



**SCOTTISHPOWER**  
SP Transmission Ltd

# Beauly-Denny Overhead Transmission Line Project

**Stirling Visual Impact Mitigation Scheme**

**August 2011**

Connecting Scotland's  
Sustainable Future

**SP TRANSMISSION LIMITED**

**BEAULY – DENNY OVERHEAD TRANSMISSION LINE PROJECT**

**STIRLING VISUAL IMPACT MITIGATION SCHEME**

**IN FULLFILMENT OF CONDITION 19**

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# **BEAULY – DENNY OVERHEAD TRANSMISSION LINE PROJECT**

## **STIRLING VISUAL IMPACT MITIGATION SCHEME**

### **IN FULLFILMENT OF CONDITION 19**

#### **1.0 INTRODUCTION**

##### **1.1 Background**

This is the Stirling Visual Impact Mitigation Scheme ("the SVIMS") prepared on behalf of SP Transmission Limited ("SPT"). The SVIMS sets out the measures for the further mitigation of the landscape and visual impact of the towers and overhead line in two sections of Stirling, namely between the top scarp of the Ochil Hills and Airthrey Castle and between Logie Villa and Glenside. The SVIMS follows a period of engagement with Stirling Council and the Scottish Government which commenced in March 2011 following the rejection of the initial SVIMS submitted on 7 February 2011 ("the Initial SVIMS").

On 6 January 2010, following a lengthy public inquiry, Scottish Ministers granted consent under section 37 of the Electricity Act 1989 and deemed planning permission under section 57 of the Town and Country Planning (Scotland) Act 1997 to SPT for that section of the Beaully Denny 400kV overhead transmission line between the Wharry Burn, Dunblane and Dunipace, Denny.

In approving the overhead line, Scottish Ministers attached a condition (19) to the consent and deemed planning permission requiring SPT to develop measures for the mitigation of the landscape and visual impact of the towers and overhead line in two sections, namely between the top of the Scarp of the Ochil Hills and Airthrey Castle (towers TD199 and TD203) and between Logie Villa and Glenside (TD203 and TD244E). The mitigation measures are to be submitted for the approval of Scottish Ministers in consultation with Stirling Council. The condition does not specify the standard of mitigation to be achieved. Similarly, the period for consultation is not specified.

On 28<sup>th</sup> January 2010 the Scottish Government issued a Briefing Note, the purpose of which was to set out their intentions with regards to the Stirling Visual Impact Mitigation Scheme. The note describes the purpose of the Scheme as mitigating the visual impact for the proposed line in the Stirling area, possibly by re-routing, re-sizing of towers, screen planting or undergrounding. The Briefing Note also indicated that: (1) the Council should be consulted by SPT from the outset in the design of the mitigation scheme and that (2) the Scottish

Government will consult the Council upon the mitigation scheme as submitted over a 30 day period.

On 19<sup>th</sup> February 2010 SPT met with officials and members of Stirling Council. SPT confirmed that it would welcome the Council's input on the development of the mitigation proposals and invited the Head of Planning, Waste & Regulation to make suggestions for additional landscape and visual mitigation. No suggestions for non undergrounding mitigation were received prior to the submission of the Initial SVIMS.

In order to consider how best to respond to the requirement for additional landscape and visual mitigation, SPT commissioned detailed engineering and environmental studies from PB Power, Cable Consulting International and Wardell Armstrong LLP. The firms appointed were selected due to their expertise in transmission infrastructure and the routing of overhead lines through the landscape and their detailed knowledge of the Beaully Denny project. Each firm was closely involved in the Inquiry into the Beaully Denny project. In exploring options for mitigation, SPT asked its consultants not only to consider the requirements of condition 19 and the Briefing Note but also to look beyond their terms and to consider other options for visual and landscape mitigation.

On 9<sup>th</sup> August 2010, SPT issued a press release confirming that it would shortly consult the local community and stakeholders on its landscape and visual mitigation proposals for a period of 6 weeks (30 working days).

SPT published the Stirling Visual Impact Mitigation Scheme Consultation Report ("the SVIMS Consultation Report") and the summary Stirling Visual Impact Mitigation Scheme Consultation Leaflet ("the SVIMS Consultation Leaflet") on 29<sup>th</sup> September 2010. The SVIMS Consultation Report concluded that further visual mitigation of the overhead transmission line could be achieved through a range of measures including screen planting, landscaping, tower painting and undergrounding of lower voltage lines. Other measures such as re-routing of the 400kV line and the use of low height towers and undergrounding of the 400kV line were discussed but not included in the proposals.

Having undertaken a comprehensive process of publicity and consultation and carried out a detailed evaluation of all representations received as detailed in the Report on Consultation, SPT submitted the Initial SVIMS to the Scottish Government on 7 February 2011.

## **1.2 The Stirling Visual Impact Mitigation Scheme Dated 7 February 2011**

The Initial SVIMS was lodged with the Scottish Government together with the Report on Consultation on 7 February 2011. It included a wide range of measures to be undertaken in

compliance with Condition 19. These included screen planting, broader landscape proposals (a combination of soft and hard works), tower painting and the undergrounding of low voltage lines. The submission also included an assessment of effects of the proposed mitigation measures in order to properly understand the level of impact post mitigation. In addition the SVIMS, which was accompanied by a large number of detailed, plans, drawings and visualisations, also addressed the timescales for implementation as well as the maintenance of the measures themselves.

### **1.3 The Government's Response**

On 8 March 2011 the Minister for Enterprise, Energy and Tourism responded to the SVIMS in a letter to Frank Mitchell, Chief Executive Officer of SP Energy Networks. In his response the Minister recognised the considerable work done by SPT and the detailed proposals presented. Nevertheless the Minister was of the view that the process of formal consultation with Stirling Council in the terms of Condition 19 should be postponed in order to allow a process of engagement between SPT and Stirling Council. This process of engagement was, said the Minister, to consider mitigation measures and options which he did not feel had yet been fully explored.

The Minister indicated that he considered the likelihood of achieving an acceptable proposal would have been greatly increased if there had been greater dialogue between Stirling Council and SPT and he encouraged improved and construction dialogue between experts working on behalf of both organisations in a process of joint working.

The Minister further indicated that there should be closer examination of measures, including partial undergrounding of the 400kV line; undergrounding of the 132kV line from Fallin to Glenbervie as well as strengthening the existing mitigation proposals.

The Minister recognised that the Beaully Denny transmission upgrade is a key development to enable Scotland's renewable energy future and in order to avoid any delay to the initiation of the project, he recommended a period of no more than sixty days be set aside for the joint work to be undertaken.

### **1.4 Clarification Sought from the Minister for Enterprise, Energy and Tourism by letter dated 14 March 2011**

On 14<sup>th</sup> March 2011 Frank Mitchell the CEO of SP Energy Networks wrote to the Minister for Enterprise, Energy and Tourism regarding the terms of his letter of 8 March 2011. The letter to the Minister expressed disappointment at the rejection of the Initial SVIMS, particularly given the detailed expert evidence on which it was based and on the extensive public

consultation undertaken. Nonetheless, the letter reaffirmed SPT's position that it remained willing to engage further with Stirling Council and with Scottish Government. It was emphasised that the engagement process would require to be undertaken in the context of the delivery timeframe of the Beaully Denny project, SPT's statutory and regulatory duties and the evidence available. It was also emphasised that for the process of engagement to be meaningful, there was a need for all parties to engage in an open and constructive manner. The refusal of the Council to bring forward non undergrounding mitigation for consideration was highlighted as having inhibited progress up to 7 February 2011. To allow the engagement to be completely focussed within the limited time available, SPT also requested that the Minister provide amplification on the measures and options he considered should be fully explored.

### **1.5 Response from the Minister for Enterprise, Energy and Tourism dated 1 April 2011**

The Minister responded to SP Energy Networks on 1 April 2011 and amplified upon his expectations with regard to the process of engagement.

At the outset the Minister recognised that the consultation activities undertaken by SPT as a precursor to developing the SVIMS went above and beyond the terms of condition 19.

In terms of options for partial undergrounding, the Minister indicated that he considered that there should be examination of shorter more economically viable options, for example, a section from Logie Villa past the Wallace Monument. The Minister was keen to stress that this was merely a suggestion and that he was keen to bring Stirling Council's available expertise on the broader subject of shorter undergrounding sections through joint working.

In terms of the evaluation of these options, the Minister indicated that they should address not only cost but also the technical and planning aspects as well as potential environmental benefits. Recognising the importance of avoiding delays to the entire Beaully Denny Project, the Minister made clear that the analysis should also include timescales and delays which might be incurred through the pursuit of the various options evaluated. In summary therefore the Minister wished to see the evaluation address the following aspects of each mitigation option:

1. cost;
2. technical;
3. planning;
4. potential environmental benefit;
5. timescales for the implementation; and
6. resultant delays to the project.

Addressing the possible undergrounding of the 132kV line between Fallin and Glenbervie, the Minister indicated he would be interested in seeing further consideration of the cost to benefit the balance as he thought that were real potential benefits in terms of a reduction in the cumulative impact of wirescape in the wider area.

The Minister also set out his expectations with regard to the role and contribution of Stirling Council. He noted that whilst the Council had not yet offered any suggestions for mitigation or suggested improvements to proposals already made by SPT, he saw the sixty day period of engagement between experts as the Council's opportunity to do so. The Minister recognised that if the best possible scheme is to be developed for the people of Stirling then it is necessarily in the Council's best interest to be developing with SPT improvements and additions to the mitigation proposals in addition to any suggestions regarding undergrounding. The Minister expressed the hope that the Council's local expertise would mean that it was in a position to suggest additional measures as well as building upon those already within the Initial SVIMS.

## **2.0 FURTHER PERIOD OF ENGAGEMENT WITH STIRLING COUNCIL**

### **2.1 Agreeing the Process of Engagement**

On 24 March 2011 a meeting took place at the Stirling Council offices at Viewforth attended by representatives from SPT, Stirling Council/the Beaully Denny Steering Group as well as representatives from the Scottish Government Energy Consent Unit including Simon Coote.

During the meeting, SPT reaffirmed its desire, first expressed in March 2010 that the Council put forward suggestions for mitigation measures. Simon Coote stated that it was very important for the Council to understand that the mitigation scheme was unlikely to include undergrounding of the entire 400kV line and that the overhead line needed to be mitigated in other ways. He indicated that it was crucial that the Council accepted the need to look at non-undergrounding proposals and the need to work together with SPT.

Although not reflected in the Minute of the meeting produced by the Council which was not agreed with SPT<sup>1</sup>, Simon Coote made it clear that in his opinion the consultation process should proceed on two fronts:

- (1) consideration of the undergrounding option (short sections); and

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<sup>1</sup> SPT requested the opportunity to approve the Minute of the meeting of the 24<sup>th</sup> March. The draft was issued to SPT for approval however the changes made by SPT were rejected by the Council. No explanation was provided.



(2) how to build upon what is already in the mitigation scheme as submitted.

Simon Coote emphasised that it was in the Council's interest to focus on mitigation for the overhead line which has been approved.

It was agreed during the meeting that a technical working group be set up between SPT and its consultants, the Council officers/special advisers and the Scottish Government.

On behalf of the Government Simon Coote also offered the services of a mediator to facilitate the engagement process.

Although the Minister had indicated that the sixty day consultation period run from the date of his letter of 8 March, it was agreed by SPT that the engagement period should commence from the date of the meeting, namely 24 March 2011, to ensure that the full sixty day period was available for joint working.

## **2.2 Composition of the Technical Group**

The Technical Working Group comprised representatives from SPT including those specialists that had been involved in the Beaully Denny proposals, representatives of Stirling Council and their technical advisers. Officials from Scottish Government's Energy Consents Unit were also represented. Full details of the composition is included at paragraph 3.2 of the Report on Engagement.

## **2.3 Format and Meetings of the Technical Group**

The Technical Group met on nine separate occasions between April and June 2011. Each of the meetings was chaired by Stirling Council<sup>2</sup>.

## **2.4 The Issues to be Considered by the Technical Group**

It was agreed that the Initial SVIMS should form the foundation for further discussion as per the statement from the Minister. Accordingly, further consideration to all of the mitigation measures within it as well as those measures SPT had considered but decided not to include.

It was also agreed that Stirling Council would present SPT with a list of further mitigation options to be considered. These mitigation options were to be jointly examined by the

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<sup>2</sup> In the Report to the Council dated 30 June 2011, the Head of Planning, Regulation & Waste confirmed that all technical meetings were chaired and Minuted by the Council to facilitate engagement and examination of the mitigation options.

technical advisers representing both Stirling Council and SPT.

## **2.5 Mitigation Measures and the Development of the Options Evaluation Framework**

At the technical meeting on 20<sup>th</sup> April 2011, Stirling Council presented a table of further mitigation options.

It should be noted that the further mitigation options presented by Stirling Council did not include any new forms of mitigation not previously considered by SPT. The 23 options were, on the whole, options already considered by SPT or variants on them e.g. tower painting the entire line rather than short sections,, undergrounding the entire line or options for partial undergrounding of sections previously considered and reported upon by SPT.

SPT agreed that this approach could form the basis for future discussions and could provide a means for reporting back on the findings of the discussions. SPT agreed to consider the Council's Framework and develop it further. To that end SPT developed the framework to address all the relevant issues to be considered when undertaking its statutory and licence duties when bringing forward such a development.

SPT therefore developed what became the Options Comparison Matrix ("the Matrix") to include the following:

- All 23 of the mitigation options including those considered by SPT and proposed by Stirling Council;
- A description of the type of mitigation being considered, its location on the line route and its physical extent;
- The cost of the overhead line as consented by Scottish Ministers (the base case);
- The cost of the overhead line including the mitigation to meet condition 18;
- The cost of the overhead line including the mitigation to meet condition 19;
- The total construction cost (being the costs of the overhead line as consented together with the costs of complying with conditions 18 and 19);
- The operational and maintenance costs (40 year life cycle);
- The total construction and operational cost of each mitigation option within the SPT licence area;
- Estimated project delays in implementing the mitigation measure
- Expected constraint costs arising from the delay in implementing the mitigation;
- Total project lifetime and constraint cost;
- Whether the mitigation measure satisfies SPT's licence requirements (economy and efficiency);
- Further necessary consents required;

- SPT's opinion as to whether the mitigation measure satisfies condition 19;
- Landowner consents required;
- Technical unknown risks;
- Additional safety requirements CDM risk; and
- Potential negative environmental impacts – Landscape and Visual / Ecology and habitat / Archaeology.

It is considered that the above evaluation criteria not only set out the issues to be considered by SPT in order to meet the terms of condition 19 but also to fulfil its statutory obligations. It also assisted in addressing the range evaluation measures and options suggested by the Minister for Enterprise, Energy and Tourism in his letter of 1 April 2011 including cost, technical and planning aspects, environmental benefits and potential delays relating to the various option measures.

### **3.0 SPT'S STATUTORY AND LICENCE DUTIES, THE ROLE OF OFGEM AND EVALUATING THE MITIGATION OPTIONS**

#### **3.1 Introduction**

It is clear from the terms of the consultation process undertaken in 2010 and the recent engagement process that there is still a degree of confusion regarding the obligations placed on Transmission Operators within Great Britain; on the role of Ofgem (the Office of the Gas and Electricity Markets) and how decisions upon mitigation options are evaluated in this context.

#### **3.2 Regulation of Transmission Operators in Great Britain**

Under the terms of the Electricity Act 1989, SP Transmission is required to comply with the terms of their Transmission Licence.

Under Section 9(2) of the Act, SP Transmission is required to meet the following obligations:

- To develop and maintain an efficient, coordinated and economical system for the transmission of electricity; and
- To facilitate competition in the supply and generation of electricity.

Section 38 of and Schedule 9 to the Act impose certain duties on the holder of a transmission licence as regards the desirability of preserving natural beauty and to do what he reasonably can to mitigate any effect which the proposals would have on the natural beauty of the

countryside.

As a regulated business SPT is responsible for ensuring that the transmission system is developed economically efficient and coordinated in order to protect GB consumers from excessive electricity transportation charges. The financial costs of potential mitigation measures and the environmental benefits which would result have to be evaluated against the obligations above to establish whether they can be justified.

Ofgem has to approve investment decisions within the transmission system and its role is to protect the electricity consumer from unnecessary or unjustified costs. Any additional financial burden imposed on SPT through the carrying out of any mitigation measures as part of the SVIMS will ultimately be placed on consumers throughout Great Britain.

On 6<sup>th</sup> January 2010 Scottish Ministers granted Section 37 consent/deemed planning permission for the construction of the double circuit 400kV overhead line on lattice steel towers. SPT has carried out its duties as a licensed electricity transportation business with respect to the development of its network. Ofgem's approval for the capital investment in the Beaulieu Denny project is based upon an overhead line solution. That is also what has been approved by Scottish Ministers and for which consent exists.

### **3.3 Some Misconceptions Regarding Investment in the Transmission Network**

Some respondents to the voluntary consultation exercise undertaken in 2010 considered that money not invested in undergrounding of the 400kV overhead line should be seen as justifying the spending similar amounts of money on "non undergrounding" mitigation i.e. that the sums available should be based on the cost of undergrounding foregone. However, such an approach is misconceived. It is not a question of identifying a sum of money with which SPT can develop mitigation measures. Rather, the correct approach is to evaluate the mitigation measures which would have environmental benefits against technical and economic considerations consistent with SPT's statutory and licence duties.

Another argument advanced by respondents was that the additional cost of undergrounding should be viewed as very modest as it would be spread amongst 28 million electricity consumers. As stated above, in SPT's experience Ofgem do not accept arguments on a costs per customer basis when assessing the efficiency/economics of a particular investment in the network. The assessment is based on the absolute costs of any proposed investment relative to the various alternatives. In other words the cost of undergrounding versus the costs of the overhead line solution as approved.

Some respondents suggested that in ruling out undergrounding of the 400kV line it was driven by a desire on the part of SPT to keep costs low and profits high. Again this is misconceived. SPT is a regulated business. The costs of undergrounding would be considerably more expensive than the equivalent overhead line solution and SPT has rejected it. This is despite the fact that if the investment were to be approved by Ofgem, SPT would actually obtain higher revenue on that investment than for the equivalent overhead line.

On thing that is often forgotten by those seeking undergrounding of the 400kV overhead line is that there are hundreds of thousands of kilometres of overhead line of various voltages in Great Britain where the use of undergrounding might also result in the reduction of visual effects. As the financial burden for the cost of such works is ultimately placed on electricity consumers, Ofgem would have to be satisfied that the measures were justified. In short, the benefits resulting from any mitigation measures require to justify the additional costs when assessed within the regulatory framework applicable to electricity networks in Great Britain.

Following the evaluation of a total of 12 undergrounding options for the 400kV overhead line, SPT concluded that undergrounding the 400kV overhead line could not be justified (Options 7,10-13,15,18-23). The company reached a similar conclusion with regard to the possible undergrounding of sections of the 132kV line from Fallin to Glenbervie (Option 6 within the Matrix). Although there would be visual benefits to be gained from such a measure, those are not considered to justify the additional costs (£12.9 million) when assessed against SPT's statutory and licence duties. The relative expense of these works is considerable when it is considered that the cost of overhead line itself is £19.8m and the additional costs of the wirescape rationalisation required by condition 18 involve expenditure of £20.1m. Taken together the 132kV undergrounding and fulfilment of condition 18 works would exceed the cost of the 400kV overhead line by 167%.

Undergrounding of the 400kV overhead line is the measure which the Council still wishes to see following the process of engagement sought by the Minister<sup>3</sup>. In exploring the issue, the Technical Group not only considered the work commissioned by SPT within Part 2 of the SVIMS Consultation Report and within Appendix 6 of the Report on Consultation but the further work as part the process of engagement. Prior to the process of engagement commenced in March 2011, Cable Consulting International/PB Power had examined a total of 22 different underground sections within the Stirling area. Through the engagement process 12 undergrounding routes for the 400kV line have been examined as part of the Matrix. These routes include the short section of line from Logia Villa past the Wallace Monument suggested for consideration by the Minister and 4 routes passing Menstrie as suggested by the Council.

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<sup>3</sup> This is confirmed from the Minutes of the Beaully Denny Steering Group meeting of 27<sup>th</sup> June 2011. The Minutes state that the Council's position is to "seek a form of undergrounding of the power line".

Having undertaken what is considered to be the most detailed and comprehensive evaluation of options for the undergrounding of a transmission line ever carried out by a transmission licence holder in the UK, SPT remains firmly of the opinion that undergrounding of the 400kV overhead line cannot be justified for the same reasons it was rejected by the Reporters and Scottish Ministers. The Reporters stated in relation to the Stirling section of the route that: "We conclude that having regard to the cost of alternatives, the technical problems associated with them, and the limited environmental benefits which they offer, that the case made by objectors for alternative routeing and/or undergrounding has not been justified". (Para.1.6.31 of the Beaully Denny Report Volume 6: Summary of Conclusions & Recommendations refers). Scottish Ministers' endorsed the conclusion.

## **4.0 THE EVALUATION OF THE MITIGATION OPTIONS THROUGH THE MATRIX AND THE STIRLING VISUAL MITIGATION SCHEME**

### **4.1 Introduction**

This section sets out in summary, the results of the evaluation of the different forms of mitigation considered jointly with Stirling Council and how this process has informed the content of the SVIMS. A more detailed explanation is contained in the Report on Engagement. All references to options are to those evaluated through the Matrix, included as Appendix 6 to the Report on Engagement.

- Undergrounding of the 400kV overhead line
- Alternative Overhead Line Route Sections
- Alternative Tower Designs and in particular the Use of Low Height Towers
- Undergrounding of the Fallin to Glenbervie 132kV Overhead Line
- Planting/Landscape Reinforcement
- Low Voltage Undergrounding
- Tower Painting

### **4.2 Undergrounding of the 400kV overhead line (Options 7, 10-13, 15, 18-23)**

Undergrounding the 400kV overhead line is likely to incur delays of by between two and three years and in addition would generate expected constraint costs of between £24,000,000 and £36,000,000<sup>4</sup>. The difficulties in locating and screening cable sealing end compounds to

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<sup>4</sup> In order to meet the Beaully Denny construction programme, which also requires to be coordinated with SHETL, SPT require to place contracts by the end of the year with a site start to follow shortly thereafter. The implications of any further slippage to the construction programme for renewable targets; for generators and for electricity consumers in terms of constraints costs cannot be overemphasised.

facilitate the transition from overhead line to underground cable exacerbates the difficulties with undergrounding as a form of mitigation. While undergrounding offers the potential to reduce landscape and visual impacts of the overhead line in sensitive areas, incorporating sealing end compounds at each end of the cable and the more extensive excavation and engineering work to install the cables can be detrimental to ecology, nature conservation and archaeological interests in certain locations. What is often not appreciated is that the working swathe of some 30m wide is likely to be needed for an underground cable section which includes the space requirements for four groups of conductors, plus a haul road width for the temporary storage of spoil from the trenches,.

The process of further engagement with Stirling Council has not led SPT to change its position that undergrounding of any section of 400kV overhead line cannot be justified for exactly the same reasons as it was rejected firstly by the Reporters and subsequently by Scottish Ministers. The rejection is based on the grounds of cost, technical difficulties and limited environmental benefits. Undergrounding of the 400Kv overhead would also not fall within the scope of the section 37 consent and the Environmental Statement.

Undergrounding of the 400kV overhead line does not form part of the mitigation measures being promoted through the SVIMS.

#### **4.3 Alternative Overhead Line Route Sections (Option 17)**

The route as proposed for the Beaully Denny 400kV overhead transmission line was approved by Scottish Ministers following the detailed examination at Public Inquiry and was accepted as the best available.

Stirling Council raised the issue of alternative overhead line routes in the meeting of the Technical Group but did not promote any options for evaluation through the Matrix. The discussion on possible alternative overhead line route options centred on a route through the Durieshill area which had previously been considered and reported upon within Appendix 5 of the Report on Consultation. This became Option 17 within the Matrix.

In response to the Scottish Government's Briefing Note in 2010, SPT had further reviewed the route of the line as consented, in order to examine the possibilities of rerouting as a method of reducing the landscape and/or visual effects. The possible route adjustment through Durieshill was re-evaluated with Stirling Council.

In total, the alternative overhead line route taken together with the approved overhead line route would extend to approximately 17.4 kilometres, almost 3 kilometres shorter than the approved route. There would be a slight reduction in costs due to the shorter route length amounting to approximately £2,700,000.

In SPT's opinion, the alternative route section does not satisfy the terms of condition 19. Firstly, it does not address a large part of the overhead line section to be mitigated through the condition. Secondly, the evaluation undertaken with the Council demonstrates that an alternative overhead line through Durieshill would give rise to similar adverse effects on the landscape character and visual amenity as compared to the approved route. The route would also run through the Major Growth Area which remains a proposal within the development framework for the Stirling area. As such and notwithstanding the adverse impacts on individual properties resulting from re-routing, it is unlikely that the overhead line would be able to be routed within this area.

New landowner consents would be required to be obtained and a new section 37 consent accompanied by an Environmental Impact Assessment would also be required for the new section of the route.

In terms of procedural and legal issues, the net reduction in cost taken together with environmental impacts (which do not exceed those of the approved route) mean that Durieshill route would represent an efficient and economic development of the transmission system within the regulatory framework within which SPT is obliged to operate. However the alternative route section does not offer any 'reduction' in the potential for adverse visual impact and would not therefore meet the terms of condition 19. In addition the alternative route would generate significant programme delays and constraint costs.

SPT does not consider an alternative route through the Durieshill area to be a viable form of mitigation and it does not form part of the mitigation measures being promoted through the SVIMS.

#### **4.4 Alternative Tower Designs and in particular the Use of Low Height Towers (Options 8, 14 and 16)**

The potential for alternatives to the use of a lattice steel tower for the overhead line as potential mitigation was discussed with Stirling Council.

The development of a new overhead line tower, would involve many factors including the time required to develop, test and approve any such alternatives, including the technical and safety aspects relating to a new design (the strength of tower to carry the weight of the conductors; maintenance issues; the health and safety of people working on the tower).

SPT recognise that the case for the use of low height towers is very finely balanced. On the one hand the reduction in height has the potential to reduce the potential for adverse visual



impact in some locations. However, this has to be balanced against the introduction of adverse effects in other locations through, for example, increased tower bulk with heavier, wider cross arms as well as a slight increase in the number of towers required. In certain locations such as the Carse of Stirling, lower height towers may contrast quite starkly with existing overhead line towers in the area.

Whilst in principle it would be possible to use low height towers for short sections of the line, it has not been possible to identify a clear advantage to amenity from their use. Of the options considered, and in light of the characteristics above, the use of low height towers between towers TD204A and TD207/1B in front of the Wallace Monument (Option 8) appear to offer some advantages to amenity when the towers are seen back clothed against the Ochil escarpment. Those advantages are most pronounced at distance. However closer views reveal the slightly squat and inelegant design when compared with the proposed L12 tower.

The potential for delay to the project delivery would also be high. In terms of programme, a new section 37 consent would be required to use low height towers. Combined with the additional design work this may lead to a further delay in the project of around 1 year. This is unacceptable to SPT. It would also delay engenderisation of the Beaully Denny project and its contribution to the delivery of the Scottish and UK Renewable Energy Targets.

SPT does not therefore propose the use of low height towers as a form of mitigation being promoted through the SVIMS.

#### **4.5 Undergrounding of the Fallin to Glenbervie 132kV Overhead Line (Option 6)**

As requested by the Minister, SPT and the Council undertook a more detailed evaluation of the Fallin to Glenbervie 132kV undergrounding and, in particular, gave further consideration to the cost benefit balance.

SPT has always recognised the benefits of undergrounding this route to the wider Stirling area and in particular when combined with the proposed 400kV overhead line route. A further benefit is the removal of the 132kV line which in conjunction with the proposed 400kV line has an encircling effect on the village of Cowie. It is SPT's opinion that the measure would, in light of the strong contribution to visual mitigation, partly satisfy the requirements of condition 19.

In terms of landowner consents, few if any are already in place and these would require to be obtained however much of the alternative route may be located in public roads.

As the undergrounding would be physically removed from the 400kV overhead line construction as approved, its implementation would not contribute to any project delay and

similarly would not add to any constraint costs. Work on the cable route could be undertaken prior to the energisation of the 400kV line.

It is estimated however that undergrounding the Fallin to Glenbervie 132kV overhead line would exceed the capital cost of the 400kV overhead line section being mitigated by over 160%.

Therefore despite the potential landscape and visual benefits, SPT remains of the opinion that the Fallin to Glenbervie 132kV undergrounding does not represent an efficient and economic development of the transmission system within the regulatory framework within which SPT is obliged to operate.

SPT does not therefore propose undergrounding of the Fallin to Glenbervie 132kV overhead line as a form of mitigation being promoted through the SVIMS.

#### **4.6 Planting/Landscape Reinforcement (Option 3)**

The planting/landscape reinforcement works would not require any further regulatory consents to be obtained and in SPT's opinion, represent an effective measure providing mitigation against the adverse landscaping visual impacts of the proposed 400kV line. As such, it largely satisfies the terms of condition 19.

The Minister for Enterprise, Energy and Tourism confirmed in his letter of 8<sup>th</sup> March 2011 that amongst other options, consideration should be given to strengthening the existing mitigation proposals (i.e. those set out in the Initial SVIMS). The Initial SVIMS relied heavily upon planting/landscape reinforcement. Despite this there were no suggestions from the Council to increase the amount of planting or landscape features to be replaced. However, there was a recognition from the Council that the measures, as proposed, had a role to play in the mitigation of landscape and visual effects of the overhead line. The Council's position is interpreted by SPT as an endorsement of the planting/landscape reinforcement measures previously proposed.

In recognition of the issues discussed with Stirling Council relating to the use of low height towers and the idea of mitigating the overhead line when viewed at a distance, SPT highlighted to Stirling Council the possibility of strategic planting at greater distances from the overhead line route.

Some potential locations for additional tree planting as mitigation for the 400kV towers are proposed. These are as indicated on drawing NT10679/160. This drawing also shows the locations of the landscape mitigation measures developed as part of the Initial SVIMS.

The intention is to provide small groups of trees in locations that would assist in restricting views towards specific towers. One example would be the provision of tree planting on field boundaries to the west of Blair Mains, with the objective of screening the views of towers located in front of the Wallace Monument but without screening views to the monument itself.

The planting/landscape reinforcement which includes screen planting and broader landscaping proposals is a combination of soft and hard works formerly included within the Initial SVIMS. The measures are estimated to cost around £500,000 to implement and are considered to represent an efficient and economic development of the transmission system.

The planting/landscape reinforcement works would not require any further regulatory consents to be obtained and in SPT's opinion, represents an effective measure providing mitigation against the adverse landscaping visual impacts of the proposed 400kV line. As such, it largely satisfies the terms of condition 19. This measure and its effectiveness together with other landscaping/planting proposals are outlined within Table 1.

In terms of landscape and visual impacts, additional landscape planting as proposed for the Stirling area does not of itself immediately remove the major adverse effects on visual amenity and other significant effect on landscape character, though in time this would be reduced, in those areas where planting is undertaken.

As stated above, the Minister for Enterprise, Energy and Tourism confirmed that consideration should be given to strengthening the existing mitigation proposals. In addition to those measures previously proposed, SPT has identified a number of additional areas where planting located close to viewers could assist in screening and softening views of the overhead line. The additional landscaping/planting measures being promoted by SPT represent a strengthening of the existing mitigation proposals as envisaged by the Minister. The planting/landscape reinforcement measures have also been subject to closer examination through the Technical Group also as envisaged by the Minister.

SPT considers that planting/landscape reinforcement represents an appropriate landscape and visual mitigation measure which can assist in screening or softening views of the overhead line subject to the agreement of landowners. It forms part of the SVIMS.

#### **4.7 Low Voltage Undergrounding (Option 2)**

The Minister for Enterprise, Energy and Tourism confirmed in his letter of 8<sup>th</sup> March 2011 that amongst other options, consideration should be given to strengthening the existing mitigation proposals (i.e. those set out in the Initial SVIMS). The Initial SVIMS included elements of LV

undergrounding. Despite this there were no suggestions from the Council to extend or increase the amount of LV undergrounding. There was also no suggestion by the Council that the proposals had no value. SPT interpret the Council's position as an endorsement of the LV undergrounding as a mitigation measure.

The LV undergrounding is estimated to cost around £430,000. The measure is considered to provide some (albeit limited) benefit in terms of local landscape character and visual amenity. The relatively modest financial cost of the mitigation measure when considered against the environmental benefits which would result are considered to fully satisfy SPT's obligations to develop and maintain an efficient, coordinated and economical system for the transmission of electricity.

All regulatory consents are already in place. LV undergrounding is considered to partly satisfy the terms of condition 19 in that it will reduce clutter to some degree in the wider landscape as well as improving levels of visual amenity for residents. Few landowner consents are currently in place although given the benefits to local amenity it is anticipated that these would be forthcoming.

In light of the foregoing and taking into account the fact that the mitigation measures will not contribute to any project delay, low voltage undergrounding represents an efficient and economic development of the transmission system within the regulatory framework in which SPT is obliged to operate.

SPT therefore proposes LV undergrounding as a form of mitigation within the SVIMS.

#### **4.8 Tower Painting (Options 4, 5 and 9)**

The Minister for Enterprise, Energy and Tourism confirmed in his letter of 8<sup>th</sup> March 2011 that amongst other options, consideration should be given to strengthening the existing mitigation proposals (i.e. those set out in the Initial SVIMS). The Initial SVIMS included tower painting options. These have been re-examined as Options 4 and 5. Extending the tower painting as a measure has also been examined under Option 9.

The painting of towers on the Ochil escarpment (Option 4) and the towers between 239A and 243/1B at Glenside (Option 5) where the location where the Beauldy Denny line runs parallel to the two existing 275kV transmission lines is considered to be an appropriate visual mitigation measure in that it provides a benefit to local visual amenity for a relatively modest sum. It represents an efficient and economic development of the transmission system within the regulatory framework in which SPT is obliged to operate and would partly satisfy the terms of condition 19.

No further section 37 consent would be required to undertake the measure and no further landowner consents would be required as the wayleaves are already in place. There would however be a project delay associated with the painting which is estimated at three months.

A third and more extensive tower painting option was also considered in response to a suggestion by Stirling Council (Option 9). However painting the remainder of the towers would not provide any benefit to landscape or visual amenity as the towers themselves would not be backdropped. There was broad agreement within the Technical Group that the measure would not lead to any environmental benefits not already provided through Options 4 and 5.

Option 9 is similar to Options 4 and 5 in many of the evaluation criteria and would partly satisfy the terms of condition 19 but only be in respect of those towers already identified within Options 4 and 5. Accordingly, unlike Options 4 and 5, the measure would only partly satisfy SPT's regulatory duties.

SPT therefore proposes tower painting as set out in Options 4 and 5 as a form of mitigation within the SVIMS.

## **5.0 THE STIRLING VISUAL MITIGATION SCHEME PROPOSALS**

### **5.1 Introduction**

The proposals comprising the Stirling Visual Mitigation (in respect of condition 19) are summarised in the following sections. These are separated into sections covering (separately):

- Screen planting (Option3);
- Broader landscaping proposals (as a combination of soft and hard works) (Option 3);
- Tower painting (Options 4 and 5); and
- Undergrounding of low voltage lines (Option 2)

The locations of these mitigation measures a brief description of each is provided, together with a Table summarising the nature of the measure and the effect on landscape character and visual amenity. The measures are identified with reference to the Options in the Matrix.

The measures are illustrated on various drawings and figures and these are also referenced below. The drawings show what is proposed for the relevant areas and include planting that was identified as mitigation prior to the issuing of consent for the overhead line (and prior to condition 19, therefore). The drawings are annotated to indicate those elements that were

proposed at an earlier stage of the Beaully Denny project, and those that form part of condition 19. The extension to/strengthening of measures which have emerged through the process of engagement are also included.

All of the measures described below would be subject to the agreement of the relevant landowner(s).

## 5.2 **Screen planting**

### ***A91 / Powis House Avenue***

Landscape and visual mitigation measure LV37 was developed following the Public Inquiry, comprising additional roadside / field boundary hedging (where none exists at present) on the east side of the road, together with hedgerow trees throughout the length of this section of road, to provide some screening of the overhead line for road users. In their consultation response to the Stirling Visual Mitigation, SNH commented that there would be greater benefit to the local landscape character from planting on both sides of the road. A field boundary hedge already exists to the west of the A91, but some hedgerow tree planting is now proposed here (see Drg. NT10679/106).

Figures B-3A and B-3B illustrate the view south towards Powis House from the A91, as existing and with the proposed planting after intervals of 5, 15 and 25 years. Figures A-10A and A-10B illustrate a view north along the A91, as existing and as proposed after 5, 15 and 25 years.

In addition to the planting proposed for this area, a new footpath connection between the Logie roundabout and the A907 is also proposed, in response to comments made during the consultation process. This is also shown on Drg. NT10679/106. This is described further below.

Additional tree planting to supplement the existing trees within the avenue leading to the Powis House area, and to fill in the gap where the existing 132kV line crosses this access road, was also a proposal developed during the Public Inquiry (LV38). This does not therefore form part of the Condition 19 mitigation measures, but is illustrated on Drg. NT10679/106. This additional planting would comprise heavy standard trees, 350-425cm.h., planted on either side of the access road.

### ***Manorneuk area***

Landscape and visual mitigation was proposed for this area at the Public Inquiry (LV39). In developing this measure in more detail, an area of additional screen planting is proposed to

the south of the roundabout junction (A91/A907), on the east side of the A91, to extend the existing roadside planting in this area as a screen to the 400kV line, where this runs to the east of the road.

In addition, hedgerow tree planting is proposed on the north side of the truncated section of road west of Manorneuk, to form part of the existing roadside hedge. The undergrounding of the LV line in this area enables trees to be planted in this area. Drawing NT10679/109 illustrates all the proposals for this area and Figure B-4A and B-4B illustrate the view west from the access into Manorneuk, as existing and with the proposed planting after 5, 15 and 25 years.

### ***South-west edge of Fallin***

Planting mitigation (forming part of the Condition 19 measures) is proposed within the area to the south-west of Fallin, to assist in screening views of towers from properties on this edge of the settlement. Drg. NT10679/110 illustrates these proposals, which include blocks of native tree and scrub planting located on the sides of a small stream running through this area; hedging and hedgerow trees planted on both sides of the cycletrack west of the stream crossing (part of National Cycle Route 76); and two small areas of semi-ornamental shrub planting and trees, on the north side of the cycle track / footpath, where it runs past the housing at the ends of Bannock Road and Hilton Terrace.

The planting would comprise a mix of sizes of species and would be protected by fencing or guards, as appropriate.

### ***A905 east of Fallin***

Planting (forming part of the Condition 19 measures) is proposed to the east of Fallin, between the eastern edge of this settlement and the western edge of Throsk, to enhance the local landscape character and to provide (in the longer term) some screening of the proposed overhead line where it runs to the south of the A905.

This would comprise roadside hedging and hedgerow trees, to both the north and south of the road (in line with SNH comments), together with a small area of infill tree and scrub planting, supplementing an existing area of vegetation to the west of the junction with the minor road to Cowie. These proposals are illustrated on Drg. NT10679/111 and on Figures C-2A and C-2B, which show the view along this road as existing and as proposed after 5, 15 and 25 years.

### ***Minor road between Throsk and Cowie***

Planting (forming part of the Condition 19 measures) is proposed for the majority of the minor road that runs between the A905 and Cowie, in order to enhance the local landscape character and (in the longer term) to provide some screening of the proposed overhead line as it crosses over this road.

This would comprise roadside hedging and hedgerow trees, planted within the fields on both sides of the road (where conditions permit), as illustrated on Drg. NT10679/112. In addition, a block of native trees and shrubs is proposed (to augment some existing planting in this area) where the road bends to the south, west of Burnhead Farm. This would, when established, assist in screening views towards TD223, for northbound road users. Figure B-6A and B-6B illustrate a view north along this road as existing and with the proposed planting after 5, 15 and 25 years.

### ***East of Cowie***

Planting (forming part of the Condition 19 measures) is proposed alongside the cycle track / road to the east of Cowie, commencing in the Hill Terrace area and continuing east and south to beyond Whitehill Farm. Where the edges of the track are open, trackside hedging and hedgerow trees are proposed, to both sides, to enhance the local landscape character and (in the longer term) to assist in breaking up views of the line, where it runs from north to south through this area. A small block of trees and shrubs is also proposed at the junction of this track with the access to Burnside / Deanville. Where the edges of the track are enclosed by stone walls, tree planting (only) would be provided at intervals, on both sides of the track. Drgs. NT10679/113 and /115 illustrate these proposals.

### ***Whitehill Farm***

Some additional screen planting (forming part of the Condition 19 measures) is proposed in the area to the south and south-west of Whitehill Farm, to reduce the scope for views of 'stacked' towers in this area. This would comprise a block of tree and shrub planting within one corner of a field to the south-west of the farm buildings, and some field boundary trees planted to the south of the farm steading, as illustrated on Drg. NT10679/115.

### ***A9, Carbrook Mains***

Planting was proposed as a landscape and visual mitigation measure (LV28), developed during the Public Inquiry, for the section of the A9 in the Carbrook Mains area, to enhance the local landscape character and to provide some screening of the overhead line (together with



the two existing 275kV lines) crossing the road in this area. This consists of various blocks of tree and scrub planting, located on both sides of the road, as illustrated on Drg. NT10679/116. A small number of individual trees would also be planted into the existing roadside hedgerow. Where the planting is situated close to overhead lines, this would be limited to scrub or low growing tree species, to avoid future problems of planting interfering with conductors.

#### ***Minor road south of Dales Wood***

Although not falling within the scope of condition 19, planting is proposed to the east side of the minor road in the area of the proposed Denny North substation as part of the SVIMS. This area contains a number of overhead line towers, where various transmission lines come together in the area of the proposed substation and while some tree planting has been undertaken (and is establishing) in this area in recent years, there are some gaps where further tree planting would benefit the local landscape character, as well as (in the longer term) providing screening to the overhead lines (including the Beaulieu Denny line) in this area.

Drg. NT10679/117 illustrates these proposals. Native tree species of varied sizes would be planted, within fenced areas to protect against damage by deer or rabbits.

#### ***Additional landscape mitigation planting***

Some potential locations for additional tree planting as mitigation for the 400kV towers are proposed following the re-evaluation of planting/landscape reinforcement measures through the Matrix. These are as indicated on drawing NT10679/160. This drawing also shows the locations of the landscape mitigation measures developed as part of the Initial SVIMS.

The intention is to provide small groups of trees in locations that would assist in restricting views towards specific towers. One example would be the provision of tree planting on field boundaries to the west of Blair Mains, with the objective of screening the views of towers located in front of the Wallace Monument but without screening views to the monument itself. In order to ensure that the planting was correctly located, it could be necessary to wait for the tower position to be finalised (for instance, with the construction of the tower footings or installation of steelwork). Planting trees of a reasonable size (e.g. up to 3m high) could also assist in providing a relatively 'instant' effect.

### **5.3 Broader landscaping proposals**

#### ***Cocksburn Wood / Dumyat area***

A range of measures is proposed in this area to enhance the local landscape character and visual amenity, in an area where there has been loss of mature trees and a more general

deterioration of the landscape (damaged drystone dykes, areas damaged by informal parking) and this would be separate to works required to make good any disturbance resulting from the overhead line construction and dismantling. These proposals are shown on Drgs. NT10679/101 and (as a view of one small part of this area) Figure C-1A and C-1B (showing the proposed improvements and the developing planting after 5, 15 and 25 years). The planting proposed within Cocksburn Wood is also shown on Drg. NT10679/101, as it is relevant to this area. However it should be noted that this planting does not fall within the scope of Condition 19 as it was developed as a landscape and visual mitigation measure (LV36), following the Public Inquiry.

The mitigation measures comprise:

- an extension to the area of parking available within Cocksburn Wood, to the north of the existing parking area;
- making good (where this is required) the existing drystone dykes running on both sides of the Sheriffmuir road, between the parking areas immediately south of the start of the paths to Dumyat, northwards to the northern end of the Cocksburn Wood;
- a stone footpath running south from this parking area, to the west side of the Sheriffmuir road, as far as the start of the paths leading to Dumyat and connecting on to the roadside parking in this area (see below). Occasional timber stiles would also be provided in order to cross field boundaries and to access the roadside parking areas;
- creation of roadside parking areas, using reinforced grass, to provide a robust surface with an improved appearance to the existing (bare earth) areas;
- additional areas of planting to enhance the local landscape character and improve screening of the overhead line; and
- reinstatement of areas where parking has occurred in the past, but where it would be preferable for vehicles not to park, in the future (or the re-surfacing of these, as above, to provide informal parking).

### ***Yellowcraig Wood***

Within the Yellowcraig Wood area, in addition to the development of a Forest Design Concept (a commitment from the time of the Public Inquiry), and separate to any requirement to make good damage resulting from overhead line construction and dismantling, the following measures are proposed (see also Drg. NT10679/104):

- works to existing drystone dykes, to make these good within the general area of the Wood on either side of the proposed overhead line; and
- improvements to the footpaths running within the Wood, including waymarking.

As part of the replacement planting for this area (and in discussion with the landowner), consideration will be given to the use of blocks of planting using species selected for their leaf colour, to provide a visual distraction to views of this area from (in particular) the floor of the carse. Colours could be yellow, red / purple and/or silver / grey.

#### ***A91 / Logie roundabout area***

In the area of the Logie roundabout and the A91, in addition to the landscape and visual mitigation measures developed for the Logie Kirk cemetery (LV32) and the Witches Craig caravan park (LV31) (that do not form part of Condition 19), some further planting and community benefit is proposed, as follows:

- amenity planting within the central area of the roundabout (on similar lines to the planting on the roundabout junction of the A91/A907), with a central area of tree planting enclosed by lower growing shrubs and groundcover planting;
- an area of trees and shrubs to the west of the roundabout, to provide longer term screening of the overhead line from the Crossroad Cottages area looking north-east, and from the cemetery / Hill Foots Road area looking south-east; and
- a new footpath running alongside the A91 (as referenced above in section 2) extending south from the east side of the roundabout through to the A907 Alloa Road. The path would commence on the east side of the A91 but would have to cross to the west side, north of Powis Mains Cottages, to take advantage of the slightly wider road verge in this area. Stirling Council's Roads Dept would have to agree to and approve the provision of this path; alternatively and with landowner consent, it might be possible to route this path within the edges of the fields on either the east or the west side of the A91.

#### **5.4 Tower painting (Options 4 and 5)**

Tower painting is proposed in two areas of the overhead line within the Stirling area, as indicated in the Matrix as Options 4 and 5.

##### ***Ochil's scarp (Option 4)***

The towers on the lowermost slopes, and at the foot of the Ochils scarp (TD202, TD202/1 and TD203), would benefit from being painted a darker colour so that, in particular in views from

the floor of the carse (when seen against the backdrop of the Ochils scarp slope) these are less prominent. Their visibility would be reduced in other views, including from the Wallace Monument, and an illustration of this is included as Figure NT1679/WM1.

A more detailed analysis of the colour to be used and the extent to which towers are painted, would be required to determine the precise scope of this work, as tower TD202 in particular is seen partially skylined in some views, and painting the whole of the tower a darker colour would make it more visible, rather than less so, in this instance.

#### ***Carbrook Mains (Option 5)***

A short section of the 400kV overhead line will run parallel to, and be seen in conjunction with, the two existing 275kV overhead lines west of the A9, in the Carbrook Mains area. These existing towers are scheduled to be painted (as part of their routine maintenance) in 2012. It is therefore proposed that those new towers located parallel to the 275kV lines, should also be painted to match the appearance of the 275kV line. This would reduce the prominence of the new line in this specific section of the route, as there would be a consistency of appearance of towers in this area.

Within the remainder of the route, the unpainted (and initially shiny) galvanised steel used for the towers would be left to naturally dull down as it weathers over time.

### **5.5 Undergrounding of low voltage lines (Option 2)**

The SVIMS Consultation Report (September 2010) indicated that low voltage (LV) lines would be undergrounded in a number of locations, where this would provide some (albeit limited) benefit to local landscape character and visual amenity. In some instances this work would comprise an extension of the works required for construction health and safety, or the permanent undergrounding of works that might otherwise have been temporary.

The scope of the LV undergrounding measures developed to reduce the effects of wirescape, was set out in the Initial SVIMS. It included undergrounding at Powis House at the request of a local resident, in the Logie Kirk area and near the Witches Craig Caravan Park. Since the submission of the Initial SVIMS, the results of a routine line inspection necessitated the undergrounding of approximately 250 metres of wood pole overhead line from Logie Villa into the Witches Craig Caravan Park.

The undergrounding of LV wood pole lines in the vicinity of the proposed 400kV line was re-evaluated with Stirling Council through the Matrix. The proposals within Option 2 remain part of the condition 19 measures.

The areas where this work would be undertaken comprise the following:

- the Logie Kirk area, where the removal of overhead line wires would improve the appearance and setting of the church;
- at Powis House, extending north and south of the works required for line construction (and, as noted above, extended further to the south at the request of a local resident), to benefit the visual amenity of residents in this area, as well as the management of the avenue of trees and the working of fields;
- at Manorneuk, where existing 33kV and LV lines will be undergrounded as an extension of that required for construction purposes, to benefit the visual amenity of the property here, and to enable some additional tree planting to be undertaken (see above);
- at Bolfornought, as an extension of construction operations, in order to benefit the visual amenity of the properties in this area;
- in the Burnbank – Burnhead area, as a lengthy extension of works required for line construction, again to assist in enabling planting to be carried out in this area (see paras. above), thereby enhancing local landscape character and visual amenity;
- north of Carbrook Mains and south of Plean, where the number of distribution lines' wood poles crossing the agricultural land creates visual clutter and presumably interferes with the working of fields. The removal of these would provide some reduction to the overall wirescape in this area; and
- to the south of the Plean Industrial Estate, where existing wood (H) poles are prominent due to their siting on a ridge; the extension of undergrounding required for construction would remove these and be of benefit to local visual amenity.

The geographical locations where this LV undergrounding is proposed are shown on Figure 1 with each of the areas listed above shown at a larger scale on Figures SP01-06.

## **5.6 Assessment of effects**

An assessment of the effects of the proposed mitigation measures (including the planting mitigation (LV) measures developed prior to condition 19, has been undertaken and is set out in Table 1, below. This considers the effects on landscape character and visual amenity, in the short and longer term, for the area immediately adjacent to the mitigation as proposed.

**TABLE 1**

TABLE OF EFFECTS – STIRLING VISUAL MITIGATION								
Mitigation measure		Assessed level of impact of 400kV overhead line (from ES/Addendum/ PI) (adverse unless stated otherwise)		Assessed level of impact, post-mitigation – short term (0-5 years) (adverse unless stated otherwise)		Assessed level of impact, post-mitigation – long term (10-15 years+) (adverse unless stated otherwise)		Additional comments
Category	Description	Landscape	Visual	Landscape	Visual	Landscape	Visual	
<b>Screen planting Option 3</b>								
LV32	Logie Kirk	Moderate	Moderate	Moderate	Moderate - minor	Minor	Minor	The totality of measures proposed in this area will provide additional enhancement of landscape character and visual amenity
LV31	Witches Craig caravan park	Moderate	Moderate	Moderate	Moderate - minor	Minor	Minor	
LV37	A91	Moderate	Minor	Moderate	Minor	Minor beneficial	Minor - Negligible	
LV38	Powis House Avenue	Minor	Minor	Minor	Minor	Minor - Negligible	Minor - Negligible	
LV39	Manorneuk	Minor	Major (resid)	Minor	Moderate - minor	Minor	Minor	
C 19	South west edge of Fallin	Moderate	Moderate	Moderate	Moderate - minor	Minor	Minor	
C 19	A905 east of Fallin	Minor	Moderate	Minor	Moderate - minor	Minor	Minor	
C 19	Minor road, Throsk-Cowie	Minor	Moderate	Minor	Moderate - minor	Minor beneficial	Minor	
C 19	Cycle track east of Cowie	Minor	Moderate	Minor	Moderate - minor	Minor beneficial	Minor	
C 19	Whitehill Farm	Minor	Moderate	Minor	Moderate - minor	Minor beneficial	Minor	
LV28	A9, Carbrook Mains	Minor	Moderate	Minor	Moderate - minor	Minor beneficial	Minor	
C 19	Minor road south of Dales Wood	Minor	Moderate	Minor	Moderate - minor	Minor	Minor	Wirescape effects from the presence of other overhead lines would remain
C19	Additional landscape mitigation planting	Minor - Moderate	Major - Moderate	Minor - Moderate	Moderate - minor	Minor beneficial	Minor	Mitigation planting of trees in a range of locations to address specific impacts of individual tower positions
<b>Broader hard / soft landscaping proposals</b>								
LV36	Cocksburn Wood	Minor	Moderate	Minor	Moderate	Minor	Minor	
C 19	Dumyat	Moderate	Moderate	Minor-moderate	Moderate	Minor	Minor	
FDC	Yellowcraig Wood	Moderate	Moderate	Minor-moderate	Moderate	Minor	Minor	
C 19	A91 / Logie roundabout	Moderate	Moderate	Minor-moderate	Moderate	Minor	Minor	Linked with LV37 mitigation measures to enhance landscape character and visual amenity in this area
<b>Tower painting Options 4 &amp; 5</b>								
C 19	Ochils scarp slope	Moderate	Moderate	Minor-moderate	Minor-moderate	Minor-moderate	Minor-moderate	Review of number and extent of towers to be painted still to be done
C 19	Carbrook Mains	Minor	Major (resid) & Moderate (rd users)	Minor-negligible	Moderate-major (resid) and minor-moderate (rd users)	Minor-negligible		Towers within section parallel to existing 275kV lines, only, to be painted
<b>LV / Distribution lines undergrounding Option 2</b>								
C 19	Logie Kirk	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Undergrounding of LV line does not reduce effects of 400kV line, but enhances visual amenity in this area
C 19	Powis House (extended)	Minor	Minor	Minor	Minor	Minor	Minor	Undergrounding of LV line does not reduce effects of 400kV line, but enhances visual amenity in this area
C 19	Manorneuk	Minor	Major	Minor	Moderate	Minor	Moderate	Undergrounding of LV and distribution lines reduces overall wirescape in this area and facilitates additional landscaping
C 19	Bolfornought	Minor	Minor	Minor	Minor	Minor	Minor	Undergrounding of LV line does not reduce effects of 400kV line, but enhances visual amenity in this area
C 19	Burnbank / Burnhead	Minor	Moderate	Minor	Moderate	Minor	Moderate	Undergrounding of LV line does not reduce effects of 400kV line, but enhances visual amenity in this area
C 19 & CONSTR	Carbrook Mains	Minor	Major	Minor	Moderate	Minor	Moderate	Undergrounding of LV lines reduces overall wirescape in this area, but does not remove adverse effects of 400kV line
C 19	Plean Industrial Estate	Minor	Minor	Minor	Minor	Minor	Minor	Undergrounding of LV line does not reduce effects of 400kV line, but enhances visual amenity in this area
<b>Other measures</b>								
CONSTR	Re-conductoring, 275kV lines w of A9	Minor	Moderate	Minor	Minor-moderate	Minor	Minor-moderate	Not part of the mitigation proposals however reconductoring undertaken as part of the overhead line works

LV Landscape and visual mitigation measure developed pre-Condition 19 (with reference no.)  
 C 19 Condition 19 mitigation measure  
 FDC Forest Design Concept (pre-Condition 19 mitigation measure)  
 CONSTR Works proposed as part of overhead line construction  
 (resid) Residential  
 (rd user) Road users

This assessment indicates that at the outset of the development, the proposed overhead line gives rise to significant adverse landscape and visual impacts. However in the longer term with the establishment of the proposed mitigation measures, (particularly the planting), those adverse effects in some areas are reduced to below significant.

The undergrounding of low voltage and distribution lines will not of itself result in significant reductions of effect, but will contribute to an improved environment and reduced wirescape, particularly in areas such as Logie, Manorneuk and Carbrook Mains.

## **6.0 DELIVERY OF MITIGATION MEASURES**

As stated, the delivery of the proposed mitigation measures within section 4 will, in some instances, require the agreement of landowners. This applies in particular to proposals for some sections of the lower voltage/distribution line undergrounding, screen planting and the broader hard/soft landscaping proposals, the latter including the repair of drystone walling and the construction of footpaths.

Other mitigations measures such as tower painting on the towers on the Ochil's Scarp and Carbrook Mains and the undergrounding of some lower voltage/distribution lines, where "in line" can be undertaken without the consent of landowners. These works are permissible in terms of either the voluntary/necessary wayleaves which are already in place in respect of those lines.

### **6.1 The Electricity Act 1989 and Compulsory Acquisition**

Schedule 3 to the Electricity 1989 provides licence holders with certain powers of compulsory purchase of land. However, the power does not extend to the acquisition of land for undertaking mitigation. The rights exist only in relation to land required for any purpose connected with the carrying on of the activities which are authorised by the licence, in this case a transmission licence. On this basis, the implementation of the screen planting/landscaping proposals as set out within section 4 will rely upon SPT achieving landowner agreement. The mitigation scheme is, in part, subject to such agreement. This is made clear within the SVIMS Consultation Report and SVIMS Consultation Leaflet.

SPT intends to engage with landowners once the SVIMS has been approved and will use reasonable endeavours to achieve agreement. SPT anticipate that most landowners would consider the mitigation measures proposed as betterment and would consider an approach favourably.

The requirement for landowner agreement is not unique in terms of the Beaulieu Denny project. Evidence was given to the Public Inquiry that SHETL and SPT intend to pursue landowner

agreements to allow the implementation of Forest Design Concepts as mitigation for the impact on certain woodlands affected by the proposals.

Although those mitigation measures require the consent of landowners, they cannot be considered as committed in the sense that their delivery is not entirely within the control of SPT. They are nonetheless opportunities for mitigation which Condition 19 and the accompanying Briefing Note require SPT to identify and bring forward.

Condition 8 of section 37 consent/deemed planning permission for the Beauty Denny overhead transmission line requires that a Construction Procedures Handbook ("CPH") is prepared for approval and that the overhead line is constructed in accordance with the CPH. The purpose of the CPH is to ensure that proposals are delivered in accordance with the mitigation proposed in the Environmental Statement, mitigation and commitments developed both pre and post Public Inquiry and the consent conditions.

All visual mitigation measures will be undertaken in accordance with the Construction Procedures Handbook which will be developed in conjunction with the contractor when appointed.

## **7.0 TIMESCALES FOR IMPLEMENTATION**

Following the approval of the measures, SPT would seek to gain the necessary consents and agreements required for the implementation of the various mitigation measures. It is SPT's intention to undertake the visual mitigation as early in the construction programme as possible.

### **7.1 Screen Planting and Landscaping**

With the exception of the Additional landscape mitigation planting referred to in paragraph 5.2, SPT intends to undertake all screen planting and landscaping works during the first appropriate planting season of the construction programme in order to provide for the early establishment of the planting. Where this cannot be achieved, due to the restrictions of access or construction works or where an area is required for the future dismantling of the existing 132kV line, planting and landscape works will be undertaken within the first appropriate season following the completion of these works.

In order to ensure that the Additional landscape planting is correctly located it requires to take place following the finalisation of the tower positions (for instance, with the construction of the tower footings or installation of steelwork). The planting will be undertaken within the first appropriate season following the finalisation of the tower positions.



## **7.2 Undergrounding of Low Voltage Lines.**

SPT intend to underground all of the low voltage lines proposed as visual mitigation in advance of the construction of the 400kV line at any given location. This is subject to the approval of relevant landowners for the underground cable replacement. It is hoped that such landowner agreement would be forthcoming. However, in the absence of landowner agreement, SP Distribution Limited, the distribution licence holder will seek a necessary wayleave from Scottish Ministers granting the necessary rights to undertake the works.

## **7.3 Tower Painting.**

Tower painting of three new towers on the Ochil's scarp slope will be undertaken prior to the tower components arriving on site. On the Ochil's scarp, where towers will be painted to match the backdrop, it is recognised that some towers may not require to be painted in their entirety due to part of the tower being viewed against the skyline. In such cases certain lower sections of the towers will be painted off site with the remainder of the painting applied once the tower is constructed to align with the skyline.

At Carbrook Mains, the four towers erected as part of the 400kV overhead line will be painted to match the towers on the two existing 275kV transmission lines which are due to be repainted in 2012. The painting of the new towers will be undertaken prior to the components arriving on site.

Within the remainder of the route, the unpainted galvanised steel used for the towers would be left to dull down naturally over time through weathering.

## **8.0 MAINTENANCE OF MITIGATION MEASURES**

### **8.1 Screen Planning and Landscaping**

In accordance with good practice, planting will be maintained for a period of 5 years during which planting areas will be inspected by a landscape architect. Planting found to have failed will be replaced during the next appropriate planting season,

### **8.2 Tower Painting**

The repainting of towers will be undertaken in line with the general maintenance programme for the overhead line. It is anticipated that the towers will be repainted in approximately 40 years.

## 9.0 CONCLUSIONS

A total of 23 different mitigation options were evaluated in terms of the Matrix developed through the Technical Group. These options included 7 different forms of different forms of mitigation. The outcome of the joint evaluation undertaken with Stirling Council and based on the methodology agreed with them is reflected within the SVIMS.

Although a total of 12 options for undergrounding of the 400kV overhead line were examined, undergrounding of all or any part of the route of the overhead line in the Stirling area is not being promoted. It cannot be justified for exactly the same reasons as it was rejected firstly by the Reporters and subsequently by Scottish Ministers. The rejection is based on the grounds of cost, technical difficulties, limited environmental benefits and delay.

As noted previously, it is difficult to mitigate the effects on visual amenity of lattice steel towers some 50m or more in height. This has been acknowledged from the outset of the Beauldy Denny project. Careful routeing of the line has sought to minimise adverse effects, as far as possible, but the need to achieve a balance between impacts on landscape character and visual amenity, with other aspects of the environment and with economic, technical and operational considerations, means that in some areas adverse impacts are inevitable.

Measures have been developed in response to condition 19, to provide enhancement of the landscape character and some mitigation of effects on visual amenity. The implementation of planting and landscaping proposals is, as stated above, subject to obtaining landowner consent but SPT will use reasonable endeavours to secure this as part of the ongoing development of the project.

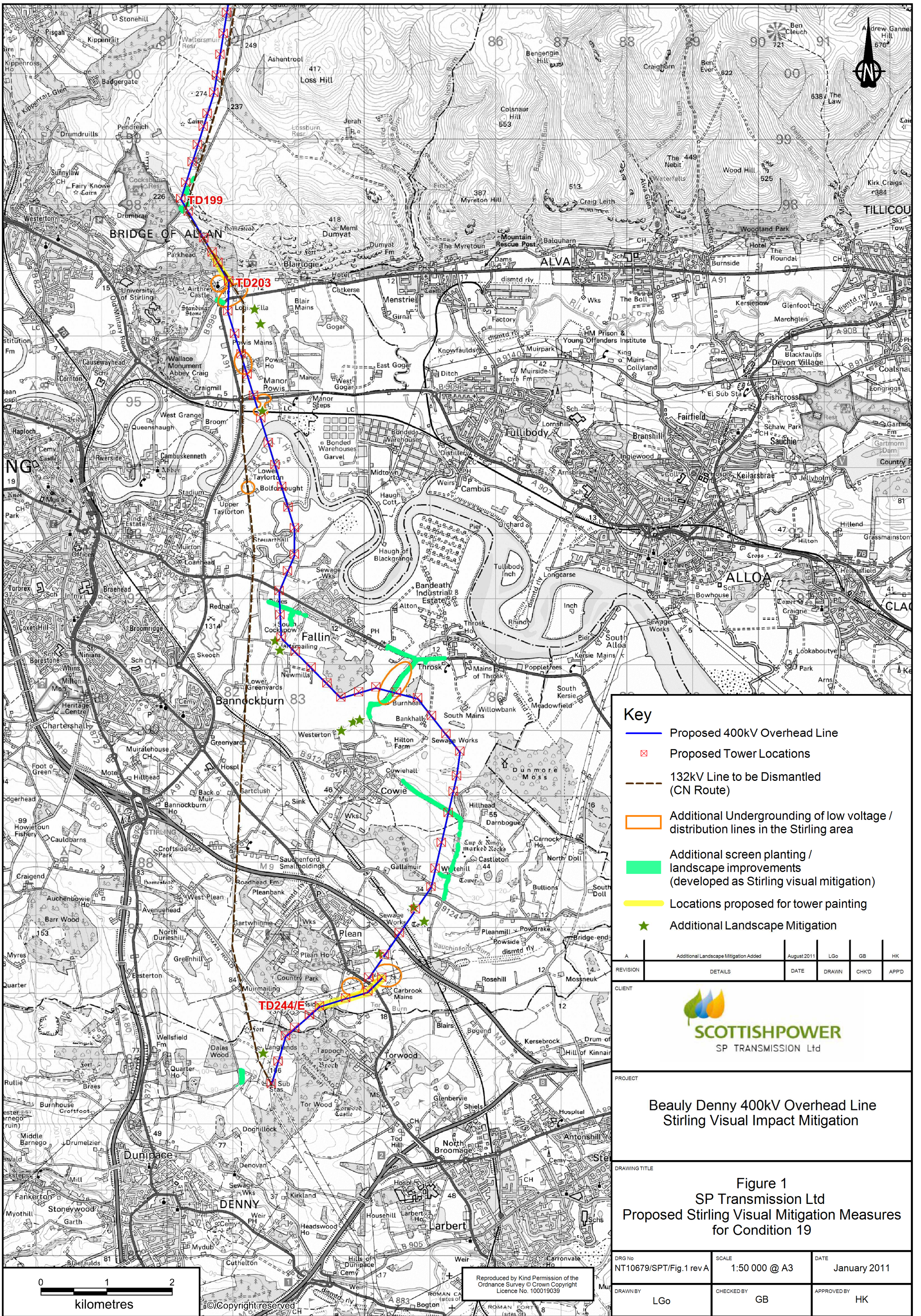
The mitigation measures developed as part of condition 19 have been extended in places to take account of the re-evaluation of all mitigation measures, a process undertaken with Stirling Council. The drawings attached to this submission provide the detailed information in relation to all mitigation measures, and some illustrations of these (in specific areas) to demonstrate the short, medium and longer term effects of the proposed planting.

Table 1, above, sets out the assessed effects of the mitigation measures (including the planting proposals developed prior to condition 19) on the landscape character and visual amenity of the immediate area. This indicates that, in the longer term, there will be a reduction in the impact of the overhead line on landscape character and visual amenity, in particular as a result of the areas of planting proposed within the vicinity of the 400kV line in the Stirling area.

SPT considers that this suite of mitigation measures, developed in response to condition 19 of the overhead line consent and re-evaluated with Stirling Council, provides (in the short and

longer term) beneficial effects on landscape character and visual amenity, within the Stirling area.

In order to meet the Beaully Denny construction programme, SPT requires to place contracts by the end of 2011 with a site start to follow shortly thereafter. Any further slippage to the construction programme, caused by a delay in fulfilling condition 19, will have implications for renewable targets; for generators and for electricity consumers in the form of constraints costs. The implications of any further delay cannot be overstated.



**Key**

- Proposed 400kV Overhead Line
- ⊠ Proposed Tower Locations
- 132kV Line to be Dismantled (CN Route)
- Additional Undergrounding of low voltage / distribution lines in the Stirling area
- Additional screen planting / landscape improvements (developed as Stirling visual mitigation)
- Locations proposed for tower painting
- ★ Additional Landscape Mitigation

A	Additional Landscape Mitigation Added	August 2011	LGo	GB	HK
REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

  
**SCOTTISHPOWER**  
 SP TRANSMISSION Ltd

**PROJECT**  
 Beauly Denny 400kV Overhead Line  
 Stirling Visual Impact Mitigation

**DRAWING TITLE**  
 Figure 1  
 SP Transmission Ltd  
 Proposed Stirling Visual Mitigation Measures  
 for Condition 19

DRG No NT10679/SPT/Fig.1 rev A	SCALE 1:50 000 @ A3	DATE January 2011
DRAWN BY LGo	CHECKED BY GB	APPROVED BY HK

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 kilometres



Towers TD202, TD202/1 and TD203 'darkened' to reduce their visibility against the scarp slope

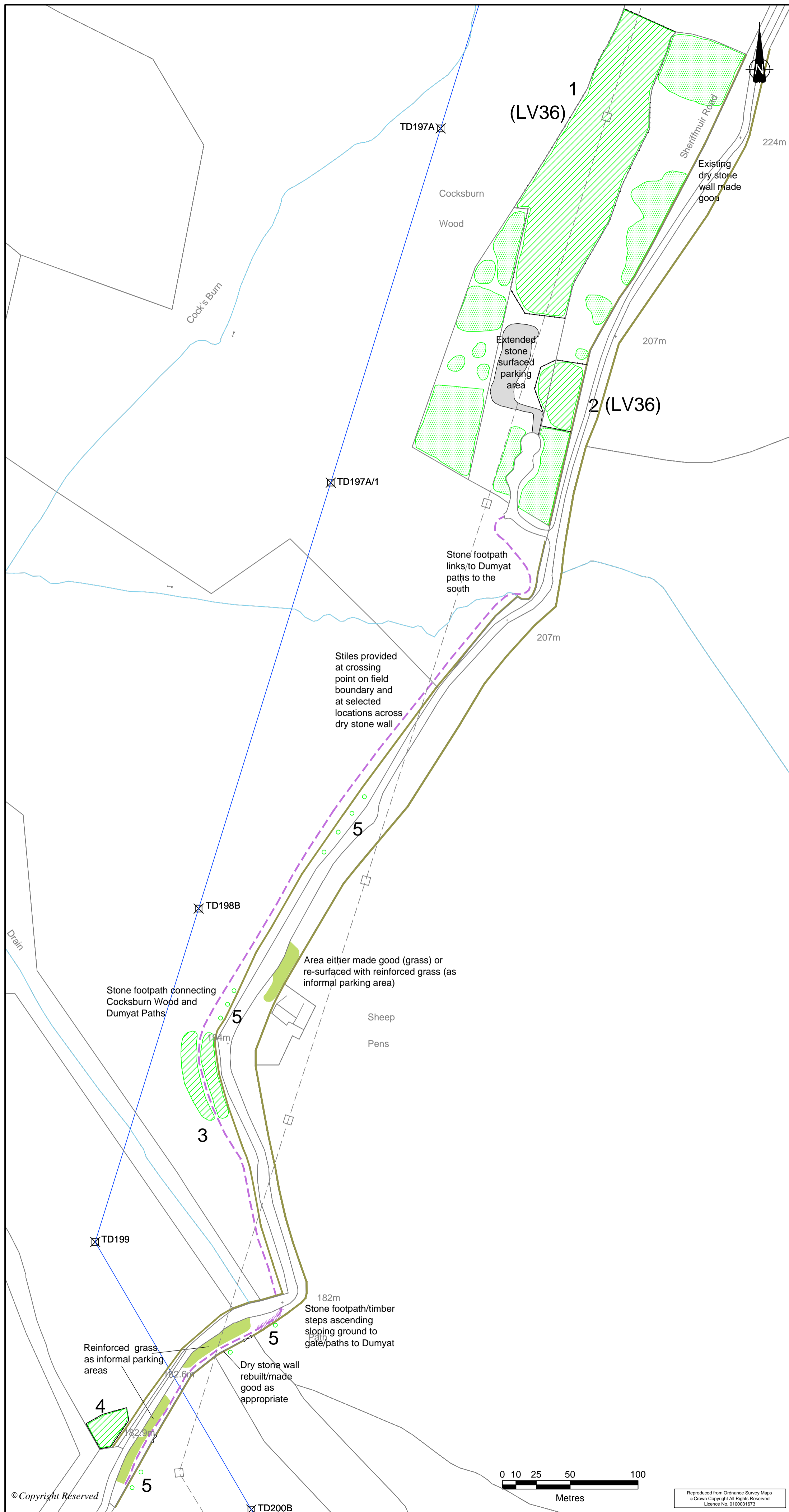


No painting of overhead line towers



Note: Further work is required to determine the precise extent and number of towers to be painted, and the colour to be used, taking into consideration views of these from all directions.

CLIENT  	REVISION DRG No NT10679/WM1	DETAILS SCALE NTS @ A3	DATE January 2011	DRAWN JDS	CHK'D GB	APP'D HK
	PROJECT  Stirling Visual Mitigation					
DRAWING TITLE  Enlarged View from the Wallace Monument, of the Proposed Overhead Line on the Ochils Scarp Slope						
<input type="checkbox"/> STOKE-ON-TRENT (HEAD OFFICE) TEL 0845 111 7777		<input type="checkbox"/> CARDIFF TEL 029 2072 9191		<input type="checkbox"/> LEIGH TEL 01942 260101		
<input checked="" type="checkbox"/> NEWCASTLE UPON TYNE TEL 0191 232 0943		<input type="checkbox"/> SHEFFIELD TEL 0114 245 6244		<input type="checkbox"/> EDINBURGH TEL 0131 555 3311		
<input type="checkbox"/> WEST BROMWICH TEL 0121 580 0909		<input type="checkbox"/> LIVERPOOL TEL 08451 451 900				
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- KEY**
- Proposed overhead line and tower position
  - Existing line/tower to be dismantled
  - Existing trees
  - Proposed planting
  - Reinforced grass parking area
  - Stone parking area
  - Dry stone wall (repairs)
  - Stone footpath
  - Fence (protection to planting)
  - Mitigation measure developed prior to (and not part of) Condition 19

**Cocksburn Wood (LV36)**

**Planting proposals**

1. 650 no. *Pinus sylvestris* (Scots pine)  
500 no. *Pinus contorta* (Lodgepole pine)  
500 no. *Betula pubescens* (Downy birch)  
400 no. *Quercus petraea* (Oak)  
300 no. *Sorbus aucuparia* (Rowan)  
300 no. *Juniperus communis* (Juniper)  
Planting at 2m c/c as transplants 60-80cm.h. (80%), planted with cane supports and mulch mats, staked whips / feathered trees 125-150cm.h. (15%) and half standard trees 175-250cm.h. (5%), within fenced protection against damage by deer, stock and rabbits.
2. 65 no. *Pinus sylvestris* (Scots pine)  
50 no. *Pinus contorta* (Lodgepole pine)  
50 no. *Betula pubescens* (Downy birch)  
40 no. *Quercus petraea* (Oak)  
30 no. *Sorbus aucuparia* (Rowan)  
30 no. *Juniperus communis* (Juniper)  
Planting at 2m c/c as transplants 60-80cm.h. (80%), planted with cane supports and mulch mats, staked whips / feathered trees 125-150cm.h. (15%) and half standard trees 175-250cm.h. (5%), within fenced protection against damage by deer, stock and rabbits.

**Cocksburn Reservoir/Dumyat**

3. 100 no. *Pinus sylvestris* (Scots pine)  
100 no. *Pseudotsuga menziesii* (Douglas fir)  
85 no. *Pinus contorta* (Lodgepole pine)  
Planting within separate areas either side of path, at 2m c/c as transplants 60-80cm.h. (80%), planted with cane supports and mulch mats, staked whips / feathered trees 125-150cm.h. (15%) and half standard trees 175-250cm.h. (5%), within fenced protection against damage by deer, stock and rabbits.
4. 50 no. *Pinus sylvestris* (Scots pine)  
50 no. *Pseudotsuga menziesii* (Douglas fir)  
35 no. *Pinus contorta* (Lodgepole pine)  
Planting at 2m c/c as transplants 60-80cm.h. (80%), planted with cane supports and mulch mats, staked whips / feathered trees 125-150cm.h. (15%) and half standard trees 175-250cm.h. (5%), within fenced protection against damage by deer, stock and rabbits.
5. Individual tree planting *Fagus sylvatica* (Beech)  
Planted as half standard trees 175-250cm.h., staked and with spiral guard or tree shelter protection against damage by rabbits.

All planting proposals subject to landowner consent.

**Note:**  
Condition of drystone walling to be assessed as far as the junction with Logie Kirk road.

REVISION	DETAILS	DATE	DRAWN	CHECKED	APPROVED
CLIENT					
 SP TRANSMISSION Ltd					
PROJECT					
Stirling Visual Mitigation					
DRAWING TITLE					
Cocksburn Wood/Dumyat Landscaping					
DRG No	SCALE	DATE			
NT10679/101	1:2000 @ A2	January 2011			
DRAWN BY	CHECKED BY	APPROVED BY			
JDS	GB	HK			
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<input type="checkbox"/> LONDON	TEL 020 7287 2872	<input type="checkbox"/> EDINBURGH	TEL 0131 555 3311		
		<input type="checkbox"/> LIVERPOOL	TEL 08451 451 900		
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**KEY**

- Proposed overhead line and tower position
- Existing line/tower to be dismantled
- Existing woodland
- Area of tree clearance

**Yellowcraig Wood Forest Design**

**Planting proposals**  
Possible species for 'feature' planting might include:

[yellows]  
Acer platanoides 'Princetown Gold'  
Philadelphus coronarius 'Aureus'  
Sambucus racemosa 'Plumosa Aurea'

[reds/purples]  
Acer platanoides 'Crimson Sentry'  
Acer palmatum 'Bloodgood'  
Corylus maxima 'Purpurea'

[silver/grey]  
Eucalyptus gunnii  
Salix alba sericia / 'Argentea'  
Eleagnus commutata

Species to enhance the nature conservation interest of the site might include:  
Pinus sylvestris (Scots pine)  
Quercus petraea (Oak)  
Fraxinus excelsior (Ash)  
Prunus avium (Wild cherry)  
Corylus avellana (Hazel)  
Crataegus monogyna (Hawthorn)  
Ilex aquifolium (Holly) (container grown)

Planting to be selected with reference to the location of the planting area relative to the location of the overhead line, with lower growing species in areas closest to the line.  
Planting generally at between 1 and 2m.c/c.

Planting areas still to be determined (in conjunction with landowner)

**Note:**  
A detailed planting plan/forestry plan is to be developed for the Yellowcraig Wood area, in discussions with the landowners. Works would include repairs to drystone dykes in the vicinity of the overhead line and footpath improvements, as necessary.

REVISION	DETAILS	DATE	DRAWN	CHKD	APP'D

CLIENT

SCOTTISHPOWER  
SP TRANSMISSION Ltd

PROJECT

Stirling Visual Mitigation

DRAWING TITLE

Yellowcraig Wood  
Forest Design Concept/Landscaping

DRG No	SCALE	DATE
NT10679/104	1:2000 @ A2	January 2011

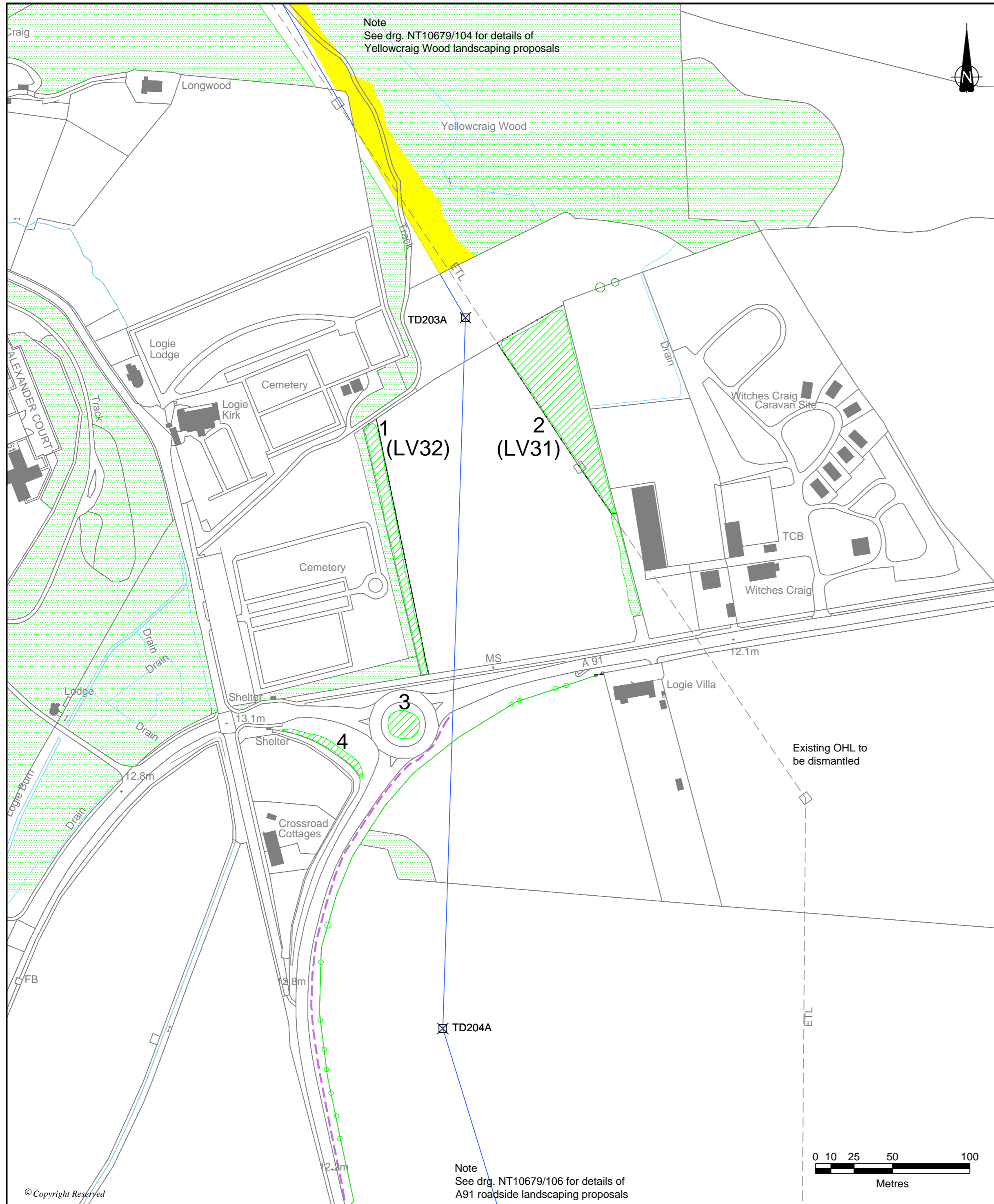
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JDS	GB	HK

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<input type="checkbox"/> LONDON	TEL 020 7287 2872	<input type="checkbox"/> EDINBURGH	TEL 0131 555 3311
		<input type="checkbox"/> LIVERPOOL	TEL 08451 451 900

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Note  
See drg. NT10679/104 for details of  
Yellowcraig Wood landscaping proposals

Note  
See drg. NT10679/106 for details of  
A91 roadside landscaping proposals

**Logie Kirk Landscaping (LV32)**

Planting proposals

- 70 no. Pinus sylvestris (Scots pine)  
40 no. Quercus petraea (Oak)  
35 no. Fraxinus excelsior (Ash)  
30 no. Prunus avium (Wild cherry)  
100 no. Corylus avellana (Hazel)  
100 no. Crataegus monogyna (Hawthorn)  
100 no. Ilex aquifolium (Holly) (container grown)

Planting at 2m c/c (tree species) (70%) and 1m c/c (shrub species) (30%) as a mix of transplants 60-80cm.h. (80%), planted with cane supports and mulch mats, staked whips / feathered trees 125-150cm.h. (15%) and half standard trees 175-250cm.h. (5%), within fenced protection against damage by deer and rabbits.

**Witches Craig Caravan Park Landscaping (LV31)**

Planting proposals

- 180 no. Pinus sylvestris (Scots pine)  
160 no. Quercus petraea (Oak)  
140 no. Fraxinus excelsior (Ash)  
130 no. Prunus avium (Wild cherry)  
200 no. Corylus avellana (Hazel)  
260 no. Crataegus monogyna (Hawthorn)  
150 no. Ilex aquifolium (Holly) (container grown)

Planting at 2m c/c (tree species) (80%) and 1m c/c (shrub species) (20%) as a mix of transplants 60-80cm.h. (80%), planted with cane supports and mulch mats, staked whips / feathered trees 125-150cm.h. (15%) and half standard trees 175-250cm.h. (5%), within fenced protection against damage by deer and rabbits.

**A91, Logie Area Landscaping**

Planting proposals

- (roundabout)
  - 4 no. Pinus sylvestris (60-80cm, 2m c/c)
  - 4 no. Betula pubescens (60-80cm, 2m c/c)
  - 55 no. Ilex aquifolium 'Ferox Argentea' (60-80cm, 1m c/c) (c.g.)
  - 110 no. Cotoneaster conspicuus 'Decorus' (40-60cm, 0.5m c/c) (c.g.)
  - 100 no. Hebe 'Purple Pixie' (40-60cm, 0.5m c/c) (c.g.)
  - 160 no. Erica x darleyensis 'White Perfection' (40-60cm, 0.3m c/c) (c.g.)
  - 160 no. Erica tetralix 'Pink Star' (40-60cm, 0.3m c/c) (c.g.)
  - 160 no. Calluna vulgaris 'Sir John Charrington' (40-60cm, 0.3m c/c) (c.g.)

Planted with cane supports and spiral guards (tree species); area mulched post-planting with 150mm depth bark mulch or equivalent. Trees/shrubs planted in central area of roundabout, fringed by lower growing plants.

- (west of roundabout)
  - 20 no. Pinus sylvestris (Scots pine)
  - 20 no. Quercus petraea (Oak)
  - 25 no. Crataegus monogyna (Hawthorn)
  - 15 no. Ilex aquifolium (Holly) (container grown)

All planting proposals subject to landowner consent.

**KEY**

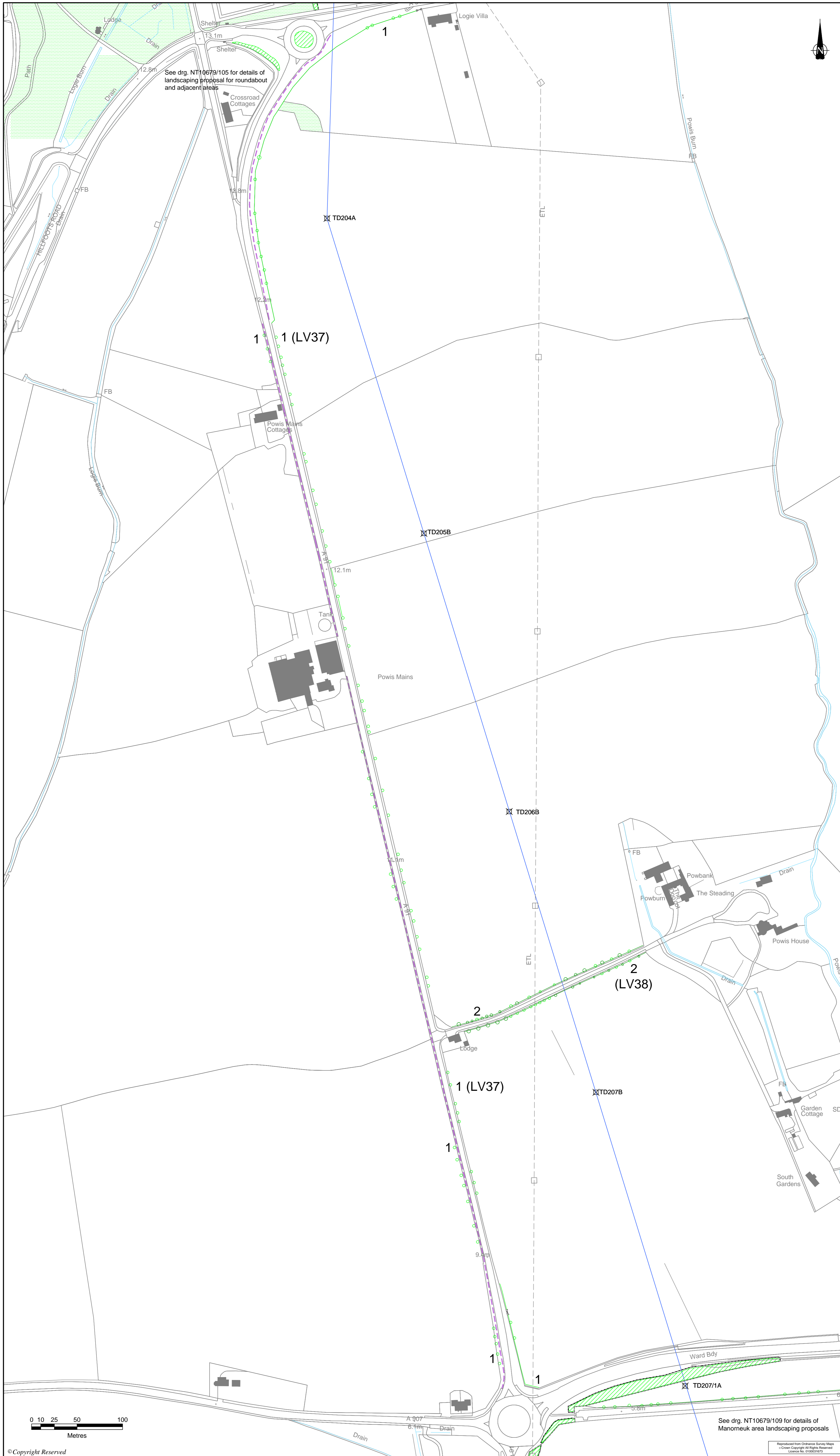
	Proposed overhead line and tower position
	Existing line/tower to be dismantled
	Existing woodland/trees
	Proposed planting blocks
	Proposed roadside hedging
	Fence (protection to planting)
	Mitigation measure developed prior to (and not part of) Condition 19

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
CLIENT					
PROJECT					
Stirling Visual Mitigation					
DRAWING TITLE					
Logie Kirk/Witches Craig/A91 Logie Area Landscaping					
DRG No	SCALE	DATE			
NT10679/105	1:2 000 @ A2	January 2011			
DRAWN BY	CHECKED BY	APPROVED BY			
JDS	GB	HK			
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<input type="checkbox"/> WEST BROMWICH	TEL 0121 580 0909	<input type="checkbox"/> SHEFFIELD	TEL 0114 245 6244		
<input type="checkbox"/> LONDON	TEL 020 7287 2872	<input type="checkbox"/> EDINBURGH	TEL 0131 555 3311		
		<input type="checkbox"/> LIVERPOOL	TEL 08451 451 900		



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- KEY**
- Proposed overhead line and tower position
  - Existing line/tower to be dismantled
  - Existing woodland/trees
  - Existing hedgerow (Powis House Avenue)
  - Proposed planting blocks
  - Proposed hedgerow tree planting
  - Proposed roadside hedging
  - Proposed footpath
  - Fence (protection to planting)
  - Mitigation measure developed prior to (and not part of) Condition 19

**A91, Landscaping (LV37)**

- Planting proposals**
- 1. Roadside hedging**
- 90% *Crataegus monogyna* (Hawthorn)
  - 3% *Corylus avellana* (Hazel)
  - 3% *Prunus spinosa* (Blackthorn)
  - 2% *Ilex aquifolium* (Holly) (container grown)
  - 2% *Rosa rugosa* (Dogrose)

Planted as a double staggered row with 7 plants / lin.m., transplants 60-80cm.h., with spiral, tree shelter or shrub guard protection against damage by rabbits.

- Roadside hedgerow trees**
- Fraxinus excelsior* (Ash)

Planted as half standard trees 175-250cm.h., staked and with spiral guard or tree shelter protection against damage by rabbits.

- Powis House Avenue Landscaping (LV38)**
- 2. Minimum of 15 no. heavy standard trees, 350-425 cm.h., double staked. Species to be agreed with landowner.

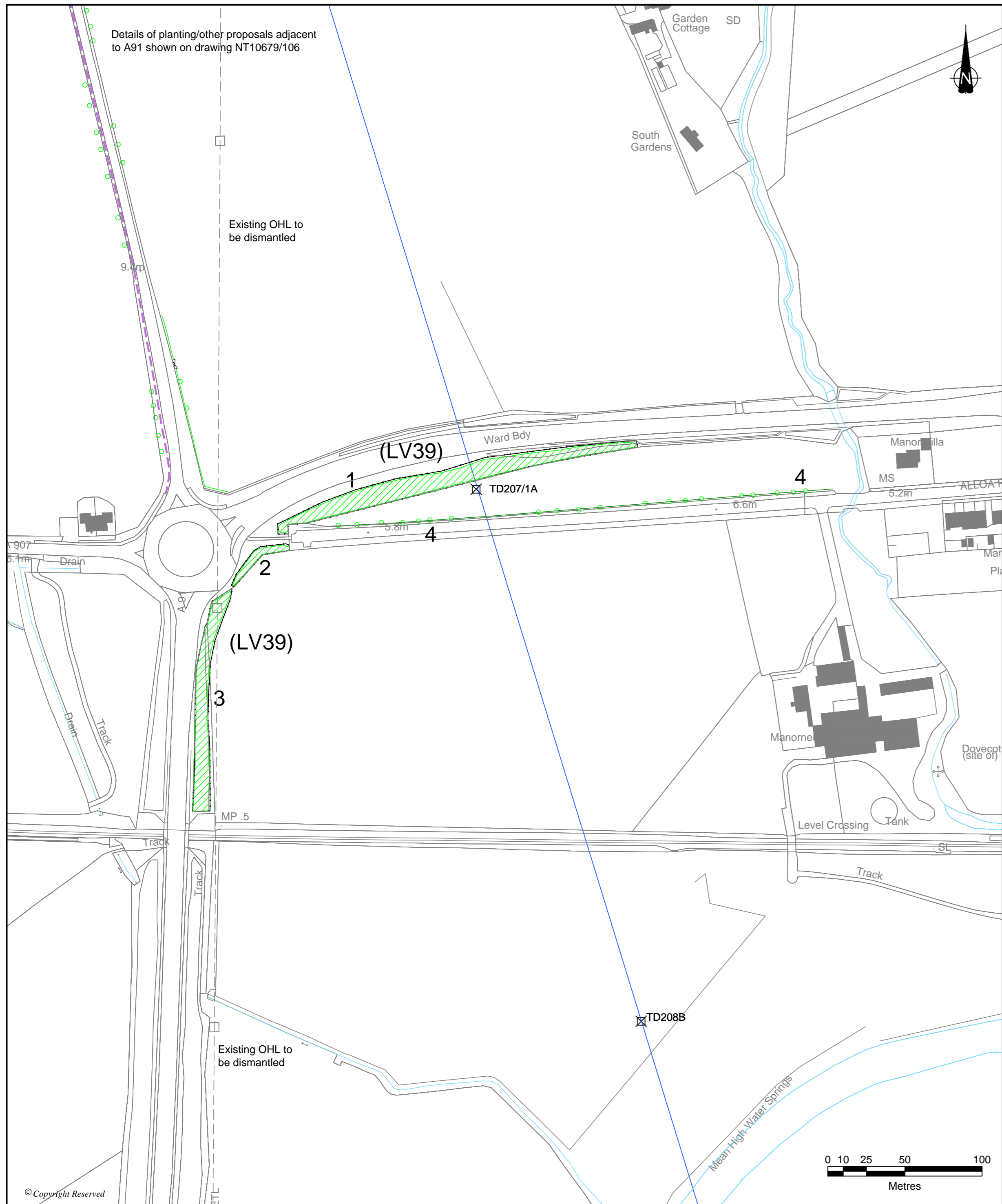
All planting proposals subject to landowner consent.

- NOTES**
- Existing A91 roadside hedges and trees not shown.
  - Low growing trees only, planted in corridor beneath proposed OHL
  - Roadside hedgerow trees to be planted at least 10m from existing trees.
  - Footpath proposed subject to agreement and approval of Stirling Council Roads Dept. Alternative route running within fields could also be considered (to east of road), subject to landowner agreement.

REVISION	DETAILS	DATE	DRAWN	CHECKED	APPROVED
CLIENT					
PROJECT					
Stirling Visual Mitigation					
DRAWING TITLE					
A91/Powis House Avenue Landscaping					
DRG No:	SCALE:	DATE:			
NT10679/106	1:2000 @ A1	January 2011			
DRAWN BY:	CHECKED BY:	APPROVED BY:			
JDS					
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<input type="checkbox"/> LONDON	TEL 020 7287 2872	<input type="checkbox"/> EDINBURGH	TEL 0131 555 2111		
		<input type="checkbox"/> LIVERPOOL	TEL 08451 481 900		
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See drg. NT10679/109 for details of Manorneuk area landscaping proposals

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**Manorneuk area Landscaping (LV39)**

**Planting proposals**

- 110 no. Pinus sylvestris (Scots pine)  
 90 no. Betula pubescens (Downy birch)  
 70 no. Fraxinus excelsior (Ash)  
 50 no. Sorbus aucuparia (Rowan)  
 200 no. Crataegus monogyna (Hawthorn)  
 200 no. Corylus avellana (Hazel)  
 150 no. Ilex aquifolium (Holly) (container grown)

Planting at 2m c/c (tree species) (70%) and 1m c/c (shrub species) (30%), as transplants 60-80cm.h. (60%), planted with cane supports and mulch mats, staked whips / feathered trees 125-150cm.h. (30%) and half standard trees 175-250cm.h. (10%), within fenced protection against damage by deer and rabbits.

- (adj roundabout)  
 20 no. Pinus sylvestris (Scots pine)  
 15 no. Betula pubescens (Downy birch)  
 30 no. Crataegus monogyna (Hawthorn)  
 30 no. Corylus avellana (Hazel)

Planting at 2m c/c (tree species) (70%) and 1m c/c (shrub species) (30%) as transplants 60-80cm.h. (60%), planted with cane supports and mulch mats, staked whips / feathered trees (30%) and half standard trees 175-250cm.h. (10%), within fenced protection against damage by deer and rabbits.

- 100 no. Pinus sylvestris (Scots pine)  
 50 no. Betula pubescens (Downy birch)  
 50 no. Fraxinus excelsior (Ash)  
 100 no. Corylus avellana (Hazel)  
 75 no. Ilex aquifolium (Holly)  
 75 no. Viburnum opulus (Guelder rose)  
 85 no. Prunus spinosa (Blackthorn)

Planting at 2m c/c (tree species) (70%) and 1m c/c (shrub species) (30%) as transplants 60-80cm.h. (60%), planted with cane supports and mulch mats, staked whips / feathered trees (30%) and half standard trees 175-250cm.h. (10%), within fenced protection against damage by deer and rabbits.

- Hedgerow trees, Alloa Road (west)  
 65% Fraxinus excelsior (Ash)  
 35% Sorbus aucuparia (Rowan)

Planted as half standard trees 175-250cm.h., staked and with spiral guard or tree shelter protection against damage by rabbits.

All planting proposals subject to landowner consent.

**KEY**

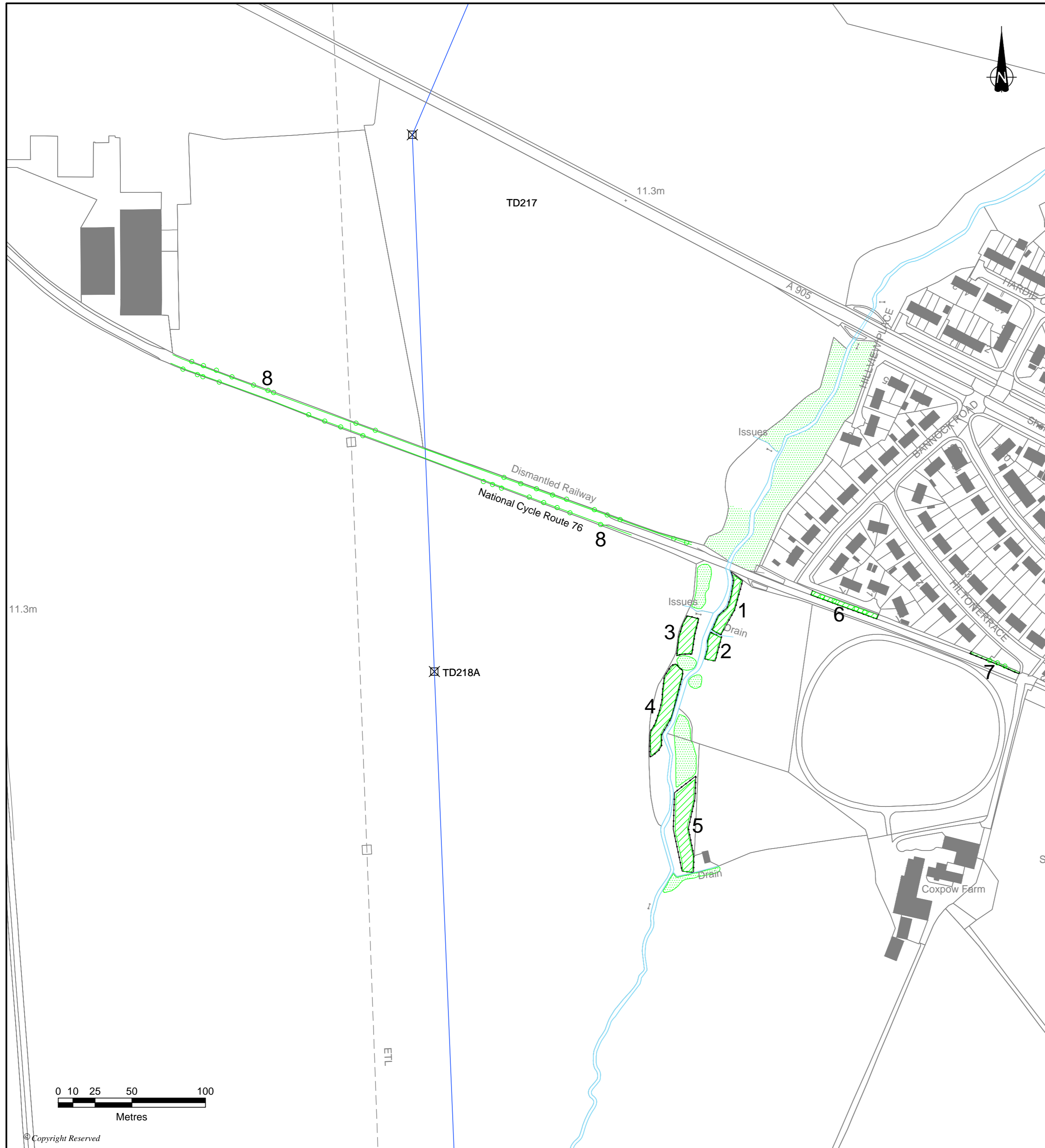
- Proposed overhead line and tower position
- Existing line/tower to be dismantled
- Existing hedgerow
- Proposed planting blocks
- Proposed hedgerow trees planting
- Fence (protection to planting)
- Mitigation measure developed prior to (and not part of) Condition 19

**NOTE**

Shrubs/small trees only, planted in corridor beneath proposed OHL

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
CLIENT					
PROJECT					
Stirling Visual Mitigation					
DRAWING TITLE					
Manorneuk Area Landscaping					
DRG No	SCALE	DATE			
NT10679/109	1:2 000 @ A2	January 2011			
DRAWN BY	CHECKED BY	APPROVED BY			
JDS	GB	HK			
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<input type="checkbox"/> LONDON	TEL 020 7287 2872	<input type="checkbox"/> EDINBURGH	TEL 0131 555 3311		
		<input type="checkbox"/> LIVERPOOL	TEL 08451 451 900		

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**SW Edge of Fallin Landscaping**

Planting proposals

1. 15 no. Pinus sylvestris (Scots pine)  
10 no. Quercus petraea (Oak)  
5 no. Fraxinus excelsior (Ash)  
10 no. Aesculus hippocastanum (Horse chestnut)  
5 no. Betula pubescens (Downy birch)  
25 no. Corylus avellana (Hazel)  
25 no. Crataegus monogyna (Hawthorn)  
20 no. Ilex aquifolium (Holly) (container grown)
2. 10 no. Pinus sylvestris (Scots pine)  
5 no. Quercus petraea (Oak)  
5 no. Betula pubescens (Downy birch)  
10 no. Corylus avellana (Hazel)  
10 no. Crataegus monogyna (Hawthorn)  
10 no. Rosa rugosa (Dogrose)
3. 10 no. Quercus petraea (Oak)  
10 no. Fraxinus excelsior (Ash)  
10 no. Aesculus hippocastanum (Horse chestnut)  
10 no. Betula pubescens (Downy birch)  
20 no. Corylus avellana (Hazel)  
20 no. Crataegus monogyna (Hawthorn)  
15 no. Ilex aquifolium (Holly) (container grown)  
15 no. Rosa rugosa (Dogrose)
4. 25 no. Quercus petraea (Oak)  
25 no. Fraxinus excelsior (Ash)  
15 no. Aesculus hippocastanum (Horse chestnut)  
20 no. Betula pubescens (Downy birch)  
40 no. Corylus avellana (Hazel)  
40 no. Crataegus monogyna (Hawthorn)  
30 no. Ilex aquifolium (Holly) (container grown)  
30 no. Rosa rugosa (Dogrose)
5. 30 no. Quercus petraea (Oak)  
30 no. Fraxinus excelsior (Ash)  
20 no. Aesculus hippocastanum (Horse chestnut)  
20 no. Betula pubescens (Downy birch)  
50 no. Corylus avellana (Hazel)  
40 no. Crataegus monogyna (Hawthorn)  
45 no. Ilex aquifolium (Holly) (container grown)  
40 no. Rosa rugosa (Dogrose)

Planting at 2m c/c (tree species) (70%) and 1m c/c (shrub species) (30%) as transplants 60-80cm.h. (40%), planted with cane supports and mulch mats, staked whips / feathered trees (40%) and half standard trees 175-250cm.h. (20%), within fenced protection against damage by deer and rabbits.

6. (Bannock Road)  
90 no. Crataegus monogyna (Hawthorn), 60-80cm  
90 no. Cotoneaster simonsii, 60-80cm  
90 no. Escallonia 'Slieve Donard', 60-80cm  
4 no. Betula pubescens (Downy birch), half standard trees 175-250cm.h., staked
7. (Hilton Terrace)  
70 no. Crataegus monogyna (Hawthorn) , 60-80cm  
70 no. Cotoneaster simonsii, 60-80cm  
70 no. Escallonia 'Slieve Donard', 60-80cm  
3 no. Betula pubescens (Downy birch), half standard trees 175-250cm.h., staked

All planting mulched and within area fenced for protection against damage by rabbits

8. (trackside hedging)  
90% Crataegus monogyna (Hawthorn)  
3% Corylus avellana (Hazel)  
3% Prunus spinosa (Blackthorn)  
2% Ilex aquifolium (Holly) (container grown)  
2% Rosa rugosa (Dogrose)

Planted as a double staggered row with 7 plants / lin.m., transplants 60-80cm.h., with spiral, tree shelter or shrub guard protection against damage by rabbits.

(trackside hedgerow trees)  
Fraxinus excelsior (Ash)

Planted as half standard trees 175-250cm.h., staked and with spiral guard or tree shelter protection against damage by rabbits.

All planting proposals subject to landowner consent.

**KEY**

- Proposed overhead line and tower position
- Existing line/tower to be dismantled
- Existing woodland/trees
- Existing hedgerow
- Proposed planting blocks
- Proposed hedgerow tree planting
- Proposed trackside hedging
- Fence (protection to planting)

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
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CLIENT

PROJECT

Stirling Visual Mitigation

DRAWING TITLE

South West Edge of Fallin Landscaping

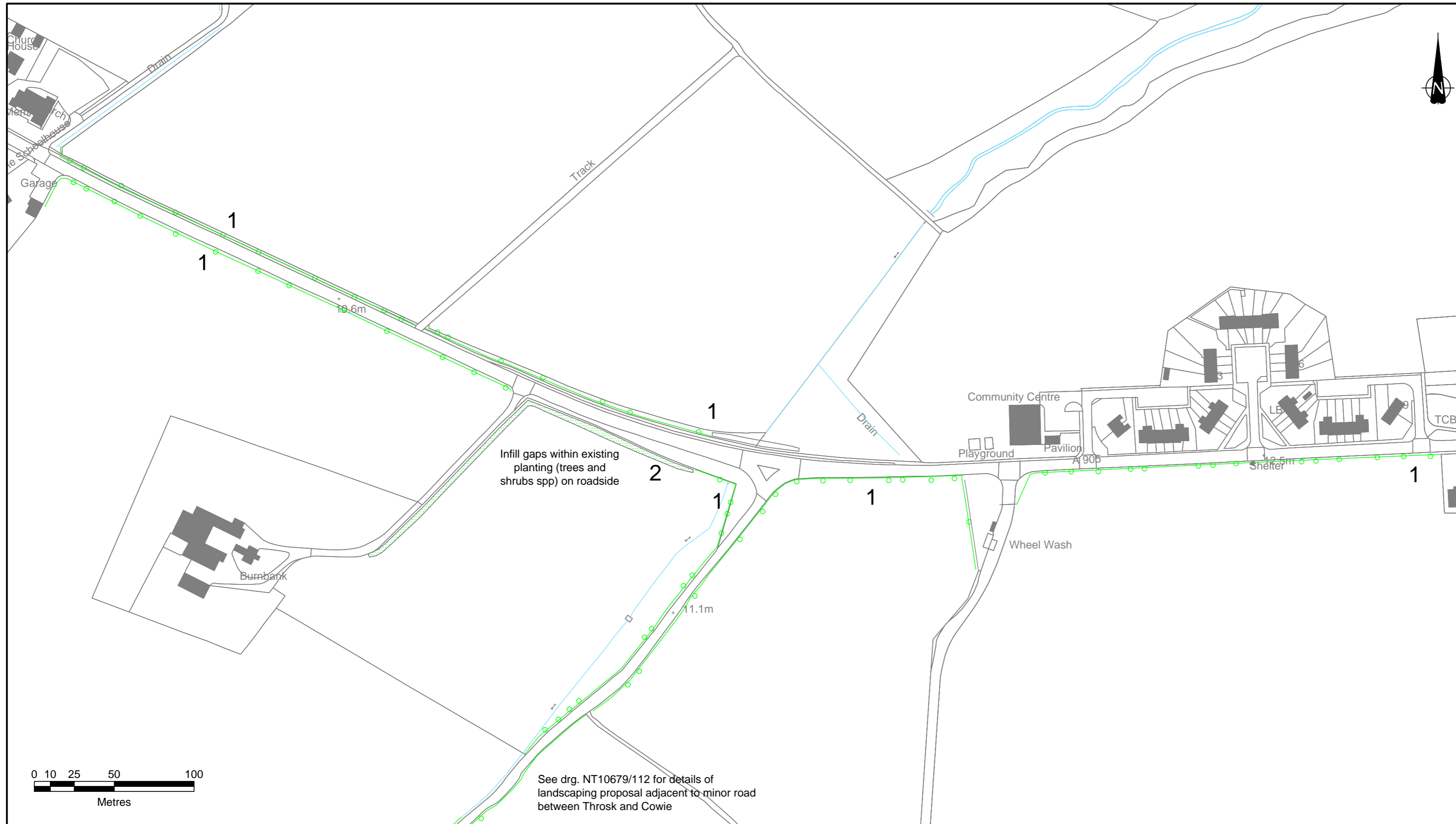
DRG No	SCALE	DATE
NT10679/110	1:2 000 @ A2	January 2011

DRAWN BY	CHECKED BY	APPROVED BY
JDS	GB	HK

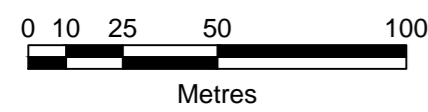
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		<input type="checkbox"/> LIVERPOOL	TEL 08451 451 900

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- KEY**
- Existing woodland/trees
  - Proposed hedgerow tree planting
  - Proposed roadside hedging



See drg. NT10679/112 for details of landscaping proposal adjacent to minor road between Throsk and Cowie

**A905 east of Fallin Landscaping**

Planting proposals

1. (roadside hedging)
  - 90% Crataegus monogyna (Hawthorn)
  - 3% Corylus avellana (Hazel)
  - 3% Prunus spinosa (Blackthorn)
  - 2% Ilex aquifolium (Holly) (container grown)
  - 2% Rosa rugosa (Dogrose)

Planted as a double staggered row with 7 plants / lin.m., transplants 60-80cm.h., with spiral, tree shelter or shrub guard protection against damage by rabbits.

(roadside hedgerow trees)  
Fraxinus excelsior (Ash)

Planted as half standard trees 175-250cm.h., staked and with spiral guard or tree shelter protection against damage by rabbits.

2. (infill planting)
  - 30% Pinus sylvestris (Scots pine)
  - 20% Quercus petraea (Oak)
  - 15% Betula pubescens (Downy birch)
  - 10% Corylus avellana (Hazel)
  - 15% Crataegus monogyna (Hawthorn)
  - 10% Ilex aquifolium (Holly) (container grown)

Planting at 2m c/c (tree species) (70%) and 1m c/c (shrub species) (30%) as transplants 60-80cm.h. (40%), planted with cane supports and mulch mats, staked whips / feathered trees (40%) and half standard trees 175-250cm.h. (20%), with spiral guard or tube protection against damage by rabbits.

All planting proposals subject to landowner consent.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
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PROJECT  
**Stirling Visual Mitigation**

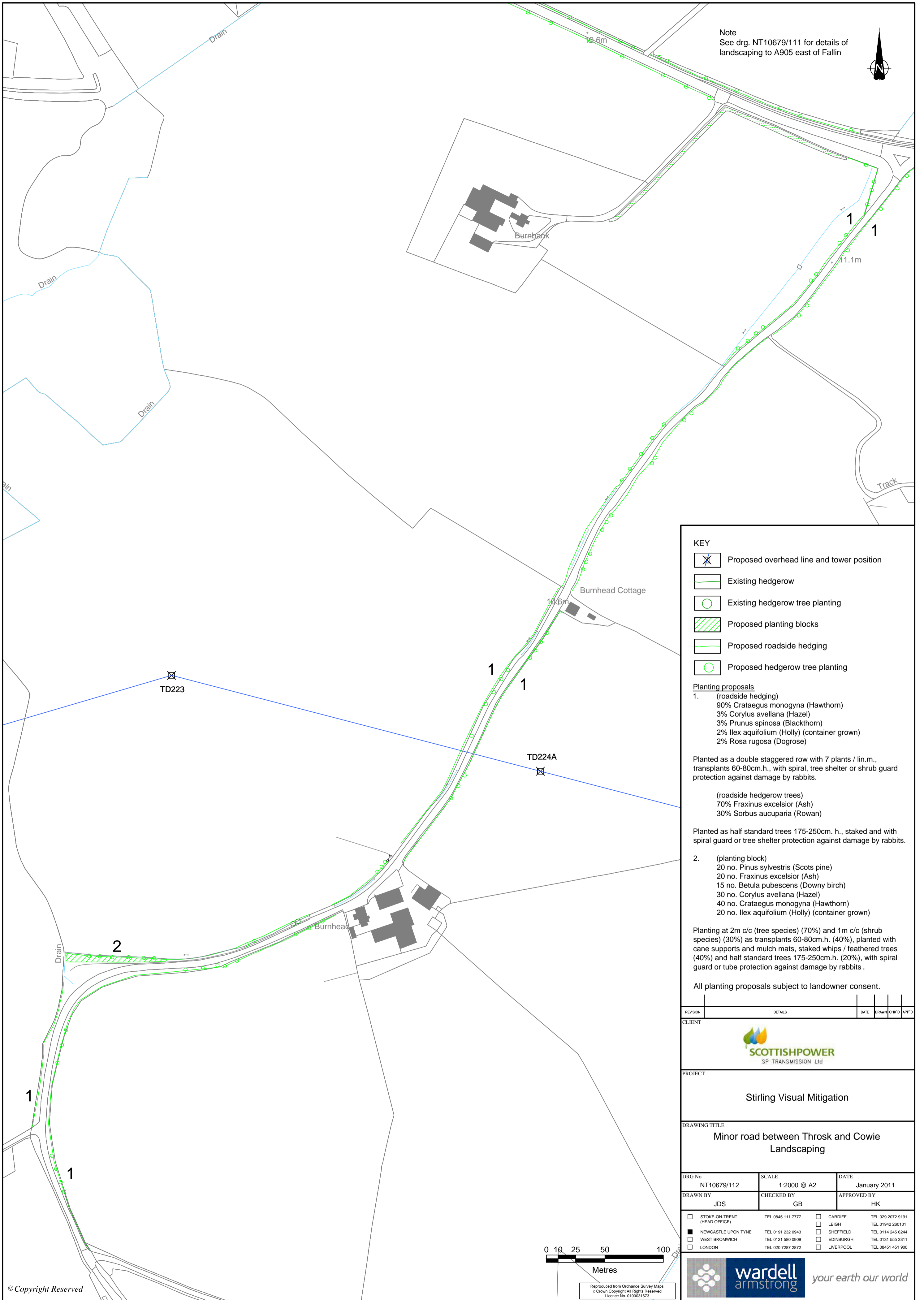
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**A905 East of Fallin Landscaping**

DRG No NT10679/111	SCALE 1:2 000 @ A2	DATE January 2011
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DRAWN BY JDS	CHECKED BY GB	APPROVED BY HK
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		<input type="checkbox"/> LIVERPOOL	TEL 08451 451 900











Note  
See drg. NT10679/111 for details of  
landscaping to A905 east of Fallin



**KEY**

-  Proposed overhead line and tower position
-  Existing hedgerow
-  Existing hedgerow tree planting
-  Proposed planting blocks
-  Proposed roadside hedging
-  Proposed hedgerow tree planting

**Planting proposals**

1. (roadside hedging)
  - 90% Crataegus monogyna (Hawthorn)
  - 3% Corylus avellana (Hazel)
  - 3% Prunus spinosa (Blackthorn)
  - 2% Ilex aquifolium (Holly) (container grown)
  - 2% Rosa rugosa (Dogrose)

Planted as a double staggered row with 7 plants / lin.m., transplants 60-80cm.h., with spiral, tree shelter or shrub guard protection against damage by rabbits.

(roadside hedgerow trees)  
70% Fraxinus excelsior (Ash)  
30% Sorbus aucuparia (Rowan)

Planted as half standard trees 175-250cm. h., staked and with spiral guard or tree shelter protection against damage by rabbits.
2. (planting block)
  - 20 no. Pinus sylvestris (Scots pine)
  - 20 no. Fraxinus excelsior (Ash)
  - 15 no. Betula pubescens (Downy birch)
  - 30 no. Corylus avellana (Hazel)
  - 40 no. Crataegus monogyna (Hawthorn)
  - 20 no. Ilex aquifolium (Holly) (container grown)

Planting at 2m c/c (tree species) (70%) and 1m c/c (shrub species) (30%) as transplants 60-80cm.h. (40%), planted with cane supports and mulch mats, staked whips / feathered trees (40%) and half standard trees 175-250cm.h. (20%), with spiral guard or tube protection against damage by rabbits.

All planting proposals subject to landowner consent.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
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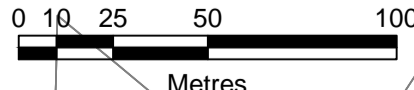
**Stirling Visual Mitigation**

DRAWING TITLE

**Minor road between Throsk and Cowie Landscaping**

DRG No	SCALE	DATE
NT10679/112	1:2000 @ A2	January 2011
DRAWN BY	CHECKED BY	APPROVED BY
JDS	GB	HK

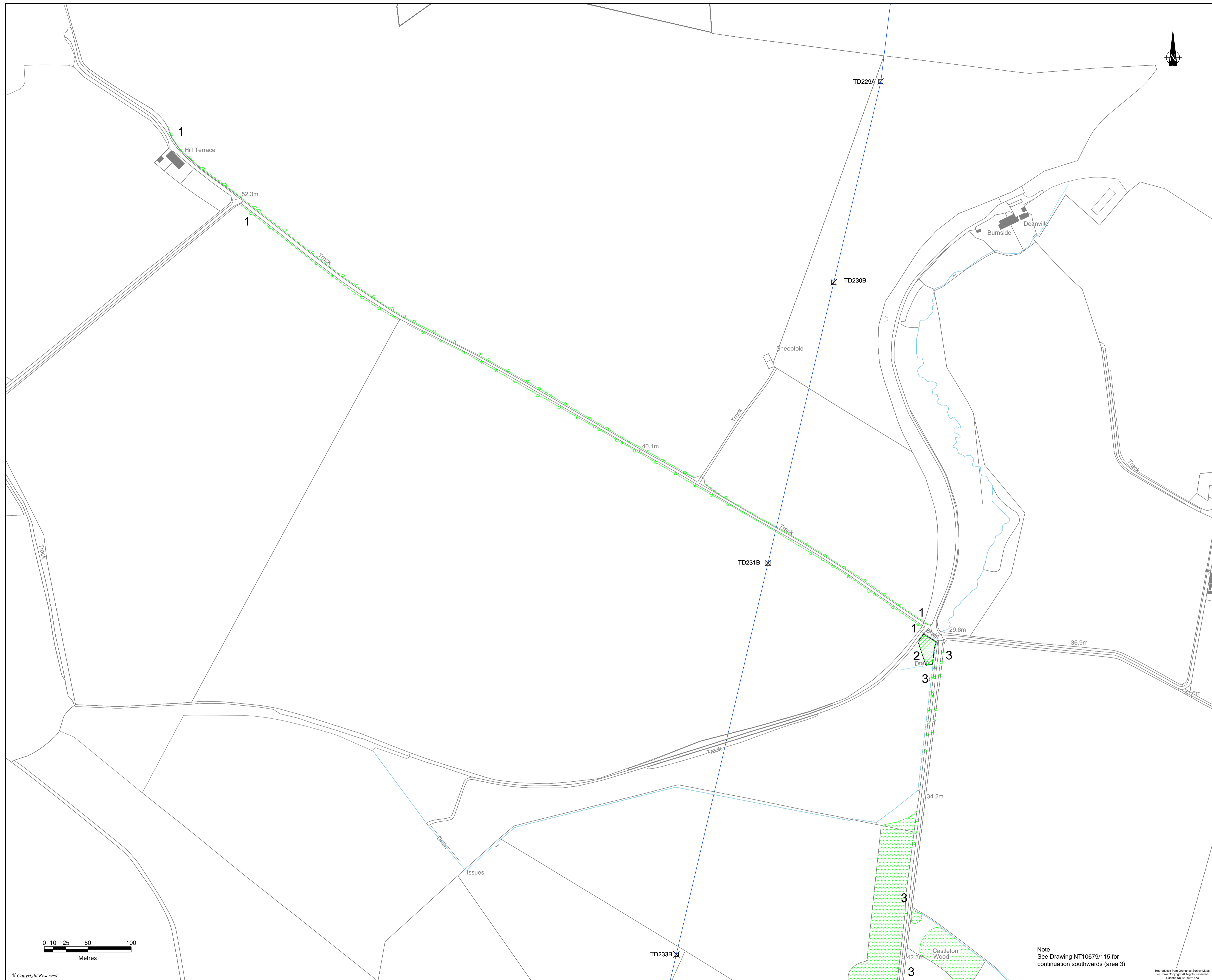
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<input type="checkbox"/> LONDON	TEL 020 7287 2872	<input type="checkbox"/> EDINBURGH	TEL 0131 555 3311
		<input type="checkbox"/> LIVERPOOL	TEL 08451 451 900



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**KEY**

	Proposed overhead line and tower position
	Existing woodland/trees
	Proposed planting blocks
	Proposed hedgerow tree planting
	Proposed roadside hedging
	Fence (protection to planting)

**Cycle track east of Cowie Landscaping**

**Planting proposals**

- (trackside hedging)
  - 90% Crataegus monogyna (Hawthorn)
  - 3% Corylus avellana (Hazel)
  - 3% Prunus spinosa (Blackthorn)
  - 2% Ilex aquifolium (Holly) (container grown)
  - 2% Rosa rugosa (Dogrose)

Planted as a double staggered row with 7 plants / lin.m., transplants 60-80cm.h., with spiral, tree shelter or shrub guard protection against damage by rabbits.

(trackside hedgerow trees)  
Fraxinus excelsior (Ash)

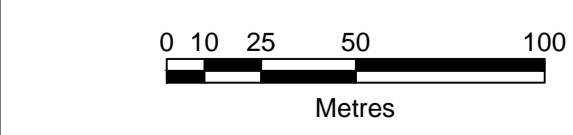
Planted as half standard trees 175-250cm. h., staked and with spiral guard or tree shelter protection against damage by rabbits.
- (planting block)
  - 25 no. Alnus glutinosa (Alder)
  - 15 no. Salix caprea (Goat willow)
  - 20 no. Betula pubescens (Downy birch)
  - 30 no. Corylus avellana (Hazel)
  - 40 no. Crataegus monogyna (Hawthorn)
  - 30 no. Ilex aquifolium (Holly) (container grown)

Planting at 2m c/c (tree species) (70%) and 1m c/c (shrub species) (30%) as transplants 60-80cm.h. (60%), planted with cane supports and mulch mats, staked whips / feathered trees (20%) and half standard trees 175-250cm.h. (20%), within fenced protection against damage by deer and rabbits.
- (trackside tree planting)
  - 40% Quercus petraea (Oak)
  - 60% Fraxinus excelsior (Ash)

Planted as half standard trees 175-250cm.h., staked and with spiral guard or tree shelter protection against damage by rabbits.

All planting proposals subject to landowner consent.

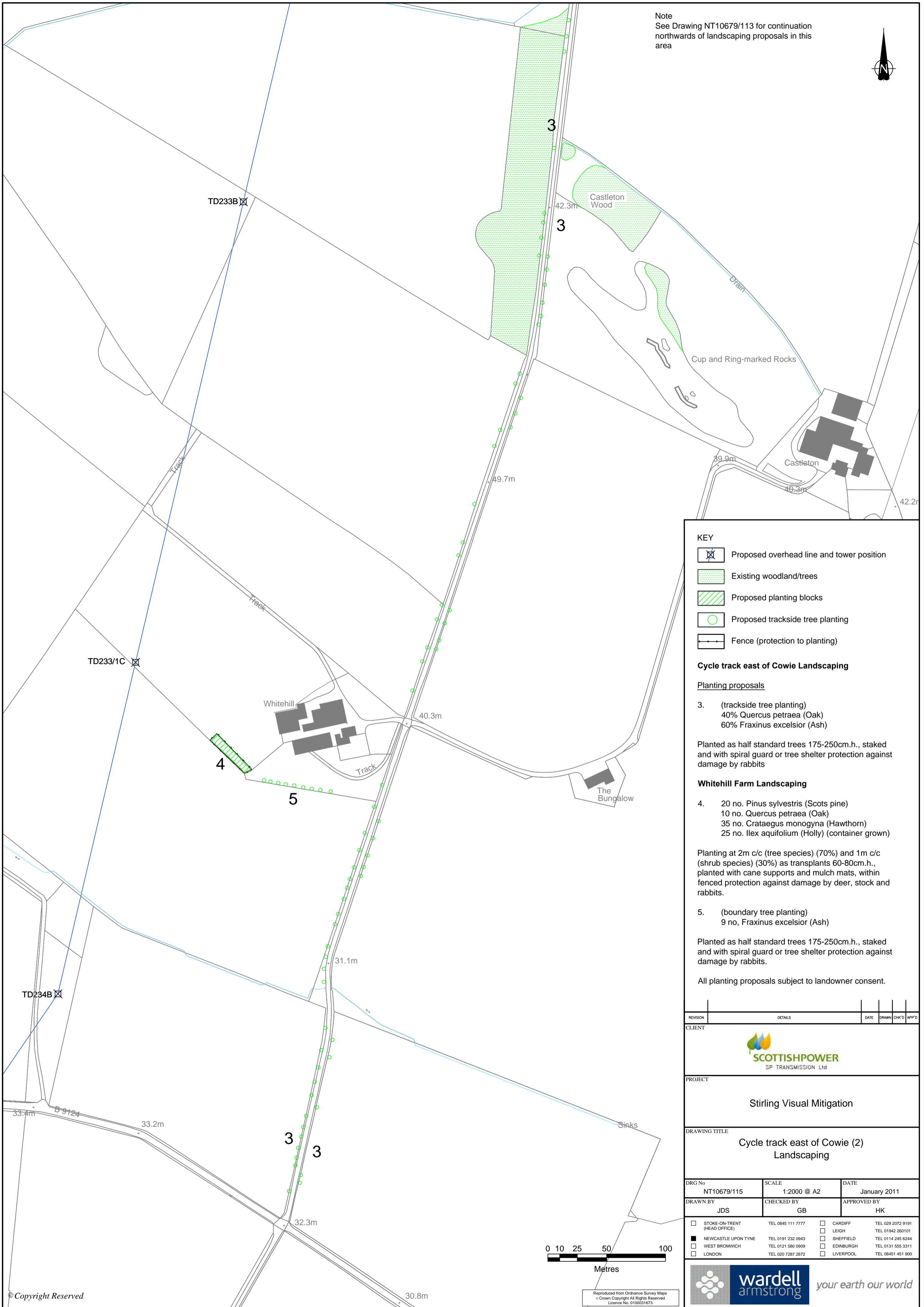
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CLIENT				
 SP TRANSMISSION Ltd				
PROJECT				
Stirling Visual Mitigation				
DRAWING TITLE				
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DRG No	SCALE	DATE		
NT10679/113	1:2000 @ A1	January 2011		
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<input type="checkbox"/> LONDON	TEL 020 7287 2872	<input type="checkbox"/> LIVERPOOL	TEL 08451 401 900	
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Note  
 See Drawing NT10679/115 for  
 continuation southwards (area 3)

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Note  
See Drawing NT10679/113 for continuation  
northwards of landscaping proposals in this  
area



**KEY**

- Proposed overhead line and tower position
- Existing woodland/trees
- Proposed planting blocks
- Proposed trackside tree planting
- Fence (protection to planting)

**Cycle track east of Cowie Landscaping**

Planting proposals

3. (trackside tree planting)  
40% Quercus petraea (Oak)  
60% Fraxinus excelsior (Ash)

Planted as half standard trees 175-250cm.h., staked and with spiral guard or tree shelter protection against damage by rabbits

**Whitehill Farm Landscaping**

4. 20 no. Pinus sylvestris (Scots pine)  
10 no. Quercus petraea (Oak)  
35 no. Crataegus monogyna (Hawthorn)  
25 no. Ilex aquifolium (Holly) (container grown)

Planting at 2m c/c (tree species) (70%) and 1m c/c (shrub species) (30%) as transplants 60-80cm.h., planted with cane supports and mulch mats, within fenced protection against damage by deer, stock and rabbits.

5. (boundary tree planting)  
9 no. Fraxinus excelsior (Ash)

Planted as half standard trees 175-250cm.h., staked and with spiral guard or tree shelter protection against damage by rabbits.

All planting proposals subject to landowner consent.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
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SCOTTISHPOWER  
SP TRANSMISSION Ltd

PROJECT

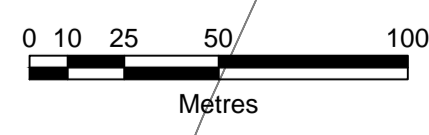
Stirling Visual Mitigation

DRAWING TITLE

Cycle track east of Cowie (2)  
Landscaping

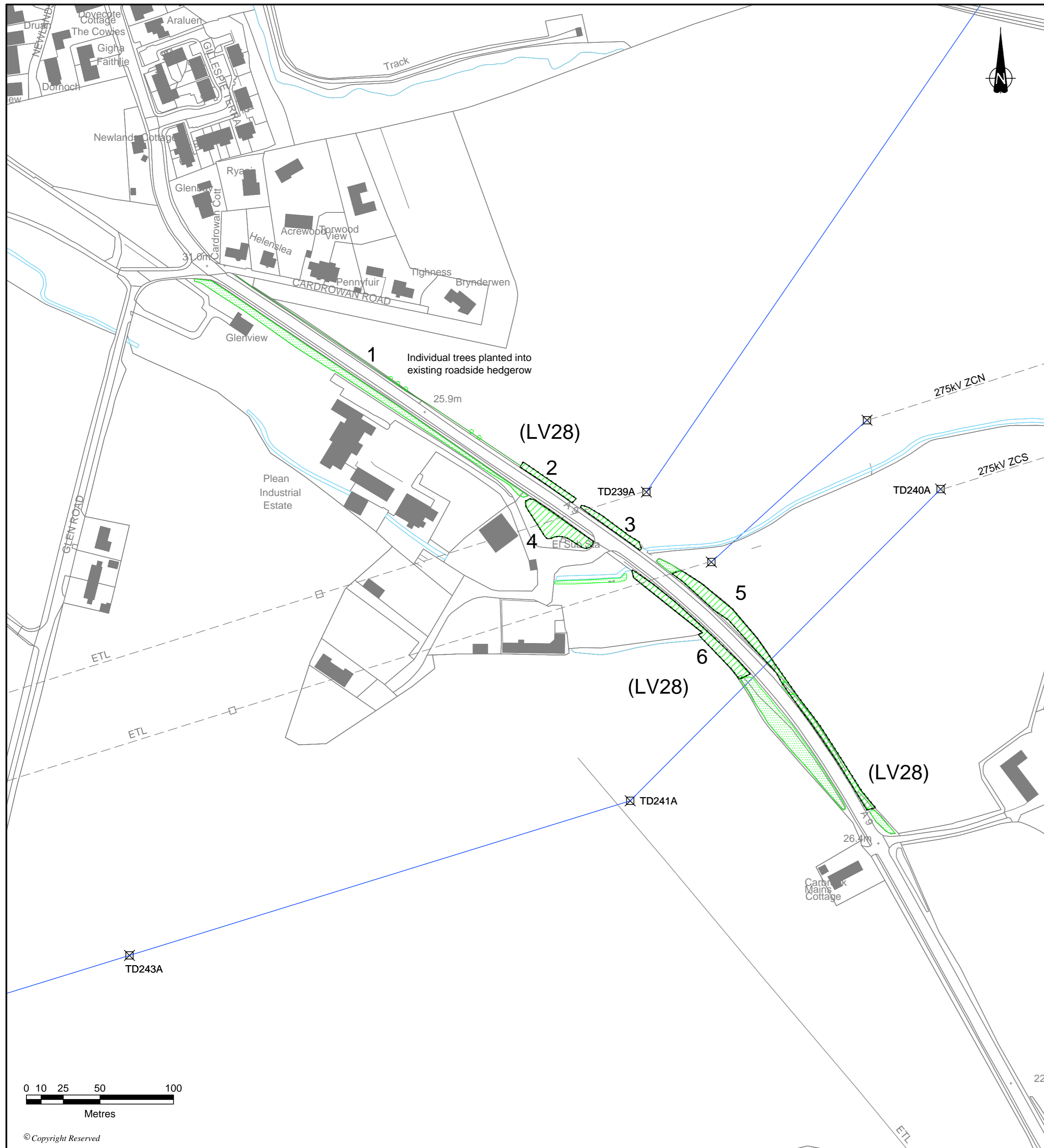
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DRAWN BY	CHECKED BY	APPROVED BY
JDS	GB	HK

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**A9, Carbrook Mains Landscaping (LV28)**

**Planting proposals**

- 3 no. Fraxinus excelsior (Ash)  
2 no. Sorbus aucuparia (Rowan)

Planted at intervals, half standard trees 175-250cm.h., staked and with spiral guard or tree shelter protection against damage by rabbits.

- 15 no. Corylus avellana (Hazel)  
20 no. Sorbus aucuparia (Rowan)  
30 no. Crataegus monogyna (Hawthorn)  
15 no. Ilex aquifolium (Holly) (container grown)  
20 no. Prunus spinosa (Blackthorn)

Planted at 1m c/c as transplants 60-80cm.h. (80%), planted with cane supports and mulch mats, and staked whips / feathered trees (20%), within fenced protection against damage by deer and rabbits.

- 50 no. Crataegus monogyna (Hawthorn)  
25 no. Ilex aquifolium (Holly) (container grown)  
25 no. Prunus spinosa (Blackthorn)  
30 no. Salix caprea (Goat willow)

- 75 no. Corylus avellana (Hazel)  
75 no. Sambucus nigra (Elder)  
50 no. Sorbus aucuparia (Rowan)  
90 no. Crataegus monogyna (Hawthorn)  
75 no. Ilex aquifolium (Holly) (container grown)  
75 no. Prunus spinosa (Blackthorn)

- 110 no. Sambucus nigra (Elder)  
110 no. Sorbus aucuparia (Rowan)  
180 no. Crataegus monogyna (Hawthorn)  
120 no. Ilex aquifolium (Holly) (container grown)  
120 no. Prunus spinosa (Blackthorn)

- 65 no. Sorbus aucuparia (Rowan)  
120 no. Crataegus monogyna (Hawthorn)  
90 no. Ilex aquifolium (Holly) (container grown)  
65 no. Prunus spinosa (Blackthorn)  
110 no. Salix caprea (Goat willow)

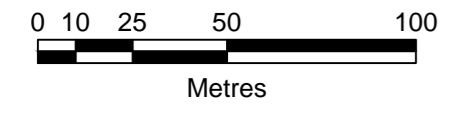
Planted at 1m c/c as transplants 60-80cm.h., planted with cane supports and mulch mats, within fenced protection against damage by deer and rabbits.

All planting proposals subject to landowner consent.

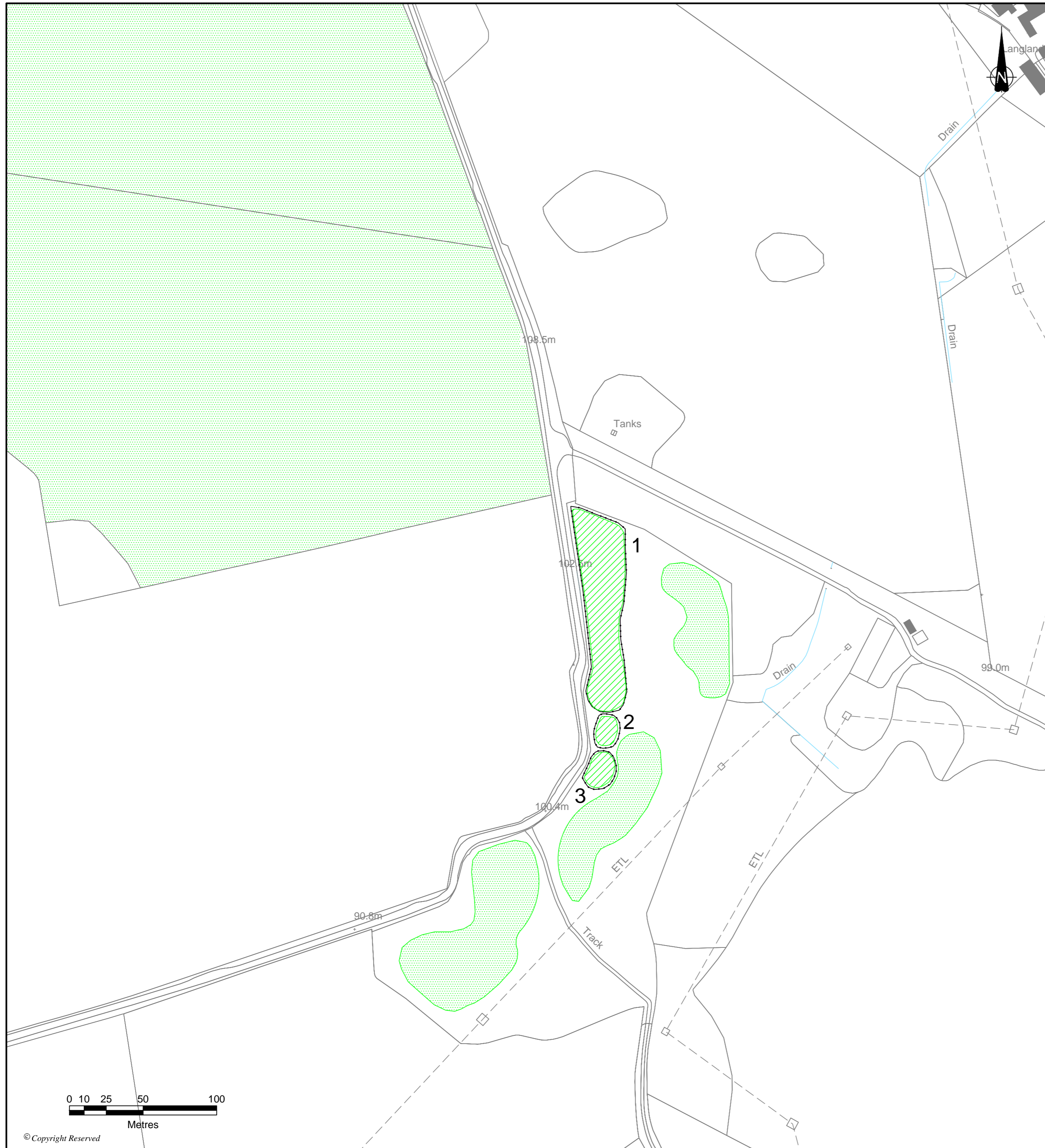
**KEY**

- Proposed overhead line and tower position
- Existing woodland/trees
- Existing hedgerow
- Proposed planting blocks
- Proposed hedgerow tree planting
- Fence (protection to planting)
- Mitigation measure developed prior to (and not part of) Condition 19

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
CLIENT					
PROJECT					
Stirling Visual Mitigation					
DRAWING TITLE					
A9, Carbrook Mains Landscaping					
DRG No	SCALE	DATE			
NT10679/116	1:2 000 @ A2	January 2011			
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JDS	GB	HK			
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<input type="checkbox"/> LONDON	TEL 020 7287 2872	<input type="checkbox"/> EDINBURGH	TEL 0131 555 3311		
		<input type="checkbox"/> LIVERPOOL	TEL 08451 451 900		
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**Minor road south of Dales Wood Landscaping**

Planting proposals

1. 180 no. Pinus sylvestris (Scots pine)  
180 no. Betula pubescens (Downy birch)  
120 no. Salix caprea (Goat willow)  
140 no. Corylus avellana (Hazel)  
160 no. Sorbus aucuparia (Rowan)
2. 15 no. Pinus sylvestris (Scots pine)  
15 no. Betula pubescens (Downy birch)  
10 no. Salix caprea (Goat willow)  
15 no. Corylus avellana (Hazel)  
15 no. Sorbus aucuparia (Rowan)
3. 25 no. Pinus sylvestris (Scots pine)  
25 no. Betula pubescens (Downy birch)  
15 no. Salix caprea (Goat willow)  
25 no. Corylus avellana (Hazel)  
25 no. Sorbus aucuparia (Rowan)

Planted at 2m c/c as transplants 60-80cm.h. (40%), planted with cane supports and mulch mats, staked whips / feathered trees (40%) and half standard trees 175-250cm.h. (20%), within fenced protection against damage by deer and rabbits.

All planting proposals subject to landowner consent.

**KEY**

- Existing woodland/trees
- Proposed planting blocks
- Fence (protection to planting)

Note:

Substation planting proposals (LV29) and potential mitigation planting at Langlands not shown here (these measures are still to be developed in detail)

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

CLIENT



PROJECT

**Stirling Visual Mitigation**

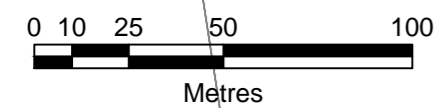
DRAWING TITLE

**Minor road south of Dales Wood Landscaping**

DRG No NT10679/117	SCALE 1:2 000 @ A2	DATE January 2011
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Dumyat, one of the access points to the hillside footpath network, showing possible improvements such as reinstatement of stone walling, provision of stone path and timber stile, tree planting and reinforced-grass surfacing for car parking. Proposed planting shown after 5 years growth.

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CLIENT 	DRG No NT10679/Fig C-1A	SCALE NTS	DATE January 2011
PROJECT Stirling Visual Mitigation	DRAWN BY SKM	CHECKED BY GB	APPROVED BY HK
DRAWING TITLE Figure C-1A Dumyat	 <span style="font-style: italic;">your earth our world</span>		

Proposed 15 years growth





Proposed 25 years growth



Dumyat, one of the access points to the hillside footpath network, showing possible improvements such as reinstatement of stone walling, provision of stone path and timber stile, tree planting and reinforced-grass surfacing for car parking. Proposed planting shown after 15 and 25 years growth.

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CLIENT 	DRG No NT10679/Fig C-1B	SCALE NTS	DATE January 2011
PROJECT Stirling Visual Mitigation	DRAWN BY SKM	CHECKED BY GB	APPROVED BY HK
DRAWING TITLE Figure C-1B Dumyat	 <span style="font-style: italic;">your earth our world</span>		



A91, view north and north-east (south of the Logie roundabout), illustrating the proposed planting mitigation measure LV37 and the change in overhead line transmission in this area

*Note: Proposed planting shown after 5 years growth*



A91, view north and north-east (south of the Logie roundabout), illustrating the proposed planting mitigation measure LV37 and the change in overhead line transmission in this area

*Note: Proposed planting shown after 15 and 25 years growth*

Existing



Proposed 5 years growth



View south-east from the A91, looking towards Powis House and the 'avenue' of trees lining the existing access track

*Note: Proposed planting shown after 5 years growth*



View south-east from the A91, looking towards Powis House and the 'avenue' of trees lining the existing access track

Note: Proposed planting shown after 10 and 20 years growth

Existing





Proposed 5 years growth



View west from the Manor Neuk area towards the Wallace Monument

*Note: Proposed planting shown after 5 years growth.*

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CLIENT 	DRG No NT10679/Fig B-4A Rev A	SCALE NTS	DATE August 2011
PROJECT Stirling Visual Mitigation	DRAWN BY SKM	CHECKED BY GB	APPROVED BY HK
DRAWING TITLE Figure B-4A Rev A View west from Manor Neuk	 <span style="font-style: italic;">your earth our world</span>		





View west from the Manor Neuk area towards the Wallace Monument  
*Note: Proposed planting shown after 15 and 25 years growth.*

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PROJECT Stirling Visual Mitigation	DRAWN BY SKM	CHECKED BY GB	APPROVED BY HK
DRAWING TITLE Figure B-4B Rev A View west from Manor Neuk	 <span style="font-style: italic;">your earth our world</span>		



View north-east along the minor road between Cowie and Throsk illustrating the proposed LV undergrounding and planting mitigation for this area

*Note: Proposed planting shown after 5 years growth*



View north-east along the minor road between Cowie and Throsk illustrating the proposed LV undergrounding and planting mitigation for this area

*Note: Proposed planting shown after 15 and 25 years growth*

Existing



Proposed 5 years growth



A905, view south-west towards Cowie, illustrating the proposed planting mitigation and the change in overhead line transmission in this area

*Note: Proposed planting shown after 5 years growth*



A905, view south-west towards Cowie, illustrating the proposed planting mitigation and the change in overhead line transmission in this area

*Note: Proposed planting shown after 15 and 25 years growth*

Existing





Proposed



Logie Kirk, parking area south of the church


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PROJECT Stirling Visual Mitigation	DRAWN BY SKM	CHECKED BY GB	APPROVED BY HK
DRAWING TITLE Appendix B Figure B-1 Logie Kirk, parking area		 your earth our world	



Logie Kirk - view north of the Kirk tower from within the new cemetery area

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PROJECT Stirling Visual Mitigation	DRAWN BY SKM	CHECKED BY GB	APPROVED BY HK
DRAWING TITLE Appendix B Figure B-2 Logie Kirk, cemetery		 your earth our world	

Existing



Proposed



A905, edge of Stirling (ES Viewpoint 99 Figure 24.1-099 )



Existing



Proposed



Fallin looking north (ES Viewpoint 100A Figure 24.1-100A)

Existing



Proposed

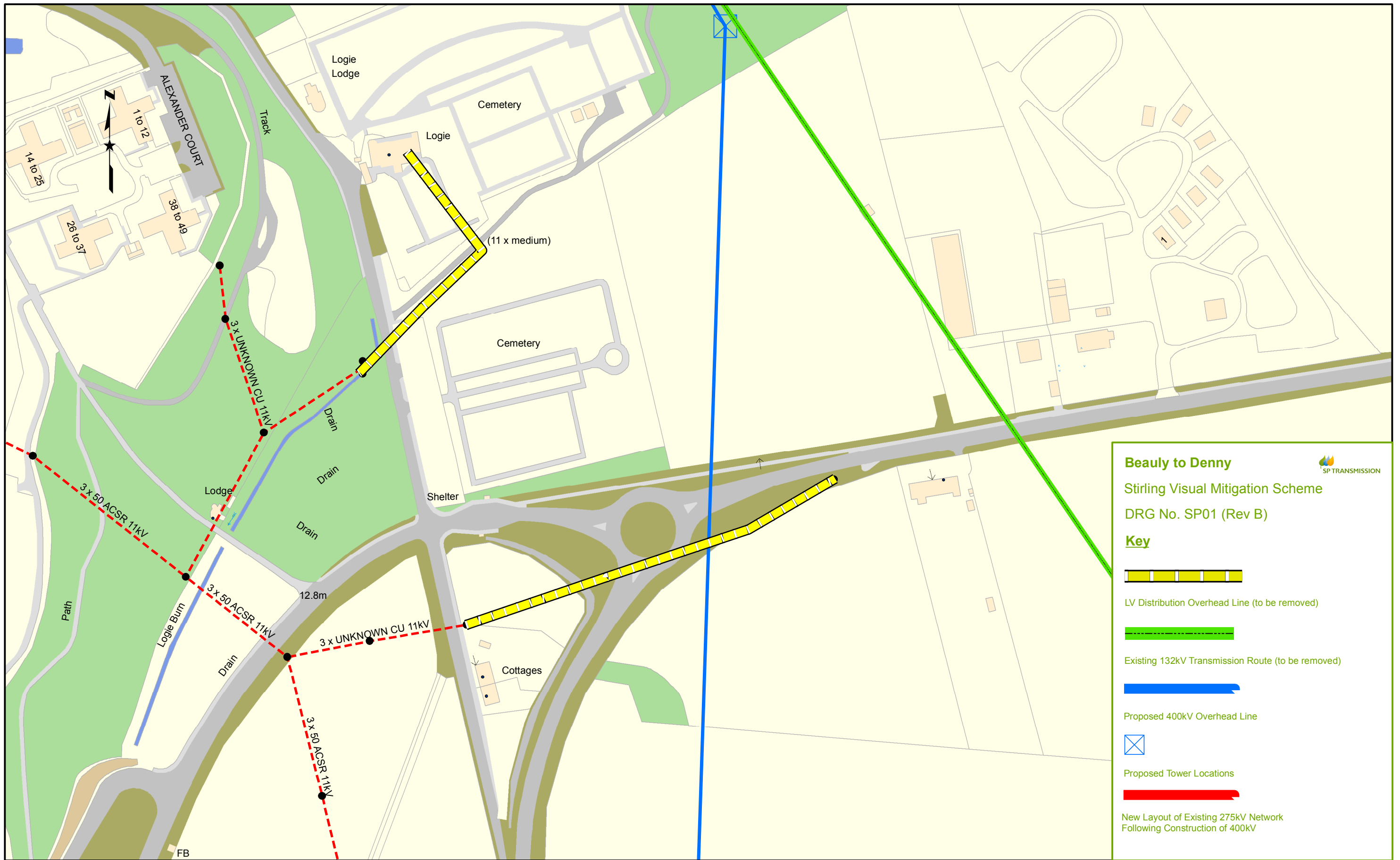


Fallin looking south (ES Viewpoint 100B Figure 24.1-100B)



Carbrook Mains, view north towards Cardrowan Road and Cushenquarter

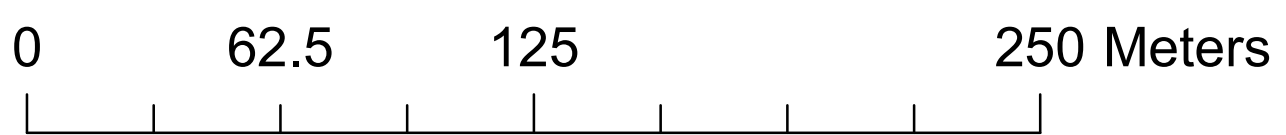
*Note: Towers and conductors as proposed are represented by a graphic model and are not true visual images*

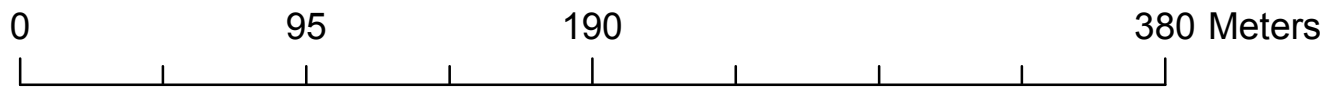
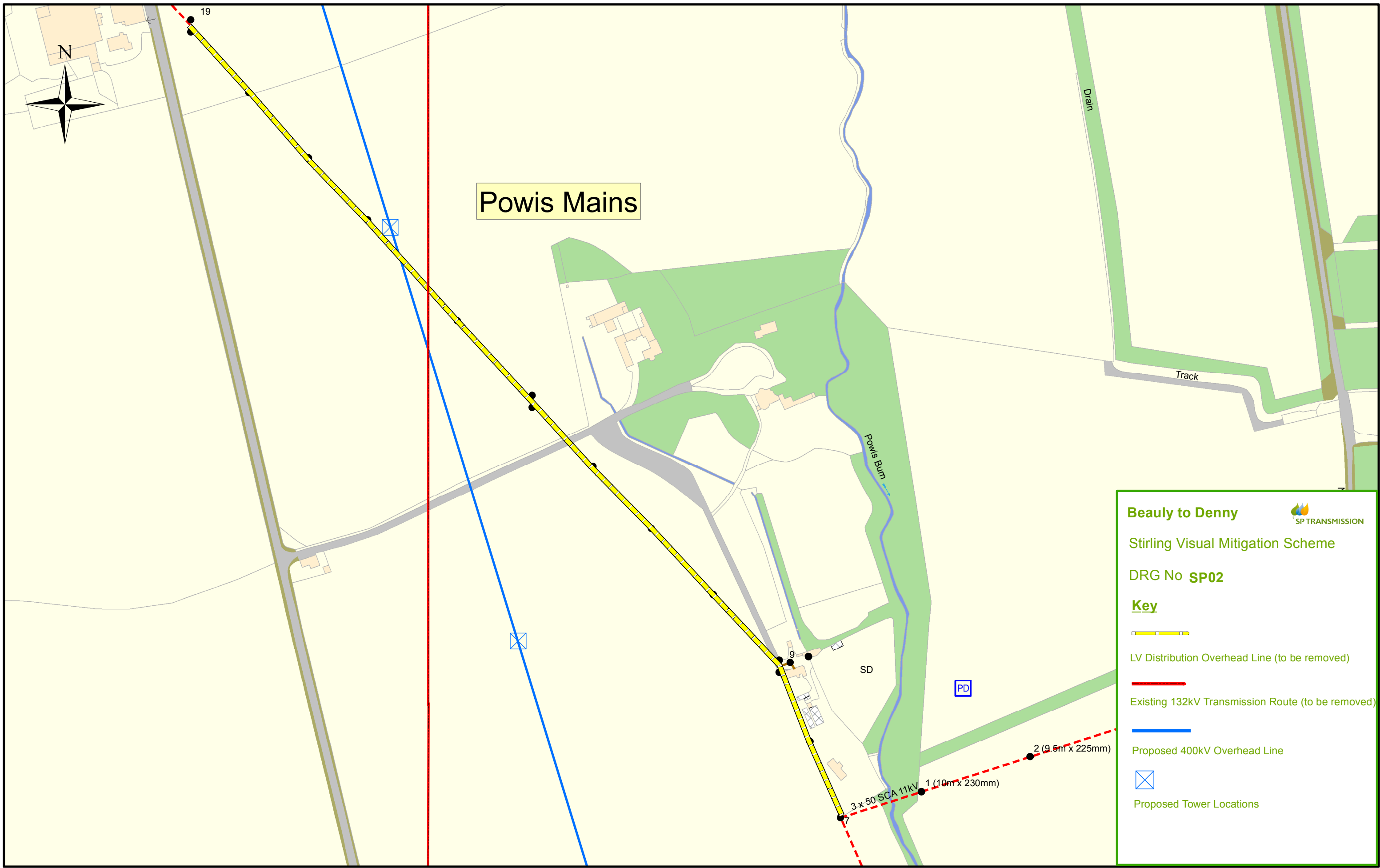


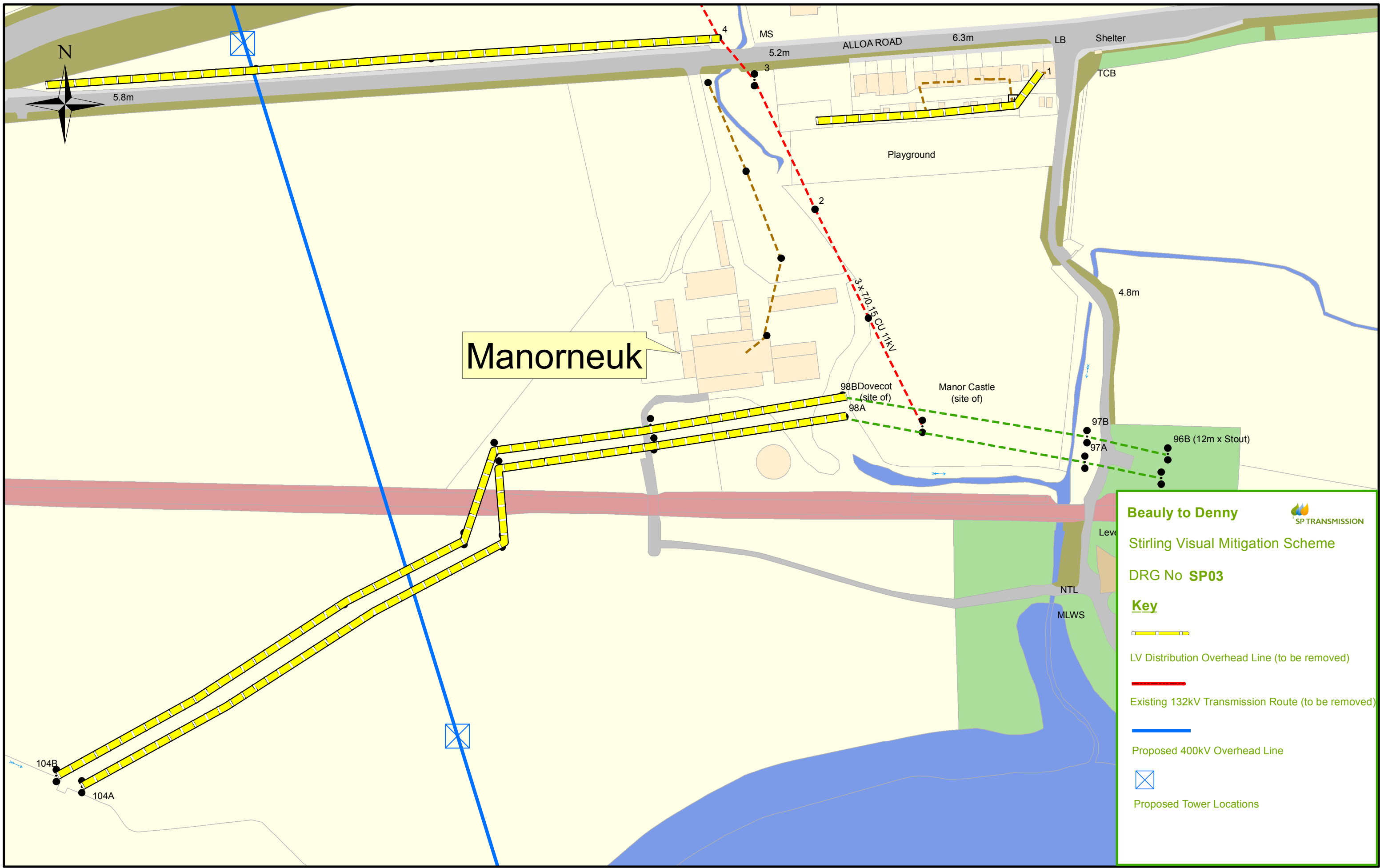
**Beaulieu to Denny**  
 Stirling Visual Mitigation Scheme  
 DRG No. SP01 (Rev B)


**Key**

- LV Distribution Overhead Line (to be removed)
- Existing 132kV Transmission Route (to be removed)
- Proposed 400kV Overhead Line
- Proposed Tower Locations
- New Layout of Existing 275kV Network Following Construction of 400kV











**Beauly to Denny** 

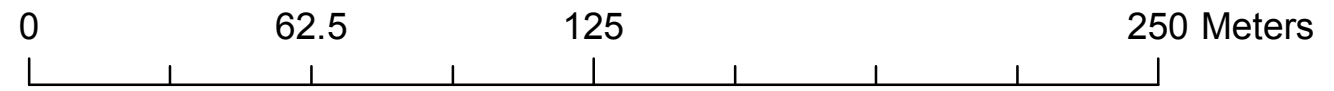
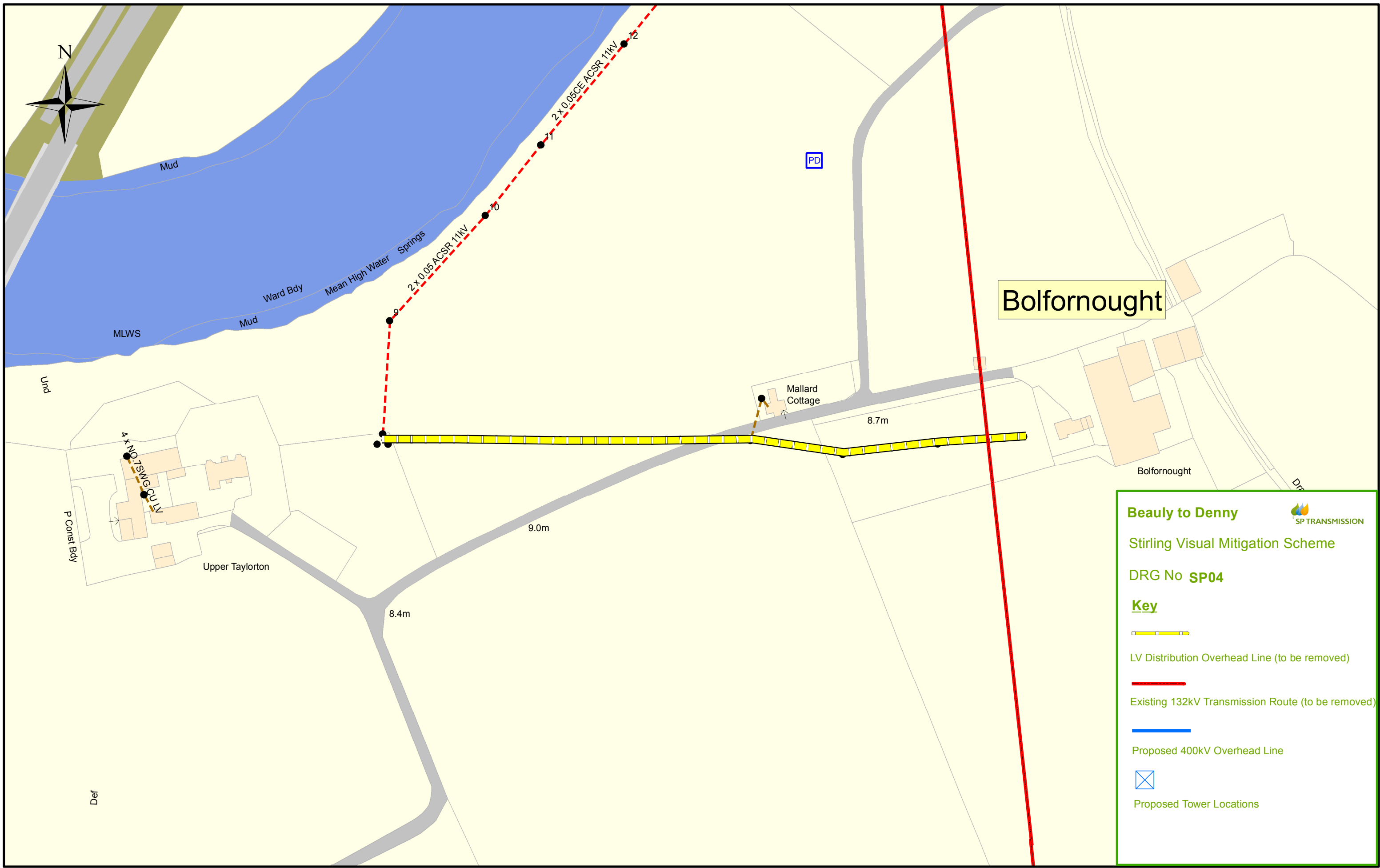
Stirling Visual Mitigation Scheme


DRG No **SP03**

**Key**

-  LV Distribution Overhead Line (to be removed)
-  Existing 132kV Transmission Route (to be removed)
-  Proposed 400kV Overhead Line
-  Proposed Tower Locations

0 62.5 125 250 Meters







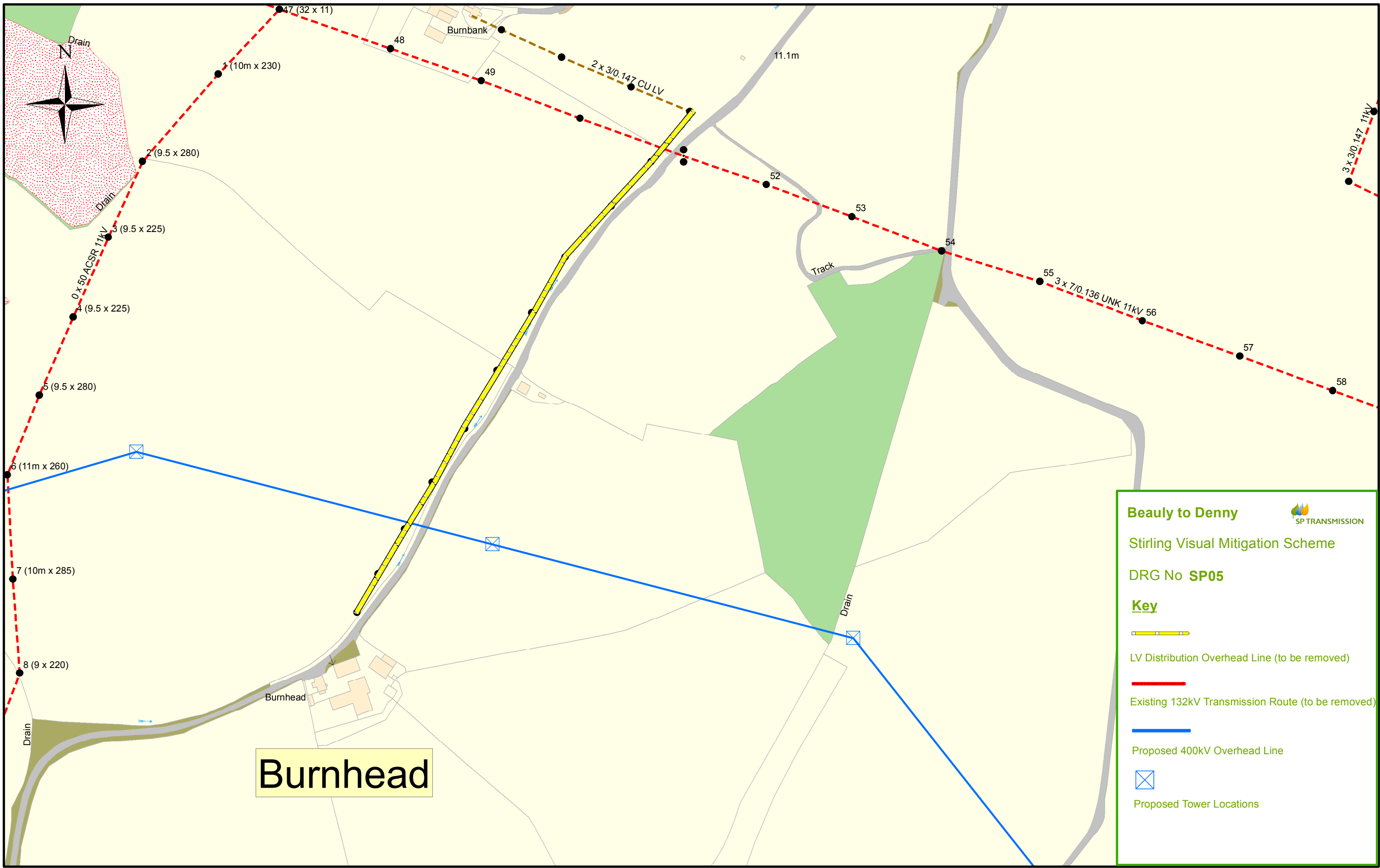
**Beaully to Denny** 


Stirling Visual Mitigation Scheme

DRG No **SP04**

**Key**

-  LV Distribution Overhead Line (to be removed)
-  Existing 132kV Transmission Route (to be removed)
-  Proposed 400kV Overhead Line
-  Proposed Tower Locations







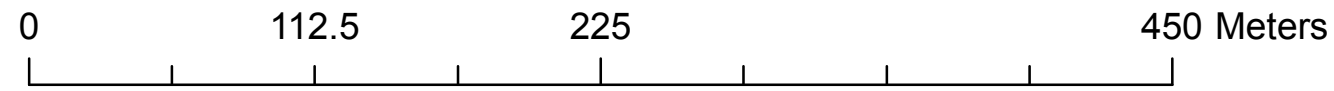
**Beaully to Denny** 

Stirling Visual Mitigation Scheme

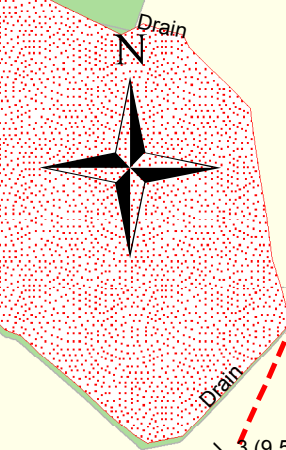
DRG No **SP05**

**Key**

-  LV Distribution Overhead Line (to be removed)
-  Existing 132kV Transmission Route (to be removed)
-  Proposed 400kV Overhead Line
-  Proposed Tower Locations



**Burnhead**



Drain

Burnbank

11.1m

2 x 3/0.147 CU LV

1 (10m x 230)

2 (9.5 x 280)

3 (9.5 x 225)

4 (9.5 x 225)

5 (9.5 x 280)

6 (11m x 260)

7 (10m x 285)

8 (9 x 220)

47 (32 x 11)

48

49

52

53

54

55 3 x 7/0.136 UNK 11kV 56

57

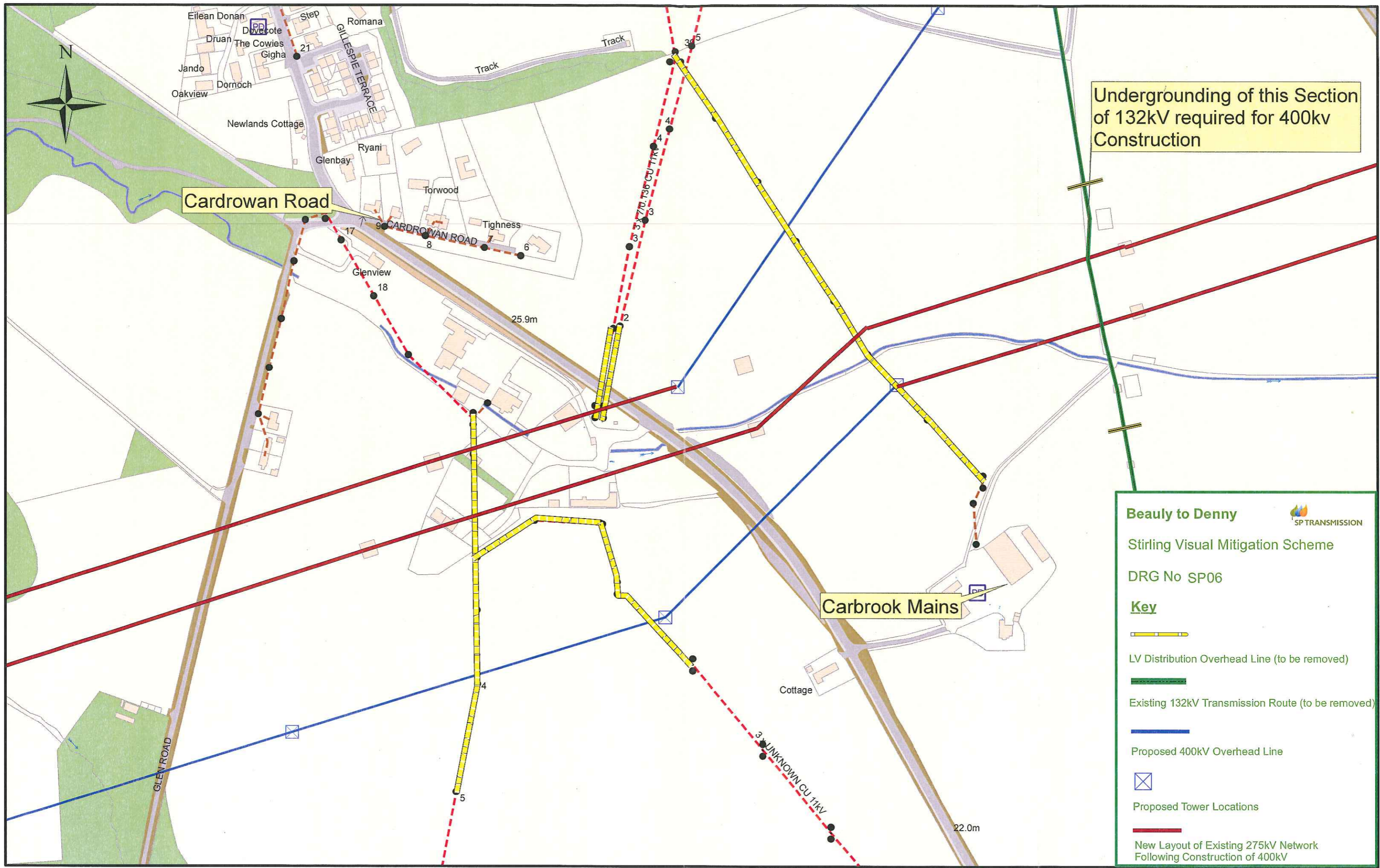
58

3 x 3/0.147 11kV

Track

Drain






Undergrounding of this Section of 132kV required for 400kv Construction

Cardrowan Road






Carbrook Mains

**Beaully to Denny** 

Stirling Visual Mitigation Scheme

DRG No SP06

**Key**

-  LV Distribution Overhead Line (to be removed)
-  Existing 132kV Transmission Route (to be removed)
-  Proposed 400kV Overhead Line
-  Proposed Tower Locations
-  New Layout of Existing 275kV Network Following Construction of 400kV

