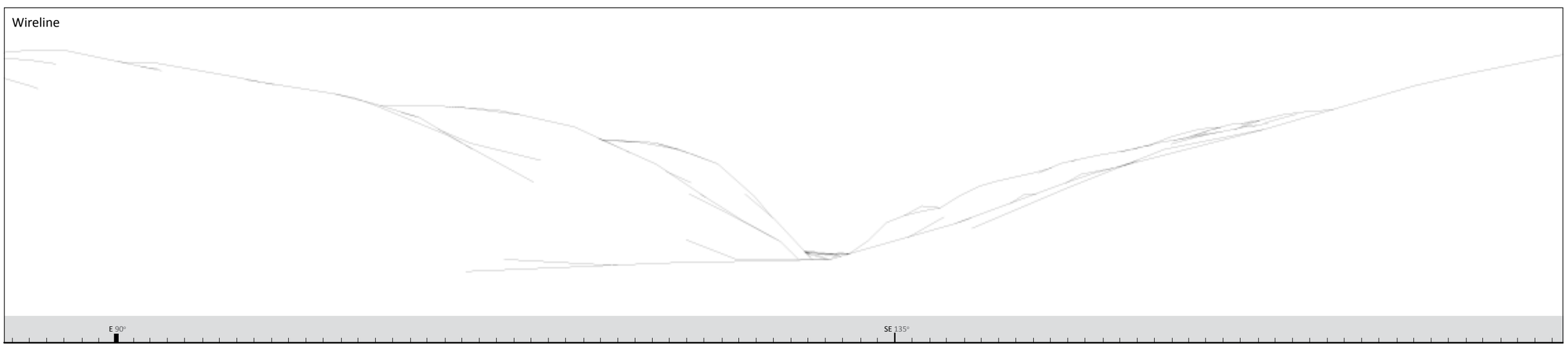
Existing Wood Poles (SWS)

L7 Towers
Red - Proposed
Maroon - Existing (SWS)

Figure set 7.61 - Viewpoint 22, Glenmuck

Current View

Wireline



Photomontage

E 90°
SE 135°

7.5.3.13 Viewpoint 23 – Court Knowes (GR 250888, 603567)

Within: Southern Uplands with Forest

Looking across: Southern Uplands; Southern Uplands with Forest; Foothills; Foothills with Forest; Rugged Granite Uplands; Rugged Granite Uplands with Forest; Upland River Valleys

Description of Baseline

1 This viewpoint is located within the forested area at Court Knowes, approximately 3km to the south-east of Dalmellington, at an elevation of 410m AOD. This elevated portion of landscape sits to the north-east of the Glenmuck valley, and is distinctly upland, and remote, in nature. There are no pathways or obvious rights of way through, or in proximity, to this area, although the right to roam status of Scotland's landscape ensures that it is publicly accessible.

2 The viewpoint is located within a recently felled portion of forest, on a craggy outcrop, and as such allows appreciable open and long range views to the wider landscape. The view illustrated is a 180º view, and takes in large tracts of land up to, and beyond, 20km from the viewpoint. The landscapes clearly identifiable include the diverse foothills landscape of South Ayrshire in right hand portion of the view, the massif of the Galloway Forest Park in the distant centre of the view, and taking in the forested upland landscape around Benbrack Hill in the left hand portion of the view. Loch Doon is also identifiable in the distant portions of the view.

3 Foreground views across the panorama include large tracts of forest typical of the landscape type over which the view is orientated (Southern Uplands with Forest), with appreciable areas of this being recently felled, and thus having a distinctly different appearance to that which surrounds it.

4 The view takes in such a large panorama, and is over such a long distance, that a varied topography would be expected. In line with the different landscape types evident within the view, this diversity in topography is appreciable, from the rounded hills and heathland/forest of the Foothills landscape types, to the rugged landscapes associated with the Galloway Forest Park. Intervening foreground topography is locally diverse, with hills and valley features typical of the Foothills and Southern Upland with Forest landscape types.

5 Within the centre and extreme left of the view, remaining forest blocks restrict visibility to within 0.5km, although the main focus of the view is not generally restricted.

6 Features within the view include, in the foreground, the existing forest blocks at Glenmuck Craig and the recently felled areas around this forest block and the viewpoint location, and in the distance, the impressive massif of the Galloway Forest Park and the wider southern uplands, which extend across much of the view. These upland areas form the distant horizon to the view.

7 The most distinct man-made features within the view include the retained forest areas and the areas of recent felling in the foreground of the view, and limited evidence of sporadic outlying hill farms and short sections of the A713 in the more distant portions of the view. Limited evidence of the coal mining operations and the existing N-Route are evident in the extreme right and left hand portions of the view, although these are little perceived when seen in the context of the entire view.

Sensitivity

8 The view is located within the forested upland landscape to the south-east of Dalmellington, and has open and expansive views towards the Galloway Forest Park and wider Southern Uplands. The view is striking in both its expanse and diversity (in terms of both landscape features and landscape types), with the rugged uplands in the distance drawing the eye to this horizon. Man-made features within the view are limited, with the forest in the fore and middle ground the most distinctive elements. These elements all serve to suggest an elevated sensitivity to the proposed development.

9 This elevated sensitivity is further confirmed in that the view takes in large tracts of land which fall within the Loch Doon Valley SLA and the Galloway Hills Regional Scenic Areas and also the Tairlaw SLA.

Change to the view

10 The existing view contains only limited existing infrastructure in the form of the existing N-Route in distant south-eastern and northern portions of the view, where the elements of this feature are backclothed at a distance of circa 2km, and are therefore towards the limit of perceptibility. The proposed OHL will be a visible element across a large proportion of the view, at distances of between 100m and 3km. Over the range of this visibility, the line will be backclothed, so at times will be imperceptible, and some of the sections will have bird flight diverters which will be visible.

11 Although part of a forested landscape, considerable felling has occurred within this landscape, and it has a temporary open and barren character, which serves to increase the visibility, and therefore the magnitude of change, to be experienced from this viewpoint. Individual towers will be visible at very close range, and will form visual detractors within the immediate foreground of this expansive view. Whereas before the existing N-Route formed very much a peripheral element within the view, the proposed OHL will constitute one, if not the, main feature within it. This influence would extend from the distant upland landscapes around Glenmuck in the south-eastern portions of the view, across to the more settled landscape of the Mossdale Burn in the north-western portion.

12 There will be evident changes to the forest within the view as a result of the OHL. To the south in the far-middle distance a large forest block adjacent to (and east of) the A713 will be felled, although the narrow strip of tree cover adjacent to the road will be retained (as described for viewpoint 21). There will be no change to the foreground forest area, and further north there will be limited felling required to a number of areas of tree cover extending west toward the proposed OHL, and limited felling to the north of Mossdale, where the route rejoins the A713.

13 The resulting magnitude of change to this view, therefore, is considered to be appreciable.

Effect

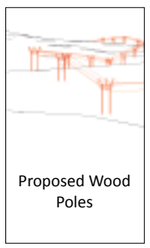
14 In consideration of the appreciable magnitude change, and the elevated sensitivity of the viewpoint, the effect upon this viewpoint as a result of the proposed development is considered to be **major**, and therefore **significant**. This effect will be **adverse** in nature.

Viewpoint	23- Court Knowes	
Coordinates	X-250888	Y-603567
Included Angle	180°	
Elevation	416m AOD	
Bearing	235°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

Windfarm in planning

Consented Windfarm

Operational Windfarm



Proposed Wood Poles

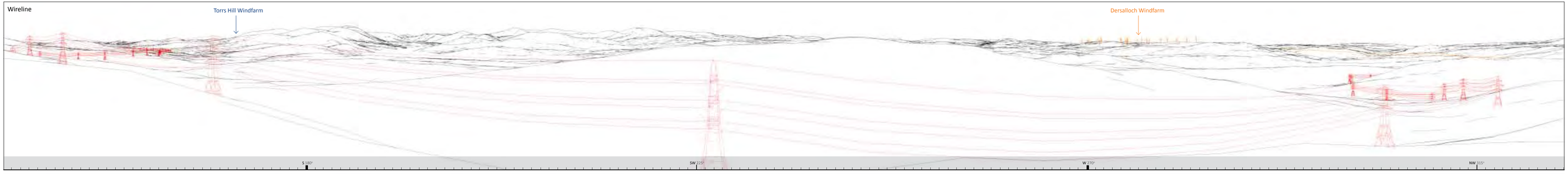
Existing Wood Poles (SWS)

L7 Towers
Red - Proposed
Maroon - Existing (SWS)

Figure set 7.62 - Viewpoint 23, Court Knowes

Current View

Wireline



Photomontage

Enlarged Photomontage - 200%

S 180° SW 225° W 270° NW 315°

7.5.3.14 Viewpoint 24 – Mossdale Visitor Point (GR 249363, 604044)

Within: Foothills

Looking across: Southern Uplands with Forest; Upland River Valleys

Description of Baseline

1 This viewpoint is taken from the visitor point/car park at Mossdale, which lies on the junction between the A713 and the minor road linking this main tourist route to the cafe and shoreline of Loch Doon, a popular tourist location. The car park is situated approximately 2km to the south of Dalmellington, and is a well used resource for people travelling along this route. The road in this location runs alongside the Muck Water, in the frequently narrow, incised valley of this watercourse.

2 The view experienced looks up the Mossdale Burn Valley, in a north-easterly direction, and includes within it part of the A713 road corridor, the visitor point car park and the farm and adjacent land at Mossdale Farm. This specific location sits on the boundary between three distinct landscape types: Foothills, Southern Uplands with Forest and Upland River Valleys. The view experienced does not immediately provide an indication of these differing character types however.

3 The viewpoint sits within the boundary zone of the Loch Doon Valley SLA, with circa half of the landscape within the view falling within this designation. The rough boundary of this designated area follows the line of the Mossdale Burn up the centre of the view.

4 The land cover within the view is very much indicative of its underlying use. The land surrounding Mossdale Farm, and specifically to its north-east, indicates a very settled and pastoral landscape, and one which is clearly used for grazing and other farming practices. Conversely, the more upland areas surrounding this are characterised by forest planting on a commercial scale.

5 As a result of the combination of the low elevation of this viewpoint, the presence of more elevated surrounding areas with forest blocks and proximal mature tree planting, visibility is generally restricted to within circa 1.5km.

6 Key features within the view include the visitor car park and the road corridor, with longer distance views up the Mossdale Burn Valley. Other features within the view which are identifiable, but which don't characterise or define it include the small scale telecommunications infrastructure and Mossdale Farm and its associated outbuildings.

Sensitivity

7 Although containing a number of man-made elements, this view is pastoral in nature and contains a view of some scenic quality, from which these elements are considered not to detract appreciably. The presence of landscapes within the view subject to the Loch Doon Valley SLA designation would confirm that the viewpoint has an elevated sensitivity.

Change to the view

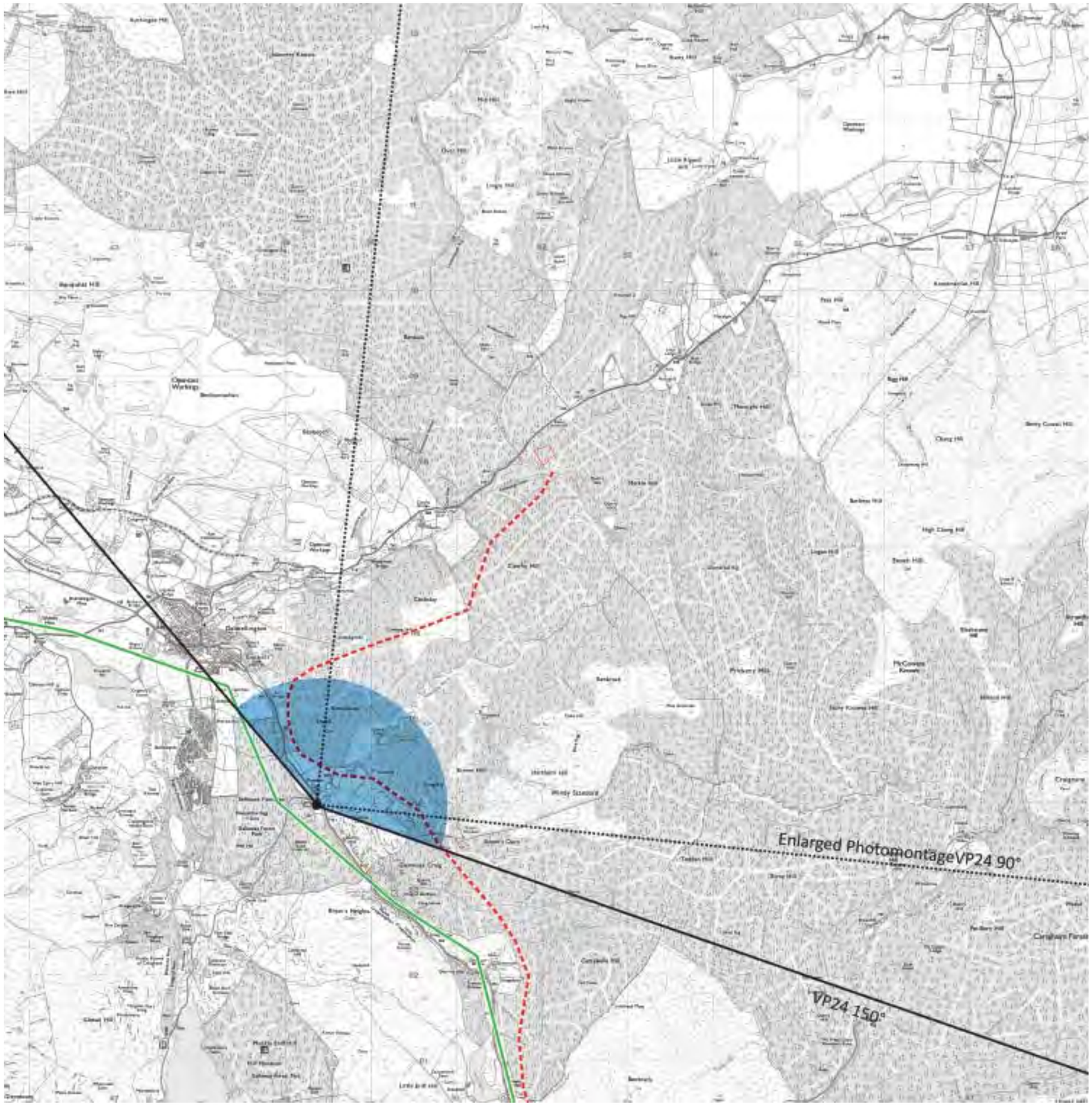
8 The current view from this location contains little in the way of electrical infrastructure, except the foreground low voltage lines, and is generally a settled view with few real detractors. The development of the proposed route would result in the L7 Tower route being evident across the view, at a distance of approximately 0.5km, and both backclothed and skylined, and at times with bird flight diverters visible. Up to six L7 Towers will be visible, whilst the tree planting around Mossdale Farm and bordering the road will provide some screening of other proximal towers.

9 There will be limited felling required to the lower blocks of trees as the route crosses the edge of the agricultural landscape to the north (above the barn in the foreground).

10 Given the lack of other infrastructure within the view (the N-Route runs to the rear of this viewpoint), the change to the view as a result of the proposed development is considered to be appreciable.

Effect

11 The combination of the appreciable change expected within the view from this location, and the elevated sensitivity of the viewpoint as described above, the resulting effect upon the viewpoint is considered to **major**, and therefore **significant**. This effect will be **adverse** in nature.

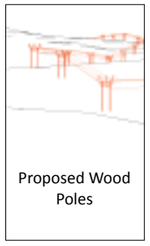


Viewpoint	24- Mossdale Visitor Centre	
Coordinates	X-249363	Y-604044
Included Angle	150°	
Elevation	227m AOD	
Bearing	40°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

Windfarm in planning

Consented Windfarm

Operational Windfarm



Proposed Wood Poles

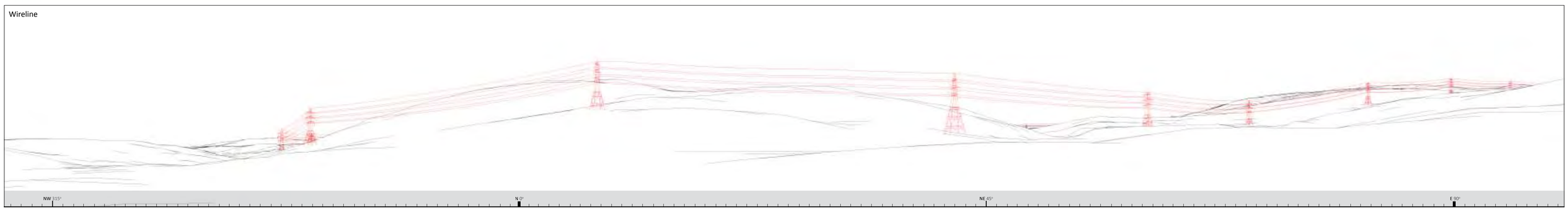
Existing Wood Poles (SWS)

L7 Towers
Red - Proposed
Maroon - Existing
(SWS)

Figure set 7.63 - Viewpoint 24, Mossdale Visitor Centre

Current View

Wireline



Photomontage

N 0°
NE 45°

7.5.3.15 Viewpoint 25 – Dalmellington Moss (GR 246692, 606511)

Within: Upland River Valleys

Looking across: Upland River Valleys; Foothills with Forest; Foothills; Southern Uplands with Forest; Rugged Granite Uplands; Rugged Granite Uplands with Forest

Description of Baseline

1 The viewpoint is located in the car park at the Dalmellington Moss Nature Reserve (which lies alongside the Scottish Coal Access Road), which is located alongside the A713 Galloway tourist Route circa 1km to the north-west of Dalmellington. This is a well travelled route, and provides the main access to Dalmellington from the north, although the upkeep of the Nature Reserve car park suggests this particular facility is not widely used or visited.

2 Being a 360º view, this viewpoint takes in a large proportion of the Upland River Valley landscape type along the River Doon, and also the elevated Foothills with Forest landscape types which encompass this river valley, and the Southern Uplands with Forest landscape type which forms the backdrop to the town of Dalmellington. The town itself is visible in the centre of the view, as is the outlying settlement of Bellsbank, although there is some mature tree planting in the middle ground which restricts some views of the town from this low-lying vantage point. The view does, however, provide a good illustration of the location of Dalmellington in the context of the wider landscape.

3 The Upland River Valley landscape type surrounding the River Doon is broadly commensurate with the Loch Doon Valley Sensitive Landscape Area, meaning the viewpoint, and large portions of the view experienced are subject to this designation. The designation also covers the ascending side slopes of the valley, and the more upland landscapes surrounding Loch Doon, resulting in the limit of visibility being broadly consistent with the extents of this designation in all directions of the view. The exceptions to this are the long distance views available in the centre of the view towards the Galloway Forest Park and Galloway Uplands RSA.

4 The overriding topography in the fore and middle distance views is defined by the uniform and flat landscape of the River Doon valley, which rises into the foothills and southern upland landscapes across the view in the longer distance. In the middle of the view, the more dramatic and rugged landscapes of the Galloway Forest Park are evident forming the distant horizon.

5 Views of these more upland areas are experienced at distances of up to circa 20km, whilst elsewhere across the view visibility is limited to within circa 4-5km courtesy of the surrounding elevated landscapes.

6 Land cover within the view includes scrub grassland/marshland within the lower lying valley landscape, whilst the valley side slopes appear in the majority to be semi-improved grassland with woodland shelterbelts and clumps of deciduous woodland following the incised stream valleys. There are also blocks of coniferous vegetation on these higher areas, specifically within the landscape forming the backdrop to Dalmellington.

7 Within the higher landscapes beyond Dalmellington, and those across the River Doon from the viewpoint, the windfarm at Dersalloch (assumed), is visible across the distant horizons.

8 Other notable features within the view include the town of Dalmellington, which appears nestled at the base of the more upland areas beyond, and the outlying settlement of the town, Bellsbank, which appears remote from the town and not a part of it. These built up areas are not dominant features within the view, but given the very rural nature of the view, they are easily distinguishable. The road through the valley, and the Scottish Coal access road, are also obvious and recognisable features, although not ones which characterises any part of the view. Visible beyond Dalmellington (towards the Nith Valley) a 'bing' associated with the Scottish Coal area is evident as a non-natural topographical feature, and provides further reference to the mining heritage of the area.

9 Aside from Dalmellington and the A713, the existing N-Route crosses the view, as does the Dersalloch Grid Connection, which add to the man-made detractors within it. In the majority, however, this OHL is backclothed across the view, and as such is barely perceptible. Where elements of it become skylined, such as in the north-western portion of it, the line is appreciably more visible.

Sensitivity

10 Man-made detractors within the view include the windfarms at Dersalloch (and their associated transmission infrastructure), the existing N-Route OHL which crosses a large part of the view, and also some outlying parts of the town of Dalmellington. There are only small parts of the view not affected by these elements, and as such the sensitivity to additional infrastructure would depend on the portion of the view experienced. Elements of the view currently unaffected by these detractors (such as extreme north-western portion) would be highly sensitive to the proposed development, whilst the appreciable amount of infrastructure over much of the rest of the view would lead to a reduced sensitivity to it.

Change to the view

11 The change to the view from this location will result from both the removal of the existing N-Route, and the visibility of the L7 Tower section of the proposed OHL. The existing N-Route runs approximately 0.5km from this viewpoint, and as a result of the development will be removed from the view, thus reducing the detractors within it. The evidence of this removal will be evident across approximately half of the view.

12 The L7 Tower section of the proposed development is visible at distances of over 3km from the viewpoint, and across this length the elements of the grid connection will be backclothed, making them imperceptible in the context of this assessment. There will be limited changes to the forest visible above the western part of Dalmellington where the route swings east from the A713 corridor to the Parrie Burn. These changes will be limited and will effectively form a new lower edge to the forest in this area. It is therefore considered that the magnitude of change to be experienced from this viewpoint will be modest, in light of both the imperceptibility of the L7 Towers and the removal of the N-Route which will have a positive influence upon the view.

Effect

13 The addition of the proposed grid connection to the view will result in only a limited magnitude of change, and this to landscape with an already reduced sensitivity. As such there would be a **minor effect** upon this viewpoint, and one which is **not significant**. The nature of this effect will be **adverse**.

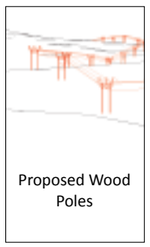
14 As a result of the removal of the existing N-Route within this portion of the landscape, there is expected to be a modest, but beneficial magnitude of change to this view, and one which constitutes a **minor effect**, which is **not significant**. This effect will be **beneficial** in nature.

Viewpoint	25- Dalmellington Moss	
Coordinates	X-246692	Y-606511
Included Angle	360°	
Elevation	166m AOD	
Bearing	100°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

Windfarm in planning

Consented Windfarm

Operational Windfarm



Proposed Wood Poles

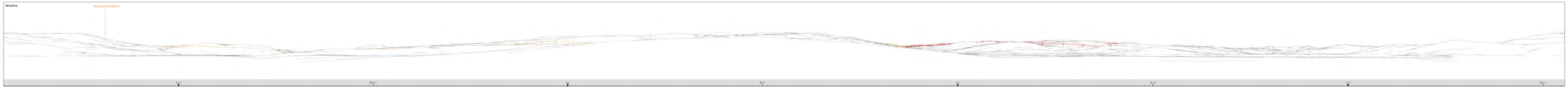
Existing Wood Poles (SWS)

L7 Towers
Red - Proposed
Maroon - Existing (SWS)

Figure set 7.64 - Viewpoint 25, Dalmellington Moss

Current View

Wireline



Photomontage

E 90° SE 135° S 180° SW 225°

7.5.3.16 Viewpoint 26 – Meikle Hill (GR 251719, 608052)

Within: Southern Uplands with Forest

Looking across: Southern Uplands with Forest; Foothills with Forest

Description of Baseline

1 The viewpoint description provided below does not specifically relate to the existing photograph shown, but an assumed basline where the changes resulting from the SWS Project have been regarded.

2 The viewpoint is taken from a layby on the A741, approximately 3.5km to the north-east of Dalmellington, where access is gained to the areas of commercial forest within the Knockskae, Cockclay and Clawfin forest areas. There is also a local information point signpost within the layby which would add to the numbers of people potentially stopping at this location over and above the forestry engineers or occasional walkers who may use the forest access track.

3 Although the view is 180° in orientation, the diversity within the view is limited to the road corridor, areas of commercial forest and electrical transmission infrastructure associated with the SWS Project. This includes OHLs linking the windfarms at Dersalloch to the Meikle Hill substation, which itself is hidden from view by a block of intervening, retained, coniferous woodland.

4 The wayleaves provided as part of this scheme will have opened up the once heavily forested landscape to provide appreciably longer distance views than those which could be obtained previously. These views, however, are dominated by the OHL(s) for which they were designed, and add little to the overall view experienced.

5 As a result of the large tracts of commercial forest, and notwithstanding the wayleaves described above, the limit of visibility remains at circa 2km from the viewpoint.

6 Man-made features define the view from this location, with appreciable OHL development, of both steel lattice tower and wood pole varieties, being present across much of it. Considering the remainder of the view constitutes either the road corridor or commercial forest , the man-made detractors within the view are considerable and character defining.

Sensitivity

7 The view is one characterised and defined by the presence of electrical infrastructure and commercial forest, with little else in the view adding to its quality or variety. In light of this, and notwithstanding the forest workers, occasional walkers and visitors stopping to use the information point, the sensitivity of this viewpoint is considered to be reduced when considering the proposed development.

Change to the view

8 The view from this location is already characterised by electrical infrastructure, with the SWS Project and Meikle Hill substation featuring prominently within the views, specifically within the north, west and south portions of it. These developments have resulted in appreciable changes to the views in this area relative to the underlying landscape character. The proposed development would result in the addition of the L7 section of the proposed route, as it runs from the eastern end of the Parrie Burn valley towards the substation at Meikle Hill.

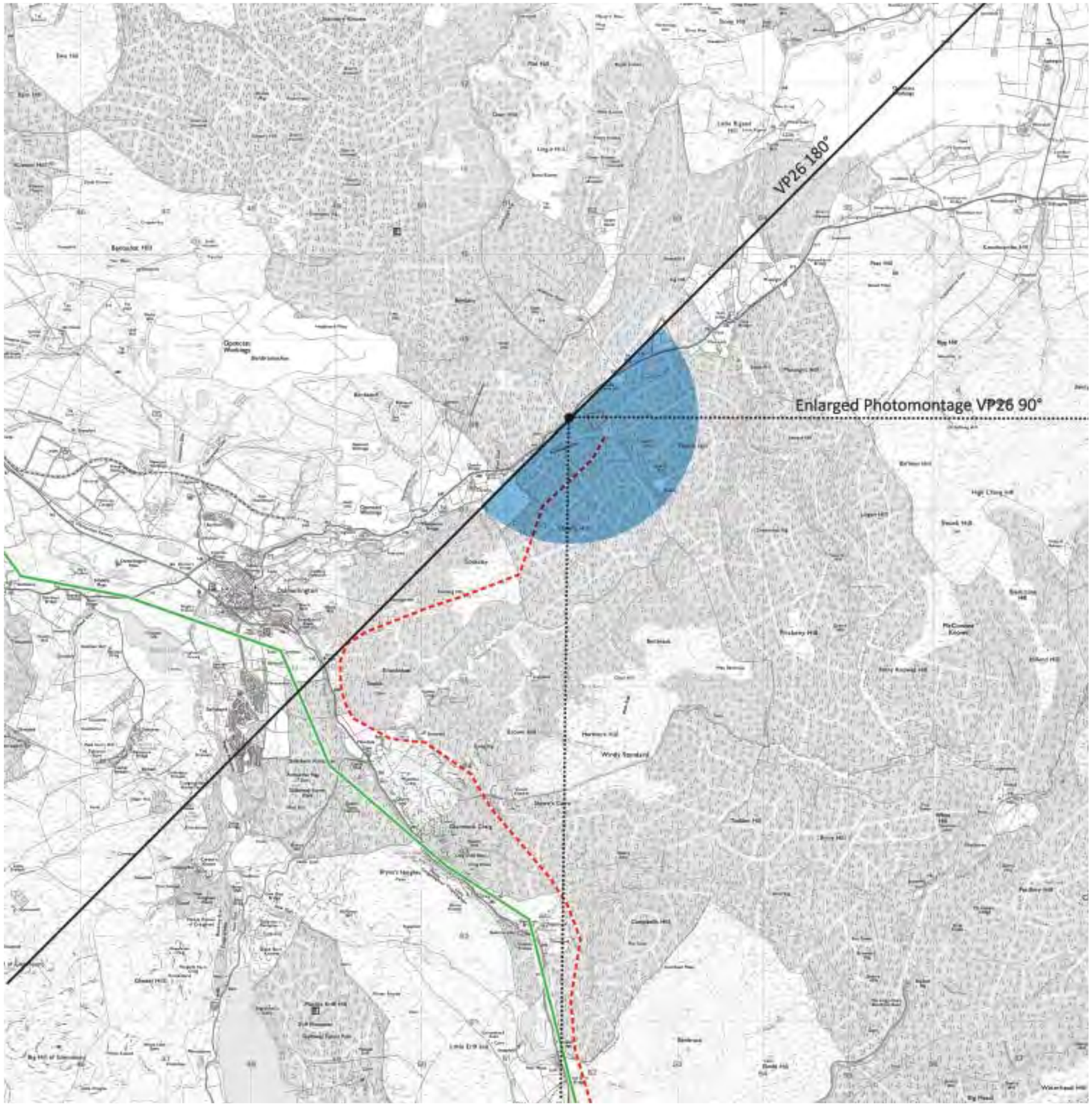
9 This section of the route sits approximately 0.5km from the viewpoint, and whilst the top portions of the towers, and the conductors, will appear as skylined elements, it is likely that intervening forest will obscure much of the potential visibility. There will be limited visibility of the line as it enters the Meikle Hill substation, and this section will be against a baseline that already contains two other steel lattice tower OHLs that enter the substation from the south and north.

10 Although the existing view illustrated shows the block of forestry in the left hand portion of the view as being present, this has been removed since the photography was taken. Therefore the changes to the forestry as a result of the proposed overhead line is restricted to small areas along the forestry track in the centre of the view where some widening of the track will be required.

11 The actual change to the view as a result of the proposed development is expected to be limited to small sections where intervening forest does not preclude any views of it.

Effect

12 The reduced sensitivity of this viewpoint, combined with the limited change that is expected to result from the proposed development, means there will be a **minor effect** upon this viewpoint, which is **not significant**. This effect will be **adverse** in nature.

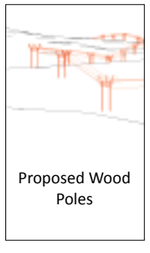


Viewpoint	26- Meikle Hill	
Coordinates	X-251719	Y-608052
Included Angle	180°	
Elevation	310m AOD	
Bearing	135°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

Windfarm in planning

Consented Windfarm

Operational Windfarm



Proposed Wood Poles

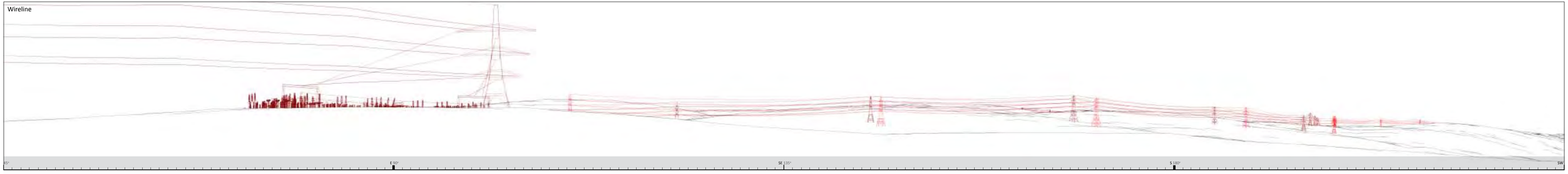
Existing Wood Poles (SWS)

L7 Towers
Red - Proposed
Maroon - Existing (SWS)

Figure set 7.65 - Viewpoint 26, Meikle Hill

Current View

Wireline



Photomontage

E 90°
SE 135°

7.5.3.17 Viewpoint 27 – Benbeoch (GR 249626, 608239)

Within: Foothills with Forest

Looking across: Foothills with Forest; Foothills; Upland River Valleys; Southern Uplands; Southern Uplands with Forest; Rugged Granite Uplands; Rugged Granite Uplands with Forest

Description of Baseline

1 Benbeoch Hill lies approximately 3km to the north-east of Dalmellington, within an extensive area of open cast mining. The viewpoint is located on the summit of the hill, and allows expansive views in all directions. Public access to this location is limited, with no designated footpaths of rights of way providing access, and general access made difficult by the mine workings and associated access tracks surrounding the hill.

2 Situated at an elevation of circa 460m AOD, the viewpoint permits wide ranging views in all directions, from the Ayrshire Foothills and the Galloway Forest Park in the west and south, to Cairnsmore of Carsphairn visible on the south-eastern horizon. The lowland landscapes around New Cumnock are visible, but not particularly identifiable in the north-eastern portion of the view.

3 Benbeoch Hill lies on the north-eastern periphery of the Loch Doon Valley Sensitive Landscape Area, whilst the viewpoint permits views of large tracts of landscape subject to this designation, and also the Tairlaw Scenic Area and the Galloway Uplands RSA in the westerly and southerly portions of the view respectively.

4 The topography within the view varies from the lowlands around Cumnock in the north-east, through the Southern Uplands landscape around Carsphairn Forest in the south-east, of which Cairnsmore of Carsphairn is a defining peak on the horizon, and then permits far distant views of the Galloway Forest Park before moving onto the lower-lying, but still upland in nature, Ayrshire Foothills to the east. Fore and middle ground topography is characterised by the elevated rounded forms and forests of the Southern Upland with Forest landscape, and the clearly identifiable Upland River Valley of the Cumnock Burn towards Dalmellington and Bogton Loch.

5 Given the elevated nature of the location, views are long ranging and permit views of up to, and beyond, 20km in a number of directions.

6 Land cover within the view varies according to the different landscape types over which the view is taken. In the north-eastern through south-eastern portions of the view, commercial forest is prevalent over the fore and middle distance, whilst this is punctuated by mining operations and access tracks associated with the Scottish Coal development area, which contrasts sharply with the otherwise semi-wild nature of the view. Elsewhere across the view, the land cover is either upland moor and heathland in nature, specifically within the Ayrshire Foothills and more upland areas, but is more pastoral in nature within the Upland Valley landscape around Dalmellington and Bogton Loch.

7 The view is a diverse one, resulting in numerous features of visual interest being present within it. These include specifically the coal workings and access tracks in the foreground, the intricately patterned forest mosaic on the opposite valley side slope and the massif of the Galloway Uplands on the distant horizon. These visual foci all contribute to form a visually interesting and diverse view.

8 Although a relatively remote view encompassing large tracts of upland and lowland landscape, the view contains many features indicative of the influence of man, including the extensive tracts of commercial forest, town and village development, windfarm developments and associated electrical transmission infrastructure. These features spread across much of the panorama, although the visibility and perceptibility of these elements varies in different portions of it.

Sensitivity

9 The view is expansive and diverse, containing many visual features of interest, both man-made and natural across the width of the view. The electrical infrastructure linking not only this windfarm, but also the windfarms within the Carsphairn Forest and at Dersalloch, combined with the wayleaves that are required to facilitate these elements through the forested areas, ensure they are also perceptible elements within the view. This presence of the infrastructure serves to elevate the sensitivity of the view to the proposed OHL development.

10 Arguably the most striking portion of the view, that towards the Galloway Forest Park in the south-east, is relatively unaffected by the developments listed above, and retains a level of scenic quality not generally present elsewhere within the view. Although this is only a small portion of the view, it is an important one, and suggests that, at least in part, this view retains some elevated sensitivity to further development. This elevated sensitivity is confirmed when one considers the prevalence within the view of landscapes subject to either Scenic Area or Regional Scenic Area designation.

11 In consideration of the above, the view as a whole does not a have a particularly elevated sensitivity to the proposed OHL, but parts of the view are considered more sensitive than others, and this will have an effect upon the effect determined.

Change to the view

12 The change to the view from this location appears in the east through south portions of the view, as the line is visible as a backclothed element at between 2 and 4km from the viewpoint. The potentially visible section of the line extends from Court Knowes, before dropping into the Mossdale Burn, and then reappearing as it climbs the Parrie Burn valley, and then routes onwards to the Meikle Hill substation. In being backclothed over this length, the line will only be perceptible within approximately 3km. Bird flight diverters are present over this section but at this distance will not be perceptible.

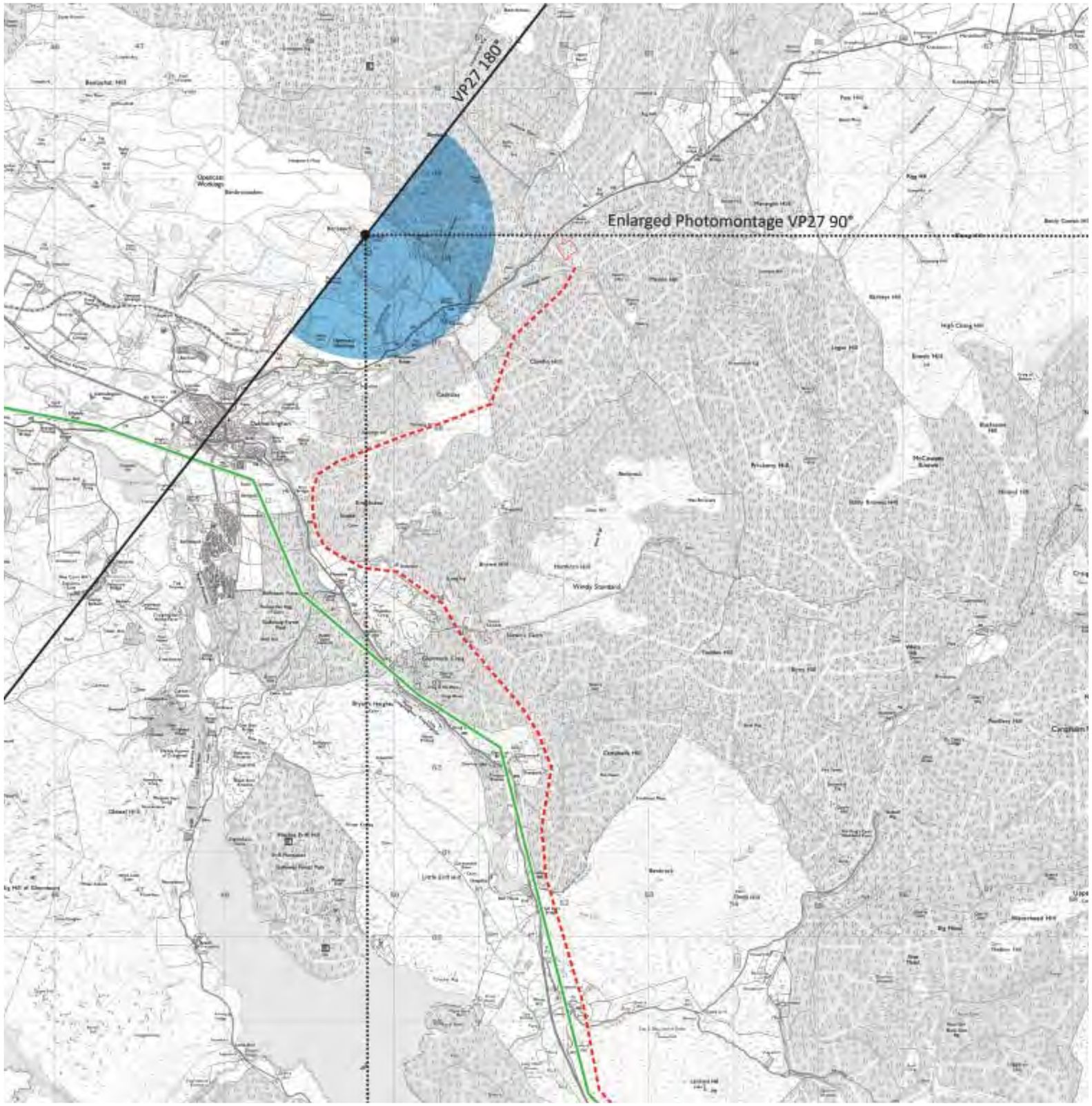
13 The extent of the landscape area through which the OHL runs is under commercial forest, and therefore the line will be afforded some screening by this, although given the elevation of this viewpoint, this is likely to be limited. The forest wayleave required for the line will also constitute a change to the view, although one which is seen in context of the appreciable forest operations within the surrounding area, and therefore less perceptible. For the final 2.5km of the route before it enters the substation, the route will run parallel to the SWS Project Part B, therefore resulting in a more appreciable forest wayleave, which will consequently be more widely visible, including from this location, although much of this wayleave is already an assumed part of the baseline condition.

14 The changes to the forest become more evident as the OHL approaches the Meikle Hill substation and is no longer beyond the intermediate skyline. This additional change to the forest pattern will however be within an area which is already the subject of extensive localised felling.

15 In consideration of the visible sections of the proposed OHL being at, or close to, the limit of perceptibility for this type of development, and the expected extent of this visibility given the complex underlying landscape and potential screening, the expected magnitude of change to the view is considered to be limited.

Effect

16 The portion of the view across which the development appears has an elevated sensitivity, and combined with the modest magnitude of change expected as a result of the proposed development, the residual effect upon the viewpoint is considered to be **minor**, and therefore **not significant**. This effect will be **adverse** in nature.

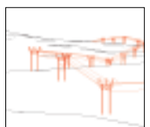


Viewpoint	27- Benbeoch Hill	
Coordinates	X-249626	Y-608239
Included Angle	180°	
Elevation	454m AOD	
Bearing	130°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

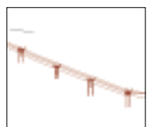
Windfarm in planning

Consented Windfarm

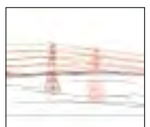
Operational Windfarm



Proposed Wood Poles



Existing Wood Poles (SWS)

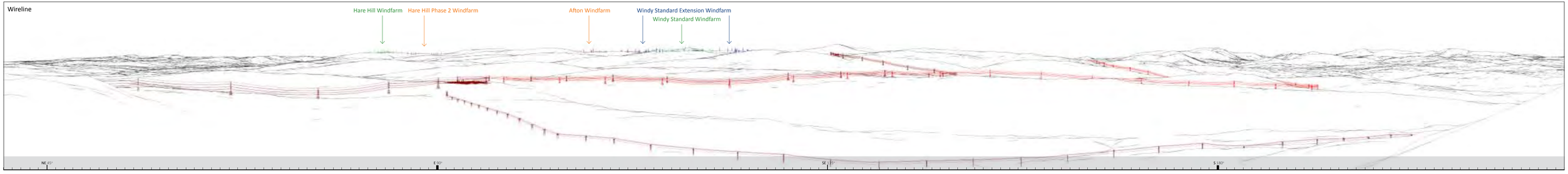


L7 Towers
Red - Proposed
Maroon - Existing (SWS)

Figure set 7.66 - Viewpoint 27, Benbeoch Hill

Current View

Wireline



Photomontage

E 90°

SE 135°

7.5.3.18 Viewpoint 29 – Dundeugh Hill (west flank) (GR 260048, 605576)

Within: Upper Dale

Looking across: Upper Dale; Foothills with Forest; Granite Uplands; Granite Uplands with Forest

Description of Baseline

1 The viewpoint is located adjacent to the forest track that leads up to the summit of Dundeugh Hill, and the location of Viewpoint 12. Whereas VP12 has a south-easterly orientation, this viewpoint takes in a more oblique view of the valley landscape, focussed in a more south-westerly direction. Although not publicly accessible by car, this area of forest is widely used by people walking dogs, especially those living nearby at Kendoon and Polmaddy. The presence of the ruined castle on the Carse of Dundeugh is also likely to attract small numbers of visitors, but in being further down the slope, these visitors are less likely to experience this particular view.

2 The broad view experienced from this location takes in a large part of the Upper Dale of the Water of Deugh, especially looking down the valley, and also the transitional landscape between the Upper Dale landscape type and the Foothills with Forest landscape type, and beyond towards the Rugged Granite Uplands within the Galloway Forest Park. In the foreground of the centre of the view, the property of Dalshangan, and the vegetation structure surrounding it, is clearly identifiable as a parkland style landscape that differs to the majority of the landscape surrounding it.

3 Although this landscape is not subject to any formal designation, the viewpoint is located within, and looks over large parts of, the Galloway Hills Regional Scenic Area.

4 The topography of the Upper Dale landscape type is clearly evident as it extends towards Carsfad Loch in the southern portion of the view, with the more elevated landscapes either side of this valley visible as they extend from it. In the central portion of the view, the gently rolling Foothills with Forest landscape type can be seen extending towards the more rugged Granite Uplands landscape beyond, which form a prominent horizon. At the left and right extremes of the view, Mackilston Hill and Craig of Knockgray respectively, form distant horizons.

5 With the viewpoint sitting at around 190m AOD, views down the valley and in most directions extend up to circa 10km from the viewpoint, but are restricted in other parts of the view by local topography and commercial forest.

6 Land cover within the locale includes large areas of commercial forest in both the fore and middle ground views, which is interspersed by elements such as the parkland style landscape at Dalshangan, and other areas of farmed or semi-improved grassland landscape. Further afield, the more upland areas are generally characterised by semi-improved grassland or heathland/moorland cover. The ancient woodland along the Water of Deugh, in the foreground, is an important landscape feature in this area.

7 The rugged upland landscapes of the Galloway Forest Park and the property and landscape at Dalshangan form the key features within the view, with large parts of the rest of the view being dominated by commercial forest.

8 Key man-made features within the view include the water tower at the Kendoon Power Station, visible in the middle distance in the southerly portion of the view, and the sporadic properties and farmsteads evident across the rest of the view. There are a number of properties within the view currently under construction or recently built as part of the Dumfries & Galloway policy facilitating small-holding development.

Sensitivity

9 The view is rural in nature, and provides visual interest through the varied topography and land use within it. The commercial forest is, in the main, intact, with only limited areas showing the effects of being felled, whilst the Galloway Forest Park provides a horizon of some scenic quality. Perceptible man-made detractors are limited within the view, whilst the settled nature of the Dale landscape adds to the scenic quality of the view.

10 In consideration of this, and the fact that the viewpoint is within, and looks over large parts of the Galloway Hills RSA, the view is thought to have an elevated sensitivity to the development of the OHL.

Change to the view

11 The change to the view in this location results from the addition of elements of the wood pole and L7 sections of the OHL, which join in the middle distance in the western portion of the view. The views are available at between circa 150m and 2km, with the potentially visible section of the line extending from around White Hill to Bardennoch. The development would be seen as a backclothed element across the entirety of the view, although at the distances experienced would still be perceptible, whether visibility included the wood pole or L7 Tower line.

12 Although screening would be afforded in parts of the view around Glenhoul and to a limited degree near to Polquhanity, the majority of the line will be clearly visible from this location, and although the existing N-Route (to be removed in part) is present within the view, the change expected within the view as a result of the proposed OHL, would be marked. This level of change will result primarily from the addition of the wood pole sections of the line, with the L7 Towers appearing largely similar to the existing N-Route which follows a broadly similar alignment in this location.

13 Also causing appreciable change within the foreground portions of the view will be the felling required as a result of requiring to cross the Water of Deugh, and the resulting 80m wayleave through this protected area of woodland. The wayleave will also be evident to the south of this although within this area it lies largely within an area of young plantation crop. Further north, the A713 is visible and the small block of forest between this and the existing N-Route will be felled to provide the required wayleave. There will however be no visible change to the forest north of this to the east of the A713. In light of this and the changes outlined above, there is considered to be an appreciable level of change to the view.

Effect

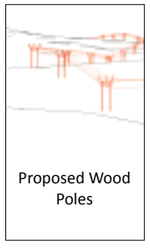
14 The slightly elevated sensitivity of this viewpoint, combined with the appreciable magnitude of change expected to the view, there is considered to be a **major effect** upon the viewpoint, which is therefore **significant**. This effect will be **adverse** in nature.

Viewpoint	29- Dundeugh Hill (west flank)	
Coordinates	X-260048	Y-589297
Included Angle	180°	
Elevation	192m AOD	
Bearing	225°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

Windfarm in planning

Consented Windfarm

Operational Windfarm



Proposed Wood Poles

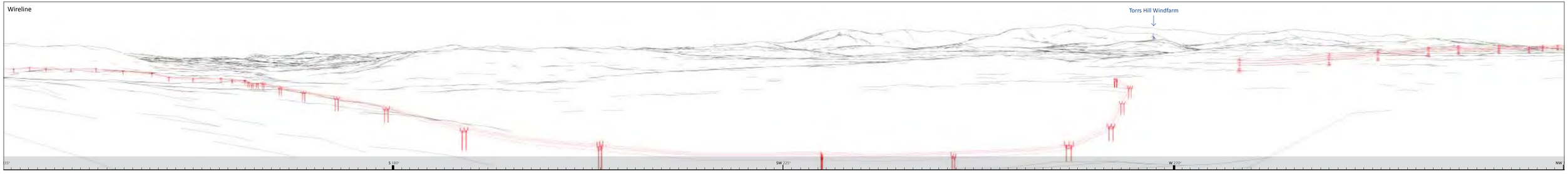
Existing Wood Poles (SWS)

L7 Towers
Red - Proposed
Maroon - Existing
(SWS)

Figure set 7.67 - Viewpoint 29, Dundeugh Hill (west flank)

Current View

Wireline



Photomontage

Enlarged Photomontage - 200%

35° S 180° SW 225° W 270° NW

7.5.3.19 Viewpoint 33 – Dalmellington (GR 248575, 605522)

Within: Upland River Valleys

Looking across: Upland River Valleys; Foothills; Southern Uplands with Forest

Description of Baseline

1 The viewpoint is situated on the junction between the A713 and the B7013, on the outer south-eastern limits of the town, and is presented to provide a worst case representative view from the town. The reason for it lying on the periphery of the town is due to the built up nature of the town centre, and the restriction in visibility that results. Considering its position, the view is very rural in nature, and takes in the two areas of higher ground at Town's Common (to the west or right hand size of the view) and along the Parrie Burn (to the east or left hand side of the view), and the valley of the Water of Muck in the centre of the view. With the B7013 being one of the main accesses to Dalmellington, this viewpoint is likely to be widely experienced by both residents of the town and also people travelling through the area on the A713.

2 The view is taken in a south-easterly direction, and is located within the Upland River Valleys landscape type, although in the more southerly extremity of it before transition into the Foothills landscape type. Owing to this position on the edge of the more upland landscape areas, visibility is restricted to approximately 2-3km from the viewpoint, with no longer distant views available above this.

3 Land use within the view varies between scrubland in the foreground associated with the adjacent development plot (assumed), pastoral vegetation within the valley landscape and on some of the lower valley slopes, upland grassland and blocks of commercial forest on the hill crests. Given the numbers of landscape types that converge in this locale, this variation in land use and land cover is to be expected.

4 The topography within the view varies between the foothill and upland landscapes on the left and right hand sides of the view respectively, with the Glenmuck valley identifiable within the centre of the view. The upland landscapes visible are not dramatic, and contain high points of between 250m (Town's Common) and 341m (Knockskae), whilst the viewpoint itself sits at circa 200m AOD.

5 The viewpoint, and the majority of the landscape contained within the view, are subject to the Loch Doon Valley Sensitive Landscape Area designation.

6 Particular features of interest within the view include the existing N-Route OHL, one tower of which can be seen skylined in the right hand side of the view on Town's Common. Other minor infrastructure can be seen in this, and other, parts of the view, but this is not readily discernible. Elsewhere across the view, the vibrant green colours of the semi-improved grassland and mature trees on the plateaus and valley sides and the darker, contrasting areas of commercial forest provide a somewhat uniform spread across the remainder of the view.

7 Man-made features are restricted to the N-Route, as outlined above, and small sections of the road corridor visible in the middle and right portions of the view.

Sensitivity

8 Although on the edge of Dalmellington, and near the main A713 tourist route, the viewpoint has a distinctly non-urban outlook over the transitional zone between the lowland landscape of the Upland River Valley landscape, and the Foothills and Southern Uplands landscape type in the middle and longer distance. Evidence of other man-made features is limited to small portions of the road corridor, parts of the N-Route OHL and other limited small-scale electrical infrastructure. In consideration of this, there is considered to be a somewhat elevated sensitivity to the proposed development, which is confirmed by the location of the viewpoint within the Loch Doon Valley SLA.

Change to the view

9 The change experienced from this location results from the potential visibility of up to eight L7 steel lattice towers, and the necessary forest felling to facilitate these. They are potentially visible at distances of between 0.5 and 1km, and relate to the route from the Water of Muck valley up the Parrie Burn towards Meikle Hill. These elements of the grid connection are visible predominantly as backclothed elements, although some very limited skylining will be available, nonetheless all will be clearly perceptible. Bird flight diverters on parts of this section will also be visible.

10 The route over this length passes through the peripheral edges of a number of commercial forest blocks, and some felling of the lower edges of this is required to facilitate it, although the effect, visually, from this location will be minimal. Notwithstanding this, the presence of the OHL in what currently is a view containing little in the way of electrical infrastructure, will result in an appreciable change to the view experienced.

11 The existing N-Route is visible on the extreme right hand portion of the view, where the turning tower on Town's Common is visible as a skylined element. This infrastructure element will be removed from the view as part of the wider proposals.

Effect

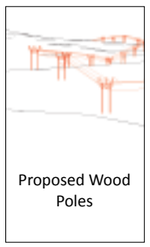
12 The elevated sensitivity of this viewpoint, and the appreciable change expected as a result of the proposed development, results in there being a **moderate effect** upon this viewpoint, which is therefore **significant**. This effect will be **adverse** in nature.

Viewpoint	33- Dalmellington	
Coordinates	X-248575	Y-605522
Included Angle	180°	
Elevation	200m AOD	
Bearing	160°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

Windfarm in planning

Consented Windfarm

Operational Windfarm



Proposed Wood Poles

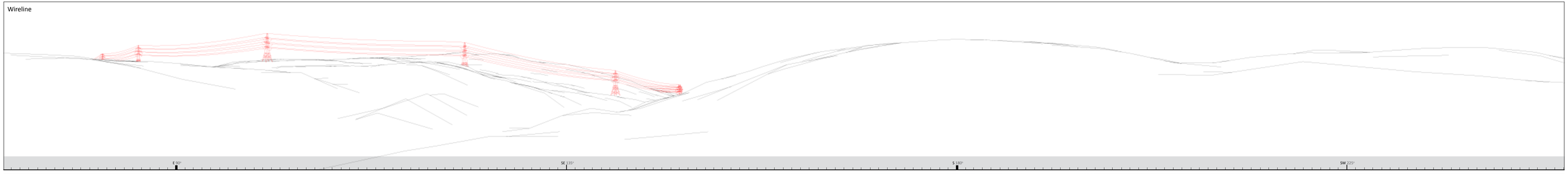
Existing Wood Poles (SWS)

L7 Towers
Red - Proposed
Maroon - Existing (SWS)

Figure set 7.68 - Viewpoint 33, Dalmellington

Current View

Wireline



Photomontage

Enlarged Photomontage - 200%

SE 135° S 180° SW 225° W 270°

7.5.3.20 Viewpoint 35 – Fishing Lodge at Loch Doon (GR 248113, 598919)

Within: Foothills

Looking across: Foothills; Southern Uplands; Southern Uplands with Forest; Upper Dale; Rugged Granite Upland

Description of Baseline

1 Situated alongside the minor road running along the western shore of Loch Doon, this well visited road leads to a number of visitor destinations in this area including the re-erected Loch Doon Castle, the Galloway Forest Park Forest Drive and a fishing and boat rental business. The road is also a no through road (when Forest Drive is closed). A large number of laybys are situated along this road, providing for the many summer visitors this Loch attracts.

2 The view is in a north-easterly direction, taking in an expansive view across the loch towards Carsphairn Forest and the Southern Upland landscape. Being the largest inland loch in Scotland, at 8 miles long and 3-4 miles wide, the view across the loch is expansive and permits far reaching views in most directions towards more dramatic and rugged landscapes on the horizon. The view contains five different landscape types, although the definition between those in the fore and middle ground is difficult to identify, whereas the transition to the upland landscape, as described above, is clear.

3 The viewpoint sits at circa 220m AOD, with visibility available of peaks of up to 797m (Cairnsmore of Carsphairn) which lies approximately 10km from the viewpoint. The viewpoint also sits within the Loch Doon Valley SLA, whilst the view contains large parts of this designated area and also parts of the Galloway Hills RSA which lies further to the south-east. With the loch forming the defining characteristic of the Loch Doon RSA, it is an important element within the view.

4 Given the diversity of landscape types contained within the view, the topography is relatively uniform across the spread of the panorama, with almost the complete horizon encompassing the Upland landscapes that spread from Windy Standard with its windfarm and Benbrack in the left hand (north-westerly) portion of the view, through the Carsphairn Forest in the middle of the view, which contains the rounded peak of Cairnsmore of Carsphairn, and extending to the Galloway Forest Park and the peaks of Black Craig (528m) and Coran of Portmark (623m) in the right hand (southerly) portion of the view. The intervening landscape between the viewpoint location and these more upland landscapes comprises of relatively subtle, forested peaks and the flat expanse of the Loch itself.

5 Land cover within the view comprises a mix of the loch, commercial forest and moorland, and is dependent heavily upon the landscape type which is being viewed. Large tracts of commercial forest are prevalent both within the left hand portion of the view, within the Foothills landscape type found on the opposite shore of the Loch, and also within the centre-right portions of the view covering the transitional zone between the Loch side and the rugged upland landscapes of the high peaks mentioned above. Whereas the latter land use conforms to the underlying landscape types, the former is contrary the general landscape classification of Foothills and is more typical to the subset of this landscape type, Foothills with Forest.

6 The key feature within the view, and the determinant of the underlying landscape character, is Loch Doon, which spreads across most of the foreground of the view. The upland landscapes of the Carsphairn Forest and the Galloway Forest Park provide a distinctive and impressive backdrop to the view, allowing visibility of up to 10km of the highest peaks. The distinctiveness of these peaks, specifically Coran of Portmark and Black Craig form prominent visual foci within the view also.

7 Within the view, there is visibility of the A713 and the existing N-Route, although at close to 5km, these would only be perceptible during very clear weather conditions.

Sensitivity

8 The view is expansive and takes in a panorama encompassing various elements of the landscape which contribute towards the inherent quality and designation of it, including Loch Doon, the Galloway Forest Park and Carsphairn Forest. These elements of the view, combined with the location of the viewpoint within the Loch Doon Valley SLA serve to elevate the sensitivity of the viewpoint to inclusion within the view of additional infrastructure of the type proposed by the OHL development. The lack of any openly perceptible or clearly visible infrastructure of this, or any other type, further increases this sensitivity, as does the lack of any other man-made elements within the view.

9 The use of this minor road in providing access to the wider Galloway Forest Park and the visitor attractions such as the Loch Doon Castle, notwithstanding general access to the Loch shore, ensure the potential for large numbers of visitors to this, and other nearby, locations further elevates the sensitivity of this representative viewpoint.

Change to the view

10 The change to this view will result from the replacement of the existing N-Route with the L7 Tower section of the proposed development. The change will be experienced over a small portion of this view, and at distances of 4 – 5km. The elements of the grid connection will be visible as backclothed elements, and will therefore not be perceptible using the criteria used for this assessment. There will therefore effectively be no change to the view from this viewpoint, with no change to the forest visible within the view.

Effect

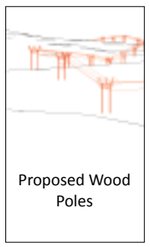
11 Considering the lack of any perceptible change to the view from this location, the effect upon the viewpoint will be **none** as a result of the proposed development. This effect will correspondingly be **not significant**.

Viewpoint	35- Fishing Lodge Loch Doon	
Coordinates	X-248113	Y-598919
Included Angle	150°	
Elevation	220m AOD	
Bearing	85°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

Windfarm in planning

Consented Windfarm

Operational Windfarm



Proposed Wood Poles

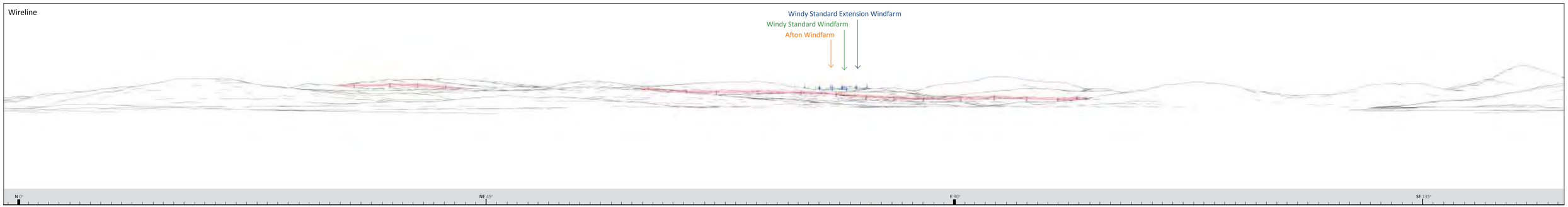
Existing Wood Poles (SWS)

L7 Towers
Red - Proposed
Maroon - Existing (SWS)

Figure set 7.69 - Viewpoint 35, Fishing lodge, Loch Doon

Current View

Wireline



Photomontage

NE 45°

E 90°

7.5.3.21 Viewpoint 36 – Knockman Hill (GR 267325, 583714)

Within: Foothills with Forest

Looking across: Foothills with Forest; Southern Uplands; Southern Uplands with Forest; Drumlin Pastures; Upper Dale; Rugged Granite Upland; Rugged Granite Upland with Forest

Description of Baseline

1 Situated within improved grazing approximately 5.5km to the north-east of St John's Town of Dalry, this viewpoint is located a short walk from the A702 and is accessed via a rough walk past White Cairn. There are no public rights of way providing access to this location, but given the large amounts of forest on many of the nearby hillsides, it permits one of the few open vistas in the locale. Given its location off any of the main walking routes and public rights of way, it is unlikely that this view is widely appreciated, but given the expansive views available, it is considered important in providing a representative elevated view of this part of the landscape.

2 The viewpoint sits within the Foothills with Forest landscape type, and unlike much of the surrounding areas subject to this characterisation, contains no commercial forest, although large tracts are visible within the view. This is perhaps not too unusual given the viewpoint sits towards the southerly limit of this character type sub-area, in what could be described as the transitional zone between this landscape type and the adjacent one, Upper Dale. This lack of forest cover permits a 360 degree view of the surrounding landscape, and allows views of up to and beyond 15km in a number of directions, although only 180 degrees of this are represented.

3 Given the expansive nature of this view, the diversity of the topography within the view, as with the range of character types, is appreciable. The upland landscapes of the Galloway Forest Park and the Carsphairn Forest are present as horizons to the view in the northern and western portions of the view, whilst the lower lying landscape of the River Ken valley is evident to the south. The Foothills landscape, within which the viewpoint is sited is evident as a more rolling and subtle landscape in the fore and middle ground.

4 Natural features within the view include the upland landscapes as described above, whilst the dark colours of the commercial forest provide interesting patination as they follow the rounded summits in the fore and middle ground. The key visual foci within the view, however, are the windfarms assumed as part of the baseline at Blackcraig & Margree, which comprises much of the centre of the view. A large number of the turbines at both these windfarms, which lie between three and five km from the viewpoint, contain skylined elements which are prominent on the horizon. The ground based infrastructure, including access tracks, transformers and substations are all visible within the view, as are the areas deforested to facilitate the windfarm.

5 As already described, the windfarms at Blackcraig & Margree are key elements within the view, and alongside the large tracts of commercial forest comprising the view, heavily dictate the man-made nature of it. The presence of other infrastructure or built form, however, is limited.

Sensitivity

6 Across much of the view panorama, the windfarms at Blackcraig & Margree, and their associated infrastructure, form a prominent skyline and foci within the view. These structures, at under 5km from the viewpoint, appear as appreciable elements within the view, and ones which interrupt the otherwise rural, and somewhat remote nature of the view. The presence of these elements over much of the view is thought to reduce the sensitivity of the view to additional development of the nature proposed. There are no landscape designations that would elevate the sensitivity of either the fore and middle ground of the view panorama, or on the underlying landscape within which the viewpoint sits.

7 Notwithstanding this, large portions of the view could be considered high quality given both the distance over which the view is experienced, and also the nature of these views towards the designated upland landscapes in the longer distance. Given the direction of the view in which the proposal will be situated, however, these factors are not considered sufficient to elevate the sensitivity relative to the proposed OHL development.

Change to the view

8 The change to this view resulting from the proposed OHL will be widely spread across the width of this view. This change results from the incorporation of the wood pole OHL, the substations at Blackcraig & Margree windfarms and the forest felling required to necessitate these elements of the grid connection. The view of the development extends from 1km up to 4.5km, beyond which topography limits any further visibility. Across the extent of the view, the elements of the grid connection are backclothed, meaning visibility indicated beyond 2.5km would therefore result in the development not being perceptible, and not constituting a change to the view.

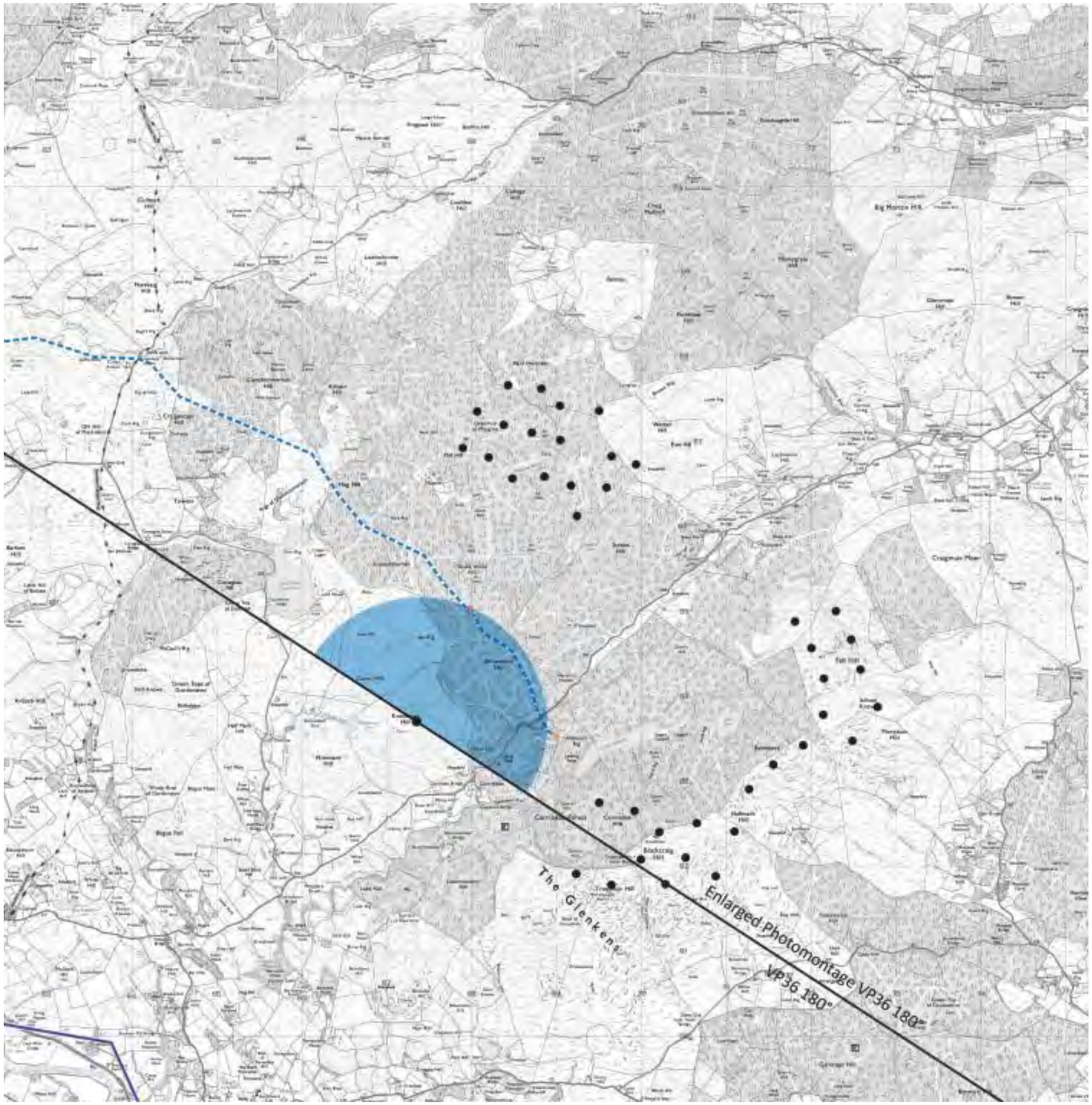
9 Within this 2.5km distance, the portion of the connection between the Blackcraig substation and Margree substation is partially screened by Whitecairn Hill, whilst the remaining sections are likely to be screened by commercial forest lying between the viewpoint and the OHL. Notwithstanding this, there are areas, such as that around the Margree substation, where felled forest, either as a result of the development, the windfarms or current forest operations, would allow visibility of the OHL at distances of between circa 1.3 and 1.6km. In considering the magnitude of change resulting from this, it should be borne in mind that at these distances, backclothed elements are close to the 'normal' limit of perceptibility for casual viewers of developments of this type.

10 Beyond the Margree substation, and up to the 2.5km limit of perceptibility threshold, the OHL will in large part be screened by intervening forest, whilst the complex colouring of the underlying landscape will make perceptibility of the OHL increasingly difficult.

11 Although it is considered that the change to the view resulting from the OHL components of the grid connection are modest, the substation developments at Blackcraig & Margree, and to a lesser degree the residual forest felling around Shield Willie Hill and Whitecairn Hill, will result in a more appreciable change to the view in localised portions of it.

Effect

12 In consideration of the locally appreciable change to the view, and the not particularly elevated sensitivity of the viewpoint, the residual effect upon this viewpoint is considered to be **moderate**, and therefore **significant**. This effect will be **adverse** in nature.

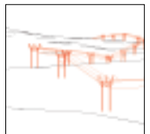


Viewpoint	36- Knockman Hill	
Coordinates	X-267325	Y-583714
Included Angle	180°	
Elevation	317m AOD	
Bearing	35°	
Viewing distance (standard)	250mm	
Viewing distance (enlarged)	500mm	

Windfarm in planning

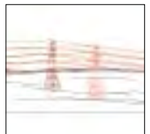
Consented Windfarm

Operational Windfarm



Proposed Wood Poles

Existing Wood Poles (SWS)

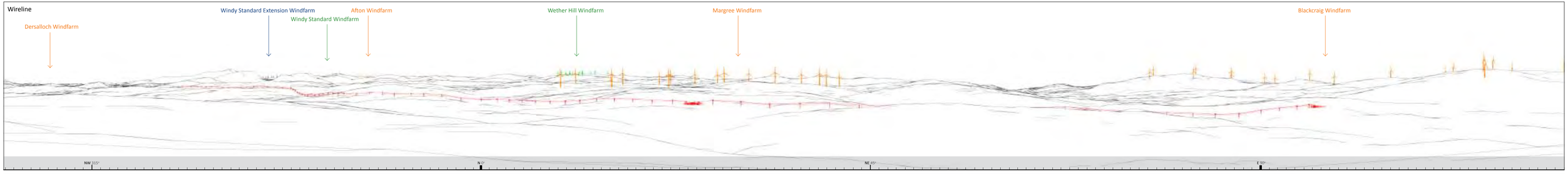


L7 Towers
Red - Proposed
Maroon - Existing (SWS)

Figure set 7.70 - Viewpoint 36, Knockman Hill

Current View

Wireline



Photomontage

Enlarged Photomontage - 200%

NW 315° N 0° NE 45° E 90°

7.5.3.22 Summary of effects upon visual amenity

1 Table 7.07 below outlines the summary of effects upon the identified viewpoints as a result of the Blackcraig & Margree Grid Connection.

Table 7.07 - Schedule of significance of viewpoints

Landscape Receptor	Location	Effect	Nature of effect (Beneficial, Neutral, Adverse)	Significance
VP 02	A702 near Corriedoo	**Moderate**	Adverse	**Significant**
VP 04	Lochinvar	**Minor**	Adverse	**Not Significant**
VP 05	Hog Hill	**Major**	Adverse	**Significant**
VP 07	Blackwater Valley SUW link	**Major**	Adverse	**Significant**
VP 12	Dundeugh Hill (near summit)	**Minor**	Adverse	**Not Significant**
VP 13	Linnfraig Layby	**Major**	Adverse	**Significant**
VP 16	North Liggat	**Major**	Adverse	**Significant**
VP 18	Holm Hill	**Minor**	Neutral	**Not Significant**
VP 21	Loch Muck	**Moderate**	Neutral	**Significant**
VP 22	Glenmuck	**Moderate**	Beneficial	**Significant**
VP 23	Court Knowes	**Major**	Adverse	**Significant**
VP 24	Mossdale Visitor Point	**Major**	Adverse	**Significant**
VP 25 (B&M grid connection)	Dalmellington Moss	**Minor**	Adverse	**Not Significant**
VP 25 (removal of N-Route)		**Minor**	Beneficial	**Not Significant**
VP 26	Meikle Hill	**Minor**	Adverse	**Not Significant**
VP 27	Benbeoch Hill	**Minor**	Adverse	**Not Significant**
VP 29	Dundeugh Hill (west flank)	**Major**	Adverse	**Significant**
VP 33	Dalmellington	**Moderate**	Adverse	**Significant**
VP 35	Fishing Lodge Loch Doon	**None**	Neutral	**Not Significant**
VP 36	Knockman Hill	**Moderate**	Adverse	**Significant**

2 As a result of both the degree of screening and backclothing provided by both the topography and forest of the Study Area, and also the reduced sensitivity resulting from the significant effects are generally only experienced in views where the OHL forms part of the view at close range. There are a number of longer distance views where visibility is available, but owing to either the amount of backclothing or the increased distances over which the views are experienced, the OHL is not perceptible.

3 The extent of screening and backclothing is particularly effective in reducing the visibility of the wood pole sections of the OHL as a result of its limited stature (compared to steel lattice towers more normally associated with 132kV OHLs) and the relationship this has with the existing forest and woodland in proximity to the route. This is notably the case where the OHL passes through the forested landscape near to the windfarms at Blackcraig & Margree, where visibility of the route is appreciably reduced as a result.

4 Conversely, where these elements of the OHL pass across open moorland or semi-improved grassland, the vertical nature of the proposed line, and the colouration of it, provides a distinct contrast to the baseline landscape, thus increasing its relative visibility. A notable example of this can be seen at viewpoint 07, where this situation contributes to the significant effect identified.

5 Other significant effects resulting from the wood pole sections of the OHL are identified at viewpoint 29, where the line is seen at close range against the landscape at Dalshangan, and the Water of Deugh corridor, a landscape which currently displays no evidence of electrical infrastructure of this type and scale.

6 The effectiveness of woodland, and to a lesser degree topography, is reduced when considering the L7 Tower sections of the OHL given its increased height relative to the wood poles, and the difference in scale between them. In passing along the (mostly) uniform valley landscape, the influence of topography and forest is largely reduced in screening the proposed OHL, although the presence of the existing N-Route, a structure similar to that proposed, plays an important role in reducing the potential level of effects within this part of the Study Area. Notwithstanding this, where the proposed OHL is viewed at close proximity to the viewpoint, or where the OHL forms a prominent constituent of the view, such as at viewpoints 13 and 16, significant adverse effects can still occur.

7 Other significant effects upon the visual amenity were identified both within the upland areas to the south of Dalmellington (VP23), within the valley landscape (VP24) and on the periphery of the town of Dalmellington (VP33). These effects result from the addition of the L7 section of the OHL into a landscape currently devoid of infrastructure of this type, and which is openly visible (and perceptible) within the views identified.

8 Whilst all of these significant effects are adverse, significant beneficial effects do occur at one location. Within the Water of Muck valley, the combination of the removal of the N-Route, and the alignment of the new L7 section of the OHL being further to the east, results in the view experienced containing no electrical infrastructure of the type which previously occupied it, and therefore the finding of a beneficial effect.

9 Whilst the ZTV and Perceptibility studies indicate that there are relatively extensive areas with visibility to the proposed OHL, the assessments undertaken of the representative viewpoints confirm that significant effects on the visual amenity will occur in approximately half of the assessed locations. These are either in very close proximity to the OHL or in locations close to the OHL and where this forms a prominent foreground element or one which occupies an appreciable extent of the view. The correlation between the extent of the ZTV and the areas where a significant effect on the visual amenity might be expected is therefore very weak, with all of the significant effects identified located (appreciably) within 1km of the line rather than within the limit of theoretical visibility represented in the ZTVs at 6/10km (dependant on which element of the proposed OHL being assessed). The ZTV presented at Figure 7.13 - 7.14 (outline) 7.17 - 7.37 (detail) is therefore not representative of the areas within which significant effects on the visual amenity might be experienced.

10 Whilst the ZTV and Perceptibility studies over represent the theoretical visibility of the overhead line it is acknowledged that there will be significant adverse effects on the visual amenity within close proximity to this (circa 1km). As a result of this it can be assumed that there are likely to be significant adverse effects on those properties in close proximity to the overhead line and where views to this form an important element of the views available from the property. Whilst the area of the overhead line is relatively remote there are appreciable numbers of properties, particularly along the A713 and other road corridors which might be subject to such effects. In many cases however the addition of the new overhead line will be in replacement for the existing ageing N-Route and therefore the effects will be less (and often markedly so) appreciable.

11 Similarly there will be a number of significant beneficial effects on the visual amenity (typically within circa 1km) where the section of the N-Route to be removed to the north of Dalmellington currently forms an important part of the existing views.

12 The visual amenity for a number of the settlements will affected by the proposed overhead line. For a number of settlements to the north including Bellsbank, parts of Dalmellington, Waterside, Burnfoot and Patna , the removal of the existing N-Route will provide a beneficial effect on the visual amenity of the settlement. Conversely there are parts of Dalmellington, and Carsphairn where the overhead line will have adverse effects on the visual amenity from the settlements. In the case of Carsphairn however the new line, although taller than the existing, will be further from the village and largely backclothed by the adjacent high ground.

13 Figure 7.71 illustrates graphically the effects at each viewpoint described above.

7.6 Summary

1 The proposed OHL has been developed as far as possible to mitigate the potential landscape and visual effects that might result from such development. The detailed design of the route, in responding to the underlying landscape form and pattern, has limited the scale and nature of effects to provide this mitigation, and has sought to follow the most environmentally sensitive route from the windfarms at Blackcraig & Margree to the substation at Meikle Hill.

2 Notwithstanding the level of mitigation provided by the detailed design of the OHL route, a number of significant effects will result from the proposed grid connection. These can be summarised as follows:

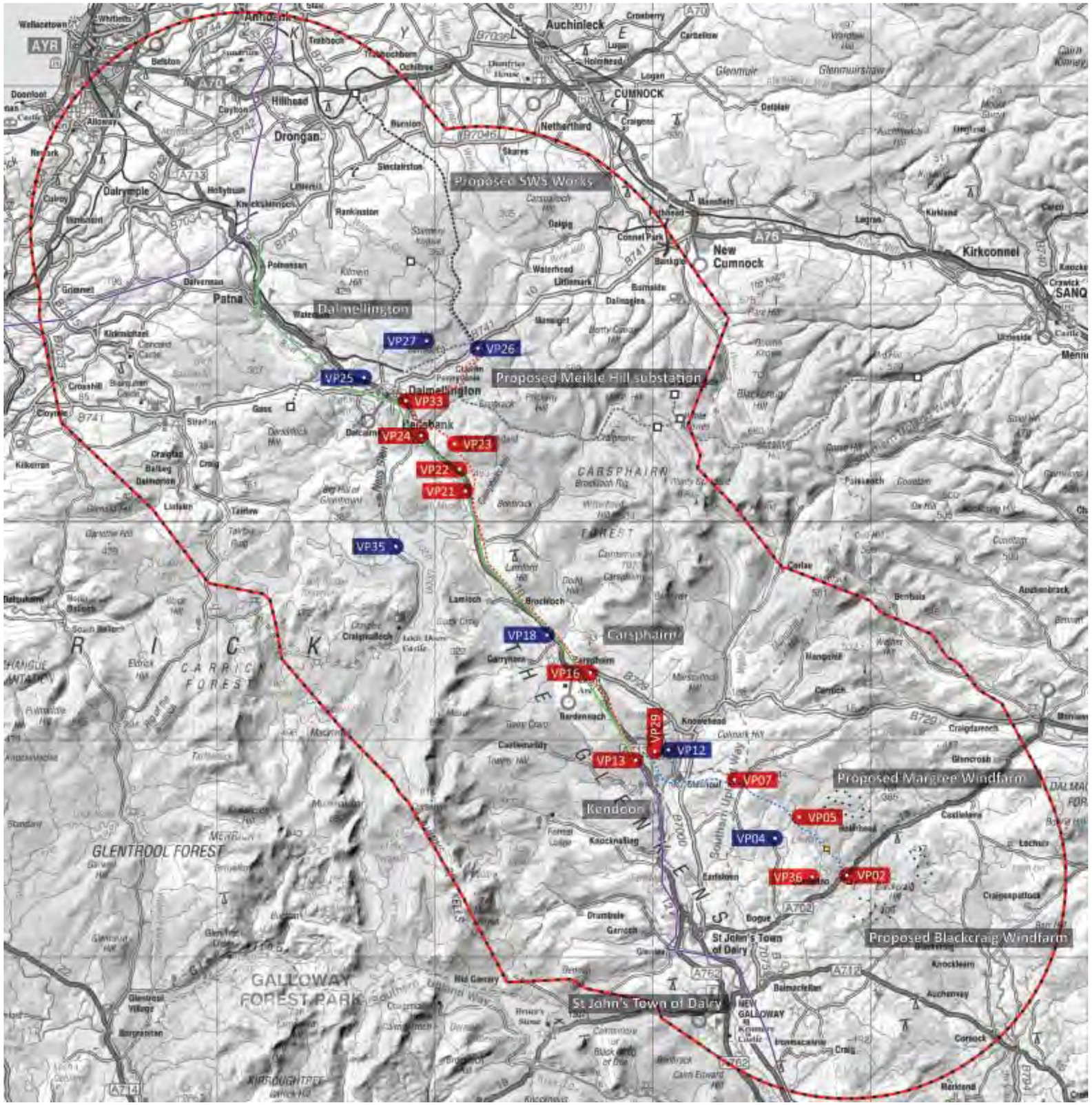
- Significant effects upon the landscape resource are spread along the length of the route, and occur within all of the landscape units through which the OHL route passes, except within the Foothills landscape unit to the south of Dalmellington, where no significant effects occur. These effects are locally both beneficial and adverse in nature, with this depending upon the elements of the grid connection being considered. Beneficial effects occur generally to the north of Dalmellington, where 12km of the existing N-Route will be removed from the landscape, and where this OHL will not be replaced by a new L7 section of OHL.
- Significant adverse effects are identified specifically where the addition of the OHL constitutes a magnitude of change whereby the underlying character of the

landscape is altered sufficiently to change that character, or where the sensitivity of the landscape is such that any change to it is perceived as being more acute. This occurs along the route near to Butterhole Bridge and Dalshangan, where the addition of the wood pole line within a landscape currently not containing infrastructure of this type constitutes an appreciable change and detractor. Within the Southern Uplands with Forest landscape unit to the south-east of Dalmellington, the proliferation of OHLs related to the SWS Project has resulted in this landscape unit becoming increasingly sensitive to additional development, meaning the addition of further development of this type will result in particular effects.

- Where the proposed OHL essentially replaces the existing N-Route, along the A713 valley, the effects upon the landscape resource are all considered to not be significant.
- Effects upon the perception of the landscape resource from adjacent landscape types are all considered to be not significant. This is largely due to the OHL running through a number of landscape areas that already contain electrical infrastructure of the size, scale and type of the L7 sections of the proposed development, which follows a broadly similar alignment and the limited perceptibility from these areas.
- Significant effects upon the landscape resource for other specific receptors are limited to a small number of the road corridors that run through the Study Area, part of the Southern Upland Way near to Butterhole Bridge and the Loch Doon Valley Sensitive Landscape Area.
- The significant effects upon the A713 are adverse where the new L7 OHL route passes closer, or forms a more conspicuous element of the view, from this primary tourist route, but are beneficial as the road corridor runs northwards from Dalmellington, and the existing N-Route is removed from within views from the road. Elsewhere, significant adverse effects are found from parts of the B7000 and the minor roads between Milnmark, Cuckoostone Cottage and Auchenstroan Craig, where the wood pole OHL route runs in close proximity to the road.
- Significant effects upon the visual amenity are well spread along the proposed route of the OHL, with 10 of the 19 viewpoints displaying significant effects (9 adverse and one beneficial). All of these viewpoints are within 1km of the route, and although this does not indicate that significant effects do not extend beyond this limit, it does suggest that proximity to the development is a key factor in the assessment of a significant effect.
- The finding of significant effects upon these viewpoints results from the OHL either becoming a more prominent element of the view (relative to the existing N-Route OHL) than currently is the case, or where the baseline landscape does not already contain electrical infrastructure of this size and scale. The more modest effects identified at the other viewpoints variously result from the sensitivity of the landscape being reduced through the existing presence of OHLs or where the magnitude of change resulting from the proposed OHL is such that it is not deemed significant.

Table 7.08 - Summary of Significant Effects

Landscape Receptor	Effect	Nature of effect (Beneficial, Neutral, Adverse)	Notes	Significance
Landscape Resource				
Southern Uplands with Forest (8a)	**Locally Moderate**	Adverse		**Significant**
Upper Dale (10a)	**Moderate**	Adverse	Elsewhere within landscape unit	**Significant**
Foothills (11a)	**Locally Major**	Beneficial	Where N-Route is removed from Water of Muck valley	**Significant**
Foothills with Forest (12a)	**Locally Moderate**	Adverse	Where OHL crosses open grassland landscapes	**Significant**
Upland River Valley (17a)	**Moderate**	Beneficial	Where N-Route is removed from landscape and not replaced by L7 OHL route	**Significant**
	Moderate	Adverse	Remaining areas of landscape unit	**Significant**
Route Corridors				
A713	**Locally Moderate**	Adverse	South of Dalmellington	**Significant**
	Locally Moderate	Beneficial	North of Dalmellington	**Significant**
B7000/B729	**Locally Moderate**	Adverse		**Significant**
Minor roads between Milnmark, Cuckoostone Cottage and Auchenstroan Craig	**Locally Major**	Adverse		**Significant**
Other Specific Receptors				
Southern Upland Way	**Locally Major**	Adverse		**Significant**
Loch Doon Valley SLA	**Locally Moderate**	Beneficial	Where N-Route removed north of Dalmellington	**Significant**
Visual Amenity				
VP 02 - A702 near Corriedoo	**Moderate**	Adverse		**Significant**
VP 05 - Hog Hill	**Major**	Adverse		**Significant**
VP 07 - Blackwater Valley SUW link	**Major**	Adverse		**Significant**
VP 13 - Linnfraig Layby	**Major**	Adverse		**Significant**
VP 16 - North Liggat	**Major**	Adverse		**Significant**
VP 21 - Loch Muck	**Moderate**	Neutral		**Significant**
VP 22 - Glenmuck	**Moderate**	Beneficial		**Significant**
VP 23 - Court Knowes	**Major**	Adverse		**Significant**
VP 24 - Mossdale Visitor Point	**Major**	Adverse		**Significant**
VP 29 - Dundeugh Hill (west flank)	**Major**	Adverse		**Significant**
VP 33 - Dalmellington	**Moderate**	Adverse		**Significant**
VP 36 -Knockman Hill	**Moderate**	Adverse		**Significant**



Legend

Components of this proposed grid connection

- Windfarm locations
- Proposed Wood Pole line
- Proposed L7 Tower line
- Proposed Underground Cable
- N-Route section retained
- N-Route removed
- Windfarm substation
- 10km landscape Study Area boundary
- VP02 Assessment viewpoint location - **Significant Effect**
- VP02 Assessment viewpoint locations - **Not Significant Effect**

Other components of South West Scotland Renewables Connection Project

- 400kV line
- 132kV line
- Substation

Figure 7.71 - Viewpoint significance

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New Alderstone House
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Strathclyde Business Park
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SP TRANSMISSION