

Beaully-Denny Overhead Transmission Line Project

Stirling Visual Impact Mitigation Scheme Consultation Report

Connecting Scotland's Sustainable Future

Beaully Denny 400kV Overhead Transmission Line

PART 3: STIRLING VISUAL IMPACT MITIGATION

Prepared by Wardell Armstrong; Part 3 sets out a background to the route of the 400kV line in the Stirling area with consideration of the landscape and visual commitments already made prior to and during the Public Inquiry. Wardell Armstrong identify opportunities available that would further reduce landscape and visual impacts in the Stirling area in order to address the objectives of condition 19. These opportunities were presented to SPT to be evaluated against their statutory duties, the findings of which are presented in Part 1.

Stirling
Visual Impact
Mitigation
Scheme

SP TRANSMISSION LIMITED

Beaully Denny 400kV Overhead Transmission Line

PART 3 Stirling Visual Impact Mitigation

September 2010

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SP TRANSMISSION LIMITED

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Stirling Visual Impact Mitigation

September 2010

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1 INTRODUCTION

1.1 Introduction

1.1.1 In January 2010, the Scottish Ministers consented the development of the proposed Beaully Denny 400kV overhead transmission line, following a lengthy consultation and planning process relating to this project, dating back to 2004, and which included a Public Inquiry held during 2007.

1.1.2 A number of conditions were attached to the consent and these require to be discharged by Scottish Hydro Electric Transmission Limited (SHETL) and SP Transmission Ltd (SPT), within their relevant areas, in order for the development to progress. One such condition (19) relates to the Stirling Visual Impact Mitigation Scheme. This states that:

19.-(1) Neither the overhead transmission line or the towers carrying that line shall be installed or constructed in the area of Stirling Council until –

(a) the applicant has submitted to Scottish Ministers for approval a scheme prepared in accordance with this condition setting out proposals to mitigate the visual impact of the 400kV line in the Stirling area (“the Stirling Visual Impact Mitigation Scheme”); and

(b) the Scottish Ministers have, after consultation with Stirling Council, approved the Stirling Visual Impact Mitigation Scheme.

(2) The Stirling Visual Impact Mitigation Scheme is to include proposals for:

(a) the mitigation of the visual and landscape impact of the line between the top scarp of the Ochil Hills at Cocksburn Wood (TD199) and Airthrey Castle (TD203);

(b) the mitigation of visual and landscape impact of the line between Logie (TD203) and Glenside (TD244E).

(3) The Development shall be carried out in accordance with the approved Stirling Visual Impact Mitigation Scheme unless otherwise agreed in writing by the Scottish Ministers.

1.1.3 Subsequent to the issuing of the decision, the Scottish Ministers issued a briefing note (by email to SPT on 28 January 2010) setting out the Scottish Government’s intentions with regard to the Stirling Visual Impact Mitigation Scheme. This note

described the purpose of the Scheme as mitigating the visual impact of the proposed line in the Stirling area, possibly by re-routeing, re-sizing of towers, screen planting or undergrounding.

1.1.4 Wardell Armstrong LLP has been appointed by SP Transmission to provide assistance with the development of the Stirling Visual Impact Mitigation Scheme and the preparation of proposals to meet this condition.

1.1.5 Notwithstanding the 'title' of the mitigation scheme for the Stirling area, both landscape and visual impact is referenced within the Condition. This report therefore considers both aspects in order to ensure that the mitigation measures that are developed provide a comprehensive response to the concerns of the Scottish Ministers.

1.1.6 This report addresses:

- the reasons for / decisions taken on routeing the proposed 400kV overhead line in the area to the east of Stirling;
- the findings of the landscape and visual impact assessment undertaken in 2005 of the proposed route, as reported in the Beaully Denny Environmental Statement (ES) and Addendum for the Stirling area, and the mitigation measures identified at that stage;
- the assessment of the proposed route undertaken by Scottish Natural Heritage (SNH), as part of the evidence presented to the Beaully Denny public inquiry, Stirling local session, in 2007;
- commitments (including landscape and visual mitigation measures) made following the presentation of evidence to the Stirling local session of the Beaully Denny public inquiry;
- conditions attached to the consent, for the mitigation of visual impacts in the Stirling area, other than condition 19; and
- other opportunities available to SP Transmission that would further reduce landscape and visual impacts in the Stirling area, in order to address the specific requirements of the Stirling Visual Impact Mitigation condition 19.

1.1.7 Supporting information in the form of plans and photographic illustrations is included in appendices to this report.

1.2 Background to overhead line routeing

- 1.2.1 It is relevant to note that the principles of overhead line routeing follow guidance established in the 1950s and revisited / reviewed since then, known as The Holford Rules (Inquiry document reference APL-5/5).
- 1.2.2 These Rules (which were extensively referenced during the Beaully Denny Public Inquiry) recognise that the major impact of an overhead line is visual, and that the most effective way of reducing visual effects is through the careful routeing of the overhead line transmission towers.
- 1.2.3 The document, *The SHETL Approach, A Guidance Document outlining the SHETL approach to the routeing of high voltage steel lattice tower transmission lines, leading to an application for consent in Scotland* (July 2004) (Inquiry document APL-5/6), sets out the approach that is followed during overhead line routeing, and that was applied to the routeing of the line between Beaully and Denny. The document was developed by both SHETL and SPT and the principles set out therein were applied equally over the whole length of the 400kV overhead line.
- 1.2.4 The document also states that the objective of the routeing process in respect of overhead transmission lines is to “*achieve a technically feasible and economically viable route but one which also causes the least disturbance to the environment and those living in it, working in it, visiting it or using it for recreational purposes*”.

2 DEVELOPMENT OF THE PROPOSED ROUTE

2.1 Introduction

- 2.1.1 The development of the proposed route has occurred in a number of different stages and these are considered further, below, starting from the initial consideration of route corridors, through to the development of indicative route options and, finally, the proposed route. Figure 1 identifies both the existing and proposed electricity transmission infrastructure present in the Stirling area.
- 2.1.2 As noted above, the principles of routeing set out in the Holford Rules (as modified by SHETL and SPT to reflect Scottish circumstances) formed the basis by which the proposed route for the 400kV overhead line between Beaully and Denny was

determined. At all times during the routeing process, the environment of the area and the people living, working, travelling through or taking recreation within it, were the main focus of the studies and the assessments undertaken to support the routeing process. In some locations, a balance was required to be struck between different adverse effects on the different aspects of the environment, as it was not always possible to find a solution that removed all adverse effects in any one area.

2.2 History of the route development, Stirling area

2.2.1 A number of stages were involved in the development of the route (see also Chapter 8 of the Beaully Denny ES, CD-A01), commencing with a Routeing Study in 2003, in which a range of potential routes were examined (as described within the Beaully Denny Consultation Document, APL-7/1). These were gradually refined down to an Indicative Proposed Route.

2.2.2 At an early stage of the routeing process, as reported in the Interim Report on Consultations, the 'preferred route' was shown passing to the east of Stirling (see Figure 2). Consultation responses were received objecting to this route, on the basis of:

- effects on the landscape east of Stirling;
- effects on the setting of the Wallace Monument;
- it would be located in close proximity to two areas identified as potential Major Growth Areas for Stirling;
- wirescape across the Forth Valley;
- proximity to farms and houses; and
- various other concerns (Interim Report on Consultations, CD-A03, para. 2.3.5.13).

Suggested alternative options included a route to the west of Stirling and a route further east, joining with overhead lines from Kincardine.

2.2.3 A range of alternative route options were developed in the Stirling area in order to try and address the concerns that had been raised during the consultation process (these are also shown on Figure 2). These comprised:

- minor modifications to the preferred route, to minimise effects on the major growth areas and existing properties;

- a variation on this route that completely avoided the major growth areas;
- an alternative that more fully avoided the settlements east of Stirling (requiring three crossings of the River Forth); and
- a variation on the above alternative, reducing the crossings of the River Forth to one and passing to the south of Fallin and the north of Cowie.

2.2.4 The area to the west of Stirling was re-examined for the possible inclusion of a route through this area, but remained unsuitable, for the reasons stated in the Beaully Denny Consultation Document (increased visibility and adverse effects on the more rural landscape to the west of Stirling).

2.2.5 The alternative options were assessed for their effects on the environment. The key issues in this area were seen as:

- proximity to settlements and the Stirling Major Growth Areas;
- potential effect on the River Forth bird populations (and thus on the integrity of the internationally important Forth Special Protection Area);
- visibility of the line in the open landscape of the carse; and
- wirescape at the approaches to Denny substation.

2.2.6 The route considered to have the lesser effect overall was the alternative avoiding the settlements east of Stirling and with only the one crossing of the River Forth. Thereafter, minor modifications were made to this route as part of the detailed routeing process, to arrive at the proposed Beaully Denny 400kV overhead transmission line.

2.3 Beaully Denny route review

2.3.1 An independent route review (APL-5/19) was undertaken of the Beaully Denny proposed route in July 2005, in advance of its final selection and environmental impact assessment, in order to confirm to SHETL and SPT that there was no better route available, prior to the application to the Scottish Ministers under Section 37 of the Electricity Act. The review considered the proposed route against each of the individual requirements of the Holford Rules and the accompanying Notes (APL-5/5).

2.3.2 The review confirmed the selection of the proposed route, with a recommendation for a minor adjustment in one area at the southernmost end of the route (at

Glenside). A number of natural pinch points were identified between Beaully and Denny that acted as constraints to routeing in certain areas, such that not all adverse effects on the environment could be avoided.

2.3.3 In respect of the Stirling area, the report noted:

- the presence of the Forth Special Protection Area (SPA);
- a pinch point in the Ochils scarp slope area (where the proposed line follows the route of the existing line);
- a requirement for the use of a number of angle towers¹ in the Fallin / Cowie area (contrary to Holford Rule 3), though this is imposed by the presence of other constraints in this area; and
- the potential for wirescape effects in the Fallin area, and on the south-eastern side of Plean.

The report also commented on the potential for Cowie to be encircled by overhead transmission lines, though the separation between these would avoid a 'wirescape' effect.

2.3.4 A supplementary addendum included within the Route Review Report (APL-5/19) assessed the changes that had been made to the route between February 2005 and October 2006, noted the presence of a major gas main in the area between Carbrook Mains and Denny, which had required some modifications to the proposed route, particularly in the area of the existing 275kV lines (see Figure 1). This was assessed as giving rise to some increased adverse visual effects on users of the A9 and properties in the Cardrowan Road area, though mitigation measures would be developed, to address these (for users of the A9). The report also noted the proposal to underground some of the existing lower voltage lines in this area, for construction health and safety, which would reduce the wider effects of 'wirescape' in this area.

2.3.5 These aspects are considered further in section 3 of this report, below.

¹ Angle towers are used where an overhead line requires to change direction; these are typically heavier / bulkier towers than those used for straight sections of an overhead line and as such can be more prominent, visually.

3 THE FINDINGS OF THE BEAULDY DENNY ES & ES ADDENDUM, STIRLING AREA, LANDSCAPE AND VISUAL IMPACTS

3.1 Introduction

3.1.1 The assessment of effects on landscape character and visual amenity, of the proposed 400kV overhead transmission line, identified various significant effects in the Stirling area. These are described below, in order to provide some background information relevant to the subsequent development of measures to mitigate these effects, as identified within the Beauldy Denny Environmental Statement (ES) and Addendum.

3.1.2 Figure 3 indicates the locations of the areas where significant adverse landscape and visual impacts were identified as part of this assessment of effects.

3.2 Assessment of effects on landscape character

3.2.1 The assessment of effects on landscape character, for the area between the top of the Ochils scarp and the Denny substation, as reported in ES Chapter 23, considered that the majority of the landscape had the capacity to accommodate the proposed 400kV overhead line. The proposed overhead line, in descending the scarp slope to the carselands at the foot of the Ochil Hills, would follow the route of the existing 132kV overhead line and this was considered to reduce the scope for significant adverse effects on landscape character. No significant effects on landscape character were identified for the proposed overhead line in these areas.

3.2.2 Within the section of ES Chapter 23 that considered effects on tourism and recreational areas and activities, the ES identified moderate adverse effects in the area of the Hermitage Wood adjacent to Airthrey Castle, though careful tower siting could reduce effects to minor adverse (ES ch. 23. para. 23.6.9.2).

3.2.3 The ES also identified moderate adverse cumulative effects from the proposed overhead line in combination with a second 132kV overhead line, in the area of the western edge of Fallin (ES ch. 23, para. 23.9.2.10).

3.2.4 The ES identified a number of short term, significant adverse effects on landscape character relating to the development and use of construction access tracks and the presence of the existing and proposed line, but these would be temporary effects

and as such, are not considered to be relevant to the visual mitigation of the proposed overhead transmission line.

3.2.5 Mitigation measures were identified to address significant impacts on landscape character; these included general mitigation relating to careful positioning of towers, and ensuring the heights of these are kept as low as possible. In addition, additional planting was proposed for specific areas; in the Stirling area this related to mitigation measure L12², which proposed the planting of native scrub and small broadleaved trees (subject to the agreement of landowners) within the corridor of the existing 132kV overhead line to the north and south of the Wharry Burn and at Cocksburn Wood, to improve the landscape and integration of the existing woodland structure (ES ch. 23 para. 23.10.4.1).

3.2.6 The ES recognised that there would be long term effects in areas where there is no overhead transmission line at present and (as indicated on Figure 3) this would include the areas to the south and east of Fallin, to the east of Cowie and on the eastern side of Plean (ES ch. 23 para. 23.12.1.11), though it was considered that in time the landscape would adjust to the presence of the overhead line, in these areas. In the longer term effects on the landscape character would be no greater than minor adverse.

3.3 Assessment of effects on visual amenity

3.3.1 Chapter 24 of the Beauldy Denny ES set out the impact of the proposed overhead line on the visual amenity of the receptors present within the area. These are summarised below, for the Stirling area.

3.3.2 Moderate adverse visual effects were identified on the settlements of Fallin (western edge), Cowie, Throsk and Plean (ES ch. 24 paras. 24.5.5.9, 24.5.5.10, 24.5.5.11 and 24.5.5.12). A number of individual residential properties in the area between the Ochils scarp and Denny were also identified as incurring both major and moderate adverse visual effects (ES ch. 24 para. 24.5.5.16 and 24.5.5.17). Various roads in the area were identified as incurring moderate adverse visual effects: the A905 east of

² L12: Planting of native scrub and small broadleaved trees would be undertaken, subject to the agreement of landowners, within the corridor of the existing 132kV overhead line to the north and south of the Wharry Burn and at Cocksburn Wood, to improve the landscape and integration of the existing woodland structure.

Fallin, the A9 south of Plean, minor roads round Cowie, Throsk and Whitehill, and paths east of Cowie (ES ch. 24 paras. 24.5.5.21 – 24.5.5.31).

- 3.3.3 Wirescape effects (moderate adverse) were identified in the area of the Denny sealing end compound (ES ch. 24 para. 24.5.7.15).
- 3.3.4 Within the section of ES Chapter 24 that considered effects on tourism and recreational areas and activities, the ES identified moderate adverse effects in the area of the Hermitage Wood adjacent to Airthrey Castle, though careful tower siting could reduce effects to minor adverse (ES ch. 24 para. 24.5.8.2).
- 3.3.5 Various short-term, significant adverse visual effects were identified within the ES on residential and other receptors, from the development and use of construction access tracks and the presence of the existing and proposed overhead lines. These would be temporary effects and as such, are not considered to be relevant to the visual mitigation of the proposed overhead transmission line.
- 3.3.6 Mitigation measures were identified to address significant visual impacts (ES ch. 24 para. 24.8.4.1); these included tower positioning and heights, as described above (para. 3.2.5).
- 3.3.7 The ES recognised the potential for long term visual impacts from the proposed overhead line, but in the areas around Fallin, Cowie and Plean, it was considered that the presence of existing overhead lines would enable these areas to adjust better to the presence of the 400kV overhead line (ES ch. 24 para. 24.10.1.16). Long term effects on these areas were assessed as minor adverse.

3.4 Additional effects identified in the ES Addendum, October 2006

- 3.4.1 An Addendum to the ES was published in October 2006 in order to address ongoing work on the project that had occurred since the publication of the ES and proposed route in September 2005. Chapter 5 and supporting Annexes considered the additional landscape and visual impacts associated with this ongoing work and provided a response to comments made by SNH to the (then) Scottish Executive on the proposed route.
- 3.4.2 In the Stirling area, route modifications had altered the heights of towers in the Ochils scarp area and these were considered as giving rise to moderate adverse

effects on the landscape character of the scarp, and increased adverse effects on the visual amenity of the property (Broomhill) in this area (to major adverse) (ES Addendum ch.5 para. 5.2.3). Mitigation measures in respect of these impacts have comprised the development of a Forest Design plan in response to potential loss of trees within the Yellowcraig Wood.

3.4.3 Modifications to tower positions in the Cowie / Plean area resulted in increased adverse visual effects on properties in the Cardrowan area (moderate adverse) (ES Addendum ch. 5 para. 5.2.4). No mitigation measures were proposed at that time in respect of this additional visual impact.

3.4.4 The modifications to the route in the Carbrook Mains area were assessed as resulting in increased (moderate) adverse effects on visual amenity of users of the A9 (ES Addendum ch. 5 para. 5.2.5). Mitigation measures to address this were proposed, comprising the planting of roadside hedgerows and native trees, adjacent to the A9 in the area where the existing and proposed overhead lines would merge, near Carbrook Mains (Annex 15 to the ES Addendum, paras. 4.8 and 5.3).

3.5 SNH Response Report, February 2007

3.5.1 As stated in para. 3.4.1, above, SNH had expressed concerns regarding the need for consideration of alternatives (including re-routeing); on the likely impact of tree removal within Yellowcraig Wood on the views and visual amenity of receptors in the Carse of Forth; and the retention of the avenue of trees at Powis Mains. A report setting out the detailed response to the comments made to the Scottish Executive by SNH on landscape and visual interests was prepared and was lodged as an Inquiry document for the Beauldy Denny Public Inquiry (doc. ref. APL/INV-5).

3.5.2 The response to SNH's comments addressed a number of issues and included an assessment of alternative route options, using material presented in reports provided for the earlier stages of the routeing process. It also set out the constraints and sensitivities applicable to the areas within which the proposed overhead line would be routed (including reference to pinch points within this route) and described in more detail the reasons for the routeing to the east, rather than to the west of Stirling (as outlined in section 2 above). Comments were also provided in relation to the tree clearance within Yellowcraig Wood, and regarding the avenue of trees at Powis Mains, for which some potential mitigative planting was identified.

- 3.5.3 The SNH response report provided detailed information in respect of the proposed merging of the proposed 400kV and existing 275kV overhead lines in the Carbrook Mains area, where the proposed Beauldy Denny line would connect into the existing Longannet – Denny 275kV lines. This connection would require the existing circuits to be ‘shuffled’³ so as to accommodate the new connection at 400kV. The presence of a gas mains and of badger setts in this area had also required some adjustments to the proposed overhead line. The report considered the potential for adverse effects on visual amenity and on landscape character, and identified moderate adverse effects on the visual amenity of properties on the Cardrowan Road, and on users of the A9, in this area. Mitigation in the form of roadside tree and hedgerow planting was recommended to address impacts on users of the A9.
- 3.5.4 SNH had also requested that consideration be given to the use of low height towers in the area of the Ochils scarp, in order to reduce the visual impact of taller towers in this area. This was considered within the response report at section 9.9, however this concluded that the use of such towers would be inappropriate within this type of landscape. In addition, these towers would require a wider clearance corridor within areas of woodland. Their prominence visually would be at least as great as, if not greater than the towers proposed for the Beauldy Denny route. It was therefore concluded that there would be no benefit from the use of these towers in this (or any other) area.

4 LANDSCAPE AND VISUAL ISSUES RAISED DURING THE PUBLIC INQUIRY, STIRLING AREA

4.1 Introduction

- 4.1.1 The evidence presented to the Beauldy Denny Public Inquiry (strategy and local sessions) included information on the landscape and visual impacts of the proposed overhead line, both on behalf of the applicants (SHETL and SPT) and by statutory

³ The transmission lines would be altered such that the northern of the existing 275kV lines in this area, east of the new connection with the proposed 400kV line would become the Beauldy Denny 400kV line; the southern of the existing 275kV lines would become the northern 275kV line; and the new overhead line construction to the south of the two existing 275kV lines would become the southern 275kV line. New connections between the existing 275kV lines would be required to facilitate this re-arrangement.

consultees, such as Scottish Natural Heritage (SNH), with objections to the project. This is summarised below. Figure 3 identifies the locations of these significant adverse effects.

4.2 WA assessment of the impacts of the proposed route in the Stirling area

Landscape character

4.2.1 The landscape evidence presented to the Stirling local session of the public inquiry, on behalf of the applicants, and including that contained within the landscape precognition, considered the presence of pinch points in this area and these included the Bridge of Allan area (Ochils scarp); the areas west and east of Fallin; the area between the A9 and Carbrook Mains; and the area north of Denny. The precognition described the constraints present in these areas and the reasons why the 400kV overhead line is required to cross through these in the locations as proposed. These locations were recognised within the Reporters' report to the Ministers as constraints to routeing (Beaully Denny Report Volume 5 Chapter 1 – Landscape and Visual Impacts, para. 1.11.1). The landscape evidence also re-appraised the landscape character of each of these areas and the effects of the proposed overhead line on these, and concluded that these remained as previously assessed within the ES / Addendum.

4.2.2 The landscape evidence addressed the more detailed assessment in specific areas, undertaken in response to SNH comments; in the Stirling area this included:

- consideration of alternative routes in the area between the proposed Braco substation and Plean;
- impacts of tree clearance in the Yellowcraig Wood area;
- retention of the avenue of trees at Powis Mains;
- consideration of the effects on the landscape of the merging of the overhead lines in the Carbrook Mains area; and
- use of low height towers in the Ochil Hills area.

4.2.3 The only additional significant effect on landscape character identified as a result of the more detailed assessment was the adverse effect on the Ochils scarp as a result of increased tower heights in this area (as noted above at para. 3.4.2).

- 4.2.4 The landscape evidence included an assessment of effects on landscape character as experienced from transport routes within the area, in response to comments made by objectors at the Strategy session of the Public Inquiry (e.g. Andrew Brown for The Highland Council). Of particular concern were routes running parallel to the proposed overhead line for any great distance, taken to mean where these would extend over a distance of more than 2km. Both roads and paths were considered as part of this assessment. The assessment addressed: the minor road across Sheriffmuir; the minor road between the Sheriffmuir road and the B998; the A91 between Logie and Bannockburn; the A905, east of Fallin; a minor road in the Castleton / Whitehill area; and cumulative effects on users of minor roads on and to the south of Sheriffmuir, the A91 and A905. The paths assessed were the paths on the lower slopes of the Ochil Hills, west of Dumyat.
- 4.2.5 These assessments identified that there would be moderate adverse effects on users of the southern section of the minor road across Sheriffmuir, due to the presence of an increased number and height of towers in the area close to the road. Within the southern section of the minor road between the Sheriffmuir road and the B998, moderate adverse effects were identified for this localised area as a result of the presence of two angle towers. The assessments of the other areas (as referenced in the above paragraph) were as reported within the ES.
- 4.2.6 The landscape evidence addressed the presence of landmark features in the Stirling area and the potential for the proposed overhead line to give rise to significant adverse effects on these (also assessed within the Beauldy Denny ES Chapter 23). It was considered that there would be no significant adverse effects on either the Wallace Monument or Stirling Castle from the presence of the 400kV overhead line.
- 4.2.7 The landscape evidence addressed the implications of routeing to either the west or the east of Stirling on the landscape character of these areas, and concluded that the landscapes to the east of Stirling had a greater capacity to accommodate a high voltage transmission line, than those to the west.
- 4.2.8 Mitigation measures to address adverse effects on landscape character were also covered within the landscape evidence. These included: minimising the extent to which tree and scrub cover would be removed during the construction of the proposed overhead line; the development of a Landscape Masterplan for the route

of the overhead line; and the planting measures as proposed within the ES and Addendum (and as referenced above at paras. 3.2.5 and 3.4.4).

4.2.9 The landscape evidence also considered the impacts on landscape character of undergrounding of the overhead line, for options as assessed by the applicants and by objectors, including SNH. While the undergrounding of an overhead line will remove the adverse impacts on landscape character and visual amenity, there is scope for adverse effects arising from the presence of sealing end compounds, and from the loss of vegetation above the undergrounded cable circuits. Any benefits also require to be considered alongside potential increased adverse effects on other aspects of the environment, as part of a balanced decision-making process.

4.2.10 The landscape evidence also considered the potential benefits from the undergrounding of lower voltage lines, particularly in areas where wirescape effects had been identified, such as to the west of Fallin. Both transmission and distribution lines had been considered for undergrounding. This was a direct response to an evaluation of the requirements of the proposed conditions as suggested by Stirling Council, prior to the Stirling local session. While there would be beneficial effects for the local landscape character as a result of such undergrounding, there had been no identified need for this, from the assessments undertaken for the proposed overhead line. Nevertheless the Scottish Ministers considered it appropriate to impose a condition (18) on SPT in relation to the undergrounding of certain lower voltage lines in the Manor Powis, Forth crossing and Stirling areas.

Visual amenity

4.2.11 The visual evidence presented to the Stirling local session of the Beauldy Denny public inquiry, on behalf of the applicants, including that contained within the visual precognition, covered similar topics to the landscape evidence, in considering the presence of pinch points, the findings of further detailed assessment, effects on key transport routes and from undergrounding.

4.2.12 The visual evidence addressed the potential for the proposed overhead line to give rise to adverse effects on settlements and properties, over and above the assessment previously undertaken and reported on in the Beauldy Denny ES and Addendum. No additional adverse effects on the visual amenity of settlements were identified. A number of individual properties were considered, where these had

been referenced by objectors in correspondence or Statements of Case; no significant adverse visual impacts were identified, however.

4.2.13 The same key roads and paths as referenced in relation to the landscape evidence were assessed within the visual evidence for adverse impacts on visual amenity. This assessed the impacts on visual amenity of users of the southern section of the minor road across Sheriffmuir as moderate adverse, from the presence of towers (including an angle tower) in close proximity to the road. Users of the southernmost section of the minor road between Sheriffmuir and the B998 were assessed as incurring moderate adverse effects, from the presence of two angle towers. Users of the northern section of the A91 were assessed as incurring moderate adverse effects, though the provision of roadside planting would mitigate these. The cumulative assessment of effects on visual amenity, for users of the minor roads on and to the south of Sheriffmuir, the A91 and A905, was reported as moderate adverse. Users of the paths to the west of Dumyat, in the areas closest to the proposed overhead line, were assessed as incurring moderate adverse effects, though with increased distance from the line, these would reduce to minor adverse. In other areas, effects remained as reported within the ES.

4.2.14 The assessment of effects on key tourism and recreation areas concluded that there would be no adverse effects on views from the Wallace Monument, and no adverse effects in respect of Stirling Castle. In considering the effects on views towards these features, the visual precognition noted that there would be scope for moderate adverse effects on views towards the Wallace Monument, where the proposed overhead line interrupted such views and the observer was within 1km of the overhead line. While no significant adverse impacts on the visual amenity of the Witches Craig caravan park were identified, the precognition proposed additional mitigation in the form of screen planting on the north-western boundary of this site. The visual amenity of the Logie Kirk was assessed as moderate adverse, as a result of the proximity to the angle tower immediately to the east. Mitigation in the form of additional tree planting on the north-eastern boundary of the cemetery was proposed to address this.

4.2.15 The visual evidence also commented on undergrounding, noting the visual benefits that can derive from this, but recognising that other concerns (for instance, increased adverse effects on vegetation cover, on hydrology and soils, or on cultural

heritage) also require to be considered as part of a balanced decision on transmission line routing.

4.2.16 The visual evidence included a high-level assessment of the potential impacts on visual amenity of an overhead line route to the west of Stirling, as opposed to the east, and concluded that while effects on residential properties and settlement areas would be largely equal for either route, a route to the west contains fewer existing detractors, and would be more visible to road users, than the route to the east.

4.2.17 The visual evidence also considered the potential benefits from the undergrounding of lower voltage (LV) lines, particularly in areas where wirescape effects had been identified, such as to the west of Fallin. Both transmission and distribution lines had been considered for undergrounding. As noted above, this was a direct response to an evaluation of the requirements of the proposed conditions as suggested by Stirling Council, prior to the Stirling local session. While there would be beneficial effects on visual amenity as a result of such undergrounding, there had been no identified need for this, from the assessments undertaken for the proposed overhead line. Nevertheless the reporters recommended certain measures, which the Scottish Ministers also accepted, and considered it appropriate to impose a condition (18) on SPT in relation to the undergrounding of certain lower voltage lines in the Manor Powis, Forth crossing and Stirling areas, to reduce wirescape effects in this area. This is considered further in section 5.3, below.

4.3 SNH assessment of the impacts of the proposed route in the Stirling area

4.3.1 SNH's landscape architects undertook their own assessment of the proposed Beauldy Denny development and presented evidence to some of the public inquiry local sessions, including the Stirling session. Their evidence was concerned with both landscape character and visual amenity. The additional areas for which SNH identified potentially significant impacts on landscape character and visual amenity are summarised below and are shown on Figure 3.

Landscape character

4.3.2 SNH considered that the proposed 400kV overhead line would result in major adverse impacts on the landscape character of the Ochils scarp, on the area to the north of the A907, on the Airthrey Castle HGD and on the Ochils Hills AGLV. The Reporters, however, concluded that although the proposal would have an impact on

the AGLV, the central characteristics would not be eroded by the construction of the line and that the AGLV would, overall, retain its integrity (Beauldy Denny Report Volume 5 Chapter 1 para. 1.11.26). Impacts on the Ochils scarp would be localised (paras. 1.11.20-22). The Reporters concluded that impacts on the landscape character of the area to the north of the A907, between this road and Logie Villa, would be no greater than minor adverse (para. 1.11.90). Any impacts on the Airthrey Castle HGDL would, in the opinion of the Reporters, also be no greater than minor adverse (para. 1.11.31).

- 4.3.3 SNH also considered that the proposed 400kV overhead line would give rise to significant adverse setting effects on the Wallace Monument. The Reporters concluded that the proposed line would not give rise to any significant concerns as regards the setting of this Monument and visual amenity (para. 1.11.119).

Visual amenity

- 4.3.4 SNH considered that the proposed 400kV overhead line would result in potentially moderate adverse effects on the visual amenity of users of the local road and footpaths in the Dumyat area, on the users of the minor road at the foot of the Ochils scarp and the A91 in the Logie Kirk area, users of the Witches Craig caravan park and residents in this area (major adverse). The conclusions of the Reporters, also accepted by the Scottish Ministers, were that any major effects in the Dumyat area would rapidly diminish (Beauldy Denny Report Volume 5 Chapter 1 paras. 1.11.63, 1.11.65 and 1.11.67). The Reporters concluded that effects on the visual amenity of the Logie Kirk and Witches Craig caravan park would be no greater than moderate adverse.
- 4.3.5 SNH also identified significant adverse impacts on the occupiers of Blair Mains, with moderate adverse effects identified for users of the A907, A91 and other minor roads in the area to the north of the A907. The Reporters did not concur with SNH in respect of Blair Mains, considering effects here to be minor adverse (para. 1.11.91); in other regards, a moderate adverse effect on visual amenity was considered to be appropriate.

5 EXISTING COMMITMENTS BENEFITTING VISUAL AMENITY IN THE STIRLING AREA

5.1 Introduction

- 5.1.1 The various mitigation measures described in the above sections of this report do not form part of the mitigation proposed in order to meet the requirements of Condition 19, but will provide some benefit to the local landscape character and visual amenity, and are described in more detail in the following paragraphs. Measures developed in order to address condition 19 are set out in section 6, below.
- 5.1.2 In addition to the measures being considered as part of the Beaully Denny development, there are other works that either have been, or will be undertaken in the Stirling area, that can be considered as contributing to an improvement of the local amenity.
- 5.1.3 In each instance an assessment is made as to whether these measures will reduce the significant impacts (as identified in the above sections of this report and as shown on Figure 3) to non-significant levels.
- 5.1.4 The locations of these various mitigation measures are shown on Figure 4.

5.2 Landscape mitigation planting

- 5.2.1 Landscape mitigation planting has been developed for specific locations within the Stirling area, to address impacts identified from the ES and public inquiry / wayleave hearings. These are described below, from north to south. Each area has had an outline planting plan developed (usually at 1:10,000 scale) together with a supporting schedule of information outlining the objectives of the planting and its maintenance requirements. The locations of these areas are shown on Figure 4 and the individual planting plans and schedules are provided in Appendix A.
- 5.2.2 The implementation of these planting proposals would in all cases be subject to the agreement of the relevant landowner, as SP Transmission does not have the power to acquire land for mitigation purposes.
- LV36, Cocksburn Wood*
- 5.2.3 The dismantling of the existing 132kV overhead line through this small area of woodland provides an opportunity for replacement planting within the former

wayleave corridor, using a mix of native trees and scrub planting. If considered appropriate, improved facilities for picnicking could also be provided in this area.

- 5.2.4 This planting mitigation would assist in enhancing the local landscape character, including the visual amenity of this local area, and would comply with the ES mitigation measure L12². Impacts within this area were identified as moderate adverse on visual amenity for users of the minor road in this area; this planting mitigation would not, however, reduce these impacts to below significant.

LV31, Witches Craig Caravan Park

- 5.2.5 The angle tower TD203 would be a prominent feature in views from within the caravan park and an area of planting has therefore been proposed adjacent to the north-western boundary, to assist in screening views of this tower. This would comprise a mix of deciduous and evergreen native trees and scrub planting, reflecting the character of the nearby Yellowcraig Wood.
- 5.2.6 This planting mitigation would assist in enhancing the local landscape character and visual amenity of this area. It is provided in response to the commitment made at the Public Inquiry, and would assist in addressing SNH's concerns regarding potentially significant visual impacts on users of the caravan park. It is considered that this planting, once established, would provide screening to the lower section of tower TD203, with visual impacts for users of the caravan park assessed as minor adverse.

LV32, Logie Kirk

- 5.2.7 Planting is proposed along the western boundary edge of the cemetery at Logie Kirk in order to enhance the appearance of this area and provide some limited screening of the overhead line as it passes close to this area. This mitigation is provided in response to the commitment made at the Public Inquiry, to address the moderate adverse landscape and visual impacts identified for this area.
- 5.2.8 It is considered that this planting, once established, would provide screening to the lower section of tower TD203. Landscape and visual impacts for receptors in this area would reduce from moderate (significant) to minor adverse (not significant).

LV37, A91, Logie to the A907

5.2.9 Roadside hedgerow planting (including hedgerow trees) is more limited within the northernmost section of the A91 and it is proposed that new hedging and additional hedgerow trees be planted adjacent to the road in this area. This would assist in screening views towards the angle and line towers that are located parallel to the road (TD204-TD206).

5.2.10 This planting mitigation would enhance the local landscape character and visual amenity, assisting in screening views of the lower sections of the towers east of the A91 (TD204-TD206). The moderate adverse impacts on visual amenity in this area would be reduced to minor adverse. Appendix A, Figure A-10, illustrates this potential effect.

LV38, Powis House

5.2.11 The 400kV overhead line crosses over the access road into the Powis House area a short distance to the east of the point where the existing 132kV line crosses this road. It is proposed that replacement tree planting be provided to reinstate the 'avenue' once the 132kV line has been dismantled (see also Appendix B, Figure B-3). The existing trees include some over-mature specimens which would also benefit from being replaced.

5.2.12 This planting mitigation is provided in response to a commitment made at the Public Inquiry and wayleave hearing for this property. There would be some enhancement of the local landscape character as a result of the implementation of this mitigation, but in itself, this would not be sufficient to reduce the wider impacts in this area to below significant.

LV39, Manorneuk

5.2.13 A mix of native trees and scrub / shrub planting is proposed adjacent to the westbound (southern) carriageway of the realigned A907, on the approach to the roundabout junction with the A91. In addition, hedging and hedgerow trees are proposed on the field boundary on the north side of the closed off section of road, west of Manorneuk.

5.2.14 This planting mitigation is provided in response to a commitment made at the wayleave hearing for this property, in addition to the identification of adverse visual impacts on road users in this area. There would be some enhancement of the local landscape character and visual amenity as a result of the implementation of this mitigation and it is considered that, once established, this would permit a reduction in the level of visual impacts on road users in this area, though the major adverse impacts on the property at Manorneuk would remain.

LV28, A9, Carbrook Mains

5.2.15 As required by SNH and confirmed during the Public Inquiry, roadside tree and scrub planting is proposed adjacent to both sides of the A9 in the Carbrook Mains area, in order to enhance the landscape character of this area and provide some roadside screening of the existing and proposed high voltage overhead lines crossing through this area. Tree species would not be planted beneath the overhead lines, however.

5.2.16 The implementation of this mitigation would, once the planting is established, reduce the level of adverse impact from the proposed 400kV line, on the visual amenity of road users in this area, from moderate to minor adverse (not significant).

LV29, Denny substation

5.2.17 Although the proposed Denny substation lies outwith the limits of Condition 19, it is relevant to note the tree and scrub planting that is proposed in the vicinity of the substation site, which would enhance the landscape character of the local area and provide local screening of the substation equipment.

5.2.18 This mitigation would, once established, reduce the potential for views of the substation site from the nearby local road; however, the 'wirescape' effect identified in this area would remain.

5.3 Undergrounding of lower voltage transmission / distribution lines, Stirling area

Condition 18

5.3.1 The Scottish Ministers, as part of the conditions of consent for the proposed Beauldy Denny overhead line, require the following works to be undertaken:

- removal of the two lattice steel towers east of Cambuskenneth, used in order that a 33kV line can cross the River Forth;
- removal of three sections of 132kV double circuit overhead lines in the area east of Stirling and west of Fallin (a total of 19 towers within the Stirling 'T' and AB routes), replacing the overhead lines by underground cables; and
- undergrounding of the wood pole distribution lines in the Manor Powis area.

5.3.2 The removal of, in particular, the lattice steel towers from the area between Stirling and Fallin, in addition to the eventual dismantling of the 132kV Beauldy Denny line, will make a substantial contribution to the enhancement of the environment in this area. 21 towers would be removed and only the 12 towers of the proposed 400kV line would be present within the area of the River Forth / Fallin / eastern edge of Stirling. This would remove the adverse wirescape effect on the western edge of Fallin, as identified within the landscape and visual chapters of the Beauldy Denny ES. Figures D-1 to D-3 of Appendix D illustrate the changes that would arise within the views from the eastern edge of Stirling and from the western edge of Fallin, as a result of this undergrounding.

Undergrounding of distribution lines in the Stirling villages

- 5.3.3 A number of the villages in the area east of Stirling are, or have been supplied with electricity using wood poles on which the conductors are arranged vertically, instead of the more usual horizontal arrangement of wires. This has the effect of making these overhead lines considerably more prominent than might otherwise be the case, particularly where the wires are green in colour.
- 5.3.4 As these distribution lines reach the end of their economic life, Scottish Power has been implementing a rolling programme of replacing these with underground cables and in recent years this has been undertaken within the villages of Fallin, Plean and Cowie.
- 5.3.5 There are visual benefits from undertaking this work and this can be seen within those villages where such works have been completed.
- 5.3.6 Although these distribution lines are smaller in scale than the proposed 400kV towers, their locations within villages make them visible to large numbers of local people at all times when they are out and about. Their undergrounding is therefore

of substantial benefit for these people, though it does not of itself reduce the visual impact of the proposed 400kV line.

Undergrounding of low voltage / distribution lines in the Stirling area during the construction of the Beauldy Denny line

5.3.7 A number of existing low voltage (LV) distribution lines in the Stirling area pass beneath or close to the existing 132kV lines (the CN and AB routes, see Figure 1) one of which (the CN route) is to be dismantled as part of the Beauldy Denny project. These LV lines will require to be diverted (in some form or other, but usually by undergrounding) in order to meet the health and safety requirements of the construction programme for the Beauldy Denny line. In some instances these will be permanent arrangements, though the general preference is for lines to be returned to overhead, on completion of the construction. These restricted sections of undergrounding will make a very limited contribution to a reduction in wirescape, and as such may also make a small contribution to the enhancement of local landscape character, and visual amenity.

5.3.8 The requirements for construction undergrounding in the Stirling area are described briefly, below.

Logie crossroads area

5.3.9 Two short sections of 11kV line on the south side of the A91 are required to be undergrounded, where these pass beneath the existing 132kV line and the proposed 400kV line.

5.3.10 These are positioned either side of an existing section of undergrounded 11kV line serving the Logie Villa property and will therefore provide an enhanced environment locally, in the area to the east of the roundabout.

Powis House

5.3.11 An existing 11kV line passes beneath the existing 132kV (and proposed 400kV) line to the north side of the access road into the Powis House area and four spans of this would require to be placed permanently underground, for construction safety reasons.

5.3.12 This will remove a short section of wood pole line from views of users of the A91 and from views of those using the Powis House access track, and will also improve the ability to work the field within which these poles are sited.

Manorneuk

5.3.13 In the area west of Manorneuk, an existing 11kV line runs on the northern side of the truncated road and at its western end, will require to be undergrounded in the section beneath the proposed Beauldy Denny line.

5.3.14 In the area to the south of this, some further undergrounding of two spans of a double circuit 33kV wood pole line on the south side of the Alloa railway line is also required for construction purposes.

5.3.15 There would be some very localised benefit from the removal of these sections of lower voltage lines.

Bolfornought

5.3.16 LV undergrounding is required in the Bolfornought area, for the two spans of line where this passes beneath the existing 132kV CN route, which is to be dismantled.

Burnbank – Burnhead area

5.3.17 Part of an existing LV line requires to be undergrounded on a permanent basis in the area between Burnhead Farm and Burnhead Cottage, where this would pass beneath the proposed Beauldy Denny line. This line runs to the west of the minor road in this area and the wood poles are a noticeable feature in the view from this road.

Carbrook Mains area

5.3.18 In the area of the existing 275kV lines north of Carbrook Mains and east of the A9, there is a requirement to underground a section of the existing LV line, to the north and south of Plean Burn. Five spans of line would be placed underground in this area.

Plean industrial estate area

- 5.3.19 South of the Plean industrial estate, to the west of the A9, short sections of two existing 11kV lines are required to be placed underground, where these would run beneath the proposed Beaully Denny line.

5.4 Forest Design Concepts

- 5.4.1 Forest Design Concepts have been developed for all key areas of forestry throughout the Beaully Denny route, and were the subject of discussion at the various local sessions of the Public Inquiry in 2007.
- 5.4.2 In the Stirling area, the main area of woodland for which a Forest Design Concept has been developed is the area of Yellowcraig Wood, on the Ochils scarp slope (ref. FS094), where some tree clearance will be necessary in order to accommodate the revised positions and increased heights of the towers proposed within this area.
- 5.4.3 The proposed line is situated immediately to the east of the existing 132kV line, which will be dismantled following the commissioning of the 400kV line. The line passes through a natural cut in the escarpment, through a predominantly broadleaf, mixed species woodland. The objective with regard to tree clearance in this area (as elsewhere) will be to minimise the number of trees to be felled. In addition, discussions will be held with the landowner to encourage additional shrub and scrub planting within the areas where trees have been felled, so as to provide linkages across the area for wildlife, and in order to limit visual impacts for the scarp slope, particularly as it is viewed from the floor of the carse, to the south. Use of species with dramatic leaf colours could provide a visual distraction within the area, taking the 'eye' of the viewer away from the towers.
- 5.4.4 It is proposed that by limiting the felling of trees and through the retention of lower growing shrub species, the visual impact of the development on the woodland can be minimised.
- 5.4.5 A review of the tree cover present within this area, compared with profile drawings of the positions of the towers and conductors, meant that the extent of area to be felled was able to be reduced, from an initial area of 2.3ha, to 1.57ha.

- 5.4.6 As noted above, detailed proposals for additional planting in this area will be developed in consultation with the landowner, to ensure that impacts on the scarp slope are minimised.

6 THE POTENTIAL FOR VISUAL MITIGATION IN THE STIRLING AREA

6.1 Introduction

- 6.1.1 A range of measures to mitigate the visual impacts of the proposed 400kV overhead line in the Stirling area have been under development since the time of the Environmental Statement (ES) assessment and Addendum, as described in section 5, above. The requirement to provide visual mitigation of the overhead line in the Stirling area (Condition 19) extends the need to develop such measures; as noted in section 1, this requirement has been interpreted as including both landscape and visual mitigation. The Scottish Government, in its briefing note issued to SP Transmission (SPT) on 28 January 2010, envisaged a range of measures (re-routing, re-sizing of towers, undergrounding and screen planting) and these are addressed in the following paragraphs. In addition to these, SPT has explored other potential measures in order to meet the objective of this condition and these are also described below.
- 6.1.2 It is recognised that it is difficult to screen electricity transmission towers that may be between 55m and 60m in height. Planting can provide some screening benefit, more particularly where this is located close to the viewer, and can assist in screening views of the bulkier base of towers (particularly angle towers). In general, though, it is recognised that planting will not provide an appropriate solution in every instance. Careful routing of the line, from the route selection process onwards, is acknowledged as the most effective means of mitigating potential adverse effects on the environment and people of an area.
- 6.1.3 Following the Public Inquiry in 2007, the Reporters concluded that, with the exception of two specific locations, the route for the proposed 400kV overhead line “was logical and justified” and that “none of the strategic alternatives considered would offer the same balance of advantages as the Beaulieu Denny proposal”. The Scottish Ministers have granted consent for the overhead line in its entirety, between Braco and Denny North.

- 6.1.4 Other forms of mitigation / compensation can include the removal of other electricity transmission lines from within a landscape. This has the beneficial effect of reducing the number of vertical structures within the view, and also removes features which would otherwise add emphasis to the greater height of the proposed 400kV towers, within the landscape.

6.2 Re-routeing of the proposed 400kV overhead line

- 6.2.1 The proposed 400kV overhead line is required to run between Braco and Denny; to achieve this, the line must run either to the west or to the east of Stirling. As noted above in section 2 of this report, the decision was made at an early stage of the routeing of the proposed overhead line, to run to the east of Stirling. There is no justification for this decision to be altered at this stage and the Scottish Ministers have consented the construction of the 400kV line in the Stirling area.
- 6.2.2 In their summary chapter to the Scottish Ministers (Beauldy Denny Report volume 6, Summary of Conclusions, & Recommendation, para. 1.8.5) the Reporters concluded that the route for the proposed 400kV overhead line “was logical and justified” and that “none of the strategic alternatives considered would offer the same balance of advantages as the Beauldy Denny proposal”.
- 6.2.3 As such it would seem illogical for the proposed 400kV overhead line to be re-routed in the Stirling area. Any such substantial alteration, taking the line outwith the agreed Limits of Deviation, would not result in a reduction of impacts overall and would not reduce the potential for adverse impacts on the visual amenity of the Stirling area.
- 6.2.4 Re-routeing of the proposed 400kV overhead line is not therefore an option that should be pursued.

6.3 Re-sizing of towers

- 6.3.1 Re-sizing of the towers has been suggested by the Scottish Government as a possible mitigation of the visual impact in the Stirling area. A reduction in the height of the towers could reduce the potential for adverse visual impacts, in some locations, but may give rise to adverse impacts in other areas.

Low-height towers

- 6.3.2 The use of low-height towers, as opposed to the standard lattice steel towers, was considered during the Stirling local session of the Public Inquiry (at the request of SNH), as a possible means of descending the Ochils scarp slope whilst limiting the visibility of the towers, in views from the Carse of Forth, in particular.
- 6.3.3 Section 9.9 of the SNH Response Report (APL/INV-5) addressed this aspect. The use of these towers had been considered in the study undertaken for SHETL by MTLA and Envision in 2004 (Inquiry document reference APL-5/7 and 5/8). Typically these are about 10m shorter than the conventional lattice steel towers, with a very much wider lower crossarm (about 60% wider than usual) (see Figure 5). There are various technical constraints associated with the use of these towers (for instance, they cannot be used for changes in direction greater than 30°) and they are unsuitable for use in hilly terrain (such as the Ochils) where there might be a requirement for additional ground clearance in order to maintain safety requirements. In addition, a heavier than standard tower is required for the transition between standard and low-height towers, which adds to the potential for adverse visual impacts.
- 6.3.4 The report concluded that the use of these towers to descend the Ochils scarp would not be appropriate and would result in increased adverse impacts, including visual impacts due, in particular, to the greater extent of tree clearance required to accommodate the wider lower crossarm.
- 6.3.5 Within the remainder of the area to the east of Stirling, the use of low height towers would be equally inappropriate, due to:
- the numerous changes in direction of the proposed line, a number of which are at angles in excess of 30° (for which low height towers are unsuitable);
 - the undulating nature of much of the terrain, particularly in the area between Cowie and Plean (which would require towers of an increased height);
 - the use of these towers would be out of character with other overhead transmission lines present within this general area;
 - the additional 'bulk' of the larger, lower crossarms of these towers adds to their visual impact; and

- the shorter heights of these towers would require a greater number of towers to be used, compared to the taller standard lattice steel tower, which would increase their prominence within the landscape.

Reduced heights of consented towers

- 6.3.6 Another alternative, remaining with the type of lattice steel towers as proposed, would be to reduce their heights from that proposed; however this would not reduce the overall level of visual impact since (as noted above) an increased number of towers would be required, to compensate for the reduction in height of the towers. In addition in some areas the vertical clearance required for health and safety reasons would mean that taller towers would remain a requirement of the scheme.
- 6.3.7 The design of the proposed 400kV overhead line has sought, throughout the length of the scheme, to achieve a balance between the numbers of towers proposed within the route and their heights.
- 6.3.8 As such it is considered that there would be no benefit to the landscape or visual amenity of the area from the re-sizing of towers within the proposed overhead line and that this is not therefore an option for mitigating the visual impact of the line in the Stirling area.

6.4 Undergrounding

- 6.4.1 Undergrounding is also referenced within the Scottish Government's briefing note in respect of the Stirling Visual Mitigation Scheme. The implications of this, for landscape and visual amenity, are considered below.

Undergrounding of the 400kV transmission line

- 6.4.2 The undergrounding of sections of the proposed 400kV line was discussed extensively as part of the Beaully Denny Public Inquiry, including at the Stirling local session, where consideration was given to the undergrounding of the proposed overhead line in two broad areas: the descent of the Ochils scarp, and on a new route to the west of Stirling.
- 6.4.3 In their report to the Scottish Ministers (Beaully Denny Report Volume 6, Summary of Conclusions, & Recommendations), the Reporters concluded that, for the Stirling

section of the route, undergrounding (and/or alternative routeing) is not justified (para. 1.6.31 refers), on the grounds of cost, technical difficulties and the limited environmental benefits.

- 6.4.4 Nevertheless, SP Transmission has undertaken a further review of undergrounding in the area to the east of Stirling and this is addressed in a separate report: *'Undergrounding in the Stirling Area of the Beauldy Denny 400kV line'* and forms part 2 of this Consultation Report. The conclusion drawn from the undergrounding report is that, after having explored the issue again, with the input of expert advice, SP Transmission considers that there has been no change in circumstances which would allow the decision not to underground to be revisited. Undergrounding of the 400kV overhead line is not considered to be an efficient and economic development of the transmission system, therefore undergrounding of the 400kV overhead line does not form part of the mitigation proposals recommended for the Stirling Visual Impact Mitigation.

Extended undergrounding of low voltage / distribution lines in the Stirling area in relation to the construction of the Beauldy Denny line

- 6.4.5 As noted above in section 5.3, para. 5.3.7, the construction of the Beauldy Denny 400kV line requires some low voltage and distribution lines to be placed underground, for construction reasons.
- 6.4.6 This programme of construction crossings has been reviewed and it is proposed, in some instances, that the works are extended in order to increase the benefit to local landscape character and visual amenity, within the area of the line crossing. These, and other areas where undergrounding of low voltage lines is also proposed in order to benefit the landscape and visual amenity, are described briefly, below.

Logie roundabout area – Logie Kirk

- 6.4.7 Although there is no requirement on safety grounds for undergrounding in this area, it is considered that it would be beneficial to the setting of the church and its surroundings, if the existing distribution wires (green, vertical arrangement of conductors) were to be undergrounded in this area.
- 6.4.8 The landscape and visual assessment identified a moderate adverse impact on the landscape character and visual amenity of this area and the removal of these

overhead line wires would assist in mitigating these impacts. Figures B-1 and B-2 of Appendix B provide two illustrations of the effect of removing these wires, from the views of the church.

- 6.4.9 The church is an important building within the local area and the removal of the existing 'wirescape' from the entrance area will assist in offsetting the presence of the 400kV line further to the east.

Logie roundabout area – Witches Craig caravan park

- 6.4.10 As noted above in section 5.3, there will be a requirement to underground two sections of the existing LV wires (arranged vertically on poles) in the area to the west and east of Logie Villa. It is proposed that this is extended westwards, west of the roundabout and eastwards, to include the section of line to the front of, and entering the caravan park, from the A91. This would extend the benefit to the visual amenity of road users in this area, as well as for people staying in the caravan park.
- 6.4.11 The moderate adverse impacts on landscape character and visual amenity identified in this area would be partially mitigated by the removal of these wires (particularly when taken in combination with the planting proposed for this area, as described above in section 5.2).

Powis House

- 6.4.12 As noted in section 5.3, an existing 11kV line passes beneath the existing 132kV (and proposed 400kV) line to the north side of the access road into the Powis House area and is required to be placed permanently underground, for construction safety reasons. There would be increased benefit to the visual amenity of the occupants of the properties in this location, to the continued / better establishment of the avenue of trees, and to the working of the field, if this undergrounding were to be continued to both the north and south, by 100m, extending to the southern side of the access track. This has therefore been proposed. Figure B-3 of Appendix B provides an existing and proposed illustration of this, including the proposed additional tree planting in this area (LV38, as described in paras. 5.2.11-12, above).
- 6.4.13 The avenue of trees is an important local feature and its enhancement will add to the enhancement of the local landscape character.

Manorneuk

- 6.4.14 In the area west of Manorneuk, as noted in section 5.3, an existing 11kV line runs on the northern side of the truncated road and a short section of this will require to be undergrounded, where this passes beneath the proposed 400kV line. It is proposed that this undergrounding is extended east as far as the public road (to the west of the stream) as this will assist with the landscape planting mitigation proposed in this area (LV39, as discussed above). There would also be some benefit to the visual amenity of the property, though the main outlook is to the west.
- 6.4.15 Also as noted in section 5.3, a short section of the double circuit 33kV wood pole line south of the Alloa railway line, to the south of this property, requires to be undergrounded. It is proposed that this undergrounding is extended, to the north and south. This will add to the landscape and visual benefit in this area, with the removal of up to 14 wood pole structures from within this area, which forms part of the principal view from this property.
- 6.4.16 Figures B-4 and B-5 of Appendix B provides an illustration of the undergrounding proposed in these areas, as existing and proposed images. It is considered that this undergrounding, in combination with the landscape mitigation planting proposed for this area (paras. 5.2.13-14 refer), would reduce the effect of the proposed 400kV overhead line from major to moderate adverse, for the property at Manorneuk.

Bolfornought

- 6.4.17 As noted in section 5.3, some LV undergrounding is required in the Bolfornought area where this passes beneath the existing 132kV CN route. It is proposed to extend this, westwards to the north side of the access track in this area (west of the cottage), in order to enhance the visual amenity for the residents in this area, though this would not reduce the adverse impact of the proposed 400kV line in the area further to the east.

Burnbank – Burnhead area

- 6.4.18 As noted above in section 5.3, a short section of the existing LV line requires to be undergrounded on a permanent basis in the area between Burnhead Farm and Burnhead Cottage, where this would pass beneath the proposed Beauldy Denny line. The existing LV line continues north-east alongside the minor, but well-trafficked

local road and extends into the property at Burnbank. It is proposed that this undergrounding be extended northwards, including the section into Burnbank, in order to enhance the visual amenity of the local area generally, as well as for road users and the occupants of the three properties in this area. Figure B-6 of Appendix B provides an illustration of this, as existing and as proposed.

- 6.4.19 The landscape and visual impact assessment identified adverse impacts on visual amenity for road users and residents in this area and the proposed undergrounding of the LV line would assist in partially mitigating these impacts, though it would not reduce the identified impacts of the proposed 400kV line.

Carbrook Mains area

- 6.4.20 In the area north of Carbrook Mains and south of Plean, there are a number of wood pole distribution lines crossing the fields in the vicinity of the existing 275kV lines (and the proposed Beaully Denny line), some of which require to be placed underground during construction (as noted above in section 5.3). There would be benefits to the general visual amenity of this area from an increased reduction in the number of electricity-related structures, even though the ones to be removed would be the smaller of those present. It is therefore proposed that this undergrounding is extended northwards. This is illustrated on Figure B-7 of Appendix B.

- 6.4.21 Although this would not remove the impacts associated with the proposed 400kV line, the reduction in wirescape within this area, in combination with the provision of additional roadside planting (LV28, as referenced in paras. 5.2.15-16), would assist in mitigating the adverse effects of the proposed overhead line.

Plean industrial estate area

- 6.4.22 South of the Plean industrial estate, some of the existing 11kV lines are required to be placed underground where these would run beneath the proposed Beaully Denny line (as noted in section 5.3, above). The existing wood (H) poles are sited on a localised ridge and are therefore relatively prominent in views from within the industrial estate. It is proposed to extend this undergrounding so that the retained wood poles are off the ridge line and less prominent, in order to benefit the local visual amenity, though this would not remove the effects of the proposed 400kV line in this area.

6.5 Screen planting / landscape improvements

- 6.5.1 As noted above, screen planting can provide some mitigation against the adverse landscape and visual impacts of the proposed 400kV line, though the benefits of this are greatest when the planting is located close to the visual receptor. This may not always be appropriate, however, as such planting may also result in other / wider views being blocked.
- 6.5.2 A number of measures to provide planting mitigation have already been proposed, as described in section 5.2, above. Additional planting or other landscape mitigation measures will continue to be developed as opportunities arise as part of the ongoing progression of the Beaully Denny project. As noted at para. 5.2.2, this will be dependent on consent being obtained from the relevant landowner, as SP Transmission does not have the power to acquire land for mitigation purposes.
- 6.5.3 The following paragraphs describe the types of planting mitigation measures proposed in order to address the requirements of Condition 19. Other types of mitigation measures are considered in sections 6.6 and 6.7, below. The locations of these are indicated on Figure 4.

Opportunities associated with construction activities

- 6.5.4 In some areas the construction activities associated with the proposed 400kV overhead line will result in disturbance to the ground conditions and the provision of laydown areas and construction compounds will similarly require areas to be reinstated on completion of the works. There would be scope to provide additional enhancement of these areas as part of this reinstatement.
- 6.5.5 One area where such measures could be provided is in the area of TD198 and TD199, west of Dumyat. There would be construction disturbance to this area from the provision of a new angle tower and the requirement to access the upper part of the Ochils scarp from this area. As part of the reinstatement of this area, there would be scope to improve the parking arrangements and the appearance of the landscape in this area. This could include reinstatement of stone boundary walls, provision of stiles, additional tree planting and surfaced parking areas (using grass reinforced geogrid, or similar), to ensure that the rural character of the area is maintained and enhanced.

- 6.5.6 In addition, it could be possible, subject to the agreement of the landowner, to provide a gravel or stone surfaced footpath link from the parking area in Cocksburn Wood, to the access points onto the footpath network, to avoid the need for people to walk on the road, through this area.
- 6.5.7 Figure C-1 of Appendix C provides an illustration of the type of works that could be undertaken in the Dumyat area, as existing and as proposed.
- 6.5.8 The implementation of such measures would not reduce the impact of the proposed overhead line, but would considerably enhance the landscape character and visual amenity of this local, but widely visited area.

Other opportunities for planting mitigation

- 6.5.9 Other areas where planting could be undertaken with the objective of assisting in screening or softening views of the proposed overhead line, in areas where significant adverse effects were identified, are:
- within the streamside / south-western boundary of the open space area to the south-west of Fallin, near South Cockspow: additional tree planting in the area would assist in screening views of towers passing to the west and south-west of Fallin. This would partially mitigate the adverse visual impacts of the proposed overhead line in this area; depending on the extent of planting undertaken in this area, impacts could reduce to minor adverse in the longer term;
 - on the southern side of the A905 to the east of Fallin / west of Throsk, which is very open at present: roadside field boundary hedging and hedgerow trees would enhance the local landscape character and would assist in screening views towards the proposed overhead line as it passes to the south of this area (see Figure C-2 of Appendix C). This would partially mitigate the adverse visual impacts of the proposed overhead line in this area and could be sufficient to reduce impacts to minor adverse, in the longer term;
 - on both sides of the minor road (Kersie Road) between the A905 and Cowie, where space permits and where this would not obstruct sightlines for motorists: roadside field boundary hedging and hedgerow trees would enhance the local landscape character and would assist in screening views of the proposed overhead line as it crosses this road from west to east. Figure B-6 of Appendix B illustrates this proposed mitigation. In combination with the proposed

undergrounding of the LV line in this area, this could assist in reducing the section of road within which significant (moderate adverse) impacts would be experienced to the section of road closest to the proposed 400kV overhead line, with impacts reduced to minor adverse elsewhere;

- on both sides of the National Cycle Route 76 where it runs south-east from Cowie and south towards Whitehill and Plein Tower: field boundary hedging and hedgerow trees would enhance the local landscape character and would assist in screening views of the proposed overhead line in this area. In areas where the boundary with the track comprises stone walls, tree planting (as groups of trees) would be proposed. This would partially mitigate adverse visual impacts of the proposed line, though these would remain significant in this area; and
- roadside tree planting adjacent to the minor road south of Dales Wood and west of the proposed substation site would assist in screening views of the existing (and proposed) towers present in this area, though the wirescape effect would remain.

6.5.10 Outline plans illustrating these proposals for planting mitigation are included in Appendix C (Figures C-3 – C8). If considered appropriate, more detailed proposals would be developed for these (and any other) areas, similar to those provided in Appendix A.

6.6 Other works to towers

Tower painting

6.6.1 Other works that could be considered in respect of the towers required for the proposed 400kV overhead line include painting of the towers in order to reduce their potential landscape and visual impact.

6.6.2 This was addressed within the study undertaken for SHETL by MTLA and Envision in 2004 (Chapter 12, Inquiry document reference APL-5/7 and 5/8). This study concluded that the painting of towers introduced a number of difficulties, not least that of matching the colour to the background of / backdrop to the tower, which could be different, for the same tower, in different views.

6.6.3 The study concluded that the standard grey colour of new or repainted towers provides the best compromise of colour to reduce the visibility of towers. Although

it is generally too dark to be effective against the colour of the sky, the colour works well against all but the darkest of terrestrial backcloth, and in a range of weather and lighting conditions (APL-5/7 para. 12.6.2).

- 6.6.4 It is therefore considered that there would be no benefit to the landscape or visual amenity from the painting of the majority of the towers in the Stirling area. There are, however, some specific locations where it may be beneficial to alter the colour of the towers, in order to improve visual amenity.
- 6.6.5 One such location is the Ochils scarp. The sensitivity of this location has been recognised in evidence to the Public Inquiry and in the Reporters Report to the Scottish Ministers and the three towers positioned at the base of, and on this scarp slope have the potential to be prominent, visually, for receptors located within the floor of the carse, at the foot of the slope, or in elevated positions such as in views from the Wallace Monument or Stirling Castle. Painting all or part (i.e. the base) of the towers a darker grey colour would assist in reducing their prominence within such views. More detailed consideration would be required in order to determine the precise extent to which these three towers should be painted, in order to maximise this reduction in their prominence. The implementation of this measure would be of benefit in reducing the landscape and visual impacts of the line in this area, from moderate to minor adverse.
- 6.6.6 A further location where tower painting may be of benefit to local visual amenity is where the proposed Beaulieu Denny line would run parallel to the two existing 275kV transmission lines, from the Carbrook Mains / A9 area westwards. The towers on these existing lines are scheduled to be painted in 2012 and there would be a distinct difference, visually, between these painted towers and the proposed towers (which would be of a much shinier steel), as a result. In order to reduce the prominence of the new section of overhead line, it may be beneficial to consider painting the towers within the section between the “double shuffle” (TD239 / TD240) and TD243/1, west of Glen Road, to match the colour of the re-painted 275kV towers. This would enable all three lines running in parallel to have a consistency of appearance, reducing the scope for the new line to exacerbate the cumulative visual impact from the presence of overhead transmission lines in this area. The visual impact of the proposed overhead line in this area would remain significant, however.

Amendments to existing conductors and insulators

- 6.6.7 Another opportunity to reduce the visual impacts associated with some of the existing transmission infrastructure relates to the two 275kV overhead lines that cross the M9 and A9 to run within the area to the south of Plean, and on into the proposed Denny North substation. These parallel lines are visually very dominant, particularly in the area around Carbrook Mains. The addition of the proposed Beaulieu Denny 400kV line in this area will exacerbate this effect.
- 6.6.8 These existing lines carry conductors in bundles of four (quads), which increase the visibility of the wires due to their square formation within the bundle, which has the effect of adding to the perceived visual weight of the conductors. In addition, the 'X' shaped separators can increase the visual prominence of this type of transmission.
- 6.6.9 It is proposed that these lines would be re-conducted to reduce the numbers of conductors from four (quad) to two (twin), over the section of the route between Powdrake Farm and Denny.
- 6.6.10 This would be of benefit in halving the number of conductors crossing through the area on the existing lattice steel towers, and thereby reducing to some degree the prominence of these lines in the landscape, and their visual impact. This effect is illustrated on Figure B-7 of Appendix B (albeit somewhat obscured by the addition of the 400kV line as a wireline).
- 6.6.11 In addition, it is proposed that the insulators used in this section (which would reduce from two to one, as shown in Figure B-7) be altered to glass insulators, to match those used in the proposed Beaulieu Denny 400kV overhead line. This would also assist in reducing the visual impact of the existing overhead lines.
- 6.6.12 It is considered that the implementation of these measures would also assist in mitigating the landscape and visual impacts associated with the presence of the proposed 400kV line. Although these would remain as moderate adverse, this would be at the lower end of the scale of effects, as a result of the changes to the 275kV lines.

6.7 Other undergrounding proposals

6.7.1 Notwithstanding the difficulties associated with undergrounding of 400kV overhead lines, as noted above, consideration has been given to the potential for mitigation of visual impacts through the undergrounding of lower voltage overhead lines. Some such undergrounding has already been addressed as part of Condition 18, and in respect of requirements for health and safety during construction, as noted in section 5.3, above. Additional undergrounding of existing 132kV transmission lines in the Stirling area could also be of benefit to the visual amenity of the area and this is discussed below.

Additional undergrounding of the existing 132kV transmission line, Fallin to Glenbervie

6.7.2 As noted above in section 5.3, the Scottish Ministers have imposed a condition (condition 18) requiring the undergrounding of part of an existing 132kV double circuit overhead line (the AB line) as part of the consent for the proposed Beauly Denny line. This undergrounding would extend as far as the Hartsmailing / Newmills area, south-west of Fallin and would reduce the 'wirescape' effect that exists in this area, from the presence of both this existing (and retained) 132kV line and the proposed 400kV line.

6.7.3 The AB line continues south to pass to the west of Cowie (resulting in this settlement being 'enclosed' by overhead lines). It then crosses the M9 to the north-east of Plean and passes to the east of Plean (where it crosses beneath the route of the proposed 400kV and existing 275kV lines). The 132kV line then continues south, running close to the A9 in the Torwood area before crossing this road at an oblique angle, west of the Glenbervie golf course.

6.7.4 This existing overhead line therefore makes an extensive contribution to the general presence of overhead lines in the area to the east of Stirling. Its removal would provide considerable benefit to both the landscape character and visual amenity of an extensive area, covering some 7km in length, with an area some 1km in width on either side of this line, likely to be affected by its presence. The removal of the 132kV line would reduce the scope for the taller towers of the proposed 400kV line to be seen in comparison with the shorter towers of the AB line, which would otherwise emphasise the differences between the two lines.

- 6.7.5 The benefits to the local landscape character (using the criteria set out in ES Chapter 23 and relevant appendices) would be to areas of generally low sensitivity, of medium magnitude of effect, giving a minor beneficial effect on the landscape character of the area.
- 6.7.6 There would be beneficial visual effects on road users and residents in the areas of Cowie, Sauchenford Holdings, Plean and Torwood, as well as users of the M9, A9, minor roads in these areas and users of the Falkirk – Stirling railway line through this area from the undergrounding of this line. These would be assessed as benefitting visual receptors of moderate and high sensitivity (using the criteria developed for the Beauly Denny assessment and set out in ES Chapter 24) and would be of medium magnitude of effect, resulting in moderate beneficial effects on visual amenity.
- 6.7.7 There would therefore be considerable benefits to be gained, over a wide area, from undergrounding this existing 132kV double circuit line, including as compensation for the presence of the 400kV line within this general area. It is therefore considered that this undergrounding could make a strong contribution to the Stirling visual mitigation as required by the Scottish Ministers.
- 6.7.8 All of the measures being considered will, however, require to pass the regulatory test set for SP Transmission, in terms of their economic and technical viability, in addition to any environmental benefit that would arise.

7 CONCLUSIONS

- 7.1.1 It has been acknowledged from the outset of the Beauly Denny project that overhead transmission line towers will have an impact on the visual amenity of the areas through which the overhead line route will pass. While careful routeing of the line has sought to minimise this wherever possible, achieving a balance between impacts on landscape character and visual amenity, and other aspects of the environment and technical or economic factors, will mean that in some areas, adverse visual impacts are inevitable.
- 7.1.2 It is relevant to note that, for the Braco to Denny section of the route, the Reporters, in their report to the Scottish Ministers, concluded that overall, the proposed route (other than in the small section close to Glenside) would not have an unacceptable

impact on landscape character and visual amenity (Beaully Denny Report Volume 6 para. 1.6.5). The Scottish Ministers have granted consent for the overhead line in its entirety, between Braco and Denny North.

- 7.1.3 In the Stirling area, the route of the overhead line follows the route of the existing 132kV line through Sheriffmuir and down the Ochils scarp, but is aligned on a new route through the area east of Stirling, in order to avoid identified Major Growth areas within Stirling and to minimise effects on the villages east of Stirling. This route was accepted by the Reporters as the best route for the proposed overhead line, taking a balance of effects (Beaully Denny Report Volume 6 para. 1.6.1). The Scottish Ministers have also accepted this route.
- 7.1.4 Proposals to reduce the visual impact of the proposed overhead line within specific areas, through the provision of localised screen planting, have been developed following the ES and Addendum assessment of effects. Where opportunities arise for additional measures to be developed, as the Beaully Denny project is progressed, (including in response to any specific requests for planting mitigation) these will be considered, where this would provide an appropriate and effective solution, and subject to the agreement of the relevant landowner.
- 7.1.5 Other forms of mitigation have also been proposed to assist in reducing the potential effect of the proposed 400kV overhead line, through a reduction in the number of other (lower voltage) transmission and distribution lines, within the Stirling area. These include the requirement (to be implemented through Condition 18 of the Beaully Denny consent) for undergrounding to reduce the wirescape effect in the area east of Stirling and west of Fallin. In addition, undergrounding of low voltage lines is necessary to address the health and safety requirements of the construction of the proposed 400kV line, and the dismantling of the existing 132kV line and where appropriate, will be extended in order to enhance the visual amenity and landscape character of the local area.
- 7.1.6 Condition 19 requires the development of further measures to mitigate against the landscape and visual impact of the proposed 400kV line. A range of measures are proposed in order to achieve this. These include the proposed enhancement of the landscape character and local amenity as part of the reinstatement of construction activities; one such area where this enhancement is proposed is the area adjacent to the minor road west of Dumyat. Additional areas of tree and hedgerow planting are

also proposed, to enhance the local landscape character and to reduce the potentially significant visual effects of the 400kV overhead line. This additional planting mitigation would (as noted above) be subject to the agreement of the relevant landowner and more detailed proposals would be developed in due course, providing that such agreement can be achieved.

- 7.1.7 The painting of towers on and at the base of the Ochils scarp slope, and in the section of the line running parallel to the two existing 275kV lines, is also proposed as a measure to reduce the visual impact of the proposed 400kV line.
- 7.1.8 Other measures being considered, specific to the requirements of Condition 19, comprise the undergrounding of some 7km of existing 132kV line to the west of Cowie and to the east and south of Plean, and the re-conductoring of the two existing 275kV lines between Denny substation and Powdrake Farm, east of the M9.
- 7.1.9 These measures would significantly improve the landscape and visual environment of the areas concerned; in particular, the proposed undergrounding of the AB line between Fallin and Glenbervie would be of considerable benefit to the area east of Stirling, including beneficial effects on the landscape character and the visual amenity of road and rail users, and residential properties in these areas. In all instances, though, the proposed measures would need to pass the regulatory test to demonstrate that there would be technical and economic justification for the proposals, in addition to the environmental benefits.
- 7.1.10 Although taken individually the proposed mitigation measures may not be sufficient to reduce the level of impact of the proposed 400kV overhead line, when taken as a whole, it is considered that there would be a considerable reduction in the level of adverse impacts on landscape character and visual amenity
- 7.1.11 In conclusion, although the proposed 400kV overhead line will give rise to adverse impacts on visual amenity which, in some areas, will be significant, mitigation measures have been identified to address these. These can be summarised as:
- In the Cocksburn Wood / Cocksburn Reservoir area west of Dumyat, where significant adverse effects have been identified from the presence of taller towers, including an angle tower, mitigation measures are proposed in the form of woodland planting within the clearance corridor of the existing 132kV line, at Cocksburn Wood, and enhancement in the form of improved parking, repairs to

stone walls, new gates or stiles and additional tree planting, in the area of tower TD199. A footpath link from the Cocksburn Wood parking area to the start of the Dumyat path network would also enhance the environment for users of this area.

- On the Ochils scarp slope, a Forestry Design Concept plan will ensure that replacement tree and scrub planting is provided, in order to address the clearance required for construction of the 400kV line in this area. This would include 'feature' planting as a visual distraction from the overhead line towers. Tower painting in this area would also reduce potential visual impacts.
- At the foot of the Ochils scarp slope, removal of low voltage wires and the provision of areas of planting will assist in mitigating against the presence of the proposed overhead line. The painting of the tower located here will also reduce potential visual impacts.
- New roadside hedgerow and hedgerow tree planting proposed on the eastern side of the A91 between the roundabout with the B998 and the entrance to Powis House, in addition to the undergrounding of low voltage lines and enhancement of the tree'd avenue to this area, will enhance the local landscape character and reduce the prominence of the proposed overhead line in views from the road.
- Areas of tree and shrub planting, and hedging, together with the removal of lower voltage overhead lines in the Manorneuk area will assist in reducing the impact of the proposed 400kV line in this area.
- Removal of the existing lattice steel towers crossing the Forth to the east of Cambuskenneth will benefit the visual amenity of properties in this and the Lower Taylorton area.
- Removal of the existing lattice steel towers from the areas to the north, north-west and west of Fallin will reduce the potential for a wirescape effect in this area. Additional planting to the south-west of Fallin will also assist in screening views of towers from this area.
- Implementation of new roadside hedgerow and tree planting to the south side of the A905 between Fallin and Throsk will assist in enhancing local landscape character and reducing the visual impacts of the proposed line.

- There will be beneficial effects from the removal of low voltage wires alongside the minor road between Throsk and Cowie, for the users of this road and properties in this area. If roadside hedgerows and hedgerow trees can also be provided in this area, that would add to the enhancement of the landscape character, in addition to assisting in screening views of the proposed line.
- Removal / undergrounding of the 132kV AB overhead line south of Fallin will remove the 'encircling' effect on Cowie, of overhead lines, in addition to being of beneficial effect on the visual amenity of the wider area, including users of the M9 and A9, and other local roads, and residents on the northern edge of Plean.
- Field boundary hedging and tree planting alongside the minor roads / tracks (forming part of NCR 76) to the east and south-east of Cowie will be of benefit to the local landscape character and will assist in screening views of the proposed line.
- Roadside planting adjacent to the A9 in the Carbrook Mains area, together with undergrounding of lower voltage lines (including the AB line referred to above), and alterations to the conductoring of the existing 275kV lines, will be of benefit to the visual amenity of residential areas / properties and road users in this general area, south of Plean.

7.1.12 As noted above, when taken as a whole, it is considered that these measures will provide considerable benefit to the environment, including the landscape character and visual amenity of the Stirling area.

APPENDIX A

LANDSCAPE MITIGATION PLANTING – PLANS AND SCHEDULES

APPENDIX B

PHOTOGRAPHS OF THE EXISTING WIRESCAPE AND PROPOSED CHANGES FROM REMOVAL OF LOW VOLTAGE WIRES

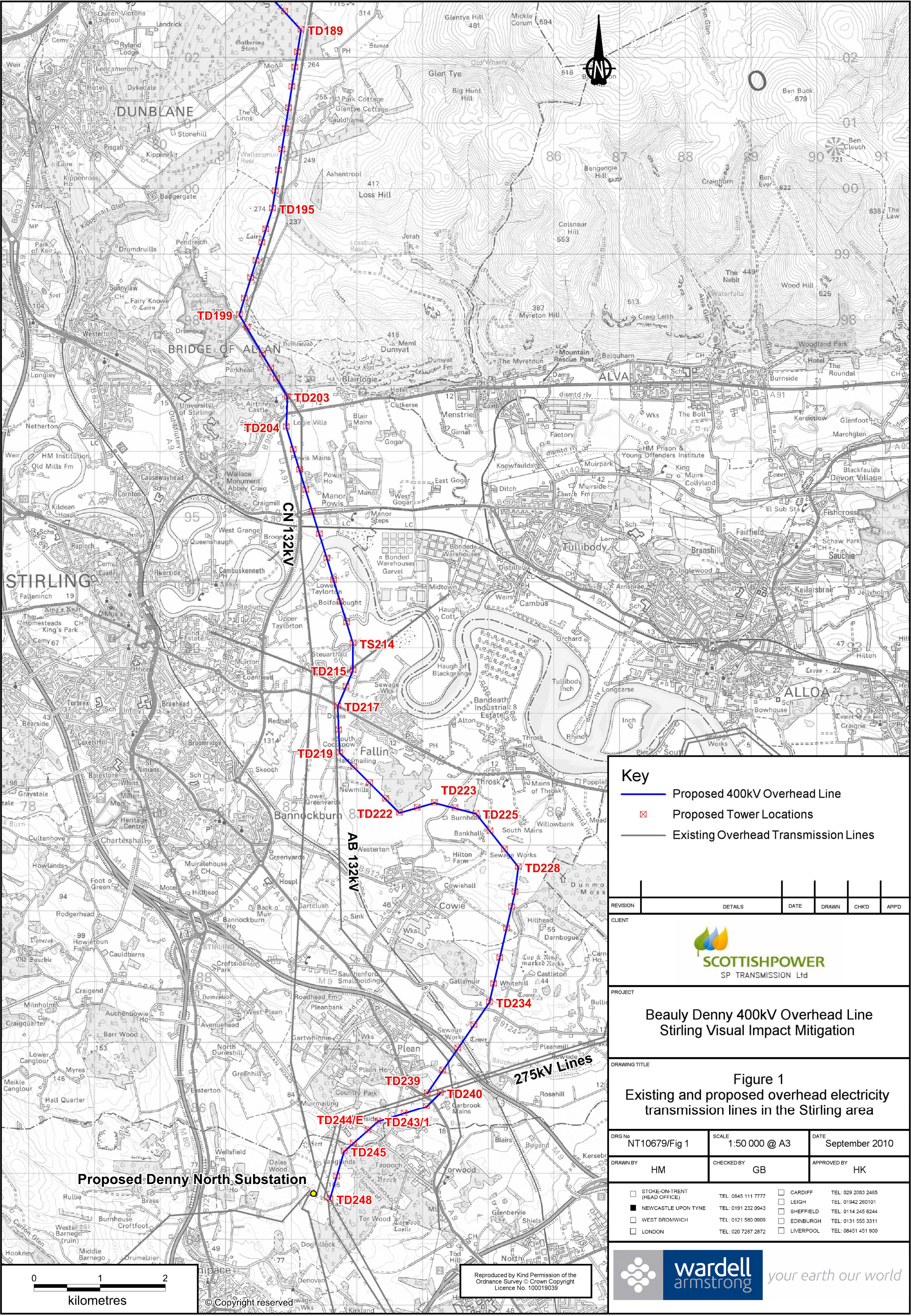
APPENDIX C

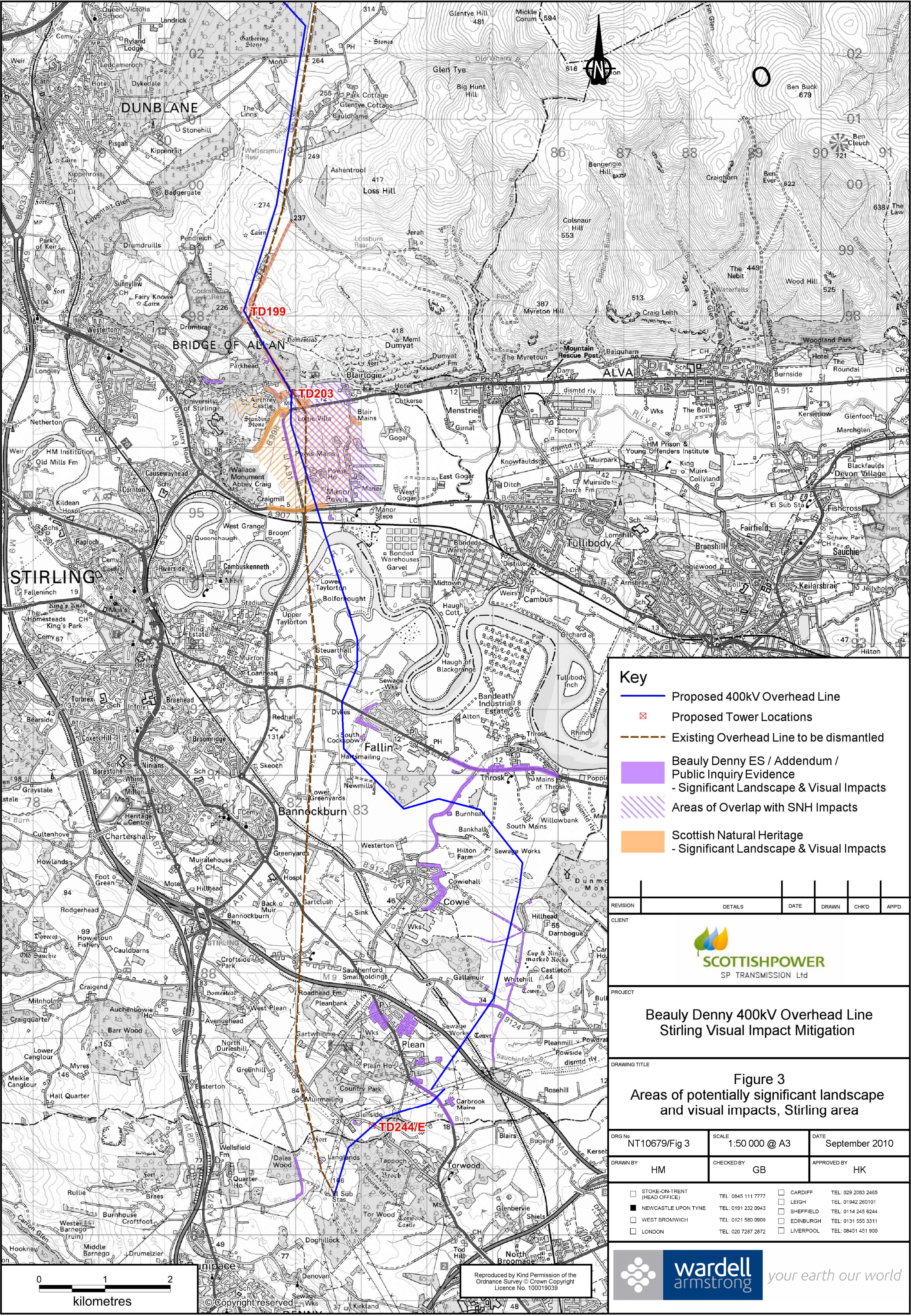
ILLUSTRATIONS OF ADDITIONAL LANDSCAPE AND VISUAL MITIGATION MEASURES IN THE STIRLING AREA

APPENDIX D


ADDITIONAL ILLUSTRATIONS OF THE PROPOSED OVERHEAD LINE

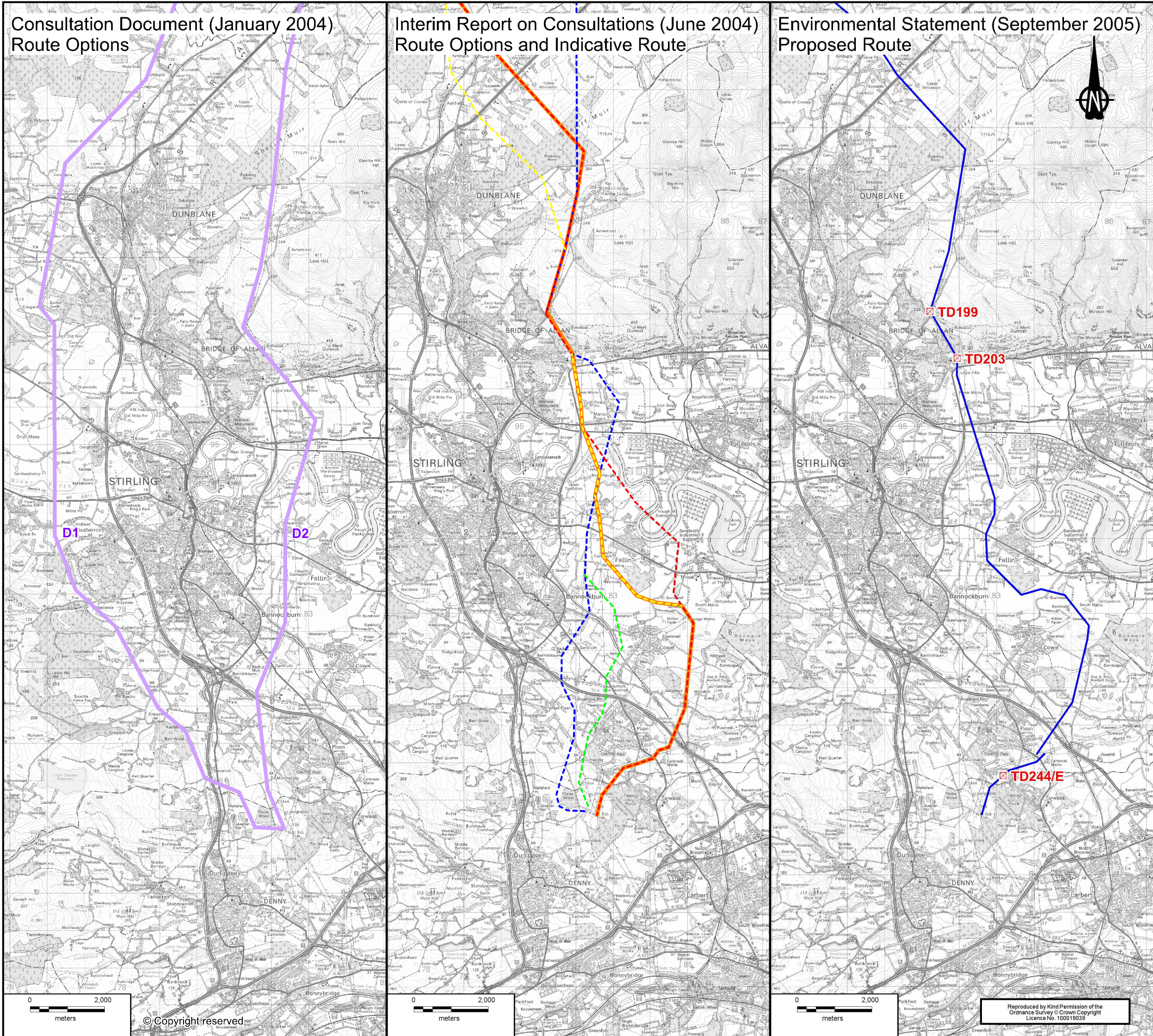
DRAWINGS





- Key**
- Proposed 400kV Overhead Line
 - Proposed Tower Locations
 - Existing Overhead Line to be dismantled
 - Beaulieu Denny ES / Addendum / Public Inquiry Evidence
 - Significant Landscape & Visual Impacts
 - Areas of Overlap with SNH Impacts
 - Scottish Natural Heritage
 - Significant Landscape & Visual Impacts

REVISION	DETAILS	DATE	DRAWN	CHKD	APP'D
CLIENT					
<div> SCOTTISHPOWER SP TRANSMISSION Ltd</div>					
PROJECT					
Beaulieu Denny 400kV Overhead Line Stirling Visual Impact Mitigation					
DRAWING TITLE					
Figure 3 Areas of potentially significant landscape and visual impacts, Stirling area					
DRG No NT10679/Fig 3		SCALE 1:50 000 @ A3		DATE September 2010	
DRAWN BY HM		CHECKED BY GB		APPROVED BY HK	
<div><div><input type="checkbox"/> STOKES-ON-TRENT (HEAD OFFICE)</div><div><input checked="" type="checkbox"/> NEWCASTLE UPON TYNE</div><div><input type="checkbox"/> WEST BROMWICH</div><div><input type="checkbox"/> LONDON</div></div>		<div><div>TEL: 0845 111 7777</div><div>TEL: 0191 232 0943</div><div>TEL: 0121 580 0909</div><div>TEL: 020 7287 2872</div></div>		<div><div><input type="checkbox"/> CARDIFF</div><div><input type="checkbox"/> LEIGH</div><div><input type="checkbox"/> SHEFFIELD</div><div><input type="checkbox"/> EDINBURGH</div><div><input type="checkbox"/> LIVERPOOL</div></div> <div><div>TEL: 029 2083 2465</div><div>TEL: 01942 260101</div><div>TEL: 0114 245 6244</div><div>TEL: 0131 555 3311</div><div>TEL: 08451 451 900</div></div>	




Key

Consultation Document (Jan 2004)
Route Options

Interim Report on Consultations (Jun 2004)
Blue Route Option
Red Route Option
Yellow Route Option
Green Route Option
Indicative Proposed Route

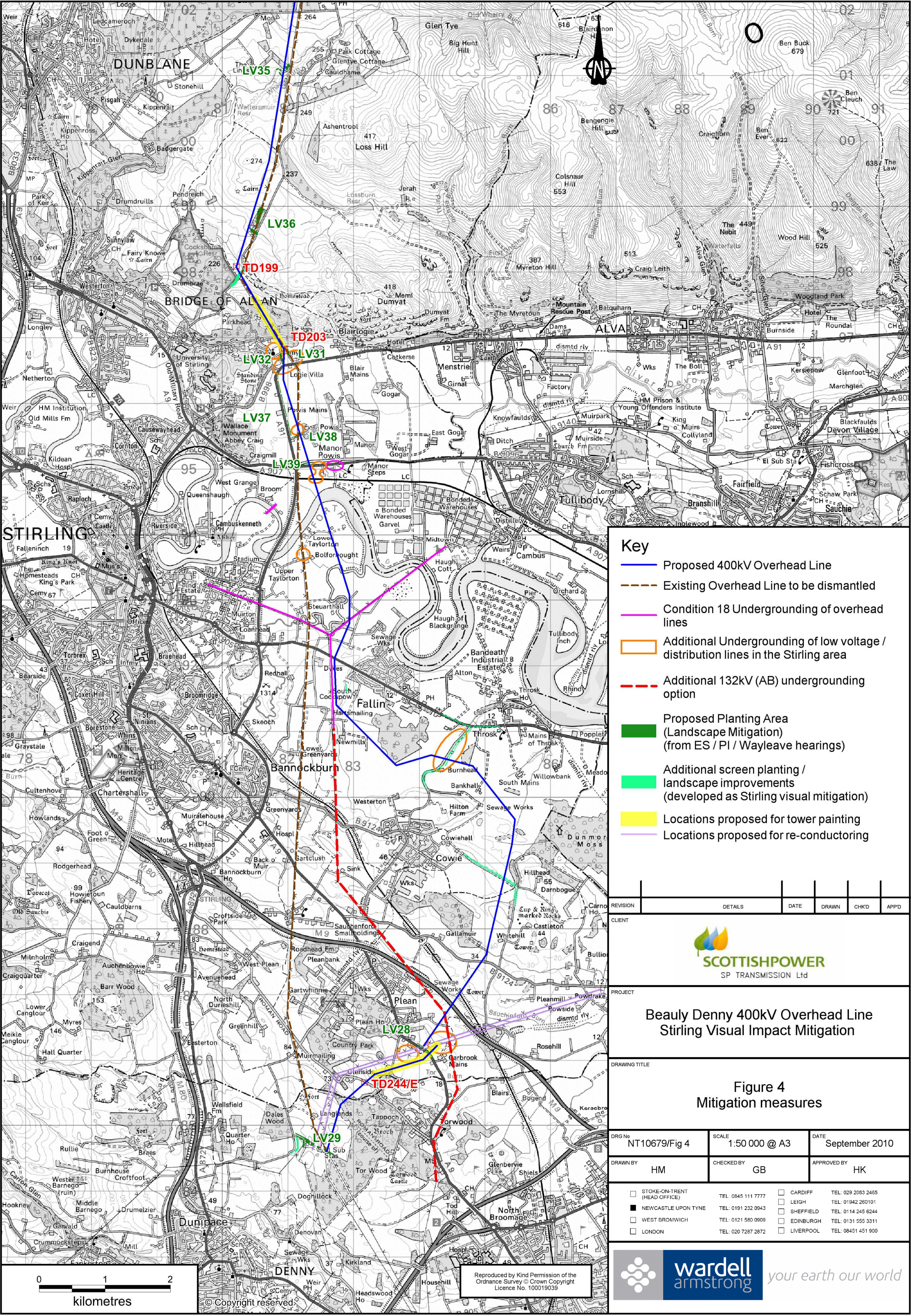
Environmental Statement (Sept 2005)
Proposed 400kV Overhead Line
Proposed Tower Locations

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
CLIENT					
<div><div>SCOTTISHPOWER SP TRANSMISSION Ltd</div></div>					
PROJECT					
Beauldy Denny 400kV Overhead Line Stirling Visual Impact Mitigation					
DRAWING TITLE					
Figure 2 Beauldy Denny alternative routing options in the Stirling area					
DRG No	SCALE	DATE			
NT10679/Fig 2	1:100 000 @ A3	September 2010			
DRAWN BY	CHECKED BY	APPROVED BY			
HM	GB	HK			
<div><div><div><input type="checkbox"/> STOKES-ON-TRENT (HEAD OFFICE)</div><div><input type="checkbox"/> NEWCASTLE UPON TYNE</div><div><input type="checkbox"/> WEST BROMWICH</div><div><input type="checkbox"/> LONDON</div></div><div><div>TEL: 0845 111 7777</div><div>TEL: 0191 232 0943</div><div>TEL: 0121 580 0909</div><div>TEL: 020 7287 2872</div></div><div><div><input type="checkbox"/> CARDIFF</div><div><input type="checkbox"/> LEIGH</div><div><input type="checkbox"/> SHEFFIELD</div><div><input type="checkbox"/> EDINBURGH</div><div><input type="checkbox"/> LIVERPOOL</div></div><div><div>TEL: 029 2083 2455</div><div>TEL: 01942 260101</div><div>TEL: 0114 245 6244</div><div>TEL: 0131 555 3311</div><div>TEL: 08451 451 900</div></div></div>					




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Key

- Proposed 400kV Overhead Line
- Existing Overhead Line to be dismantled
- Condition 18 Undergrounding of overhead lines
- Additional Undergrounding of low voltage / distribution lines in the Stirling area
- Additional 132kV (AB) undergrounding option
- Proposed Planting Area (Landscape Mitigation) (from ES / PI / Wayleave hearings)
- Additional screen planting / landscape improvements (developed as Stirling visual mitigation)
- Locations proposed for tower painting
- Locations proposed for re-conductoring

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
CLIENT					
<div> SCOTTISHPOWER SP TRANSMISSION Ltd</div>					
PROJECT					
Beaully Denny 400kV Overhead Line Stirling Visual Impact Mitigation					
DRAWING TITLE					
Figure 4 Mitigation measures					
DRG No NT10679/Fig 4		SCALE 1:50 000 @ A3		DATE September 2010	
DRAWN BY HM		CHECKED BY GB		APPROVED BY HK	
<div><div><input type="checkbox"/> STOKES-ON-TRENT (HEAD OFFICE)</div><div><input checked="" type="checkbox"/> NEWCASTLE UPON TYNE</div><div><input type="checkbox"/> WEST BROMWICH</div><div><input type="checkbox"/> LONDON</div></div>		<div><div>TEL: 0845 111 7777</div><div>TEL: 0191 232 0943</div><div>TEL: 0121 580 0909</div><div>TEL: 020 7287 2872</div></div>		<div><div><input type="checkbox"/> CARDIFF</div><div><input type="checkbox"/> LEIGH</div><div><input type="checkbox"/> SHEFFIELD</div><div><input type="checkbox"/> EDINBURGH</div><div><input type="checkbox"/> LIVERPOOL</div></div> <div><div>TEL: 029 2083 2465</div><div>TEL: 01942 260101</div><div>TEL: 0114 245 6244</div><div>TEL: 0131 555 3311</div><div>TEL: 08451 451 900</div></div>	



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L12 'Low Height' towers near Thirsk, North Yorkshire considered as an alternative.



L12 towers near Humble, East Lothian. L12 towers similar to those proposed on the Beaulieu-Denny route.

Source: SHETL Overhead Transmission Tower Study, 2004