

TCP/11/16(279)**Planning Application 13/01230/FLL – Erection of wind turbine and ancillary works, land 700 metres south of Glenbran Farm, Abernyte**

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TCP/11/16(279)

Planning Application 13/01230/FLL – Erection of wind turbine and ancillary works, land 700 metres south of Glenbran Farm, Abernyte

**PAPERS SUBMITTED
BY THE
APPLICANT**

NOTICE OF REVIEW

UNDER SECTION 43A(8) OF THE TOWN AND COUNTRY PLANNING (SCOTLAND) ACT 1997 (AS AMENDED) IN
RESPECT OF DECISIONS ON LOCAL DEVELOPMENTS

THE TOWN AND COUNTRY PLANNING (SCHEMES OF DELEGATION AND LOCAL REVIEW PROCEDURE)
(SCOTLAND) REGULATIONS 2008

THE TOWN AND COUNTRY PLANNING (APPEALS) (SCOTLAND) REGULATIONS 2008

IMPORTANT: Please read and follow the guidance notes provided when completing this form.
Failure to supply all the relevant information could invalidate your notice of review.

Use **BLOCK CAPITALS** if completing in manuscript

Applicant(s)		Agent (if any)	
Name	A& G Young	Name	Realise Renewables
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<p>Mark this box to confirm all contact should be through this representative: x</p>			
<p>* Do you agree to correspondence regarding your review being sent by e-mail? Yes No</p> <p style="text-align: right;">x <input type="checkbox"/></p>			

Planning authority	Perth & Kinross Council		
Planning authority's application reference number	13/01230/FLL		
Site address	Land 700m south of Glenbran Farm, Abernyte		
Description of proposed development	Erection of a wind turbine and associated infrastructure		
Date of application	08 July 2013	Date of decision (if any)	09 September 2013

Note. This notice must be served on the planning authority within three months of the date of the decision notice or from the date of expiry of the period allowed for determining the application.

Nature of application

- | | |
|--|--------------------------|
| 1. Application for planning permission (including householder application) | x |
| 2. Application for planning permission in principle | <input type="checkbox"/> |
| 3. Further application (including development that has not yet commenced and where a time limit has been imposed; renewal of planning permission; and/or modification, variation or removal of a planning condition) | <input type="checkbox"/> |
| 4. Application for approval of matters specified in conditions | <input type="checkbox"/> |

Reasons for seeking review

- | | |
|---|--------------------------|
| 1. Refusal of application by appointed officer | x |
| 2. Failure by appointed officer to determine the application within the period allowed for determination of the application | <input type="checkbox"/> |
| 3. Conditions imposed on consent by appointed officer | <input type="checkbox"/> |

Review procedure

The Local Review Body will decide on the procedure to be used to determine your review and may at any time during the review process require that further information or representations be made to enable them to determine the review. Further information may be required by one or a combination of procedures, such as: written submissions; the holding of one or more hearing sessions and/or inspecting the land which is the subject of the review case.

Please indicate what procedure (or combination of procedures) you think is most appropriate for the handling of your review. You may tick more than one box if you wish the review to be conducted by a combination of procedures.

- | | |
|---|--------------------------|
| 1. Further written submissions | <input type="checkbox"/> |
| 2. One or more hearing sessions | <input type="checkbox"/> |
| 3. Site inspection | <input type="checkbox"/> |
| 4. Assessment of review documents only, with no further procedure | x |

If you have marked box 1 or 2, please explain here which of the matters (as set out in your statement below) you believe ought to be subject of that procedure, and why you consider further submissions or a hearing are necessary:

Site inspection

In the event that the Local Review Body decides to inspect the review site, in your opinion:

- | | Yes | No |
|--|--------------------------|----|
| 1. Can the site be viewed entirely from public land? | <input type="checkbox"/> | x |
| 2. Is it possible for the site to be accessed safely, and without barriers to entry? | <input type="checkbox"/> | x |

If there are reasons why you think the Local Review Body would be unable to undertake an unaccompanied site inspection, please explain here:

Farm security and public safety

Statement

You must state, in full, why you are seeking a review on your application. Your statement must set out all matters you consider require to be taken into account in determining your review. Note: you may not have a further opportunity to add to your statement of review at a later date. It is therefore essential that you submit with your notice of review, all necessary information and evidence that you rely on and wish the Local Review Body to consider as part of your review.

If the Local Review Body issues a notice requesting further information from any other person or body, you will have a period of 14 days in which to comment on any additional matter which has been raised by that person or body.

State here the reasons for your notice of review and all matters you wish to raise. If necessary, this can be continued or provided in full in a separate document. You may also submit additional documentation with this form.

Please see separate statement attached.

Have you raised any matters which were not before the appointed officer at the time the determination on your application was made?

Yes No
☐ x

If yes, you should explain in the box below, why you are raising new material, why it was not raised with the appointed officer before your application was determined and why you consider it should now be considered in your review.

n/a

List of documents and evidence

Please provide a list of all supporting documents, materials and evidence which you wish to submit with your notice of review and intend to rely on in support of your review.

Submitted planning application and supporting Planning & Environmental Report – on Council web access;

Officer Report of Handling – on Council web access;

Decision Notice – on Council web access;

Notice of Review Statement – see attached;

Application and letters of support from original planning application (Ref 12/2151/FLL) – on Council web access

Note. The planning authority will make a copy of the notice of review, the review documents and any notice of the procedure of the review available for inspection at Council Office, High Street, Perth until such time as the review is determined. It is also be available on the planning authority website.

Checklist

Please mark the appropriate boxes to confirm you have provided all supporting documents and evidence relevant to your review:

- ☒ Full completion of all parts of this form
- ☒ Statement of your reasons for requiring a review
- ☒ All documents, materials and evidence which you intend to rely on (e.g. plans and drawings or other documents) which are now the subject of this review.

Note. Where the review relates to a further application e.g. renewal of planning permission or modification, variation or removal of a planning condition or where it relates to an application for approval of matters specified in conditions, it is advisable to provide the application reference number, approved plans and decision notice from that earlier consent.

Declaration

I the applicant/agent [delete as appropriate] hereby serve notice on the planning authority to review the application as set out on this form and in the supporting documents.

Signed

Garry Dimeck

Date

16 September 2013

Request for Local Review

Planning Application Ref: 13/01230/FLL
Proposal: Erection of wind turbine and ancillary works
Site: Land 700 Metres South Of Glenbran Farm Abernyte
Applicants: Messrs A & G Young

Request to Review:

Under S43A(8) of the Planning etc.(Scotland) Act 2006, the applicants Messrs G & A Young of Glenbran Farm, do hereby request that Perth & Kinross Council Local Review Body reviews their case which was the subject of a delegated refusal on the 09 September 2013.

1.0 Introduction:

1.1 The application was refused for the following reasons:

- 1. As the proposed turbine will have a significant adverse impact on the visual amenity of the area, which is presently enjoyed by a host of receptors including (but not exclusively) visiting recreational users, the proposal is contrary to Policy 1 of the Perth Area Local Plan 1995 (Incorporating Alteration No1, Housing Land 2000), which seeks to protect existing (visual) amenity from new developments within the landward area from inappropriate developments.*
- 2. As the proposal will have a detrimental impact on the landscape associated with King's Seat, the proposal is contrary to Policy 1 of the Perth Area Local Plan 1995 (Incorporating Alteration No1, Housing Land 2000), which seeks to ensure that new developments do not cause unacceptable environmental impact.*

1.2 The application was submitted following the refusal of a previous planning application for the same proposal on the same site (Ref: 12/02151/FLL refused 13 February 2013).

1.3 Although the applicants were disappointed by the Planning Officers decision on that application it was considered that the presentation of new supplementary information relating to visual impacts and economic benefits could allay those concerns and would be best presented through a new planning application.

1.4 The application which is now the subject of this review incorporated the

following new and supplementary information:

- Wirelines and photomontages from the A90 to demonstrate limited visual effects when viewed from south and busy transport corridors (road & rail);
- Demonstration of economic importance of proposal to the established rural businesses run by the applicant;
- Explanation of reasons for choosing site;
- Response to the landscape concerns.

1.5 A comprehensive Planning & Environmental report in support of the Glenbran wind turbine proposal was submitted as part of the new planning application and is now relied on by the applicants in presenting their case.

1.6 The Review statement presented here will specifically respond to matters raised in the Officers Report of Handling.

1.7 Effectively the Officer has given significantly more weight to his own subjective perception of harm and the potential loss of view to an un-quantified and small number of visitors, and not enough to the professional conclusions on visual impacts presented by the applicants. Furthermore he is dismissive of the economic benefits to two important rural businesses and their employees. As a consequence the positive contribution to the local economy and the local environment from this *medium* scaled renewable energy proposal has been undervalued.

1.8 It is contended that the Officer:

- (i) Fails to give sufficient weight in his decision to the economic importance of the proposal as a diversification opportunity for important and established rural businesses run by the applicants;
- (ii) Fails to give sufficient weight to aspirations for the delivery of green energy as set out in National Guidance;
- (iii) Fails to give sufficient weight to the professional conclusions of the applicants Landscape Consultant;
- (iv) Inappropriately recounts advice for the Sidlaws set out in TLCA in relation to tall structures thereby presenting a distorted view of effects;
- (v) Does not present a 'balanced' assessment of landscape impacts and accords too great an emphasis on landscape protection from a single viewpoint;
- (vi) Inappropriately accords emphasis to matters raised in late representations;
- (vii) Inappropriately recounts the observations and recommendations of a key Consultee and uses such information to support his conclusion for refusal;
- (viii) Fails to accord weight to landscape management consequences that could result from more intensive farming;
- (ix) The Planning Officer inaccurately asserts that the applicant's submission fails to reflect the presence of key biodiversity interests in the area.

- 2.0 **Point (i):** Fails to give sufficient weight in his appraisal or decision to the economic importance of the proposal as a diversification opportunity for an important rural business;
- 2.1 The Planning Officer in his Report of Handling identifies 4 key determining issues in this case. These are limited to ecological, heritage and landscape issues only. For the reasons set out in section 1.3 of the submitted Planning & Environmental Report the applicants would assert that this is a flawed approach which fails to give sufficient weight as a material planning consideration to the economic importance of the project to their businesses and the local economy.
- 2.2 In his section on *Economic Development* the Planning Officer confirms that he agrees that the benefits set out in the applicants supporting statement could be delivered but it is unclear what weight, if any, he has attached to this issue when appraising the proposal? Furthermore he records that those benefits would accrue to the applicants only.
- 2.3 The applicant has made clear in section 1.3 of the submitted Planning & Environmental Report that significant benefits to the local economy also would result through continuing support of the 45 + jobs reliant on the businesses and the continued trade with other local businesses which service the enterprise.
- 2.4 It would seem clear from the Report of Handling and list of PKC Consultee's that the views of the Environment Service's Economic Development Officers were not sought in relation to this proposal. The Planning Officer appears to have relied on his own judgement when concluding that the economic arguments put forward carry little weight.
- 2.5 Section 4 of the applicants Planning & Environment Report sets out the many positive economic messages which are advanced in the National Planning Policy Guidance in support of Scottish Government stated overarching purpose of increasing sustainable economic growth in Scotland. That Guidance identifies that the planning system will have a crucial delivery role in support of that key objective.
- 2.6 Planning authorities are encouraged to take a positive approach to development, recognising and responding to economic and financial conditions in considering proposals that could contribute to economic growth (SPP para33). Furthermore the planning system is encouraged to support economic development in all areas by taking account of the economic benefits of the proposals in development management decisions and supporting development which would provide new employment opportunities and enhance local competitiveness (SPP para 45).
- 2.7 It is made clear that these positive economic growth objectives are to be balanced with a responsibility to protect and enhance the quality of the natural and built environment.
- 2.8 The applicants explain through their comprehensive LVIA; their track record of a conservation based approach to land management at Glenbran, together

with the desire to reduce further their carbon footprint of their businesses, that this turbine proposal would represent an appropriate form of sustainable economic development.

- 2.9 In his conclusion the Planning Officer acknowledges that economic benefits could be delivered but considers these to be outweighed by his own perceptions of landscape harm.
- 3.0 **Point (ii):** Fails to give sufficient weight to aspirations for the delivery of green energy as set out in National Guidance;
- 3.1 The *Climate Change (Scotland) Act 2009* is a key commitment of the Scottish Government and establishes a legislative framework for reducing greenhouse gas emissions in Scotland and the transition towards a low carbon economy. Together with the *2020 Routemap for Renewable Energy (2011)* it sets the context for Scottish Government's specific ambitions for the onshore wind sector and the delivery of targets for the generation of electricity from renewable energy by 2020 as a vital part of the response to climate change.
- 3.2 It is these firm national commitments which have informed the guidance for renewables set out in Scottish Government's SPP. These are contemporary expressions of current Scottish Planning Policy which are positive in their commitment towards the delivery of suitably sited and scaled wind proposals.
- 3.3 The candidate turbine at the site is estimated to generate approximately 1,427,880kWh of renewable energy per annum; the equivalent of 303 households per year and enough to displace the equivalent of up to approximately 614 tonnes of CO₂ emissions per year from conventional forms of electricity generation. This proposal will make a significant contribution to achieving renewable energy targets and is considered a good example of a well sited, small-scale wind energy scheme.
- 3.4 The Planning Officer relies in his assessment on a Development Plan which is more than 18 years old and which contains no specific renewable energy policy (Perth Area Local Plan 1995). Furthermore he relies on Policy 1 of that document in support of the two reasons for refusal, concluding that the development in the landward area would be inappropriate (refusal reason 1) and cause unacceptable environmental impact (refusal reason 2).
- 3.5 In the opinion of the applicants the proposal can be seen to be consistent with the aspirations set out in the SPP as it:
- would not be sited within a protected landscape;
 - has regard to the need for countryside protection;
 - makes a meaningful contribution to reducing Scotland's dependence on fossil fuels;
 - provides security of energy production for an important business in a rural area;

- offers potential for those businesses to invest in ownership of a renewable energy project;
 - meets the operational needs of an important local employer;
 - would provide direct benefits to the local economy; and would
 - enable the viability of the businesses to be sustained.
- 3.6 The applicants would contend that in this way this *medium* scale wind turbine proposal would constitute an acceptable form of sustainable economic development that has respect for environmental protection.
- 4.0 Point (iii): Fails to give sufficient weight to the conclusions of a professional Landscape Consultant and relies on subjective, unsubstantiated opinion;
- 4.1 The Planning Officer has concluded through his Report of Handling and Refusal Reason 1 that the proposal would give rise to unacceptable environmental harm through *a significant adverse impact on the visual amenity of the area*.
- 4.2 The level of *significance* is not quantified nor is it explained how this assessment of *significance* is arrived at.

Landscape and Visual Impacts Appraisal

- 4.3 Accompanying the application is a Planning & Environmental Report. The applicants have commissioned as part of that Report (see Appendix 1) a Landscape and Visual Impacts Appraisal (LVIA) prepared by professional Landscape Consultants of National renown (*Atmos Consulting*).
- 4.4 The purpose of the LVIA is to assess the effects of the applicant's turbine proposal on the Landscape and sensitive receptors. The production of that LVIA has adopted recommended industry best practice (see *Atmos Bibliography* at Appendix 1 of submitted Planning & Environmental Report) and National Guidance set out through the Scottish Natural Heritage (SNH) publication *Natural Heritage assessment of small scale wind energy projects which do not require formal Environmental Impact Assessment (EIA)*.
- 4.5 The LVIA has set out a methodology for defining baseline sensitivity and justifying magnitude of effects and findings of *significance*. That methodology is based on standard industry guides, namely the Landscape Institute and Institute of Environmental Management and Assessment's (IEMA)- *Guidelines for Landscape and Visual Impact Assessment, second edition 2002 (GLVIA)* and *Visual Assessment of Wind Farms: Best Practice* (University of Newcastle 2002).
- 4.6 Explained at section 1.2 of the *Atmos* LVIA and based on these guidelines, the LVIA incorporates a disciplined and objective approach to the appraisal of the turbine at Glenbran in relation to:
- (i) landscape sensitivity;

- (ii) the scope of the landscape to accept change; and
- (iii) defining the magnitude of effects of any proposal.

4.7 The LRB will note that *Atmos*, through the LVIA Table of visual effects (Table 7) acknowledge a *high* baseline sensitivity to change at a number of the selected viewpoints (2,4,6,&7) but conclude that the magnitude of visual change is broadly *low - medium*, whilst the extent of effects is largely *moderate-minor* except at VP's 4 & 7 (*moderate - major*). These two VP's are at locations immediately around the application site.

4.8 *Atmos* conclude that overall the detailed viewpoint assessment has indicated a positive picture regarding the significance of effects upon visual receptors. Geographically, the extent of significant visual effect would be relatively low, restricted principally to isolated points within 1.5-3km.

4.9 The Planning Officer's Report of Handling includes the following comments in relation to the *Atmos* LVIA:

I consider the LVIA to be competent and the visualisations to be an accurate reflection of what is proposed.

4.10 The Planning Officer then goes on to find in his conclusions a contrary view, namely that the proposed turbine would have a significant adverse impact on the visual amenity of the area and would have a detrimental impact on the landscape associated with King's Seat.

4.11 The applicant strongly disputes this conclusion and contends that the submitted LVIA, because it adopts objective criteria for appraising and determining effects, which are based on industry best practice guidelines, should be accorded significant weight in any decision on this application.

4.12 The applicant is unclear what criteria the Planning Officer has applied to arrive at his own finding of *significance*.

4.13 The Planning Officer does not explain why the conclusions reached by professional consultants through the LVIA are inappropriate or cannot be relied upon.

4.14 The Planning Officer has not demonstrated that he has applied the same objective criteria set out in the IEMA and University of Newcastle guidelines in arriving at his conclusions and fails to explain why the *Atmos* approach to assessment has led to a *flawed* conclusion.

4.15 It would appear that the Case Officer has applied a subjective, personalised approach to the assessment of effects and used this as justification for finding that the proposal would fail to meet Development Plan Objectives.

4.16 The applicant is bound to conclude on this basis that a *personal opinion* which is subjective and unsubstantiated would appear to have been relied on in finding against his proposal.

4.17 The applicant would invite the LRB to take the two *worst* viewpoints (4 & 7), and read the conclusion of the assessment of visual effects set out in Table 7

of the LVIA whilst at the same time cross-referencing these with the Photomontages set out in Part 2 Vol 2 of the LVIA. It is hoped that the LRB can take from the description of effects and the photomontage, reassurance that the LVIA has fairly and accurately recounted likely visual impacts and therefore can be relied upon in arriving at any decision in this Review.

- 4.18 The turbine would be a new and notable feature in the landscape and this is acknowledged. However, in VP 4 it can be noted that the turbine would not be located on any steep ridge or summit (a key requirement of the TLCA) and the pre-eminence of King's Seat as an important feature of the landscape would not be materially compromised.
- 4.19 In relation to VP7 whilst a new foreground focus would be introduced to the southerly view it would be seen in the context of other modern agricultural developments, other wind development in the Sidlaw hills and against the background of the extensive urban conurbation of Dundee. All are notable man-made influences which have not diminished the attractiveness of this location to recreational users.
- 5.0 **Point (iv):** Inappropriately recounts advice for the Sidlaws set out in TLCA in relation to tall structures thereby presenting a distorted view of effects
- 5.1 The Planning Officer attaches importance to the guidance set out in the Tayside Landscape Character Assessment 1999 (TLCA) to support the conclusions he reaches on Landscape and Visual Impacts. However his Report of Handling **fails to fully recount** the advice set out in that document in relation to this part of Perthshire (landscape character type *Igneous Hills - Sidlaws*), and specifically development *forces for change* and the siting of *tall structures*.
- 5.2 Without providing justification the Planning Officer leaps straight to a conclusion that within this area only *low key wind energy development* may be suitable and furthermore that the proposed turbine is too large to be appropriately accommodated. Again *subjective, personal opinion* would appear to have influenced the recommendation of refusal rather than a conclusion drawn from an analysis of best practice guidelines.
- 5.3 The LRB is asked to note that nowhere within the TLCA does it propose that only *low key wind energy development* would be suitable in the *Igneous Hills - Sidlaws* landscape character type. Instead the TLCA identifies that:
- (i) the Sidlaws may be the most suitable area for wind development in the Tayside area;
 - (ii) There is a strong argument in favour of steering renewable energy proposals away from more sensitive upland landscapes and towards areas within the Sidlaws where human influences are much marked; and
 - (iii) From an environmental perspective such areas need to be evaluated in terms of the sensitivity of the landscape and its capacity to absorb wind development.

- 5.4 The TLCA then goes on to set out a broad range of criteria (landscape guidelines) which should be applied when considering the sensitivity and capacity of the landscape to absorb any tall structure.
- 5.5 The TLCA landscape guidelines have been reproduced by the applicant in Section 4.2 of his Planning & Environmental Report. The LRB is asked to note that the applicants have applied those guidelines to ensure that his proposed turbine does not:
- Break the visual line of any undeveloped hill top and ridge;
 - Expose the turbine to ‘skylining’;
 - Expose the turbine to views from the north and the south of the hills;
- 5.6 The applicants have ensured that:
- *Backlothing* of the turbine by the Sidlaw Hills would result;
 - Siting on the lower slopes and away from hill ridges would be secured; Visual impacts have been carefully assessed through his LVIA in relation to the character and appearance of local landscape and surrounding areas;
 - The turbine would be positioned almost 1km away from the ridge of King’s Seat;
 - The tip of the proposed turbine would be more than 84m below the ridge of King’s Seat.
- 5.7 By reference to the comments set out at Point 3 above, the LVIA and the photomontages the LRB is asked to note that this is a location at the foot of Sidlaws where human influence is much marked through land management and physical development. Accordingly it can be recognised that the applicants have not expressed subjective personal opinion in the approach to siting and design but instead, through the application of the SNH landscape Guidelines contained within the TLCA, have been able to demonstrate that the landscape does have the capacity to absorb the development that is proposed.
- 6.0 **Point (v):** The Planning Officer does not present a ‘balanced’ assessment of landscape impacts and places too great an emphasis on landscape protection from one viewpoint;
- 6.1 The Planning Officer gives focus only to the impacts of the turbine from a single viewpoint (King’s Seat Hill) to support his conclusion that the proposal is inappropriately scaled and sited.
- 6.2 In the opinion of the applicants the Planning Officer does not present a balanced assessment of landscape impacts.

- 6.3 The applicants do acknowledge that the turbine would be a new focal feature from this viewpoint. However, as the LVIA makes clear in the comments at Table 7, the turbine would sit at a low point in relation to the summit and away from the immediate context of the hill (0.9km). A backcloth of rising land to the south together with the urban influences of the Dundee conurbation and a managed farmed landscape are factors which would assist in receiving this turbine in this landscape setting.
- 6.4 Is it appropriate to adopt, as the Planning Officer does, such a narrow, viewpoint focus to determine the suitability of a this site for a turbine of the scale proposed?
- 6.5 Scottish Natural Heritage publication - *Siting and Designing windfarms in the landscape (2009)* sets out good design principles for windfarm and turbine developments and was first published in 2009 after a decade of windfarm developments in Scotland. It sought to bring together many of the lessons learned over time in a single document for the benefit of developers and local authorities. Ensuring that support for renewables is balanced with the Scottish Governments commitment to conserve the quality and diversity of Scotland's landscapes was a key objective of this *good practice* guide. A stated purpose was to guide windfarms to those landscapes best able to accommodate them and to advise how windfarms can be designed to best relate to setting, thereby minimising landscape and visual impacts.
- 6.6 A copy of this document is attached forming **Appendix 1** to the applicants LRB submission. Key points of note from that document are set out in section 4 but include:
- A Landscape Character Assessment will form a key component of any LVIA and the designer is directed to the SNH national programme of LCA's (sections 4.2 - 4.7);
 - A landscape may be valued for many reasons, such as for its specific landscape quality, scenic beauty, tranquillity or wildness, recreation opportunities, nature conservation or historic and cultural associations. A wind farm will not necessarily be incompatible with valued qualities of a landscape; this will depend on the nature of the development and the nature of the landscape qualities that are valued (section 4.8);
 - For the LVIA of windfarms the key challenge with respect to landscape value is to ascertain for what a landscape is valued for and by whom and then to assess the predicted impacts of the proposed development on this valued landscape (section 4.11);
 - The visibility and visual impacts of a windfarm are affected by the distance from which it is viewed, as well as other aspects such as weather conditions and siting. In the past, guidance notes such as Planning Advice Note 45 have offered generic categories of visibility and visual impact in relation to distance, suggesting the following: that in an open landscape at distances of up to 2 km, a windfarm is likely to be a prominent feature; between 2-5km it will be relatively prominent; between 5-15 km only prominent in clear visibility when it is seen as part of the wider landscape; and over 15km it will only

be seen in very clear visibility and as a minor element in the landscape. However, in practice these guidelines are limited in their application:

- firstly, because it is unclear what height of turbine these distances were based upon; and,

- secondly, because visual impacts are not directly proportional to distance, as the nature of a view (e.g. a framed / open view or backclothed/skyline view) and its context are as important as the size of a development within that view (section 4.20);

- Windfarms will usually be sited in exposed places that are open. High and relatively prominent in order to take advantage of maximum wind capture (section 4.21)
- It is important to site and design a windfarm so that it relates directly to the qualities of a specific site. This involves being able to determine key characteristics of the landscape and then considering the relationship of the turbine to these aspects (section 4.22).
- The interaction of wind turbines with focal features in the landscape should be considered with care when siting to minimise potential conflicts or compromise the value of the existing foci.

6.7 The applicant has taken a rounded view to the siting of this wind turbine proposal. The ZTV has demonstrated the predominant zone of influence will be to the south. A site has been proposed where;

- impacts on the wider landscape character type (Igneous Hills - Sidlaws) would be avoided;
- only limited visual impacts on views through a busy transport corridor can be expected;
- detrimental impacts on key heritage assets would be avoided;
- adverse effects on the amenities of residential occupiers can be avoided;
- key views from recreational assets are limited;

6.8 Through the LVIA and the comments set out above at Point 4 the LRB is asked to note that the applicants have demonstrated that when objectively applying best practice landscape guidelines a 'balanced' assessment of the proposal can find that the turbine would not result in unacceptable environmental harm or adverse impacts on local landscape.

7.0 **Point (vi):** The Planning Officer inappropriately accords emphasis to matters raised in late representations;

- 7.1 Late representations were submitted arriving with the Council outside of the 21 day period made available for public comment. Those representations did not raise any issue which was new to the Planning Officer in relation to this proposal. After initially appearing on the public access file they have since been removed in accordance with Council protocol. Accordingly it is unclear why the Planning Officer has accorded *weight* to those representations and made specific reference to them in his Report of Handling. He appears to have used them to reinforce his own concerns about the impacts of the proposal on King's Seat. Again this would appear to conflict with Council protocol.
- 7.2 A considerable number of letters were submitted in support of the initial application lodged by the applicant (Ref: 12/02151/FLL). The applicant was under the mistaken impression that those letters would be transferred over to his new application when made valid by the Council. He was made aware that this was not the case only after the period made available for public comment had expired.
- 7.3 If the LRB are to give credence to the late letters submitted by the two conservation groups referred to in the Planning Officer's Report, the applicant would request also that cognisance is taken of the 5 letters lodged in support of his earlier application for this identical proposal.
- 8.0 **Point (vii):** The Planning Officer inappropriately recounts the observations and recommendations of a key Consultee and uses such information to support his conclusion of refusal;
- 8.1 The Report of Handling asserts that Historic Scotland

.....consider the proposal to have an adverse impact on the setting of the adjacent SAM's.....
- 8.2 The applicants are concerned that in reporting the views of Historic Scotland in this way the LRB would be misled.
- 8.3 Attached at **Appendix 2** to this submission is the Historic Scotland Consultation response in full. The LRB is asked to note that no view of adverse impacts on the setting of adjacent Scheduled Ancient Monuments (SAM's) is expressed by HS in that letter. Instead an accurate recounting of the physical relationship between the turbine and the two SAM's is set out. This includes an appraisal of the juxtaposition and impacts on matters of historic interests, and a conclusion that:
- (i) the landscape setting of King's Seat cairn remains capable of being understood and appreciated; and
 - (ii) the setting of the Glenbran Ring fort is localised with the primary focus of away from the turbine itself.
- 8.4 The applicants are unclear why the Report of Handling is framed in the way it is in relation to this issue if not to reinforce the Planning Officer's concern

about the relationship of the turbine to King's Seat.

- 8.5 Also by reference to the Council Access Officer the Planning Officer seeks to reinforce his assertion that the proposal would detrimentally impact on a promoted walk to King's Seat.
- 8.6 The LRB is asked to note that the Report of Handling does not identify the Council's Access Officer as a Consultee on this application and the Public Access file does not include any observations on this proposal (and specifically likely impacts on the public footpath network) from the Council Access Officer.
- 9.0 **Point (viii):** The Planning Officer fails to accord weight to landscape management consequences that could result from more intensive farming.
- 9.1 In the submitted Planning & Environmental Report the applicants have detailed (section 1.3 *Future Pressure*), the likely landscape consequences which could follow any significant reduction of profitability of the farming business. Pressure to use the land more intensively with consequent changes in appearance and condition is likely.
- 9.2 The supplementary income stream arising from the turbine proposal represents an integral part of the applicants forward looking farm business plan. This income stream could also help to sustain the landscape appearance of the land around the application site which is typical of the Igneous Hills Landscape Character Type and which the Planning Officer values so highly.
- 9.3 This highlights the very narrow focus to landscape assessment and harm that the Planning Officer has adopted in this case.
- 10.0 **Point (ix):** The Planning Officer inaccurately asserts that the applicant's submission fails to reflect the presence of key biodiversity interests in the area.
- 10.1 The applicants would direct the LRB to section 7 of the Planning & Environmental Report wherein the results of an extended Phase 1 Habitats Survey undertaken by Skorpa Consulting are presented.
- 10.2 **Badgers:** In relation to Badgers the following comments are made:
- Badger: Mr Young and his keepers have not recorded badger in the area and the NBN does not either. It is therefore unlikely that badgers are in the vicinity and no further work is required. However, if during construction badgers are observed, then a quick survey of the area to find the sett might be required.*
- 10.3 **Barn owl:** The Biodiversity Officer was not consulted by the Planning Officer in relation to the previously submitted application. Had the concerns about Barn Owls been raised at that time the applicants could have addressed them in the ecology section of their new submission. To assist the LRB they do so now:
- 10.4 The intensively managed nature of the arable land including and around the

application site would not represent optimum feeding and foraging territory for Barn Owls who rely on open grassland, low level flight and sound for hunting. This is why the Skorpa Consulting appraisal does not include this species in its assessment.

- 10.5 Discussion with the Tayside Biodiversity Partnership representative (TBP) ahead of submission of this Review document has established that historic records of barn owl activity in the general area do exist but are undated. Even if those records are old the advice was given that it would be realistic to assume a barn owl presence in the area, and it would be prudent to refer to published guidance from the Barn Owl Trust when assessing any proposal.
- 10.6 The Barn Owl Trust includes the following information in relation to the characteristics of barn owl hunting and habitat:

Barn Owls are specialist birds and highly adapted to suit their ecological role as hunters of small mammals in open habitat and low light conditions. Although small mammals are taken by a wide range of predators including buzzards, kestrels, cats, stoats and weasels (as well as other owls), none of these hunt in the same way as Barn Owls.

Although hunting from perches such as fence posts is frequent, especially in winter, hunting whilst flying is their main method. Typically, the owl will leave its roost site shortly after dusk and fly directly to one of its preferred hunting areas. Hunting usually consists of flying slowly back and forth across a patch of rough grass listening and looking downwards most of the time. When a small mammal is heard the owl hovers overhead concentrating intently on the source of the sound, pinpointing it and waiting for the best possible moment to pounce. The importance of hearing means that the bird is rarely more than three metres above the ground and whilst hovering over prey the owl may pause at about two metres before finally dropping into the grass. The final dive is usually face-first and at the last moment the head is thrown back and replaced by the feet with talons fully out-stretched.

Where suitable perches are available, a "sit and wait" or "post-hunting" method is also used - particularly in winter when energy conservation is important. Occasionally the bird will drop from its perch directly onto prey but more often it will switch to flight-hunting before the pounce. Hunting techniques vary according to habitat, ambient noise level, light levels, and wind. For example when hunting mice over bare ground, such as arable stubbles or sugar beat crops, the owl may see the prey very easily and pounce immediately. Compared to voles, mice are much more likely to see or hear the owl's approach. They are also faster moving and therefore much harder to catch.

- 10.7 In discussions the TBP has confirmed that in this location the proposed turbine would be unlikely to materially affect the population and distribution of this important protected species. The siting of the turbine within the field and away from any field edge which has the potential as a hunting corridor, together with the height to hub and the barn owls low level flight characteristics are factors which would support this conclusion.

- 10.8 The Council's Biodiversity Officer, on the back of the undated historic records of Barn Owl activity in the general area, has indicated that he would welcome as part of any permission the provision of a suitably designed and sited Barn Owl nesting box. The applicants confirm that a planning condition requiring the delivery of such a facility would not raise objection.
- 11.0 **CONCLUSION:**
- 11.1 The LRB are invited to note the significant number of detailed matters which are required to be satisfied with each turbine proposal at each site before a planning consent can be granted. This will include detailed technical issues such as: telecommunications; air safety; shadow flicker; noise; ecology; hydrology; transportation; cultural heritage; residential amenity; landscape and visual impacts, and cumulative impacts. There will be cases however where all issues cannot be ideally satisfied but still a balanced overview of a proposal will nevertheless be needed to be taken and can mean that a planning permission can be delivered.
- 11.2 It is the applicant's position that the proposal at Glenbran would satisfy all of these important material planning considerations and represents a good opportunity to deliver sustainable economic development based on renewable energy. However the Planning Officer finds the landscape and visual impacts to be unacceptable and he concludes that this single concern would override all other considerations.
- 11.3 The Planning Officer is sensitive to one part only of a view from a recreational vantage point which offers a 360' panorama. That particular view encompasses significant man-made influences through the visual dominance of the conurbation of Dundee, together with the presence of other wind turbines and modern farm buildings all set within a managed farmed landscape (see VP7).
- 11.4 It is the opinion of the applicants that a holistic and balanced approach to the assessment of landscape impacts should be applied in this instance, in accordance with published best-practice guidance. In this way an **objective** rather than subjective opinion can be safely arrived at. Such an approach to assessment forms the basis of the applicants LVIA. The LVIA is professionally prepared and has a credibility which arises from its adherence to SNH and other best practice guidance.
- 11.5 The submitted LVIA acknowledges that although a new focal feature would be introduced, this would not be visually dominant in the wider landscape; would not materially harm the appearance, character and understanding of key landscape features and would not detract from the landscape character type within which it is set.
- 11.6 The applicants also present comprehensive details relating to the importance of the proposal as a diversification enterprise to their two operational businesses (farm and nursery) and the value of the new income stream which could be used to off-set rising operational costs, maintain business viability, support staff training and development and sustain the long term future of a

key rural employers.

- 11.7 The applicants demonstrate that this proposal would meet the aspirations set out in National and Local Planning Guidance in terms of increasing the production of renewable energy; extending local ownership of energy production; being within a defined area of search for wind development; delivering a farm diversification project; and the use of published Landscape Character Assessments in his LVIA to influence siting and design. The applicants highlight that Planning Authorities are encouraged to support small businesses in the development of such initiatives (SPP p183).
- 11.8 These are all important *material planning considerations* which can and should, in this case, be weighed against the single viewpoint concern held by the Planning Officer. Whilst the Planning Officer has acknowledged many of the positive factors associated with this turbine proposal it is unclear what, if any, weight he attaches to them.
- 11.9 The proposal provides an opportunity to support important local businesses, enhance their competitiveness and sustain their future; maintain the pattern of traditional hill farming in this part of the Sidlaws, and make a meaningful contribution to Scotland's renewable energy objectives.
- 11.10 The applicants would invite the LRB to take a more *balanced* approach to the assessment of this proposal weighing all material planning considerations.
- 11.11 If the LRB is not persuaded by the applicants comprehensive LVIA and finds that it shares the Planning Officer view in relation to impacts on a single viewpoint at King's Seat Hill, the LRB is encouraged by the applicant to take together all those *other material planning considerations* and weigh them against that single concern.
- 11.12 In these circumstances it is respectfully requested that the LRB set aside the Officer Recommendation of Refusal and grant planning permission.

Appendices:

1. SNH Publication - *Siting and Designing windfarms in the landscape (2009)*
2. HS Consultation Consultation Response - 23 July 2013

Mark Jennison, Director
Realise Renewables

15.09.2013

Scottish Natural Heritage

Siting and Designing windfarms in the landscape

Version 1

December 2009



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Part 1

Introduction

- 1.1 Good design principles for windfarms are becoming established following more than a decade of windfarm development in Scotland and with more than fifty windfarms constructed and operating. Design is a material consideration in the planning process and SNH believes that good siting and design of windfarms is important for all parties involved, helping to produce development which is appropriate to a landscape whilst delivering Scottish renewables targets.
- 1.2 In 2001, SNH published '*Guidelines on the Environmental Impacts of Windfarms and Small Scale Hydroelectric Schemes*', which included guidance on the siting and design of windfarms. Since this time, however, our understanding of the effects of windfarm siting and design has developed further and some new issues have come to the forefront, such as the cumulative impacts of multiple developments. This guidance, which supersedes the landscape sections of the original guidelines, reflects this advance in our understanding of the key landscape and visual issues relevant to windfarm development. Nevertheless knowledge and understanding in this area is evolving quickly and it is expected that this guidance will need to be regularly reviewed and updated to reflect this.
- 1.3 This is guidance on landscape issues, building upon areas of SNH renewables policy. It does not refer to wider technical design considerations (such as wind speed, access to grid) or to other natural heritage issues (such as impacts on birds, other wildlife and habitats) which are also of importance in relation to both siting and design. A range of other considerations such as noise, archaeology, access and transport are also relevant to the design of windfarms and guidance on these topics is available elsewhere. It should be used alongside other SNH guidance, including our *Strategic Locational Guidance for Onshore Windfarms* (2002, updated March 2009), *Cumulative Effects of Windfarms* (2005), and *Visual Representation of Windfarms Good Practice Guidance* (2006), available on the SNH website.
- 1.4 Developers and those involved in windfarm design should also refer to the Spatial Frameworks for Windfarms being developed by Local Authorities in response to Scottish Planning Policy (SPP) 6¹. This guidance has been written during the period that Local Authorities are developing their Spatial Frameworks, with a view to providing guiding principles at a strategic level. However, when considering an individual application, the adopted development plan and supplementary planning guidance as well as SPP6 provide the framework within which the application should be considered.
- 1.5 The guidance is structured in two parts. Part 1 provides siting and design guidance for windfarms. Part 2 provides guidance on strategic siting and design considerations for windfarms in relation to the requirements of SPP6.
- 1.6 This guidance is being written at a time of change, not least the proposed revision of currently separate SPPs into a single document. It is intended to review the guidance periodically so this document, Version 1, will gradually benefit from subsequent updates and amendments. Comments will be sought via the SNH website.

1 Scottish Planning Policy 6: Renewable Energy, Scottish Executive 2007 – to be superseded in 2010 by a new consolidated SPP.



- 1.7 The views expressed in this document are drawn from the experience of SNH staff who have advised on windfarm applications across Scotland in many different landscape settings and at many different scales of development. They have also been informed by a public consultation exercise and a workshop held at Battleby in March 2009.

Background

- 1.8 SNH supports the adoption of renewable energy technologies, including windfarms, to address the effects of climate change and supports the Scottish Government's adopted policy in SPP6². Windfarms have an important role to play, taking advantage of the good wind resource in Scotland. However, our support for renewables has to be balanced with the Scottish Government's commitments and aspirations to conserve and enhance the natural heritage, including the quality and diversity of Scotland's landscapes. The purpose of this guidance is to help guide windfarms towards those landscapes best able to accommodate them and to advise on how windfarms can be designed to best relate to their setting and minimise landscape and visual impacts.
- 1.9 Scotland is renowned, at home and internationally, for its diversity and quality of landscape and scenery, particularly its distinctive coast, mountains and lochs. This contributes to the overall quality of life for all who live in or visit Scotland, and provides a setting for our economic activity, including tourism. It also means that landscape is the basis for many of our social, community and cultural values. The European Landscape Convention applies to all landscapes, and recognises landscape character assessment as a way of informing decisions. The Convention promotes integrated policies for landscape protection, management and planning, and encourages the involvement of the public in developing these. SNH's Landscape Policy Framework (2005) recognises both the importance of landscape to Scotland's natural heritage and people's lives, while acknowledging that this relationship will change as landscapes evolve.
- 1.10 Wind turbines are generally large structures with the potential to have significant landscape and visual impacts. The development of windfarms, including associated infrastructure such as tracks, power-lines and ancillary buildings, has already had a major impact on many of Scotland's landscapes – arguably the biggest change since that resulting in some parts of Scotland from commercial afforestation in the 1970s and 80s. Thus far most of this change has occurred in landscapes considered more suitable for windfarm development. This guidance aims to learn from current experience to inform the future siting and design of windfarms.
- 1.11 It is therefore important that care continues to be taken to ensure that further windfarms are sited and designed so that adverse effects on landscape and visual amenity are minimised, and that areas which are highly valued for their landscapes and scenery are given due protection. If windfarms are sited and designed well, the capacity of our landscape to incorporate this type of development will be maximised. Conversely, if they are poorly located and designed the scope for further development in the future will be greatly reduced.

² SNH Policy Statement 01/02 SNH's Policy on Renewable Energy.

2

Landscape and Visual Assessment of Windfarms

What is Landscape and Visual Impact Assessment?

- 2.1 Landscape and Visual Impact Assessment (LVIA) is a standard process for examining the landscape and visual impacts of a development. The methodology for this is set out in the 'Guidelines for Landscape and Visual Assessment' (GLVIA), produced by the Landscape Institute and the Institute of Environmental Management and Assessment¹.
- 2.2 LVIA follows an iterative process by which alternative sites and designs for a development are proposed, assessed, and amended (a process often referred to as mitigation). Through this process, LVIA identifies the preferred siting and design option for a development, balancing different environmental issues as well as functional, technical and economic requirements. Ultimately, the final scheme is assessed for predicted residual impacts on the landscape and visual resource. LVIA is usually carried out by Chartered Landscape Architects who apply professional judgements in a structured and consistent way based on landscape design principles. The LVIA should assist decision makers, members of the public and other interested parties by providing a clear and common understanding of the predicted effects of windfarm proposals in an impartial and professional way.

Context for Landscape and Visual Impact Assessment

- 2.3 LVIA is a standard process of assessment that may be presented as a separate report or form one part of an Environmental Impact Assessment (EIA) within an Environmental Statement (ES). While a LVIA will usually be required for every windfarm proposal, an EIA is only a statutory requirement for wind energy proposals where the proposal is likely to have significant effects on the environment. Circular 8/2007² sets out when EIA may be required for windfarms.

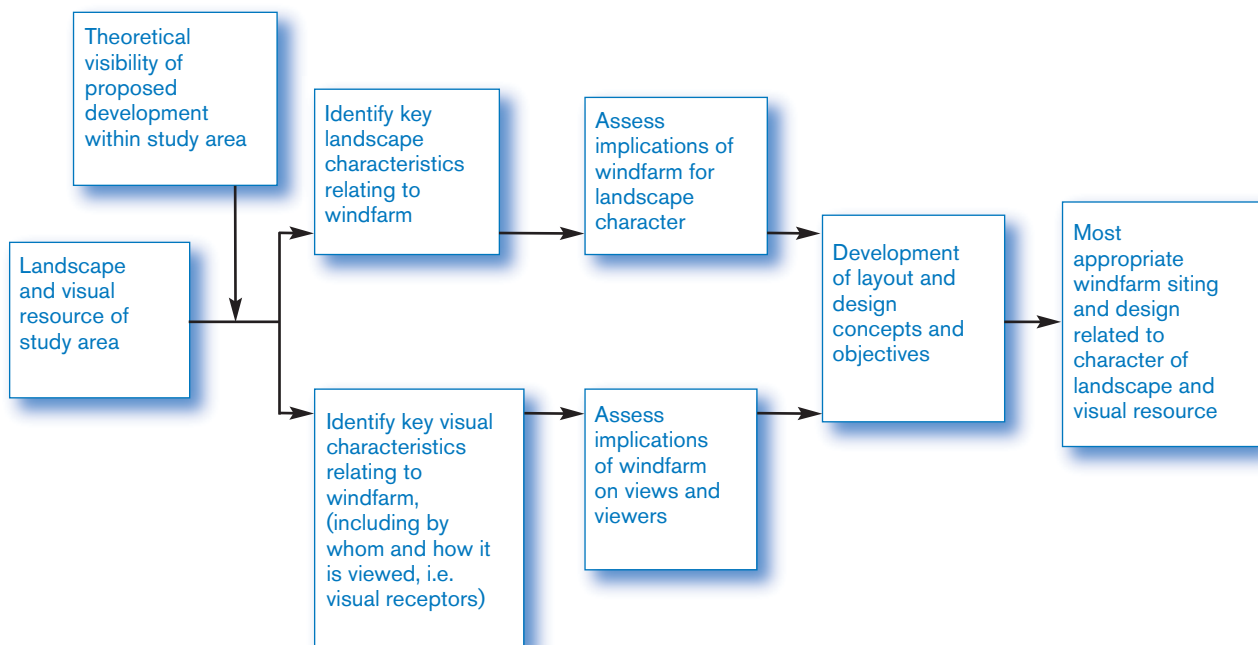
Landscape and visual impacts of Windfarms

- 2.4 LVIA comprises two separate parts, Landscape Impact Assessment (LIA) and Visual Impact Assessment (VIA), although these are related processes as described within the GLVIA. LIA considers the effects of the proposal on the physical landscape, which may give rise to changes in its character, and how this is experienced. VIA considers potential changes that arise to available views in a landscape from a development proposal, the resultant effects on visual amenity and people's responses to the changes.
- 2.5 The flow diagram below indicates the process of LVIA, which commences with determining the key characteristics of the landscape and visual resource.

¹ Guidelines for Landscape and Visual Impact Assessment, 2nd Edition, (Spon Press), Landscape Institute and Institute of Environmental Management and Assessment.

² Scottish Planning Series Planning Circular 8-2007: The Environmental Impact Assessment (Scotland) Regulations 1999. Scottish Government.





- 2.6 Early in the LVIA process it can be determined which landscape and visual characteristics are particularly relevant or sensitive to the development proposal. Focussing on these, the designer can explore what the potential impact of a windfarm will be if it is sited and designed in different ways, and determine what the main design aims should be to create a windfarm that relates well to the landscape.
- 2.7 Clearly other technical and economic factors will also be important in the decision-making process, as will other environmental impacts such as effects on wildlife and habitats. Cumulative effects with other windfarms will also be a consideration³.

Design Statements

- 2.8 Design Statements help communicate the issues, constraints and decision making processes behind development of a design. They document the design process of a development, whether it requires a LVIA and/or EIA or not, so they are not a wholly additional piece of work. Their relevance to windfarm or wind turbine applications is notable. A design statement need not be a lengthy or complex document and diagrams can be used to summarise the design process. They are a useful way for designers to explain why an application has a particular layout or appearance to consultation bodies, Local Authorities and the public. Further guidance on producing design statements is provided in PAN 68⁴, and an example of a windfarm design statement for Clyde windfarm is included in Appendix 1.
- 2.9 Design Statements are also helpful in establishing design objectives. These may need to be referred to in the future if the scope of a scheme changes: for example for a windfarm extension, amendment of the type of wind turbines, or even for another windfarm nearby. Design objectives can help to
- maintain the integrity of a scheme in changing circumstances;
 - explain the design background of windfarm extensions; and
 - indicate how existing nearby windfarms or cumulative impacts have influenced the design and layout of a new proposal.

³ For further discussion on cumulative effects see 'Cumulative effect of windfarms', version 2, SNH 2005, available on the SNH website.

Presentation of information within landscape and visual impact assessment

- 2.10 A number of methods are used to illustrate the potential landscape and visual impacts of a proposal. In LVIA, illustrations are used by landscape and planning professionals in four main ways.
- To record site assessment, in the form of photographs and sketches, as an aide-memoire;
 - To provide computer generated Zone of Theoretical Visibility maps (ZTVs) to show the area from which a proposal may be visible;
 - To provide visualisations that show potential visibility from a specific viewpoint and aid an assessment of the magnitude of impact, typically in the form of computer-generated wireline diagrams and photomontages, and;
 - To illustrate key concepts and design principles using line drawings and diagrams.
- 2.11 When used on site, these illustrative tools are typically sufficient to make judgements of predicted landscape and visual impact for the LVIA. However, in addition, other illustrative techniques may be useful, such as computer generated simulations, fly-throughs and video-montage. Further guidance on the selection, production methods and use of illustrative techniques is available in the 'Visual Representation of Windfarms: Good Practice Guidance' (2006)⁵.

Small windfarms and the need for assessment

- 2.12 In addition to large windfarm developments, there continues to be interest in developing single turbines and small windfarms in Scotland, particularly in lowland settings, typically including between one and three turbines. If there are more than two turbines, or the turbines are more than 15m in height, they are Schedule 2 developments under the Environmental Assessment Regulations. It is then a matter for the Planning Authority to decide whether they are likely to have significant environmental effects and therefore require EIA.
- 2.13 Even if an EIA is not required, there is usually a need for submission of a LVIA in support of a planning application. This assessment should be carefully scoped so that it is appropriate to the size and scale of the development and the likelihood of significant landscape and visual impacts, including cumulative effects. SNH's guidance note on 'Natural Heritage assessment of small scale wind energy projects which do not require formal Environmental Impact Assessment'⁶ provides advice on the level of landscape and visual assessment likely to be appropriate for different scales of turbines (although it is important to highlight that the landscape and visual impacts of turbines are not directly proportional to their size). SNH will be producing more detailed guidance on the installation of micro wind turbines (<50kw) later in 2009.

Duration of impacts and decommissioning

- 2.14 The expected lifetime of wind turbine generators is typically around 25 years, and planning permission is usually granted for this period. Decommissioning of the turbines at the end of this operational phase is often a specific condition of planning permission and is an important consideration when designing and assessing a windfarm.
- 2.15 Decommissioning commonly proposes that turbines and ancillary buildings are removed, leaving their foundations and access tracks in situ, but covered over and

4 Planning Advice Note 68: Design Statements (2003) The Scottish Government.

5 SNH, Scottish Society of Directors of Planning and Scottish Renewables Forum (2006) Visual Representation of Windfarms: Good Practice Guidance. Table 2, pp.36.

6 available at www.snh.org.uk

re-vegetated, thus reducing the need for further ground disturbance. There is therefore potential for some residual visible change to the landscape, even when restored, although this can be minimised through thoughtful design and consideration of how decommissioning will proceed at the project outset. The use of carefully worded legal agreements or planning conditions to ensure delivery of appropriate removals and restoration of site conditions at the end of a project's lifespan will also be of benefit. In some locations, however, it may be assessed that it is possible to remove foundations and access tracks without unacceptable environmental disturbance and this approach should be an aspiration in the design of any windfarm site.



Partial restoration of access tracks to grass

- 2.16 There is likely to be continued demand for renewable energy generation in Scotland for many decades ahead. Thus it is possible that existing well-designed windfarms may remain in use well beyond 25 years, with turbines either refurbished or replaced and a planning consent renewed. However, a time limited consent does provide the opportunity for decommissioning to be required should it be judged, for whatever reason, that the windfarm development was inappropriate.

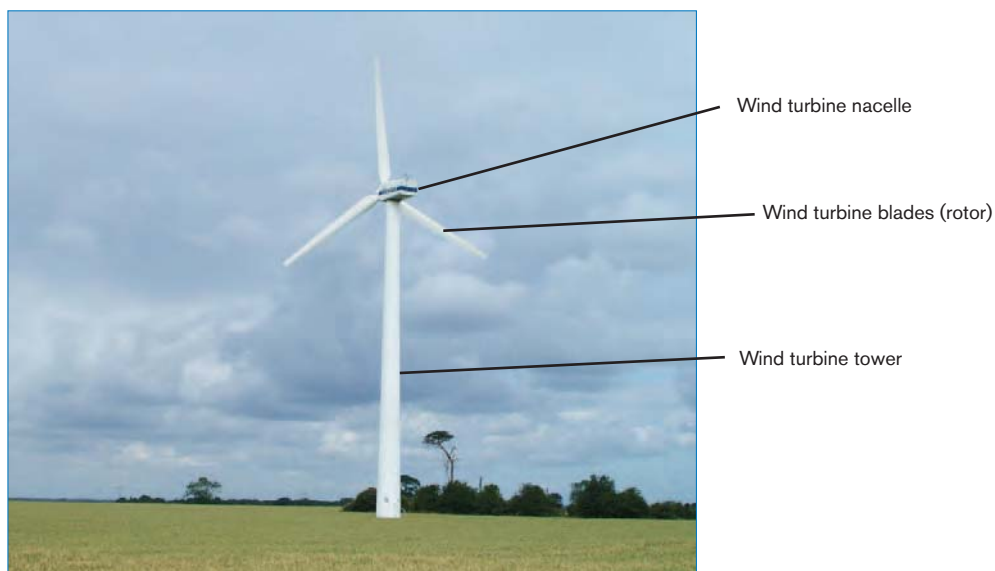
3

Wind Turbine Design and Layout

- 3.1 The landscape and visual impacts of a windfarm are strongly influenced by the design and layout of wind turbines. This section focuses upon the different types of wind turbine and their layout or array, while the following section considers how these principles relate to landscape and visual characteristics.
- 3.2 Impacts also result from infrastructure serving the development, such as access tracks and borrow pits, anemometers, control building, and substation (where necessary). Design and siting of this ancillary infrastructure are also referred to in this section.

Turbine form and design

- 3.3 A wind turbine comprises a tower that supports a nacelle, that is the main shell containing the electric generator and to which the turbine blades attach via a hub. The nacelle has an anemometer attached so that the direction in which the blades face can be altered to maximise wind capture. Further guidance on wind turbines is available in Planning Advice Note 45¹.



- 3.4 The landscape and visual impacts of a wind turbine vary not only with its size, but also with the make and model of the turbine proposed. Turbines of the same height may have varying visual appearances due to their different design and technical characteristics.
- 3.5 Windfarm developers are often reluctant to be specific as to the actual model of turbine to be used because market availability, costs, and turbine technology may

¹ Planning Advice Note 45, Renewable Energy Technologies, Scottish Executive, 2002, www.scotland.gov.uk

change during the period between submitting an application and actual construction. However, they will usually have a shortlist of preferred models for consideration and applications should include details of these. The LVIA and EIA should assess, as far as is possible, impacts of the model within the shortlist that represents the 'worst case scenario'.

- 3.6 Turbine properties, in addition to height, colour and individual design, which may be important when choosing the most appropriate model for a particular site, are:
- the proportion of blade length to tower height; and
 - the dynamic impact resulting from rotation of the turbine blades (larger, slow moving blades will have a very different impact from shorter, faster moving blades which may give the impression of increased clutter).



Alternative wind turbine proportion – these images show the contrast between blade length and tower height, which affects the overall visual range.

Turbine colour

- 3.7 Selecting the most appropriate colour for a turbine(s) is an important part of detailed windfarm design and mitigation. It has previously been assumed that wind turbines could be painted a colour that would camouflage them against their background. However, experience has shown that no single colour of wind turbine will consistently blend with its background and it is more important to choose a colour that will relate positively to a range of backdrops seen within different views and in different weather conditions.
- 3.8 When determining the most appropriate colour for wind turbines, key considerations are:
- the immediate landscape context and anticipated backcloth against which the turbines will be viewed predominantly (for example sky, heather moorland, woodland);
 - the direction the turbines will most frequently be viewed from (including the angle of the sun and how it is likely to reflect on the wind turbines);
 - the predominant weather conditions (which will dictate typical sky colour and will vary for different parts of the country);
 - seasonal variation in landscape colours;

- the proposed design and layout of the windfarm; and other windfarms within the area.



Variable colouring of turbine bases typically does not correspond with the skyline from most viewpoints and increases contrast when seen against the sky. From some viewpoints, this effect can also make the turbines seem to 'float' above the land.



Different colour of wind turbine components creates a more complex image and means the visibility of different sections varies



White turbines will look bright in certain light conditions, but will tend to convey a positive image. This may be associated with cleanliness and existing white foci in our landscape such as white-washed cottages.



Grey wind turbines will appear less prominent when seen against a grey sky, although they will rarely match the shade. When visible, a grey colour may appear 'dirty' and be associated with an industrial, urban or military character

3.9 As a general rule for most rural areas of Scotland:

- A single colour of turbine is generally preferable;
- The use of graded colours at the turbine base should be avoided;
- A light grey colour generally achieves the best balance between minimising visibility and visual impacts when seen against the sky;
- The use of coloured turbines (such as greens, browns or ochres) in an attempt to disguise wind turbines against a landscape backcloth is usually unsuccessful;
- Paint reflection should be minimised;
- For multiple windfarm groups or windfarm extensions, the colour of turbines should generally be consistent; and
- Precise colour tone and the degree of paint reflectivity should be specified at the application stage.

Turbine transformer colour

- 3.10 It is preferable for wind turbine transformers to be housed within the turbine towers, to minimise the number of elements and visual complexity of a windfarm scheme. However, where transformers are housed separately near the base of turbines, the colour of their housing requires careful consideration. This should be site specific, relating to the surrounding land cover, not the wind turbines, as transformers are rarely viewed against the skyline. Such an approach ensures that their visibility is reduced, and they are seen as a separate element to the wind turbine so that they are less likely to detract from the simplicity of its form. Browns, khakis and 'earth' colours are generally the most successful colour choices for transformers, with greens often appearing too bright.



In variable light conditions and against different backgrounds, wind turbines of the same colour can appear to have contrasting visual effect

Turbine lighting

- 3.11 In some locations it may be necessary to light wind turbines for reasons of civil or military aviation safety. Such lighting, typically at the top of the tower of the wind turbine, may appear prominent in night views and may be incongruous in predominantly un-lit rural areas. Where lighting is necessary, this should be designed to minimise landscape and visual impacts whilst satisfying health and safety or navigation requirements. This may, for example, be achieved by incorporating shields so that the lights can only be seen from above.
- 3.12 As yet there has been little experience of lighting turbines in Scotland. However, it is likely to become more of an issue as more sites are being explored within flight paths. SNH is collating information to develop our understanding of these impacts with a view to developing further guidance in due course.

Turbine size

- 3.13 As wind energy technology has developed, larger wind turbines have become available. Currently machines typically consist of 60 – 100 metre high towers with blades of 40 metres or more, so their overall height to blade tip is typically 100 – 140 metres, although some higher turbines are now available. Longer blades result in a greater rotor area and, combined with the fact that they will likely extend upwards into higher wind velocities, their wind capture and energy production tends to be proportionally larger than smaller turbines.

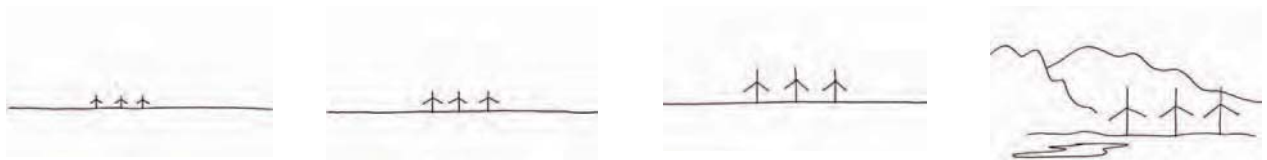
The size of these wind turbines is difficult to perceive, located in open moorland with no definite scale indicators



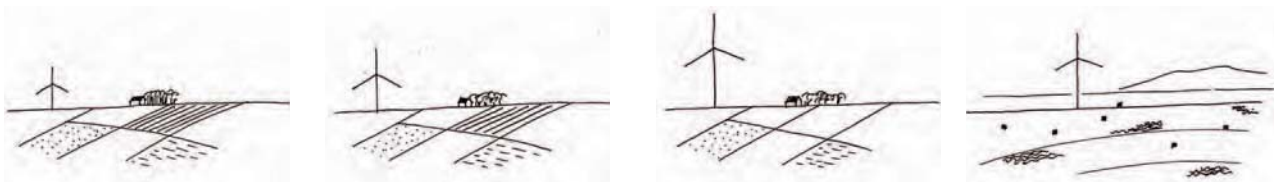
The buildings adjacent to this windfarm act as scale indicators, and emphasise the large scale of the wind turbines



3.14 Choice of turbine size is an integral part of the design process of a windfarm in relation to key landscape and visual characteristics. Identification of the key landscape characteristics, their sensitivity and capacity to accommodate change will inform this. Generally speaking, large wind turbines may appear out of scale and visually dominant in lowland, settled, or smaller-scale landscapes, often characterised by the relatively 'human scale' of buildings and features. On the other hand, the longer blades of larger turbines often have slower rotation speeds and this can be less visually distracting than the faster speeds of smaller blades.



Increase of wind turbine height is not very noticeable within moorland landscape, due to lack of size indicators; nevertheless, there may be a threshold at which larger wind turbines no longer seem to directly relate to the local area of moorland but, rather, relate more closely to the neighbouring high mountains



The size of wind turbines is clearer within a distinct landscape pattern that includes definite scale indicators. Although older/domestic wind turbines may relate to the scale of buildings, most commercial wind turbines commonly used now, over 60m in height, will seem to dominate elements of landscape pattern. There may be, however, a threshold in some landscapes at which a larger wind turbine would no longer seem associated with the underlying landscape pattern and seem 'elevated' above it, by appearing to relate to larger components.

3.15 Wind turbine size is also a key issue in upland landscapes that are viewed against or from landscapes which are more intricate in scale and pattern, or where it is otherwise difficult to discern scale and distance. By illustrating the scale of an upland landscape, wind turbines may seem to compromise the perceived expansive nature of some of these areas.

- 3.16 As the experience of different landscapes varies greatly, it is not appropriate to provide strict guidelines on turbine sizes that should be used for particular landscapes. Site-specific assessment and design is essential for each development proposal.
- 3.17 It is understood that procurement of ‘smaller’ turbines is becoming increasingly difficult as turbine manufacturers move towards larger models. However, some smaller models remain available and may be particularly appropriate near or adjacent to an existing development comprising of small turbines as well as in smaller scale landscapes. It is important to highlight that a ‘one size fits all’ approach will not respond to the great variation of landscape scale and windfarm requirements; thus it is important that a market for different sizes of wind turbines, including medium and small sizes, is maintained.

Turbine scale

- 3.18 Size comparisons between wind turbines and other tall structures may help people to be able to visualise how tall a proposed development would appear in the landscape. Table 1 shows the heights of some tall elements in the Scottish landscape that may provide useful scale comparisons. It is important to appreciate, when making comparisons of this sort, that wind turbines are typically not viewed in the same way as monuments or landmarks, which generally have much greater ‘solidity’. In addition, although the visibility extent of turbines will obviously increase with their greater height, the relationship between visual impact and turbine size is not directly proportional. Principally, this is because a windfarm is viewed within a surrounding context, which varies; and also because the actual size of a wind turbine is usually difficult to perceive.



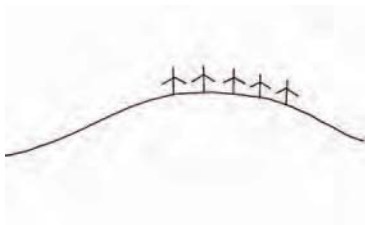
Electricity pylon acts as scale reference in relation to wind turbines

Table 1 Landscape elements which may be used as scale comparisons

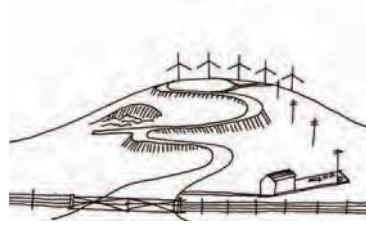
Landscape Element	Typical Height (in metres)
Metal Pylons	25 to 50
Telecommunications Masts	15 to 20
Television Transmission Masts	300
MoD Masts	70 to 80
Cockenzie Power Station Chimney	149
Inverkip Power Station Chimney	212
Forth Road Bridge Towers	150
Domestic Buildings (1.5–2 storey)	6–10
Mature Deciduous Trees (depending on species)	10–20

Ancillary infrastructure

- 3.19 Ancillary elements for a windfarm development should also be designed to relate to the key characteristics of a landscape. It is essential that these elements do not confuse the simplicity of the windfarm design, or act as a scale indicator for the turbines themselves. Undergrounding power lines within the windfarm, using transformers contained within tower bases (where possible), and careful siting of substations, connecting transmission lines, access tracks, control buildings and anemometer masts will all help to enhance a windfarm design. Simplicity of appearance and use of local, high quality materials will further enhance this.



Windfarm creates simple image in the landscape



Insensitive siting and design of windfarm infrastructure creates complex image and conflicts with underlying landscape character

- 3.20 There may also be practical constraints in delivering large turbine components to site, because of, for example, the limitations of rural bridges, road junctions or corners. Additional landscape and visual impacts, associated with widening of roads, access tracks and corners in order to enable transport of long turbine blades, should be taken into account.



Small windfarm substation



Windfarm access track across slopes



Junction of windfarm access track and public road

- 3.21 Detailed advice on the siting and design of tracks can be found in the SNH publication 'Constructed tracks in the Scottish Uplands' (SNH Natural Heritage Management Series, 2006).

Turbine layout / array

- 3.22 Turbines can be arranged in many different layouts within a windfarm. The layout of a windfarm should relate to the specific characteristics of the landscape. This means that the most suitable layout for every development will be different. The development process for a windfarm typically begins with a layout that responds mainly to wind speed and wind turbine specification, sited within defined land ownership / tenure boundaries. For a small windfarm, this might comprise a single row of wind turbines along a ridge; while, for a larger development, a grid of wind turbines is often taken as the starting point, with the turbines spaced at minimum separation distances to avoid turbulence (often equating to 4–5 rotor diameters).
- 3.23 From this starting point, turbines will typically be moved or removed due to physical constraints, such as watercourses, areas of deep peat and steep slopes, and in response to sensitive habitat or wildlife species. During this process of modification, landscape and visual issues will also inform the layout. Although landscape and visual concerns – such as the need to avoid visibility from a particularly sensitive viewpoint – may present an absolute constraint, many

landscape and visual sensitivities can be addressed through good design in windfarm layout. This commonly involves a number of changes to create the most appropriate windfarm to fit the design objectives of the project.

- 3.24 There are a number of common types of layout, chiefly divided into regular or irregular formats. Generally, the fewer the number of wind turbines and the simplest of layout upon the most even of landform, the easier it is to create a positive feature - visually balanced, simple and consistent in image as it is viewed from various directions. This is most easy to achieve with a simple line upon level ground. As soon as there is deviation from this, the visual image becomes more complicated.



Single wind turbine forms point feature with simple and direct relationship to surrounding landscape



Single line of wind turbines. These possess a visual relationship to each other as well as to the landscape.



Double row of wind turbines. Wind turbines within each group have visual relationship to each other and landscape. The two groups also have a separate and collective visual relationship to each other and the landscape.



Grid layout reveals simple visual relationship when looking down rows, but appears more complex when looking across rows.

- 3.25 A regular shape, such as a double line, a triangle, or a grid can appear appropriate within a wide open and level space where there is a regular landscape pattern, such as within agricultural fields. However, as soon as you move through the landscape and see it from different directions and elevations, views of the grid change and reveal a variable effect, seeming ordered along some rows, but in others overlapping. In addition, the rationale of the position of turbines is confused if they appear at variable elevation.



Informal layout. However regular spacing between wind turbines and direct link to landscape pattern gives layout visible rationale and sense of order.

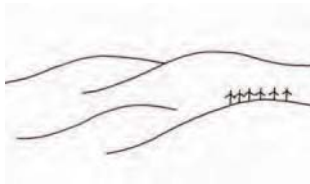


Informal layout with no obvious rationale. Creates chaotic image that contrasts with the underlying simplicity of the hills.

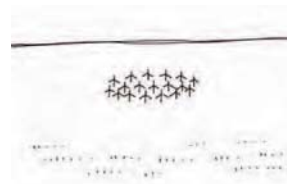
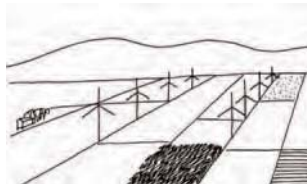
3.26 Irregular layouts can be more appropriate in landscapes of variable elevation and pattern, as is most common in Scotland. However, irregular forms pose an even greater challenge in terms of creating a simple image as the turbines will interact in varying ways with each other as well as with the underlying landscape. This can result in effects that do not correspond to good design principles, such as varying visual density of wind turbines, overlapping turbine rotors (often termed 'stacking up'), partial screening behind a skyline and turbine outliers separate from the main group.



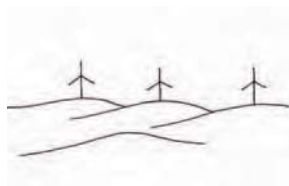
Two different views of the same windfarm. The layout appears simple from one direction, but complex from another



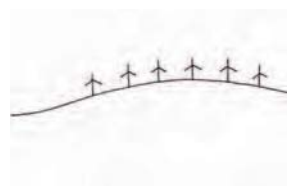
A windfarm layout appears simplest where it relates directly to the underlying landscape characteristics



Where a landscape does not include any obvious elements or features to which a windfarm could relate directly, it may be most appropriate for a windfarm to form a distinct feature in its own right. However, for this approach to appear clear, it will usually require the windfarm to be surrounded by an area of open space.



Wind turbines relate to small scale undulations at a local level. However, if the key views are distant, these undulations would not be obvious and the wind turbines would alternatively appear in closest association with the broad scale landform



Alternatively, the windfarm can be designed to relate to the broad scale landform

- 3.27 Windfarms should directly relate to underlying landscape characteristics of a similar scale and/or prominence. This design principle also means that wind turbines may be able to be accommodated within areas of complex pattern. Odd numbers of turbines often present a more balanced composition than even numbers.

Micrositing

- 3.28 Micrositing is the movement of wind turbines by small distances within the overall windfarm layout, typically involving distances of up to 100m. The process is used at two main stages of windfarm development:
- Firstly, during the design stage to ensure that turbine layout is satisfactory from key viewpoints and achieves the design objectives. It can also be used to maximise the screening benefits of landform or landcover from key viewpoints.
 - Secondly, during the construction phase of a project where previously unexpected conditions are encountered on site. This may happen, for example, where a turbine needs to be located away from an area of peat that is deeper than predicted on the initial survey.
- 3.29 Developers should seek to minimise the need for micrositing by conducting thorough site investigation during the design process.
- 3.30 Micrositing during construction can obviously have an effect on the nature and extent of the appearance of a windfarm as previously assessed and illustrated within an ES, especially those set out in regular patterns such as grids or evenly spaced lines. Any significant changes in layout should be assessed to ensure that the overall design objectives for the site are not compromised. Decision makers should also consider the extent of micrositing that it is appropriate to allow when consenting development. Where, for reasons of design coherence, there is a clear need to maintain turbine layout in accordance with submitted plans, then the permissible micrositing distances may need to be strictly limited. This is particularly important for sites of limited numbers of turbines, where there is a strongly formal layout or where micrositing may result in changing the altitude of turbines and therefore affect the windfarm's design relationship with surrounding topography.



A line of wind turbines, where slight alterations of position and elevation have disrupted the image of consistency and rhythm.

- 3.31 Planning permissions should therefore contain a condition limiting the distance that turbines can be microsited without requirement for further permission. It is important that such micrositing conditions are tailored to be specific to the nature and scale of the proposed developments, and have particular regard to the possible effects on design layout and the overall visual coherence of the scheme.

4

Windfarm Siting and Design

- 4.1 This section deals with siting and designing windfarms within the landscape. It applies similar design principles to those outlined in Section 3 and develops them further in relation to landscape and visual effects. Experience has shown that the application of these principles will have an important influence on reducing the overall landscape and visual impacts of a windfarm.
- 4.2 The chapter begins with generic issues in relation to windfarm LVIA, and then highlights specific aspects of siting and design. It offers general guidance only and for any windfarm would need to be supplemented by more detailed design objectives, established through the LVIA process. Cumulative landscape and visual impacts, which also form part of LVIA, are addressed by section 5 of this Guidance.
- 4.3 Reference is made to generalised categories of windfarm size as listed below. This grouping is for the sake of simplification, and it should be noted that landscape and visual impacts are not directly proportional to wind turbine numbers.

Windfarm size	Number of Turbines
Small	1–3
Medium	3–20
Large	20–50
Very Large	50+

Landscape character

- 4.4 The first step to carrying out the Landscape Impact Assessment (LIA) section of a windfarm LVIA is typically to assess the landscape character of the study area to identify the key characteristics relevant to windfarm development. Different places have different 'landscape character', comprised of distinct and recognisable patterns of elements. These relate to underlying geology, landform, soils, vegetation, land use and settlement. Taken together these qualities contribute to regional distinctiveness and a local 'sense of place'. Understanding a landscape's key characteristics and features is vital in considering how new development will affect it or, with appropriate design, contribute to it.
- 4.5 Landscape Character Assessment (LCA) can assist in designing development which best respects a location's distinctive character. It is a tool to help understand what the landscape is like today, how it came to be like this and how it may change in the future. LCA helps to ensure that change and development does not undermine whatever is characteristic or valued about a particular landscape, and that ways of improving the character of a place can be considered.
- 4.6 At a regional scale, SNH Landscape Character Assessments may inform this assessment. SNH's National Programme of LCA comprises 27 studies and an

overview report¹. These LCAs highlight key landscape characteristics across the country, and also identify the main forces for change in these landscapes and relevant guidance. It should be noted that many of the LCAs were produced during the 1990s and, although they remain relevant as descriptors of landscape character, do not necessarily address the sensitivity of particular landscape character types to windfarm development.

- 4.7 In addition to the broad-scale information offered by LCAs, LIA should include an assessment of local landscape characteristics, and how they are experienced, in relation to the specific proposal. There should also be an assessment of the extent and distribution of predicted visibility within relevant character areas.

Landscape and scenic value

- 4.8 A landscape may be valued for many reasons, such as for its specific landscape quality, scenic beauty, tranquillity or wildness, recreation opportunities, nature conservation or historic and cultural associations. A windfarm will not necessarily be incompatible with valued qualities of a landscape; this will depend on the nature of the development and the nature of the landscape qualities that are valued.
- 4.9 LCAs do not place value on one landscape type over another, but they may point to the reasons why a landscape might be valued, because of special characteristics or the experience the landscape offers. In contrast, landscape and scenic value is recognised at national and local levels through development plan policies and designations such as National Parks, National Scenic Area (NSA) or local landscape designations including Areas of Great Landscape Value (AGLV). Designations are usually supported by legislation and associated with specific planning policies at a national and regional level. The lack of any designation does not imply that a landscape has no value². Some landscapes are strongly linked to cultural heritage, for example, while others may be valued for their perceived lack of human influences. In line with the European Landscape Convention³ SNH promotes an 'all-landscapes approach', founded on the recognition of value in all landscapes.
- 4.10 In addition to recognition of landscape and scenic value through an accolade, value may be placed on a landscape due to its rarity or novelty within a particular area. Although landscape assessments do not place value on the distribution or frequency of landscape character types, national or regional maps showing the occurrence of different types clearly indicate where this may be an important issue.
- 4.11 For the LVIA of windfarms, the key challenge with respect to landscape value is to ascertain for what a landscape is valued and by whom, and then to assess the predicted impacts of the proposed development on this valued landscape. Establishing the quality of a valued landscape is best informed by a clear description or citation, for example as provided for NSAs in 'Scotland's Scenic Heritage'⁴, and for local landscape designations within many Local Authority Development Plans. However, for some valued areas, this information may not be available, and thus the LVIA needs to first establish the quality of the valued landscape through landscape and visual assessment of the baseline conditions and how it is used, for example through consultation, visitor information and user websites. For areas of wildness and wild land (see section below), SNH has established a method for this assessment as detailed within SNH interim guidance 'Assessing the impacts on wild land' (2007). The key test applied in relation to NSAs, but often employed for other valued landscapes too, is not whether impacts would be significant, but whether these would affect the *integrity* of a valued landscape.

1 These Landscape Character Assessments are available to download from SNH's website under the 'Landscape Character of Scotland' series on the publications page at <http://www.snh.org.uk/pubs/results.asp?Q=landscape>

2 SNH and Historic Scotland Guidance, SNH 2005, para.2.2, p.8

3 The European Landscape Convention and information about its implications can be viewed at http://www.coe.int/t/dg4/cultureheritage/conventions/Landscape/florence_en.asp

4 Scotland's Scenic Heritage, Countryside Commission for Scotland (1978)

Wild land and places with a strong sense of remoteness

- 4.12 Areas of Scotland which are very remote, inaccessible, rugged and with little evidence of human influence are widely referred to as 'wild land'; however, even those areas that possess only some of these characteristics or in a slightly degraded way may have qualities of wildness. These characteristics and the value they receive are discussed in SNH policy statement 'Wildness in Scotland's Countryside' (2002). A recent study by SNH has revealed that the majority of Scottish residents think it important for Scotland to have wild places⁵. Some of the areas possessing qualities of wildness lie outside designated areas and are therefore not protected by statute, although NPPG14 recognises their sensitivity and asks Planning Authorities to take great care to safeguard their character through specific policies in Development Plans⁶. No detailed mapping of Scottish wild land has yet been undertaken, although SNH has identified 'Areas of Search' which represent the broad areas where wild land is likely to be present⁷. SNH's Strategic Locational Guidance for Onshore Windfarms, states that the mapped Areas of Search for Wild Land have high sensitivity to windfarms and proposals in such areas are unlikely to be compatible with their wild land qualities⁸.
- 4.13 Wild land areas, due to their remoteness and poor grid connections, tend not to attract windfarm proposals.
- 4.14 However, because perception of wild land relies on there being no or minimal visibility of human features, windfarms, like any built structure, will be out of character in these areas – and scope for mitigating impacts will be very limited. In addition, the potential visibility of windfarms, individually and cumulatively, from within wild land areas can be a concern. This is a particular issue in relation to windfarms because of the long distances over which they can be seen. Therefore, proposals likely to affect an area of wild land merit careful consideration. SNH interim guidance⁹ sets out a method for this assessment.
- 4.15 There may be rare situations where there are isolated built elements already within a landscape perceived to be wild land, such as bothies, shepherds' cottages, or shooting lodges, where small-scale wind turbines may be sited in a way that relates to these structures.

Experiencing windfarms in the landscape

- 4.16 Compared to pylons or roads, a windfarm is still a relatively unusual feature in the landscape. People's responses vary – to some a windfarm may seem to threaten its surroundings, while others may view it as an exciting, modern, or even futuristic addition with symbolic associations with clean energy and sustainability. Our understanding of people's responses to windfarm development over recent years has also been informed by a number of public attitude studies that have been undertaken¹⁰. These suggest that the majority of people are in favour of wind power, although visual impact issues are often highlighted as a concern to those surveyed.
- 4.17 The impact of a windfarm will depend on how and where it is experienced; for example, from inside a residence, while moving along a road, or from a remote mountaintop. These factors are taken into account through LVIA when determining

5 Public Perceptions of Wild Places and Landscapes in Scotland. SNH Commissioned Report No. 291. (2008)

6 NPPG14 – Natural Heritage, paragraphs 16, 47, 69 and 71.

7 SNH map of Search areas for Wild Land, available at <http://www.snh.org.uk/pdfs/polstat/wsc-m3.pdf>

8 SNH Strategic Locational Guidance for Onshore Windfarms with respect to the Natural Heritage. SNH 2002, updated March 2009

9 Assessing the impacts on wild land, interim guidance note SNH 2007

10 Renewable Energy Awareness and Attitudes Research Management Summary URN08/657, BERR (June 2008).
Public Attitudes to Windfarms: A survey of Local Residents in Scotland, The Scottish Government (2003).
Tourist Attitudes to Wind Farms. Mori Scotland (September 2002)
Economic Impacts of Wind Farms on Scottish Tourism, The Scottish Government (March 2008)

the sensitivity of the landscape and visual resource, and those people that will be affected by the development (receptors). Typically, LVIA includes assessment of impacts upon the key users of the landscape, including residents, motorists, workers, those partaking in recreation and tourists. Impacts of a windfarm on local residents require particular attention as, unlike visitors, residents will experience a windfarm from different locations, at different times of the day, usually for longer periods of time, and in different seasons. Conversely, impacts on tourists and those taking part in recreation may be relatively brief, but their sensitivity to landscape change is regarded as high because their purpose is specifically to enjoy their surroundings.

- 4.18 Through LVIA, it is important to take account of how a windfarm will be experienced from surrounding roads, transport, and recreational routes. Views will vary depending on proximity to the road, the angle of view, and intervening landscape features. The first glimpse of a windfarm is important, and careful consideration should be given to the design of the windfarm layout in relation to such views.



Perception of a windfarm depends on how it is viewed and the duration of a view

- 4.19 As larger numbers of windfarms are built in Scotland, it has been increasingly necessary to consider their cumulative effects, as seen sequentially, from main transport and recreational routes. Of particular importance are: how these developments relate to each other in design and relationship to their settings; their frequency as one moves through the landscape; and their visual separation to allow experience of the character of the landscape in-between. Further detail on this aspect of LVIA can be found in SNHs 'Cumulative Effect of Windfarms' guidance¹¹.
- 4.20 The visibility and visual impacts of a windfarm are affected by the distance from which it is viewed, as well as other aspects such as weather conditions and siting. In the past, guidance notes such as Planning Advice Note 45 have offered generic categories of visibility and visual impact in relation to distance, suggesting the following: that in an open landscape at distances of up to 2 km, a windfarm is likely to be a prominent feature; between 2–5 km it will be relatively prominent; between 5–15 km only prominent in clear visibility when it is seen as part of the wider landscape; and over 15 km it will only be seen in very clear visibility and as a minor element in the landscape¹². However, in practice these guidelines are limited in their application:
- firstly, because it is unclear what height of turbine these distances were based upon¹³; and,
 - secondly, because visual impacts are not directly proportional to distance, as the nature of a view (e.g. a framed / open view or backclothed/skyline view) and its context are as important as the size of a development within that view.

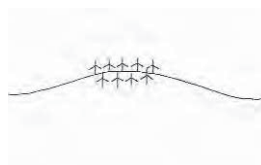
¹¹ Cumulative Effect of Windfarms, SNH (2005).

¹² PAN 45 figure 8

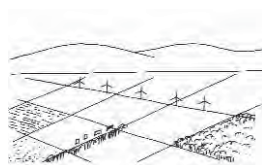
¹³ A study in 2002 for SNH by the University of Newcastle suggests that for the current 3rd generation turbines of 100m+ the distances used by PAN45 should be increased by 20%

Windfarm siting and design in relation to landscape and visual characteristics

- 4.21 Like any built structure, the impacts of a windfarm depend on both the characteristics of the development and how these relate to the characteristics of its surroundings. The most distinctive characteristics of a windfarm are typically its collection of tall, often uniformly spaced turbines, each with moving blades that change orientation according to wind direction. Windfarms are most appropriate in a landscape where their presence and design appear rational. They are usually sited in exposed places that are open, high and relatively prominent, in order to take advantage of maximum wind capture. However, other factors influencing their siting include land ownership, access, grid connection, site topography, location in relation to other natural or cultural heritage interests and/or statutory designations, aviation constraints, proximity to settlement and the need to avoid excessive turbulence.
- 4.22 It is important to site and design a windfarm so that it relates directly to the qualities of a specific site. As discussed previously within this section, this involves being able to determine the key characteristics of the landscape and visual resource, and then considering the relationship of all aspects of the windfarm in direct relation to these. This will range from the overall siting of the windfarm as a whole, to turbine size, location, pattern, and associated elements such as access tracks, powerlines or buildings.



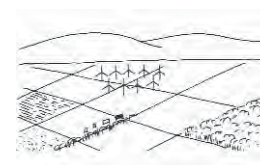
Cluster of wind turbines relates to open hill



Line of wind turbines relates to landscape pattern



Line of wind turbines appears irrational across open hill



Cluster of wind turbines appears irrational in relation to linear elements of landscape pattern



Siting of house appears to relate to conditions favourable for inhabitation, principally shelter, water, access and well-drained ground



Woodland appears to relate to conditions favourable for growth, principally shelter and well-drained ground



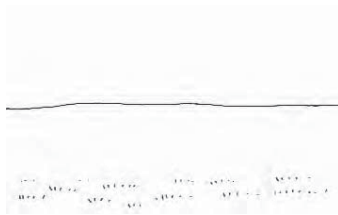
Windfarm appears to relate to conditions favourable for wind energy generation, principally exposure

- 4.23 With regards to windfarm design in relation to key characteristics, the main variables addressed through LVIA are likely to include the following:
- Layout and number of wind turbines;
 - Size, design, and proportion of wind turbines;
 - Route and design of access tracks, including the junctions with public roads;
 - Location, design and restoration of temporary borrow pits;
 - Location, design and restoration of temporary construction compounds;
 - Location and size of wind monitoring masts;
 - Positioning and mitigation of turbine lighting (if required);
 - Visitor facilities, including paths, signs, parking and visitor centre (if proposed); and
 - Land management changes, such as muirburn, woodland management, fences, and stock grazing.

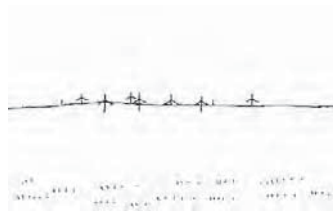
- 4.24 Through the process of design and assessment of various scenarios, regard should be given to the general principles summarised within the following section.

Landform

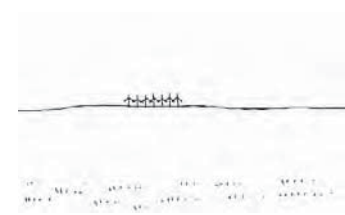
- 4.25 Landform is a key characteristic of many landscape character types, affecting whether it is rugged, flat, undulating or rolling, and upland or lowland. In flat landscapes, physical relief tends to become accentuated so that even low hills appear substantial.
- 4.26 It is very difficult to site and design a windfarm upon a variable landform, such as undulating moorland or hills, without presenting a confusing image. This is because the wind turbines will be seen from different directions at varying elevations and spacing, and against varying backdrops. To avoid this effect, it is generally preferable for wind turbines to be grouped upon the most level part of a site so the development appears more cohesive, rather than as a collection of disparate individuals.



At a broad scale, moorland appears fairly simple in landform and pattern

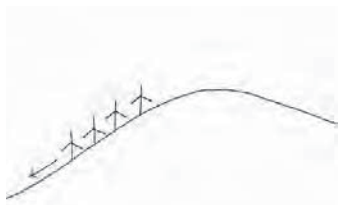


Relative positions of wind turbines illustrates landform undulations that actually exist and, consequently, create complex image

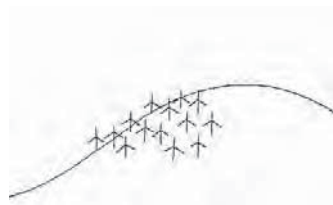


One option is to cluster wind turbines close together upon a local area of flatter ground, so that the variation is less obvious than the image of a single collective feature

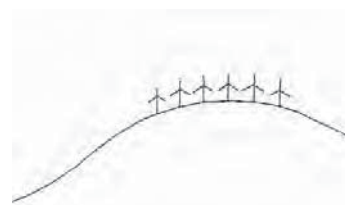
- 4.27 It is important to site and design a windfarm so that it appears visually balanced in relation to the underlying and surrounding landform. Turbines seen upon steep slopes often appear to be 'unstable'. It is also important that the scale and extent of a windfarm does not seem to overwhelm the distinctive character and scale of the landform.



Wind turbines upon slope create a visually dynamic image, seeming unstable



Windfarm appears visually unbalanced upon hill

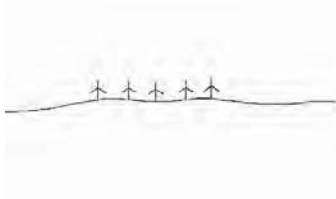


Windfarm relates to underlying landform, creating a balanced image

- 4.28 Skylines are of critical importance. This is illustrated by the contrast between the simple horizontal skylines of wide flat landscapes and the more complex vertical and diagonal skylines where there are mountains and hills. The viewer's eye is naturally drawn to skylines, although the extent to which this happens depends on the nature of the skyline and the distribution and type of other elements and foci within the landscape. The character of a skyline may be particularly valued if it conveys a sense of wildness, if it forms the backdrop to a settlement, if it comprises a particularly distinctive landform, or where distinctive landmarks and/or cultural features appear on it.

- 4.29 Given the prominence of skylines, it is particularly important that a windfarm is sited and designed to relate to this feature. A key challenge of this is, however, that the skyline will vary in relation to the position and elevation of a viewer and visibility conditions, such as weather. Nevertheless, design of a windfarm from key viewpoints and sequential routes should ensure a windfarm does not detract from the character of a distinctive skyline. Care should be taken to ensure that the windfarm does not overwhelm a skyline. If the skyline is 'simple' in nature, for

example over moorland and hills, it is important that wind turbines possess a simple visual relationship to this feature, avoiding variable height, spacing and overlapping of turbines and, also, visibility of blade tips intermittently 'breaking' the skyline.



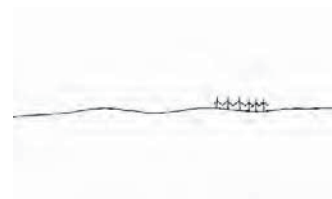
Windfarm relates simply to skyline



Windfarm contrasts in character to skyline



Windfarm seems to overwhelm visible extent of skyline



Windfarm appears as isolated and minor feature on skyline

- 4.30 During the design of a windfarm, there may be opportunities to take advantage of the landform to limit visibility of wind turbines and site infrastructure. For example, when sited on hill ridges, turbines may be set back from the edge and placed such that the slopes preclude visibility from below, even if they may be clearly visible from adjacent hills.



When only part of a turbine is visible on the skyline, it can create a confusing image.

Landscape scale

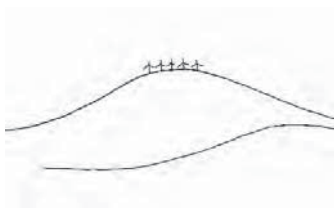
- 4.31 The scale of a landscape affects the sense of openness and enclosure. The term 'scale' does not refer to a definite dimension, but describes the perception of relative size between elements, for example a large scale open moorland or mountainous landscape and a small scale sheltered glen. To perceive scale, we rely on elements whose size and extent are recognisable to us – common features such as trees and houses. We use these as scale indicators to gauge the size and distance of other elements and make spatial judgements.
- 4.32 Landscape scale and openness are particularly important characteristics in relation to wind turbines because large wind turbines can easily seem to dominate some landscapes. For this reason, landscape scale can dictate the ability of an area to accommodate windfarm development, both horizontally in terms of its extent, and vertically with regard to wind turbine height.



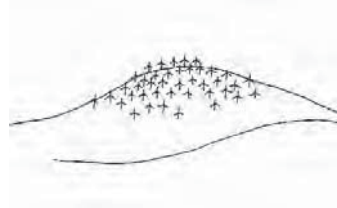
Windfarm relates well to the scale of the landform and the skyline

4.33 A key design objective for a windfarm will be finding an appropriate scale for the windfarm that is in keeping with that of the landscape. To achieve this, the siting and design of the development will need to ensure that the windfarm in relation to the following aspects, is:

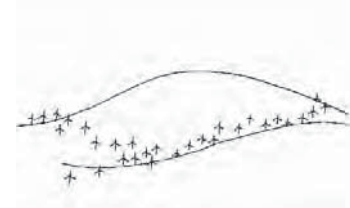
- Of minor vertical scale in relation to the key features of the landscape (typically less than one third);
- Of minor horizontal scale in relation to the key features of the landscape – the windfarm surrounded by a much larger proportion of open space than occupied by the development;
- Of minor size compared to other key features and foci within the landscape; or separated from these by a sufficiently large area of open space (either horizontally or vertically) so that direct scale comparison does not occur.



Windfarm appears as minor feature, both horizontally and vertically in relation to the surrounding landscape



Windfarm appears as minor feature horizontally, but overwhelming vertically in relation to the surrounding landscape



Windfarm appears as minor feature vertically, but overwhelming horizontally in relation to the surrounding landscape

Perspective

4.34 Size indicators within a landscape affect our judgement of visual perspective and thus our recognition of whether a feature is small or far away, large or near. The introduction of turbines into a landscape can confuse this sense of perspective, however, as they are typically of undefined size, yet much larger than any other man-made structures that would help us judge how large and how near they are. Careful consideration is therefore needed in the siting and design of windfarms, and between windfarms, to avoid confusing our sense of perspective. This is particularly the case where different turbine sizes are used and / or where there are gaps between groups of wind turbines at varying distances to viewers.



Windfarm relates to key characteristic of the landscape, yet it is difficult to perceive scale and distance within moorland



Visual link between windfarm and elements of known size, aid perception of scale and distance, emphasising the height of the wind turbines



Perception of scale and distance seems distorted due to variable sizes of wind turbines combined with an absence of reference points and size indicators

Land use

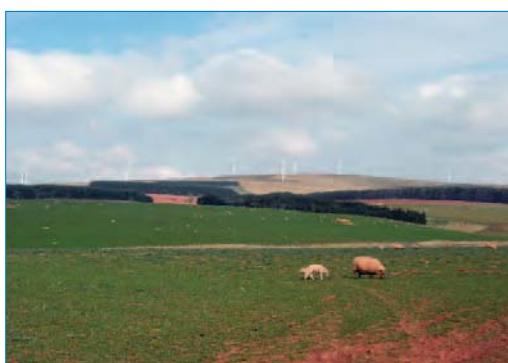
- 4.35 Land use is also an aspect of landscape character, reflecting the past and current activity of an area. In turn, land use influences landscape pattern, texture, colour, foci and the framework of these elements within an area, which may be simple or complex and affect how people move and view a landscape. Land management can also affect the condition of a landscape and the perception of its value, e.g. whether it seems neglected or well-maintained.
- 4.36 Wind energy generation may form one part of many different land uses. Existing developments vary in their setting from urban areas, industrial and harbour areas, agricultural ground, woodland, and moorland. Wind energy is typically able to relate to other land uses, apart from within areas such as wild land areas and sensitive residential locations. A key design objective should be to either relate directly to the specific characteristics of the land use or, alternatively, to appear separate and removed from these, avoiding the incongruity of something in-between that conflicts in nature and function.



Windfarm related to harbour land use



Windfarm related to agricultural land use



Windfarm relates to scale of landscape and land use



Relationship between windfarm and land use not clear

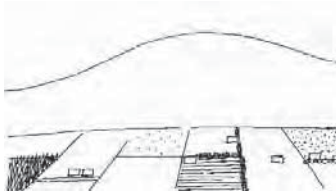
- 4.37 Where appropriate, the development of a windfarm can act as the stimulus for restoration and/or improvement of land use within or around a windfarm site, which are typically assured through the planning process by legal agreements.

Landscape and visual pattern

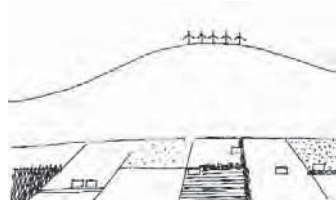
- 4.38 Strongly influenced by land use and physical features, landscape and visual pattern relates to the configuration of key elements. It is a product of the arrangement of repeated or corresponding features, be they a network of drystone dykes, hedgerows, shelter-belts, drainage channels, the distribution of drumlins along a valley, or repeated rock formations.
- 4.39 Developments should typically be designed to relate to landscape pattern where this contributes to landscape character and visual composition. However, the elements of landscape pattern to which a windfarm should relate will be strongly affected by their scale and prominence. The location of tall wind turbines, for example around 100m high, in relation to small elements of pattern, such as 1.5m high fences or 25m high knolls, would represent a disparate relationship that would not appear rational from most viewpoints. Wind turbines that do not relate to

elements or features of similar prominence and/or scale within the underlying or adjacent landscape pattern, such as a forest plantation, will seem equally discordant.

- 4.40 The distinctive character of some landscapes relies on strong contrasts of pattern, for example an intricate arrangement of fields and regular spacing of croft houses seen against a simple moorland hill backcloth. In these locations, it is important that the addition of a windfarm neither compromises the simplicity of the backcloth hills, or the hierarchy or pattern of the lowland landscape below.



Distinction of lowland landscape pattern relies partly on simple backcloth that highlights this in contrast



Windfarm detached from landscape pattern. Creates a focal feature that will distract slightly from lowland landscape, but distance maintains most of simple hill backcloth.



Windfarm not only contrasts to lowland landscape pattern, but reduces distinction by crossing over into neighbouring area of simple hill.

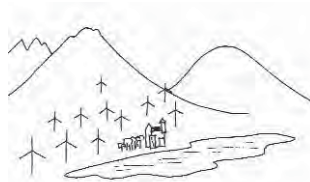
Focal features

- 4.41 Focal features can be natural features, such as mountain peaks, ridges, rock outcrops or clumps of trees; or they may be man-made structures like hill-forts, masts and towers; they can also be formed by existing wind turbines / windfarms. They may form part of landscape pattern or be seen as isolated features within a landscape. Often, where the landscape panorama is complex, there will be a hierarchy of foci that will be influenced by the relative size, distribution, position, prominence and cultural value placed upon them.

- 4.42 Windfarms, because of their very nature and typical location within open landscapes often become major focal points. Thus their interaction with the existing hierarchy of foci needs to be considered in their siting and design, in order to minimise potential visual conflicts or compromise the value of existing foci. In some instances, however, the introduction of a windfarm as a focal feature may have beneficial effect, helping to distract from negative prominent features.



Existing focal points within landscape



Windfarm reduces focal prominence and distinction of original foci



Windfarm creates prominent focal feature, but does not seem to intrude upon or reduce distinction of existing foci due to separation

Settlements and urban / industrial landscapes

- 4.43 Settlements and buildings within a landscape tend to be sensitive to the development of a windfarm for three main reasons:

- by being places from which people will view a windfarm and within which a key quality may be the provision of shelter and a sense of refuge that may seem impinged upon by the movement and proximity of a wind turbine;
- because buildings act as a size indicator in views that may emphasise the much greater scale of wind turbines in comparison; and
- because the settlement itself often forms a focal feature / landscape pattern to which a development would need to relate.

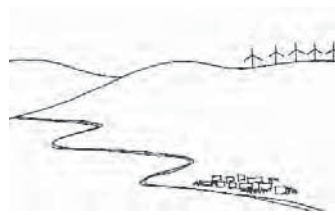


Turbines seen against other features

- 4.44 It is important that windfarms should not dominate or negatively affect settlements. The threshold for this effect will vary in different landscapes, for different settlements and with different windfarm and wind turbine designs.
- 4.45 Individual domestic-scale turbines can be located nearer to buildings for small-scale industry, agriculture or for residential use. These may be relatively noticeable due to the faster blade rotation of smaller machines. SPP6 and PAN45 recommend that any proposals within 2 km of a settlement should be considered individually to assess their suitability.

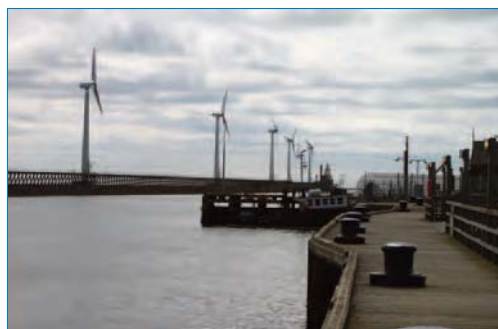


Windfarm appears to impinge upon neighbouring settlement



Windfarm separated from settlement by open space

- 4.46 There may be some locations where larger wind turbines can be accommodated near to or within urban and industrial locations. Additional key issues to address in these situations will be residential amenity, noise and shadow flicker. In these settings, large wind turbines typically appear most appropriate where they are separated slightly from buildings; are seen set back against an area of open space and visual simplicity; or are marginal to the urban/industrial area, for example, along a river edge, road corridor, the coast or large open space. The aim should be to minimise the sense of imposition upon buildings and more intimate spaces. This might be achieved by the turbines mainly being seen against an open background, and avoiding the creation of a visually complex image. In these circumstances, careful consideration of the nature of views in and out of these areas is needed, along with appreciation of the nature of impacts from recreational areas and residences.



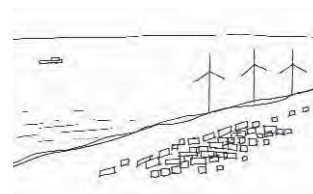
Wind turbines can relate well to urban features such as a harbour wall



Windfarm impinges upon space and views of adjacent settlement



Windfarm prominent in views from settlement but does not seem impinging because of separation space



Windfarm near to settlement, but seems less impinging due to adjacent open space offered by sea

- 4.47 In some places, larger turbines with slower rotation of blades may be preferable to smaller turbines with faster speeds. However, there will always be a need to relate the size of the turbines to the local context, taking account of the existing buildings and foci.
- 4.48 Landscape value, which may be reflected by designations such as World Heritage Sites, Conservation Areas or areas with Tall Building Policies, will also need to be considered.
- 4.49 Other factors to consider within urban situations, and which should be addressed through LVIA are;
- intervisibility and setting of turbines;
 - lines of sight between well known viewpoints;
 - views of existing focal points; and
 - the relationship between wind turbines in urban areas and those in the surrounding landscape and seascape.



Wind turbines in an urban setting

Coast

- 4.50 Scotland has a great diversity of coastal landscapes, ranging from low-lying beaches with dunes, to craggy intricate cliffs and headlands. An assessment has been undertaken for SNH that characterises the coastline of Scotland into 33 seascape units¹⁴.
- 4.51 Windfarms should relate to the sense of openness and exposure within coastal areas. However, as views are typically drawn to the coast, these areas will be sensitive to the location and design of a windfarm. This occurs both in relation to the inland and offshore land/seascape character and views, and includes views from boats and ferries. Simple, open, flat coastal areas can probably better accommodate windfarms than complex coastal landscapes, such as those with inlets and islands.

¹⁴ An assessment of the sensitivity and capacity of the Scottish seascape in relation to offshore windfarms, SNH Commissioned Report No. 103. (2005)



Wind turbines can relate well to some coastal landscapes

- 4.52 Due to the focus of views along coastlines and the typical concentration of settlements within these areas, a windfarm will often create a new focal feature or landmark near to the coast. For this reason, it will be important that they do not detract from existing landmarks, such as historical or navigational features, or coastal settlements and areas valued for recreation.
- 4.53 Cumulative impacts may occur between onshore and offshore wind energy developments, and this is likely to become an increasingly important design consideration in the future as leases are granted to develop windfarms in Scottish inshore and offshore waters. From inland areas, offshore developments may not even be perceived as being offshore if their immediate setting within the sea is screened by inland features. Views of offshore windfarms may also be affected by onshore developments. It may, for example, be undesirable to view off-shore development with onshore development in the foreground.



An offshore windfarm, 1km off the coast

- 4.54 Further guidance on this aspect of windfarm LVIA can be found in 'Guidance on the Assessment of the Impact of Offshore Windfarms – Seascape and Visual Impact Report'¹⁵ and 'Guide to Best Practice in Seascape Assessment'¹⁶.

¹⁵ DTI in association with SNH, CCW and The Countryside Agency (2005)

¹⁶ Maritime Ireland/Wales INTERREG 1994–1999. Countryside Commission for Wales, Brady Shipman Martin and University College Dublin (March 2001)

Woodland

- 4.55 Where turbines are seen from a distance in combination with woodland, their large scale can be difficult to discern. However, where windfarms are sited immediately adjacent to, or within woodland areas, trees may act as a scale indicator accentuating turbine size in comparison.
- 4.56 Trees are only likely to have a screening effect if they occur within the fore or midground of views looking towards turbines in the distance. If this occurs, the screening effect may change or be lost as one moves through the landscape.
- 4.57 Large-scale conifer plantations, particularly when seen from a distance and upon slopes, can create distinctive lines, colour, texture and shape. Ordinarily, the design objective would be to relate to this distinctive landscape pattern. However, in contrast to native woodland, forest plantations tend to be more temporary features of the landscape. For this reason, through LVIA, the designer needs to consider future plans for a forest and consider whether this, or the underlying and surrounding landscape, is of greater relevance in defining the character of the landscape to which the windfarm should relate.
- 4.58 If a windfarm is located within a forest, the clearance of trees to create open spaces for the turbine bases and access tracks can create a pattern of spaces, lines and shapes that may increase the complexity of the windfarm from distant views.



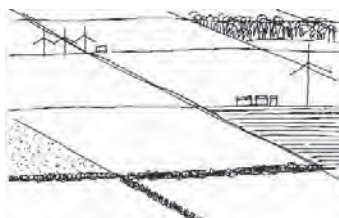
The relationship between windfarms and forestry requires careful consideration

Small / Community Windfarms

- 4.59 Small scale community owned windfarms can make a positive contribution to rural economic development. However, it should be noted that single turbines or small windfarms do not necessarily result in less landscape and visual impact than a larger development. As the efficiency of wind turbines increases this may lead to proposals with fewer yet relatively large turbines in landscapes which have limited capacity to accommodate them. Whilst a community development may be preferred within an area due to its contribution to a local economy, the ownership of a development does not mitigate landscape and visual impacts, it affects the judgement of acceptability of impacts in line with planning policy. All windfarm development should be carefully assessed through LVIA (albeit scoped to fit the scale and nature of the development), including cumulative effects.



4.60 Cumulative impacts of multiple individual wind turbines and / or small windfarms are a particular concern, especially where these are randomly located or of different designs. This issue may become more widespread as opportunities and incentives to generate electricity for on-site or community use, or to generate community income, become more widespread. There is a need for developments to be sited and designed in relation to each other in order to avoid negative impacts on landscape character and visual amenity. It is therefore recommended that Local Authorities have suitably robust spatial and design policies to minimise landscape and visual impacts where small windfarm development is likely to occur outside their Broad Areas of Search.



Single and small windfarms fitted to agricultural landscape pattern



Although individual developments are all small scale and fitted to local characteristics, developments cumulatively become defining element of character type – a 'windfarm landscape'

Designing in landscapes with multiple windfarms

- 5.1 The previous section highlighted the factors to be considered when designing individual windfarms. In many parts of Scotland, however, the issue is how best to plan for and accommodate multiple windfarms. This is complicated by the fact that, at any one time, many developments may be consented but not built, or submitted but not determined. This means that planning, siting and designing windfarms tends to be based on constantly changing baseline conditions.
- 5.2 Cumulative impacts occur when one windfarm is proposed in the vicinity of another existing or already proposed windfarm. SNH has published guidance on assessing the Cumulative Effects of Windfarms¹ which sets out when and how cumulative effects should be considered. This section contains design guidance in circumstances where such cumulative effects are expected to arise. It also touches on aspects which Local Authorities may need to consider when drawing up spatial frameworks and Supplementary Planning Guidance for windfarm development to fulfil the requirements of SPP6 and PAN45 Annex 2. This is dealt with in more detail in Part 2.
- 5.3 As part of the design process where other windfarms exist or are proposed, it will be important to undertake an assessment at a strategic level of the potential cumulative landscape and visual impacts. The impact of smaller windfarms, and in some cases individual turbines, will also require consideration. The methodologies contained within the Cumulative Effects of Windfarms guidance should be helpful, as may Topic Paper 6 'Techniques and criteria for judging capacity and sensitivity'².
- 5.4 When designing an individual windfarm, key design objectives should be developed as stated previously in section 4. Where cumulative impacts are likely to occur within an area, design objectives should also be established that can be consistently applied to all proposed developments. This should result in a similarity of design and windfarm image within an area that limits visual confusion, and also reinforce the perceived appropriateness of each development for its location. Cumulative design objectives should relate to ancillary infrastructure as well as wind turbines.



Individual windfarm relates directly to landform characteristic as single line upon horizon



Numerous developments relate consistently to key characteristic of the landscape, but not prevalent and thus remain as isolated features.



Multiple windfarms relate to same characteristic, to create consistent image and reinforce perceived appropriateness of each windfarm. However, by occupying every incidence of specific characteristic, will become key characteristic that changes overriding character



Additional windfarms contrast in pattern, scale and relationship to key characteristics, creating a confusing image and questioning relationship of original development to its surroundings.

¹ 'Cumulative effect of Windfarms'. SNH 2005 (currently under review)

² Landscape Character Assessment Guidance for England and Scotland – Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity. SNH and The Countryside Agency (2005)





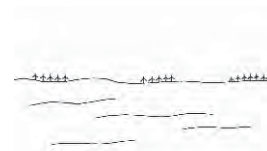
The key characteristics of the landform are often illustrated most clearly by the skyline. In this open landscape, the skyline has a horizontal emphasis and uninterrupted character.



Windfarm acts as a prominent focus. Although it does not occupy a major proportion of the skyline, it contrasts to the horizontal emphasis at a local level as a single collective feature.



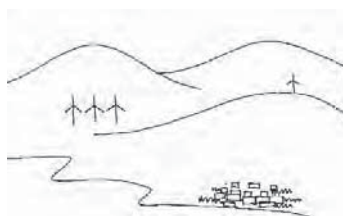
Additional development results cumulatively in major proportion of skyline being occupied by windfarms. In addition, its siting and shape does not relate to the skyline feature, nor horizontal emphasis.



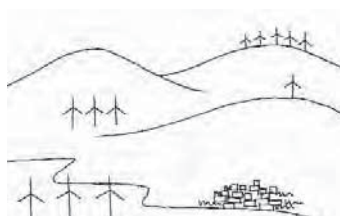
Windfarms cumulatively dominate the skyline feature, although they relate to its horizontal emphasis and simplicity of line.

5.5 The development of multiple windfarms within a particular area may create different types of cumulative effect, such as where:

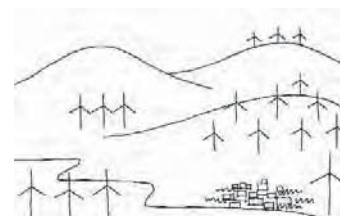
- The windfarms are seen as separate isolated features within the landscape character type, too infrequent and of insufficient significance to be perceived as a characteristic of the area;
- The windfarms are seen as a key characteristic of the landscape, but not of sufficient dominance to be a defining characteristic of the area;
- The windfarms appear as a dominant characteristic of the area, seeming to define the character type as a 'windfarm landscape character type'.



Separate isolated features

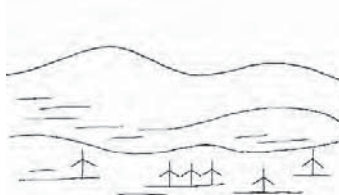


Windfarms become key characteristic of the landscape

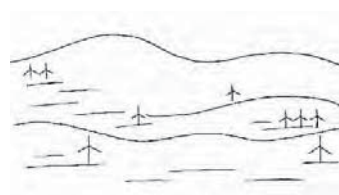


Windfarms become dominant characteristic of the area, creating a 'windfarm landscape'

5.6 These effects can occur at varying scales, for example affecting just a local character type, or prevailing over much of a character type at a regional level. The appropriateness of these different effects will depend on the character and value of a landscape and defined objectives for change. There will be differing circumstances where windfarm development would be welcomed – as landscape enhancement or accepted as part of the usual trend for landscape diversification and evolution – or else be considered undesirable, being contrary conservation aims.



Dominance of landscape character by windfarms occurs at local level only. Other areas of similar character not affected.



Dominance of landscape character at wider scale, but local pockets perceived as unaffected

5.7 An opportunity may be taken in some instances to use windfarm landscapes to improve areas which have been considered lacking in defining character. It is important to stress that this approach is only appropriate in certain locations where study has revealed that capacity exists for further turbines – elsewhere it will be important to retain areas free from development to maintain landscape diversity.

Relating to landscape character

5.8 If windfarm development extends over several different landscape character types within an area, this can lead to a reduction in the distinction between these

different types. If windfarms already exist within a particular landscape character type, further windfarm development should be limited to the same or similar types within the neighbouring area. An exception could be where these developments are of distinctly different character themselves, for example if they strongly contrast in scale.



Distinct combination of contrasting character types – open hill, settlement and firth

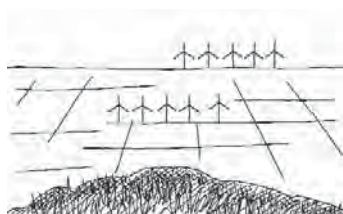


Windfarm creates new feature. This distracts from existing focus of view; however, distinction between character types is maintained.

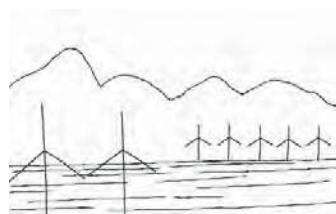


Windfarms cross different character types, reducing the distinction between these.

- 5.9 The relationship of multiple developments to neighbouring landscape character types is very important, especially where developments are located near the boundary of these or will be highly visible from neighbouring landscape character types.



Windfarm siting and design relates to simple landform and appears distant enough not to impose on nearby hills



From alternative viewpoint, looking over agricultural ground, visibility of wind turbines is highlighted by backcloth. The turbines also compete with the visual prominence of the hill range.

Complementing landform

- 5.10 Multiple windfarms should not obscure distinctive landforms, either by 'flattening' out the varying relief (due to their relative magnitude) or by 'filling' up or crowding an enclosed or flat area.

Establishing new patterns

- 5.11 The opportunity to introduce a new, characteristic landscape pattern through consistent design of turbine arrays will be important where a 'windfarm landscape' has to be established. Existing landscape scale and pattern should be respected, as they may assist in designing a new landscape. Where a new spatial pattern is proposed it will be important to identify key design prompts or cues within the landscape (which may be existing windfarms) and work with these. Consideration needs to be given to how the new pattern relates to any existing neighbouring windfarms, and adjacent landscape character.

Relationship between windfarms

- 5.12 Where two or more windfarm proposals which would be inter-visible enter the planning system in parallel, or alongside existing or consented windfarms, this should be a material consideration in the planning process.
- 5.13 A key factor determining the cumulative impact of windfarms is the distinct identity of each group of windfarms, typically related most closely to their degree of separation and similarity of design. This applies whether they are part of a single development, a windfarm extension, or a separate windfarm in a wider group. A windfarm, if located close to another and of similar design, may appear as an extension; however, if it appears at least slightly separate and of different design, it may conflict with the other development. In these cases, and if a landscape is not able to accommodate the scale of a combined development, windfarm groups

should appear clearly separate. It is critical to achieve a balance between windfarms and the undeveloped open landscape retained between them. Adequate separation will help to maintain windfarms as distinct entities. However, the separation distance required will vary according to the landscape characteristics.



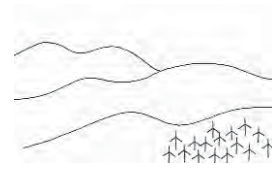
Distinct windfarm groups. Similarity of design and relationship to the landscape. With large areas of open space in between, character of underlying landscape prevails.



No clear distinction between group(s). Extending beyond skyline, it is not possible to confirm whether the groups link.

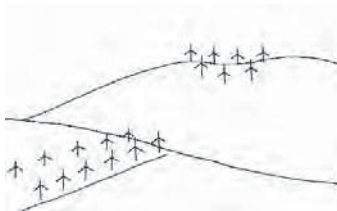


Although no clear area of space between windfarm groups, distinction highlighted due to contrasts of turbine scale and layout (variety of development type creates visual complexity).



Extension to original development creates larger single windfarm. This has increased impacts in the local area, but limits the extent of impacts through the wider landscape.

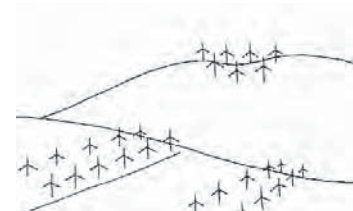
5.14 In some locations the existing pattern of windfarm development may be complex. Relating further development to a complex pattern will be challenging, but the same key principles should apply, focusing on improving the overall pattern and character of development rather than exacerbating existing conflicts between designs.



Existing windfarm developments of contrasting design and relationship to the landscape.



Additional windfarm designs amplifies adverse cumulative impacts



Additional windfarm reinforces character of one original windfarm, although increases the sense of incongruity of the other.

5.15 In some circumstances, intervening topography may limit visibility and reduce the need for visual compatibility between neighbouring proposals, although site design should always be compatible with landscape character.

Focal point pattern and scale

5.16 As multiple windfarms are built, they are more likely to 'compete' with the landscape's original foci and it may lack a sole dominating focal point as a result. The design aspiration should be to avoid visual confusion and to maintain focal point pattern and hierarchy.

Settlements

5.17 Care should be taken to avoid multiple windfarms dominating the landscape setting of a settlement. Windfarms may do this if they are close to it at high elevation, surround or enclose the access and main approaches, dominate approaches through sequential cumulative effects (through the presence of several windfarms in succession), or are physically too close. How a 'windfarm landscape' relates to a settlement will depend on the design of the windfarms and their spatial relationships with each other, and how the settlement relates to its hinterland.

Windfarm extensions

5.18 Recent windfarm development has included numerous extensions to existing windfarms. These give rise to similar issues of consistency as those arising from adjacent windfarm developments, and similar design principles should apply. Layout and site design objectives and principles should echo those of the original windfarm. Extensions should use turbines which are compatible with those in the existing windfarm, including aspects of scale, form, colour, and rotation speed. Such compatibility issues will be more important the closer the windfarms are.

Extensions should not compromise the landscape setting of neighbouring windfarms and should respect existing focal points in the landscape. The potential for a windfarm extension to 'outlive' the existing windfarm (if this is decommissioned), and therefore stand on its own, should also be considered in the design process.



Windfarm as two distinct groups. This creates a complex image due to interactions between each wind turbine with the landscape and all the other wind turbines within its group as well as between the two groups of turbines. This is complicated further by the fact that most people view the development while travelling through it. In addition the windfarm has an irregular layout over a variable landform and there are a number of other prominent landscape features within the area, including forest blocks and powerlines.

Designing in landscapes with multiple windfarms – summary of key principles

- Multiple windfarms will result in different types of cumulative effect. For each windfarm or strategy concerning potential windfarms, the most appropriate cumulative design objectives should be established, while also taking into account existing developments
- Some landscape character types will be able to accommodate multiple windfarms, while this may be inappropriate within others. Generally, it will be preferable for windfarm development to be limited in its range of landscape character type within a particular area, to avoid reduction in the distinction between types
- Individual windfarms should generally appear visually separated from one another in a landscape, unless specifically designed to create the appearance of a single combined windfarm
- Different forms of windfarm development should respond to different landscape character types, to ensure windfarm landscapes complement the landform in their positioning, extent and density
- Windfarms should not unacceptably dominate settlements
- Windfarms should take account of existing focal points in the landscape, which may be neighbouring windfarms
- Multiple windfarm development should not change distinctive skylines or occupy the major proportion of a skyline from key viewpoints or receptors
- Extensions should consolidate the scale, size and mass of the existing development; if the new turbines are compatible with the existing ones the resulting windfarm should relate to the area's landscape character in extent and scale

Part 2

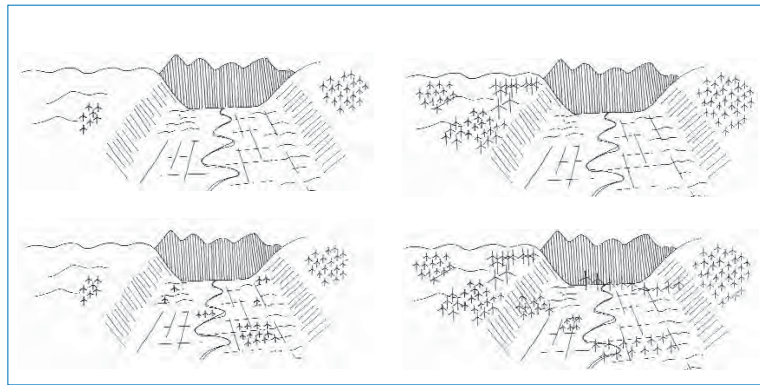
Strategic planning for windfarms

Introduction

1. This section provides guidance to Planning Authorities. It does not replace or override the policy principles stated in SPP6, but seeks to compliment and expand upon the landscape and visual considerations as identified in Planning Advice Note (PAN) 45 Annex 2¹, published in November 2008. This guidance is being issued at a time of change within the planning system. The existing SPP / NPPG series is being replaced by a single, consolidated Scottish Planning Policy statement, to be published later in 2009. This section may require revision once the new SPP is published.
2. SPP6 requires planning authorities to set out a spatial framework for the consideration of windfarm proposals over 20MW, with broad areas of search identifying areas where proposals are likely to be supported, areas to be afforded significant protection from windfarm development, and the criteria to be followed in the remainder of the area. In most areas the pattern of existing windfarm development will strongly affect the scope of a framework.
3. Planning for multiple windfarms is a complex and sensitive issue. SNH seeks only to express key principles in relation to landscape within this guidance to help Planning Authorities produce a clear and robust spatial policy. At this strategic scale Planning Authorities will benefit from working together to consider the broader impacts of windfarms on neighbouring areas
4. Landscape considerations are just one aspect of the process of identifying a spatial framework. Other constraints and natural heritage issues will also have to be taken into account to develop a robust and coherent framework. This guidance works on the assumption that other areas of natural heritage sensitivity will either have been sieved out earlier in the process of developing a spatial framework, or that these sensitivities are carried forward for consideration alongside landscape and visual and other issues. In an area with multiple windfarms there is potential for the overall landscape character to be significantly changed. The presence of a number of windfarms may make them a key characteristic of the landscape, or even a dominant characteristic such that it becomes a 'windfarm landscape'. There may be some loss of tranquillity and some aspects of naturalness may be lost. In any of these circumstances good design remains an important objective, even if the landscape has changed from its original character. The design principles outlined earlier in this guidance remain relevant.

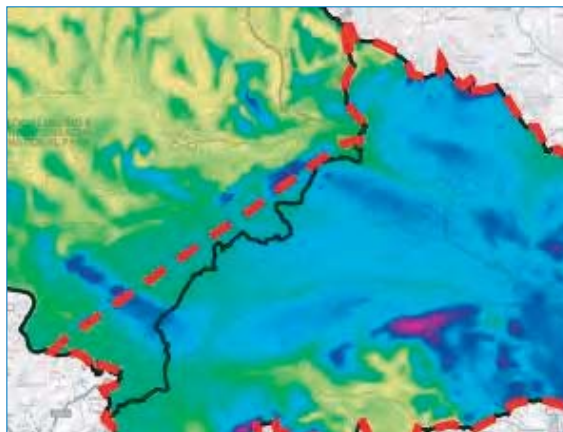
¹ Planning Advice Note (PAN) 45: Annex 2: Spatial Frameworks and Supplementary Planning Guidance for Wind Farms, Scottish Government, November 2008





Example of exploration of design concepts for multiple windfarms within a distinct region. The first diagram represents the existing cumulative situation with two windfarms upon upland hill areas. A key issue to address was whether all further windfarms should be restricted to the same character type to avoid reducing the distinction between this type and the flat bottomed valley below.

5. Potential cumulative visual impacts are difficult to address through strategic planning. The process can be assisted by viewshed mapping and analysis of representative viewpoints, key views and important tourist routes across the area, informed by 'dead ground' ZTVs² and viewpoint visualisations.



Example of visual exposure analysis. Pink represents places within which a wind turbine would be seen from the most extensive area within the study area, Yellow represents the places where it would be seen from the least extensive area.



Plan showing sample viewpoint locations that informed the development of a windfarm capacity study. For each viewpoint, site assessment was carried out in addition to the production of visualisations that showed sample wind turbines of different height in relation to the viewpoints across the region.

Identifying landscapes suitable for multiple windfarms

6. One of the potential consequences of considerable windfarm development across Scotland could be that few landscapes might be left unaffected by windfarms. This would diminish the diversity which is one of the key characteristics of the Scottish landscape. Good strategic planning can help to avoid this by ensuring that windfarms are sited within those areas best able to accommodate them. It should also mean that areas less suitable for such development, or more valued for the present character or qualities of the landscape, can be kept free of windfarm impacts. Views of windfarms from within these areas may also be affected, and will therefore require careful consideration. This has been shown by some planning exercises³.
7. Landscape capacity studies can help to inform and identify where development would be preferable in landscape terms. They can be particularly helpful when spatial frameworks are being developed.
8. As the landscape and visual impacts of windfarm development can extend over a wide area and across Planning Authority boundaries, it is important to consider the

² ZTV maps that show the area within which an element of defined height and extent would be visible from a specific viewpoint.

³ Such as those undertaken in Ayrshire and the Clyde Valley

current pattern of development in a regional and national context. SNH has developed a windfarm footprint map⁴ which identifies the location and size of most of the windfarms which are already installed, approved or being considered. The map demonstrates that windfarm development is currently clustered in those areas which are generally of lower constraint (in natural heritage terms) and with access to the national grid. Further development activity is likely to continue to focus on those areas with good access to the grid and close to areas of existing development or land use change. This has led to a pattern of 'clustering' of windfarms which crosses Planning Authority boundaries and which reflects the range of constraints on windfarm development. In considering which areas are suitable for further windfarm development this existing pattern of development must form a key consideration.



A large windfarm in a large scale, open landscape.

9. The intrinsic characteristics of a landscape also render some landscape types more suitable for multiple windfarms than others. Analysis of landscape character information at a strategic level can help in identifying those landscape types best suited to large scale and multiple windfarm development.
10. Impacts on recreational interests also need to be considered at a strategic level. This will include the effects on users of Long Distance Routes where relevant, impacts on popular destinations for recreation such as National or Regional Parks, and also on important recreational resources such as rivers and mountains. Summits and other elevated viewpoints are often popular destinations that are likely to be particularly affected by views of multiple windfarms.

Different landscapes – different approaches

11. In judging whether or not an area should be kept free of windfarm impacts it is helpful to develop a clear view about which of three possible landscape objectives should apply⁵: landscape protection, accommodation, or change. These should not be seen as rigidly distinct objectives. They seek only to illustrate the different approaches that are relevant to different landscapes.



A large windfarm in a rolling managed upland landscape.

⁴ Available at <http://www.snh.org.uk/strategy/renewable/sr-rt01.asp>

⁵ For further discussion on landscape objectives see SNH's Landscape Policy Framework. Policy Statement No. 05/01

12. **Landscape Protection:** where the aim is to maintain the existing landscape and visual resource, retaining or reinforcing its present character and protecting its quality and integrity. It is likely to be difficult to accommodate windfarms in such areas. Small-scale development may nonetheless be possible where it relates well to the existing landscape in terms of both scale and design. Micro generation may be acceptable where this relates well to the existing built environment. Where a landscape designation is in place, it is important to understand the special qualities for which the area is designated and to consider how the proposal could affect these. In National Scenic Areas, for example, landscape protection will be the most appropriate objective, reflecting the high degree of protection afforded to these areas by SPP6 and NPPG14⁶.

Nationally and internationally designated areas where landscape protection is an appropriate approach are likely to be afforded 'significant protection' in Planning Authority Spatial Frameworks.

13. **Landscape Accommodation:** where the aim is to retain the overall character of the landscape, yet accepting that development may be allowed which will have an impact on the landscape locally; development fits within the landscape and does not change its character on a large scale. Landscape accommodation implies that there may be important landscape-related constraints in terms of the siting and scale of windfarms, but that suitably designed windfarms can be compatible with this objective. Within local landscape designations the degree of landscape protection will be less than for National Scenic Areas. In some local landscape designations an appropriate objective may be to accommodate windfarms, rather than seek landscape protection. Where this approach is chosen the justification will need to be clearly articulated in relevant planning policy.

Landscape accommodation may be an appropriate approach within the 'other' areas in Planning Authority Spatial Frameworks, where other constraints and policy criteria will apply. A landscape accommodation approach could also be relevant to 'Broad Areas of Search' if the associated criteria make it clear that overall landscape change is to be avoided.

14. **Landscape Change:** where it is accepted that the area is one whose landscape character may be allowed to change, which could result in a perception of a windfarm landscape. Landscape change does not imply that 'anything goes': good landscape design principles still need to be followed to ensure that the development is appropriate for the scale and character of the landscape.

Areas where landscape change is an appropriate approach are likely to be consistent with 'Broad Areas of Search' in Planning Authority Spatial Frameworks.

SNH Strategic Locational Guidance

15. SNH has published Strategic Locational Guidance for Onshore Windfarms⁷ to guide planners, practitioners and others in respect of natural heritage constraints at the strategic level. It identifies three zones of natural heritage sensitivities and aims to promote a consistent approach to windfarm development. It is important to note that the zones identified within the Strategic Locational Guidance are mainly designations-based and do not take account of landscape character or potential visual effects.

⁶ National Planning Policy Guideline 14 Natural Heritage, Scottish Government 1999

⁷ Strategic Locational Guidance for Onshore Windfarms with respect to the Natural Heritage. SNH 2002, updated March 2009, www.snh.org.uk.

16. To date, the majority of windfarm development has been in Zone 1 – the zone of least natural heritage sensitivity. Areas where landscape change is an appropriate objective, and where multiple windfarm development might be encouraged, are most likely to be found within Zone 1. However, it should not be assumed that all of this zone should be open to landscape change. The scale and detail of some landscapes will always make it difficult for them to accommodate windfarms satisfactorily, and there are many areas within Zone 1 which are valued locally for the character, quality and amenity value, for example on account of the recreation opportunities they provide close to towns. In some locations, the concentration of proposed developments in Zone 1 is leading to the potential for undesirable cumulative impacts.

Identifying capacity and the limits to development

17. Within areas identified as being suitable for multiple windfarms there will still be a limit on the number or extent of windfarms which can reasonably be accommodated. SPP6 states that *'Development plans should identify those areas where there are existing windfarm developments and set out, in relation to the scale and proximity of further development, the critical factors which are likely to present an eventual limit to development'*⁸. Within Broad Areas of Search, Planning Authorities are encouraged to complete a landscape capacity study to determine how much development can be accommodated and what the critical factors might be that will define an eventual limit to development. The critical factors will be specific to the landscape involved, but could include the factors summarised below.

⁸ SPP6, Annex A, paragraph 3

Critical factors relating to capacity for windfarms

This box lists key factors that ought to be taken into account when considering capacity for windfarms. It was developed in response to a need identified in SPP6 (paragraph 3 Annex A, cumulative impacts).

– Effects on landscape designations – or landscape value

Effects of additional development on the qualities, integrity and objectives of any relevant landscape designation should be analysed and described.

– Effects on landscape character

The effect of development on existing landscape character should be described. It is likely that as more windfarms are developed, and / or at closer distances to each other, they will begin to be perceived as a key landscape characteristic and will therefore change landscape character.

– Effects on sense of scale

Tall structures are likely to dominate and alter the perception of vertical scale in the landscape. This will be the case particularly when larger turbines are seen in comparison with developments using smaller turbines or when proposed turbines are viewed in comparison with other landscape features.

– Effects on sense of distance

Effects on distance may be distorted with additional windfarm development. For example, if larger turbines are located in the foreground of smaller turbines or vice versa.

– Effects on existing focal points in the landscape

An existing windfarm development may act as a focal point in the landscape and the effects of other windfarm development on this should be considered.

– Effects of skylining

A viewer's eye tends to be drawn towards the skyline. Where an existing windfarm is already prominent on a skyline the introduction of additional structures along the horizon may result in development that is disproportionately dominant. The ratio of developed to non-developed skyline is therefore an important landscape consideration.

– Effects on sense of remoteness or wildness

The existing experience of remoteness and wildness should be assessed, and the effects of development on it analysed.

– Effects on other landscape interests

Effects of additional development on other interests in the landscape should be considered. For example, this may include consideration of the effects on the landscape setting of settlement or other cultural interests and associations with the landscape.

Surrounding areas

18. Where an area is identified for multiple windfarm developments, it will be important to establish a clear boundary to that area. This is in order to achieve visual separation, such that those travelling through the landscape will perceive a clear distinction between the windfarm landscape and the landscape outwith. Otherwise, the perception of being within a windfarm landscape may become extended, or may only peter out gradually, thus losing diversity in the landscape experience. There may be some benefit in maintaining the current development pattern – of clustering and gaps – that has evolved in some areas due to a range of opportunities and constraints. This approach should also help to address cumulative impacts⁹.
19. The scale required of such landscape planning is necessarily large, given the extent of a typical large windfarm which may extend across Local Authority boundaries. Surrounding areas to be kept free of windfarms may have to be substantial to be effective, considering intervisibility and sequential impacts. They

⁹ SPP6, Annex A, paragraph 3

also need to take account of the distance necessary to provide an area of undeveloped ground in between. Perception of this will typically depend on factors such as the concealment offered by landform and windfarm size. In very open landscapes larger separation distances may be required than in hilly areas where the landform may provide more effective visual separation. It may not be necessary to preclude small windfarm developments within such separation areas, e.g. farm-scale developments or single turbines, where these are clearly of a smaller size or scale than the large-scale windfarm developments within the windfarm landscape itself. However, there will be a limit to the number of smaller developments that can be accommodated in this way.

In developing Spatial Frameworks for windfarms Planning Authorities should consider identifying areas that should be afforded significant protection in order to reduce the potential for further cumulative impacts¹⁰. These areas may be required between very large individual windfarms, clusters of windfarms, and Broad Areas of Search.

¹⁰ Para 33, Planning Advice Note 45, Annex 2, 2008

Appendix 1

Design Statement for Clyde Windfarm

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Please note that the references to other chapters/tables are not included within this guidance.

Design Strategy

- 1 Requirements for a 'design strategy' stem from national policy¹, and were reinforced in the scoping responses from the Royal Fine Arts Commission for Scotland and Scottish Natural Heritage. In addition, it has now become accepted best practice in the design of windfarms, to consider how the windfarm will relate to the landscape, its landform, scale and other landscape features.
- 2 The overall aim of the design strategy was to create a windfarm with a cohesive design that relates to the surrounding landscape. The inherent nature of turbines as bold, modern structures means that the form of the windfarm as a whole is important, and a strong, clear cut design strategy is necessary. The strategy therefore considered the appearance of the windfarm as an object or composition in the landscape as the primary factor in generating the layout.
- 3 The objectives of the design strategy were as follows:
 - to produce a cohesive layout which would be legible in views from the surrounding landscape and be easy to understand;
 - to develop a layout that reflects the landform and topography of the landscape;
 - to develop a layout that seeks to match the scale of the turbines, and the scale of the overall development, with the scale of the landscape.
- 4 The background to the design strategy also included an examination of alternative patterns for the layout in relation to the topography.

Scope of the Strategy

- 5 The design strategy sets out the overall approach to the design development of the windfarm. Subsequent alterations to the layout were made in response to, for example, ecological, hydrological, archaeological and energy yield considerations, as well as to reduce visual impacts arising from these alterations. With the design strategy in place, however, these latter changes could be reviewed with an understanding of the appearance of the windfarm within the landscape.
- 6 The design strategy did not consider site selection, with the site already having been selected by Airtricity using their site selection methodology. The design strategy therefore focussed on considering layout options for the Clyde site in response to the site conditions. The design strategy did, however, influence the site boundaries of the development. Both extensions and reductions to the original site boundary were consequences of the implementation of the design strategy.
- 7 In the development of the designed layout, computer modelling was used as a tool to aid design. In particular, wireframes were generated for views from key locations around the site and photomontages produced for viewpoints used in the assessment of landscape and visual impacts (see **Chapter 6**).
- 8 The major development components considered in the design were turbines and deforestation/replanting. Forestry design issues have been progressed alongside this design strategy and are set out below.
- 9 Cumulative issues with other windfarms have not been considered as part of the design strategy, as the closest other, existing or known potential, windfarms are unlikely to be seen as part of the same windfarm, although some views from the surrounding area will include more than one development (see **Chapter 6**).

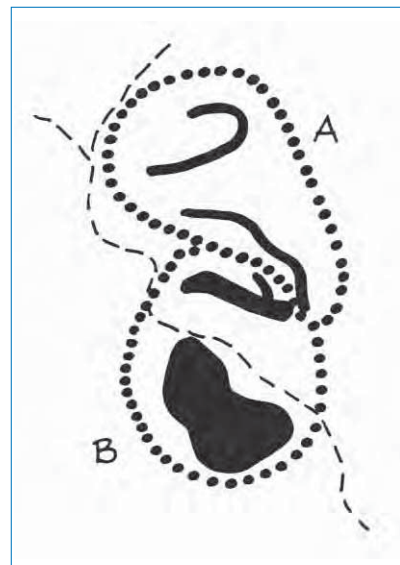
¹ Scottish Executive (2001) *Designing Places: A Policy Statement for Scotland*.

Topography

- 10 The general topography of the windfarm area is one of undulating hills of the Southern Uplands. Valleys divide the hills such that the site is not seen as a whole from valley locations. This has the effect that in views from much of the surrounding landscape, only part of the site is visible, and turbines will often not be seen in full, and are likely to be seen against the sky. The experience is very different in views from hill tops, where the full extent of the windfarm may be appreciable.
- 11 These different viewing conditions exclude options for layouts that are dependant on full visibility of most turbines. Instead, there are opportunities for different strategies for different parts of the windfarm that are not seen together in the same view.
- 12 The site can be divided into two parts that have different landform types. The design strategy that has been developed for each of these is described below.



Sketch 1: Topography of the site. The northern part of the site is made up of ridges, whilst more plateau-like areas lie to the south.



Sketch 2: Design approach. A is used for the northern part of the site, and design approach B is used for the southern part of the site.

Design Approach A

- 13 The northern part of the site has many strong hill and ridge features to which the layout responds. In particular, the ridges of Ewe Hill to Hardrig Head, Tewsgill Hill to Rome Hill to Duncangill Head and Normangill Rig to Yearnhill Head and Hare Cleuch Head form strong topographic features. Lady Cairn, Rodger Law, Harleburn Head, Pin Stane and Clyde Law form a broader area with spurs to the north (for example Mid Hill), and therefore form an area of transition to plateau.
- 14 This overwhelming characteristic of the landform has been used as the basis for the design in this part of the site. At the scoping stage, a layout with many more turbines along the ridges and down the slopes was used as an initial layout, but this was found to be unsuitable given the lack of clarity of the relationship with the local topography. Visual analysis of the scoping layout further confirmed that the layout should be designed as lines of turbines that related more closely to the ridges.
- 15 Another design option placed double rows of turbines on the ridges, but this was found not to result in a clear reflection of the ridges in views from the surrounding area. The strategy adopted was therefore *to place single lines of turbines along the ridges, with closer spacing and centred upon the ridges*. The visual effect of this is that the hubs of the turbines reflect the profile and topography of the landform when viewed from the surrounding area. In view of the transition from single ridges to broader plateau, design approach B was used for Lady Cairn to Clyde Law.



Sketches 3 and 4: A double line of turbines hides the profile of a ridge, while a single line relates to it.

Design Approach B

- 16 Across the southern part of the site, immediately north of the M74, and the whole area to the south of the M74, the topography is less distinct than the northern part, and there is broad undulating moorland without distinct ridges.
- 17 The design principles applied for the northern part of the site were found to be unsuitable for this part of the site, given that they are developed for more distinct landform types. An alternative layout, based on a grid was also found to be unsuitable, given the smooth contours and irregular plateau form when seen from viewpoints around the area. For this part of the site, therefore, the strategy was *to develop groupings, using the subtle ridges to orientate them*.



Sketch 5: A group of turbines on an undulating plateau.

Infrastructure

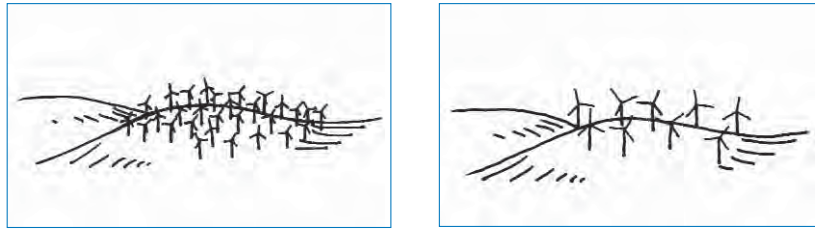
- 18 Alternative designs for the substation buildings were considered in the design of the windfarm. Should the Scottish Executive be minded to grant consent for the windfarm, a detailed architectural design brief for the substations will be drawn up. This will consider the relative design merits of both traditional buildings (for example, with a slate pitched roof and painted roughcast walls, in the style of existing local farmhouses) versus a more modern design, which more closely reflects the function of the buildings.
- 19 The access tracks that serve the turbines have been routed so as to follow the ridge tops wherever possible. This is to minimise their visibility in the surrounding landscape. Where tracks cannot follow ridges, they follow other features such as existing farm tracks, valleys, or field boundaries wherever possible.
- 20 The grid connection for the windfarm does not form part of this application for consent. However, the design strategy for the windfarm aims to avoid the potentially confusing design impacts of additional pylons in the site area, by supporting the underground routing of the grid connection.
- 21 The colour of turbines and transformers has been considered, and it is judged that a non-reflective pale grey should be used for all elements. This is because it would not be possible to use other colours for the lower parts of towers (where they are seen against the land rather than against the sky), or turbines in forested areas, for any one viewing angle, without increasing the impact on other views. In addition, the introduction of more than one colour would reduce the overall visual coherence of the windfarm.



Sketches 6 and 7: Bicoloured turbines are difficult to match up with the horizon..

Scale

- 22 Larger numbers of smaller turbines compared with smaller number of larger turbines would generate similar yield but have different grouping and visual impacts. A comparative analysis confirmed that greater numbers of smaller turbines have broadly similar ZVIs to fewer larger turbines. However, the greater number of smaller turbines would result in more frequent 'bunching' or 'overlapping' of turbines in views from the surroundings. This 'bunching' or 'overlapping' adversely affected the design objective of reinforcing ridgelines. As a consequence, it was concluded that larger turbines (and fewer) was preferred.



Sketches 8 and 9: Comparison of small and large turbines.

Outcome

- 23 The application layout is based on the design strategy described above. In particular, the strategy seeks to create a design that reads coherently with the landscape, and is not reliant on arbitrary boundaries that are not present in the landscape (i.e. the site or administrative boundaries).
- 24 The layout also considers issues of energy yield and incorporates further changes resulting from mitigation of other impacts (see **Table 3.1** below). As a consequence of these other factors, consistent spacing of the turbines has not always been possible along the full length of some ridges. Whilst this may be noticed in some views from the surrounding landscape, on the whole, it is judged that the development will appear to relate to the topography, and that the design objectives have not been compromised.

Modifications to Scheme Design

- 25 As a consequence of the EIA process, there have been a number of modifications to the design to avoid and minimise environmental impacts without compromising the overall design strategy. These are set out fully in **Table 3.1** below and have included the relocation or removal of turbines, access tracks, borrow pits and associated infrastructure to:
- comply with the overall design strategy;
 - reduce visual impacts from key viewpoints;
 - increase distances between development components and watercourses;
 - avoid key habitats of nature conservation interest;
 - increase distances from bird breeding locations;
 - reduce noise impacts on residential properties;
 - avoid Scheduled Ancient Monuments (SAMs) and other areas of archaeological interest;
 - minimise transport impacts;
 - remove turbines from the MOD's low fly zone;
 - avoid the lines of sight for telecommunications installations.

To illustrate the extent of change, the scoping, baseline and assessment layouts are included as **Appendix 3.2**.

Appendix 2

GLOSSARY

Ancillary infrastructure	The built elements and structures of a windfarm, apart from the turbines, which serve the development, such as access tracks, borrow pits, the control building and substation.
Anemometer mast	A mast erected on a windfarm site, usually the same height as the turbine hubs, to monitor wind speed.
Broad Area of Search	Area(s) to be specified by a Planning Authority within their Spatial Framework for Windfarms where proposals are likely to be supported, subject to specific proposals satisfactorily addressing all other material considerations.
Borrow pit	A quarry within a windfarm site excavated to provide stone for site infrastructure.
Capacity Study	Research which attempts to identify the acceptable limits to development in a given area.
Decommissioning	The process by which a windfarm is dismantled and the site restored.
Design Statement	A document which records the design process that is undertaken for a development.
EIA	Environmental Impact Assessment, the process by which the identification, prediction and evaluation of the key environmental effects of a development are undertaken, and by which the information gathered is used to reduce likely negative effects during the design of the project and then to inform the decision-making process.
European Landscape Convention	Also known as the Florence Convention, the ELC promotes the protection, management and planning of European landscapes and organises European co-operation on landscape issues. It is the first international treaty to be exclusively concerned with all dimensions of European landscape.
LCA	Landscape Character Assessment, a documented process which describes and categorises the landscape, highlighting key landscape characteristics and the main forces for change.
LIA	Landscape Impact Assessment, part of the LVIA process which explores the potential effects on the landscape of a proposed development (see below).
LVIA	Landscape and Visual Impact Assessment – a standard process for examining the landscape and visual effects of a development.
Micrositing	The movement of wind turbines by small distances within the overall windfarm layout, either at the design or construction stages of development.
NSA	National Scenic Area – area designated for its outstanding scenic value and beauty in a national context.

PAN	Planning Advice Notes provide advice on good practice and other relevant information, e.g. PAN45 on Renewable Energy Technologies.
Planning Authority Spatial Frameworks	Frameworks set out in Development Plans by the Local Authority, supported by broad criteria, for the consideration of windfarm proposals over 20 megawatts.
Strategic Locational Guidance (SLG)	SNH Policy Statement which sets out a number of principles that should guide the location of onshore wind farm projects so as to minimise effects on the natural heritage. Provides broad overview at a Scottish level of where, in natural heritage terms, there is likely to be greatest scope for windfarm development, and where there are the most significant constraints.
SPP	Scottish Planning Policy. A statement of Scottish Government planning policy on nationally important land use and other planning matters, supported by a locational framework, e.g. SPP6 focusses on 'Renewable Energy'.
VIA	Visual Impact Assessment, part of the LVIA process, which considers potential changes that arise to available views in a landscape from a development proposal, the resultant effects on visual amenity and people's responses to the changes.
ZTV	Zone of Theoretical Visibility – a mapped visualisation of the areas over which a development can theoretically be seen.

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Our ref: AMH/7303/10
Our Case ID: 201302539
Your ref: 13/01230/FLL

23 July 2013

Dear Sir,

Town And Country Planning (Development Management Procedure) (Scotland) Regulations 2008

**13/01230/FLL Installation of a wind turbine (total height 56.3m) on land 700m S of Glenbran Farm, Abernyste
SM 7303 Glenbran, ring fort 590m SE of**

Thank you for your consultation of 17 July 2013 requesting comments on the above application for the installation of a wind turbine (total height 56.3m) on land 700m S of Glenbran Farm, Abernyste. We note that we have previously provided comments on an earlier planning application (12/02151/FLL) for a turbine at this site, and that this application was refused.

There are several scheduled monuments within the wider vicinity of the proposed turbine, of which the closest is known as '**SM 7303 Glenbran, ring fort 590m SE of**' and is located approximately 460m NE of the proposed turbine. The scheduled monument comprises a prehistoric ring fort visible as a circular enclosure defined by an enclosing bank, and is located within a plantation on a low rise overlooking Kilwhanie Den. Further afield, '**SM 7259 King's Seat, cairn**' is located on top of King's Seat Hill to the SW of the proposed turbine, and comprises a Bronze Age burial cairn.

We note from the application that the proposed 56.3m wind turbine will be located approximately 460m SW of the Glenbran ring fort at an altitude of 215m. At this location and altitude, as shown by the ZTV and associated photomontages, the turbine will be largely visible from the margins of the Glenbran ring fort, and entirely visible in views from the King's Seat cairn and prominent in some views towards it. However, the setting of the ring fort is fairly localised and its position overlooking Kilwhanie Den suggests that its focus may be more to the north, rather than SW towards the proposed turbine. In addition, whilst the King's Seat Hill cairn has



panoramic views in all directions, we consider that the proposed turbine doesn't dominate these views, and that the landscape setting remains capable of being understood and appreciated. Given the above, we do not feel that this proposal raises issues of national significance and thus do not object to this application. As with the earlier planning application (12/02151/FLL), we would therefore ask that your Council takes local planning policy into account when considering this application.

It is worth noting we would likely have increased concerns if additional or larger turbines were proposed for this location.

Yours sincerely,

OLIVER LEWIS

Senior HM Officer (Ancient Monuments - North)

TCP/11/16(279)

Planning Application 13/01230/FLL – Erection of wind turbine and ancillary works, land 700 metres south of Glenbran Farm, Abernyte

PLANNING DECISION NOTICE

REPORT OF HANDLING

REFERENCE DOCUMENTS

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Pullar House
35 Kinnoull Street
PERTH
PH1 5GD

Date 9th September 2013

TOWN AND COUNTRY PLANNING (SCOTLAND) ACT

Application Number: **13/01230/FLL**

I am directed by the Planning Authority under the Town and Country Planning (Scotland) Acts currently in force, to refuse your application registered on 8th July 2013 for permission for **Erection of wind turbine and ancillary works Land 700 Metres South Of Glenbran Farm Abernyste** for the reasons undernoted.

Development Quality Manager

Reasons for Refusal

1. As the proposed turbine will have a significant adverse impact on the visual amenity of the area, which is presently enjoyed by a host of receptors including (but not exclusively) visiting recreational users, the proposal is contrary to Policy 1 of the Perth Area Local Plan 1995 (Incorporating Alteration No1, Housing Land 2000), which seeks to protect existing (visual) amenity from new developments within the landward area from inappropriate developments.
2. As the proposal will have a detrimental impact on the landscape associated with Kings Seat, the proposal is contrary to Policy 1 of the Perth Area Local Plan 1995 (Incorporating Alteration No1, Housing Land 2000), which seeks to ensure that new developments do not cause unacceptable environmental impact.

Justification

The proposal is not in accordance with the Development Plan and there are no material reasons which merit approval of the planning application.

Notes

The plans relating to this decision are listed below and are displayed on Perth and Kinross Council's website at www.pkc.gov.uk "Online Planning Applications" page

Plan Reference

13/01230/1

13/01230/2

13/01230/3

13/01230/4

13/01230/5

13/01230/6

13/01230/7

13/01230/8

13/01230/9

13/01230/10

13/01230/11

13/01230/12

PERTH AND KINROSS COUNCIL

**INSTALLATION OF A WIND TURBINE AT LAND 700 METRES SOUTH OF
GLENBRAN FARM, ABERNYTE**

DELEGATED REPORT OF HANDLING

Ref No	13/01230/FLL	Case Officer	Team Leader	Decision to be Issued?	
Ward	N1 – Carse			Yes	No
Target	7 Sep 2013				
RECOMMENDATION					
Refuse the planning application on the grounds that whilst the proposed turbine will bring an economic benefit to the applicant's business and the local area, that benefit would not outweigh the turbines unacceptable visual impact, and its unacceptable impact on the local landscape which is centred around King's Seat.					

BACKGROUND & DESCRIPTION

The application site relates to a small area of agricultural land at Glenbran Farm, a small farm located approx 2.5km NW of the small settlement of Abernyte on the eastern slopes of the Sidlaw hills overlooking the Carse of Gowrie. The land at present is upland agricultural land, with the land surrounding the site the same. To the east, west and north of the site are small irregular shaped pockets of trees, which appear to be relatively permanent as opposed to commercial plantations.

This planning application seeks to obtain detailed planning permission for the erection of a single commercial turbine. The turbine will be approx 56m to its blade tip, with a hub height of approx 33m. The turbine will be of the three bladed version and have a generating capacity of approx 500kw. In addition to the turbine itself, an ancillary site compound and 840m of new access tracks are proposed.

The proposed turbine will have a life of 25 years, after which the turbine and other development will be removed, and the site reinstated back to its current state.

The same proposal was refused planning permission earlier this year under delegated powers (12/02151/FLL).

PROCEDURAL MATTER

Supporting Information

To help demonstrate the impact that the proposal will have on the environment, the applicant has detailed supplementary information in the form of a detailed LVIA. I consider the LVIA to be competent and the visualisations to be an accurate reflection of what is proposed. It should be noted that the applicant has submitted additional information to that which was submitted as part of the previous planning application to attempt to address the previous reasons for refusal.

Screening Opinion

A Screening Opinion has been carried out by the Council (12/01331/SCRN) which concluded that the proposed turbine was not an EIA development.

APPRAISAL

Sections 25 and 37(2) of the TCP (S) Act 1997 (as amended by the 2006 act) requires the determination of the proposal to be made in accordance with the provisions of the Development Plan, unless other material considerations indicate otherwise.

The Development Plan for the area comprises the approved Tay Plan 2012 and the adopted Perth Area Local Plan 1995 (Incorporating Alteration No1, Housing Land 2000). In terms of the Tay Plan, *Policy 6* is directly applicable as are *Policies 1, 6 and 21* of the Local Plan.

Policy 6 of the Tay Plan states that Local Development Plans and development proposals should ensure that all areas of search, allocated sites, routes and decisions on development proposals for energy and waste/resource management infrastructure have been fully justified.

Policy 1 of the Local Plan seeks (amongst other things) to ensure that all new developments within the landward area have a suitable landscape framework which is capable of absorbing the development which is proposed, and to ensure that new developments will not have an adverse impact on the character of the existing landscape.

Policy 6 of the Local Plan offers support for diversification of farming business, whilst *Policy 21* looks to protect scheduled and unscheduled archaeology from inappropriate developments.

In terms of other material considerations, this principally includes an assessment against national planning guidance in the form of the Scottish Planning Policy, consideration of the proposed LDP and consideration of the TLCA.

Accordingly, based on the above, I consider the key determining issues for this proposal to be:-

- a) whether or not the proposal (by virtue of its siting and height) will have an unacceptable impact on the landscape / visual amenity of the area,
- b) whether or not the proposal is compatible with the surrounding land uses,
- c) whether or not there will be an adverse impact on any protected species and / or habitats and ,
- d) whether or not the proposal will adversely affect any cultural heritage assets, bearing in mind the provisions of the Development Plan and other material considerations.

I shall assess these issues in turn starting with the landscape and visual impact issues.

Landscape and Visual impact

In terms of renewable proposals, *Policy 1* of the Local Plan seeks (amongst other things) to ensure that amenity of existing areas are not adversely affected by new developments. In terms of amenity, I consider *visual* amenity as something which this policy seeks to protect.

If constructed now, the proposed turbine will introduce a relatively new landscape feature into the local landscape on the eastern side of the Sidlaws, although I appreciate that there are other turbine proposals within the area which are either consented or are proposed on the eastern slopes of the Sidlaws. Based on the ZTV, with the exception of a pocket of land to the north-east, there will be limited visibility of the turbine from distances of over 2km from all directions. From the main body of the Carse, and along the A90 corridor, there will also be minimal visibility of the turbine due to the natural landform of the land between the turbine and the aforementioned areas to the south/east.

Notwithstanding the limited visibility of the proposed turbine from distances of excess 2km, I do have concerns regarding the impact that the mid sized turbine will have on, and from the King's Seat Summit which is a key feature of the local area due to it being the highest point in the Sidlaws. The summit is also classed as a 'Marilyn', which is a hill of any height with a drop of at least 150m (or more) on all sides, which by definition means its relatively high (and dominant) compared to its immediate surroundings. Although 'Marilyn bagging' is not as popular as 'Munro bagging', Marilyn summits are nevertheless still 'bagged' by some recreational walkers. In addition to this, within the late comments received in respect of this application, it is noted that several local conservation groups have commented on the value of views from, and to King's Seat.

However, the Council holds no specific raw data in relation to the public use of the informal paths up to King's Seat and to this end it is extremely difficult to quantify exactly what the value of King's Seat is in terms of the recreational value which it offers to the public - however, it is noted that there is an established, recognised 6 mile walk from Dunsinane Hill to Kings Seat, which is acknowledged by the websites of '*Explore Britain*', '*Ramblers Scotland*' and '*Walk Highlands*' as well as the Council's access Officer. Whilst the nearby Dunsinane Hill is recognised as being more popular than King's Seat, King's Seat nevertheless does still have a recreational value which is largely based on its panoramic views from its summit and to a lesser extent the views to it.

When viewing King's Seat from the north and east, where the turbine intersect sightlines to it, there is no doubt that the turbine will have an adverse impact on the character of the area which is focused on the King's summit and the surrounding low lying land, and likewise when on King's Seat, the turbine will be extremely prominent in the view(s) towards the north/east which is currently unimpaired by any other tall structures. Although other turbines (such as those at Drumdreg) are visible from King's Seat these are in the distance and the installation of this turbine will in my opinion significantly change the character of the local area to its detriment. I fully acknowledge that this part of Perthshire is not specifically protected in landscape terms, however I am of the opinion that the scale of turbine proposed will have an adverse impact on the visual amenity of the area, albeit a localised area which is focused on the King's Seat summit.

Turning to landscape impact, *Policy 1* of the Local Plan seeks to ensure that new

developments do not result in unacceptable environmental harm, which in my view would, include an adverse impact on the existing landscape. In considering the impact on the landscape character it is useful to consider the contents of the TLCA. Within the TLCA the Sidlaws is described as being part of the Igneous Hills LCA which is described as being generally open landscapes with conical summits dominated by grass moorlands and some areas of extensive forestry. The TLCA also states that the area has many modern influences and it is accepted that the Sidlaws may be suitable for new wind energy developments providing that the potential sites are not located on steep ridges or summits. I agree that the landscape may be suitable for low key wind energy development; however the scale of turbine which is proposed will, in my opinion, have an adverse impact on the local landscape which is centred on the King's Seat Summit.

Compatibility with Existing land uses

Turning to second issue, the compatibility with existing land uses, *Policy 1* of the PALP seeks to ensure that all new developments are compatible with existing land uses. I have no concerns regarding the impact that the turbine will have on the commercial activities of the land, and in terms of the impact on any existing residential properties, it is noted that the closest residential properties are approx 0.5km from the site. My Environmental Health colleagues have commented on the proposal and have raised no concerns regarding noise related issues.

Cultural Heritage

There are a number of cultural heritage sites within close proximity to the site, including the King's Seat Cairn. With regard to the impact on the SAMs, although Historic Scotland consider the proposal to have an adverse impact on the setting of the adjacent SAM's, the impact is not significant enough to merit a formal objection. I therefore consider the proposal to be consistent with the relevant Development Plan policies.

Other Material Issues

Shadow Flicker

As the closest residence is located approximately 0.5km away from the proposed turbine, I do not consider there to be any notable effects on residential amenity in terms of shadow flicker. I note that my EHO colleagues have not raised any concerns on this topic.

Aviation Lighting

Any lighting of the turbine, as may be required by the MOD will only be visible from the air and I do not consider there to be any need for ground based lighting. I therefore have no concerns regarding lighting issues.

Noise

I note there are a number of residential properties within the vicinity of the site (the closest one approx 0.5km away), however my EHO colleagues have raised no concerns regarding this proposal. I therefore do not consider noise to be an issue.

Bio-Diversity Issues

Within the vicinity of the area there are known to be presence of both badgers and barn owls, however the applicant's submission does not reflect this.

TV reception

An appropriately worded condition could be attached to any consent which will provide mitigation measures for any person(s) affected directly by this proposal.

Road / Access Issues

I have no concerns regarding this proposal, subject to conditions.

Economic Development

Within the supporting statement it is stated that the purpose of the proposal is to provide a more secure and sustainable, supplementary income to the farm and associated businesses, principally by benefitting from the Government's Feed-in Tariff scheme, thereby enabling improvements to be made to Glenbran Farm and generating extra income for the farm and associated businesses. The applicant has submitted detailed information which outlines the short and long term economic benefits that the proposal will generate from an economic point of view, and I agree with its content insofar as the proposal does offer a sustainable, economic benefit for the farm, the associated businesses and the local area in general.

The applicant has indicated that the wind turbine be an enabling mechanism that can deliver increased competitiveness to the farm and its other businesses whilst sustaining the long term viability of those enterprises. In turn, the applicant is of the opinion that the proposal would sustain a significant number of local jobs and enable future planned investment in training and management of the business to be passed onto a new generation of family members. The applicant also considers the proposal to be an opportunity to,

- a) offset the rising operational costs of the business by taking advantage of new secured economic opportunities provided by the introduction of the feed-in tariff scheme
- b) embrace the SG aspirations for the generation of more renewable energy
- c) be consistent with the SG drive towards the decentralisation of energy generation through investment in ownership of renewable energy developments by communities and small businesses in rural areas.

Again, I agree with the applicant insofar as an approval of this application would lead to the above opportunities being achieved.

Proposed Local Development Plan 2012

Within the proposed LDP, the policies applicable to this proposal generally echo those contained in the Tay Plan and the Local Plan insofar that support is offered for renewable proposals, in appropriate locations and support is offered for economic proposals and diversification of farms, subject to the proposals not resulting in environmental harm. To this end, the emerging LDP raises no new issues for considerations.

National Guidance

Although the proposal is of a relevantly small scale, the principle of renewable energy proposals is supported by the Scottish Government through its planning policies and guidance. However, the Scottish Government also suggests that renewable projects should be sited in appropriate locations which have the ability to absorb the development that is proposed.

Conclusion

Based on the above, the acceptability of this proposal (as per the majority of turbine applications) comes down to the *weighing* up of the potential positives that the proposal will bring in terms of its economy related benefits and securing a long term source of competitive energy from a sustainable source against the potential physical, adverse affects the turbine will have on the visual amenity of the area and the landscape.

As the submission, background papers and economic analysis is from a competent source, I have no difficulty in agreeing that the development will result in economic positives for the applicant on a number of fronts, both in the short and long term, however it is my view that these benefits do not outweigh the potential long term (25years) harm that the development will have on visual amenity of the local area and the general landscape. I fully appreciate that this area of the Sidlaws is not protected by any formal landscape designation; however, nevertheless the local area has a high amenity value for its users I am of the opinion that this value is significant enough to outweigh the economic benefits that this proposal will bring.

NATIONAL PLANNING GUIDANCE / POLICIES

The Scottish Government expresses its planning policies through The National Planning Framework 1 & 2, the Scottish Planning Policy (SPP), Planning Advice Notes (PAN), Designing Places, Designing Streets, and a series of Circulars.

The Scottish Planning Policy 2010

This SPP is a statement of Scottish Government policy on land use planning and contains:

- the Scottish Government's view of the purpose of planning,
- the core principles for the operation of the system and the objectives for key parts of the system,
- statutory guidance on sustainable development and planning under Section 3E of the Planning etc. (Scotland) Act 2006,
- concise subject planning policies, including the implications for development planning and development management, and
- the Scottish Government's expectations of the intended outcomes of the planning system.

Of relevance to this application are,

- Paragraphs 182-186 which relate to renewable energy
- Paragraphs 92-97 which relates to rural development

PAN - 1/2011 : Planning & Noise

This Planning Advice Note (PAN) provides advice on the role of the planning system in helping to prevent and limit the adverse effects of noise. It supersedes Circular 10/1999 *Planning and Noise* and PAN 56 *Planning and Noise*. Information and advice on noise impact assessment (NIA) methods is provided in the associated Technical Advice Note. It includes details of the legislation, technical standards and codes of practice for specific noise issues.

DEVELOPMENT PLAN

The Development Plan for the area comprises the approved Tay Plan 2012 and the adopted Perth Area Local Plan 1995 (Incorporating Alteration No1, Housing Land 2000).

Tay Plan 2012

Policy 6 of the Tay Plan state that Local Development Plans and development proposals should ensure that all areas of search, allocated sites, routes and decisions on development proposals for energy and waste/resource management infrastructure have been justified, at a minimum, on the basis of these considerations

- The specific land take requirements associated with the infrastructure technology and associated statutory safety exclusion zones where appropriate;
- Waste/resource management proposals are justified against the Scottish Government's Zero Waste Plan and support the delivery of the waste/resource management hierarchy;
- Proximity of resources (e.g. woodland, wind or waste material); and to users/customers, grid connections and distribution networks for the heat, power or physical materials and waste products, where appropriate;
- Anticipated effects of construction and operation on air quality, emissions, noise, odour, surface and ground water pollution, drainage, waste disposal, radar installations and flight paths, and, of nuisance impacts on of-site properties;
- Sensitivity of landscapes (informed by landscape character assessments and other work), the water environment, biodiversity, geo-diversity, habitats, tourism, recreational access and listed/scheduled buildings and structures;
- Impacts of associated new grid connections and distribution or access infrastructure;
- Cumulative impacts of the scale and massing of multiple developments, including existing infrastructure;
- Impacts upon neighbouring planning authorities (both within and outwith TAYplan); and,

- Consistency with the National Planning Framework and its Action Programme.

Perth Area Local Plan 1995 (Incorporating Alteration No1, Housing Land 2000)

Within the Local Plan the site lies within the landward area, where the following policies are directly applicable.

Policy 1 (Development Criteria) states that all developments will also be judged against the following criteria (amongst other things)

- The sites should have a landscape framework capable of absorbing or, if necessary, screening the development and where required opportunities for landscape enhancement will be sought;
- In the case of built development, regard should be had to the scale, form, colour, and density of existing development within the locality;
- The development should be compatible with its surroundings in land use terms and should not result in a significant loss of amenity to the local community;
- The road network should be capable of absorbing the additional traffic generated by the development and a satisfactory access onto that network provided;
- The site should be large enough to accommodate the development satisfactorily in site planning terms;

Policy 6 (agricultural diversification) states that encouragement will be given to farmers who wish to diversify their businesses, providing that the proposal are compatible with other landward policies.

Policy 22 (Archaeology) states that the Council will seek to protect unscheduled sites of archaeological significance and their settings. Where development is proposed in such areas, there will be a strong presumption in favour of preservation in situ. Where, in exceptional circumstances, preservation of the archaeological features is not feasible, the developer, if necessary through appropriate conditions attached to planning consents, will be required to make provision for the excavation and recording of threatened features prior to development commencing.

Proposed LDP 2012

Policy ER1A states that renewable developments will be supported when they are well related to the resources needed for their operation. In assessing such proposals, a number of factors will be considered, such as individual and cumulative impact on biodiversity, landscape character, visual integrity, the historic environment, cultural heritage, tranquil qualities, wildness qualities, water resources and the residential amenity of the surrounding area.

Policy HE1 (Archaeology) seeks to protect both scheduled and unscheduled monuments from inappropriate developments.

OTHER COUNCIL POLICIES

None specifically applicable to the proposal, although it should be noted that the Council's SPG on Wind Energy Proposals is presently under review. I therefore consider its existence should be acknowledged, but the weighing given to its contents should be limited at this stage.

OTHER GUIDANCE

Tayside Landscape Character Assessment 1999

Within the TLCA the Sidlaws is described as being part of the Igneous Hills LCA which is described as being generally open landscapes with conical summits dominated by grass moorlands and some areas of extensive forestry. The TLCA also states that the area has many modern influences and it is accepted that the Sidlaws and the Ochils may be suitable for new wind energy developments providing that the potential sites are not located on steep ridges or summits.

SITE HISTORY

A planning application (12/02151/FLL) seeking detailed consent for the same sized turbine in the same location was refused earlier this year.

PKC CONSULTATIONS

Transport Planning have commented on the planning application and have raised no concerns.

The Environmental Health Manager has commented on the planning application and raised no objections subject to appropriate noise conditions being attached to the consent.

PKHT have commented on the planning application and raised no concerns.

The Conservation Officer has commented on the planning application and raised no concerns.

The Bio-Diversity officer has commented on the planning application and indicated that there is recorded presence of badgers and barn owls within the area and that this should be investigated further if the Council is minded to approve the application.

EXTERNAL CONSULTATIONS

MOD have been consulted on the proposal, however at the time of writing no formal consultation response had been received.

Scottish Water have commented on the planning application and raised no objection.

Historic Scotland have commented on the previous planning application in terms of the impact on SAM and although they have raised concerns, these concerns do not merit an objection.

REPRESENTATIONS RECEIVED

No letters of representations have been received, although late comments have been received

ADDITIONAL STATEMENTS

Environment Statement	Not required
Screening Opinion	A screening exercise has been undertaken by the Council which concluded the proposal was not an EIA development.
Environmental Impact Assessment	Not required
Appropriate Assessment	Not required
Design Statement / Design and Access Statement	Not required
Report on Impact or Potential Impact	Landscape & Visual information submitted in the form of photomontages and ZTV base maps.

PUBLICITY UNDERTAKEN

The planning application was advertised in the local press on the 12 July 2013.

LEGAL AGREEMENTS REQUIRED

None required.

DIRECTION BY SCOTTISH MINISTERS

None applicable to this proposal.

RECOMMENDED REASONS FOR REFUSAL

- 1 As the proposed turbine will have a significant adverse impact on the visual amenity of the area, which is presently enjoyed by a host of receptors including (but not exclusively) visiting recreational users, the proposal is contrary to Policy 1 of the Perth Area Local Plan 1995 (Incorporating Alteration No1, Housing Land 2000), which seeks to protect existing (visual) amenity from new developments within the landward area from inappropriate developments.
- 2 As the proposal will have a detrimental impact on the landscape associated with King's Seat, the proposal is contrary to Policy 1 of the Perth Area Local Plan 1995 (Incorporating Alteration No1, Housing Land 2000), which seeks to ensure that new developments do not cause unacceptable environmental

impact.

JUSTIFICATION

The proposal is not in accordance with the Development Plan and there are no material reasons which merit approval of the planning application.

INFORMATIVES

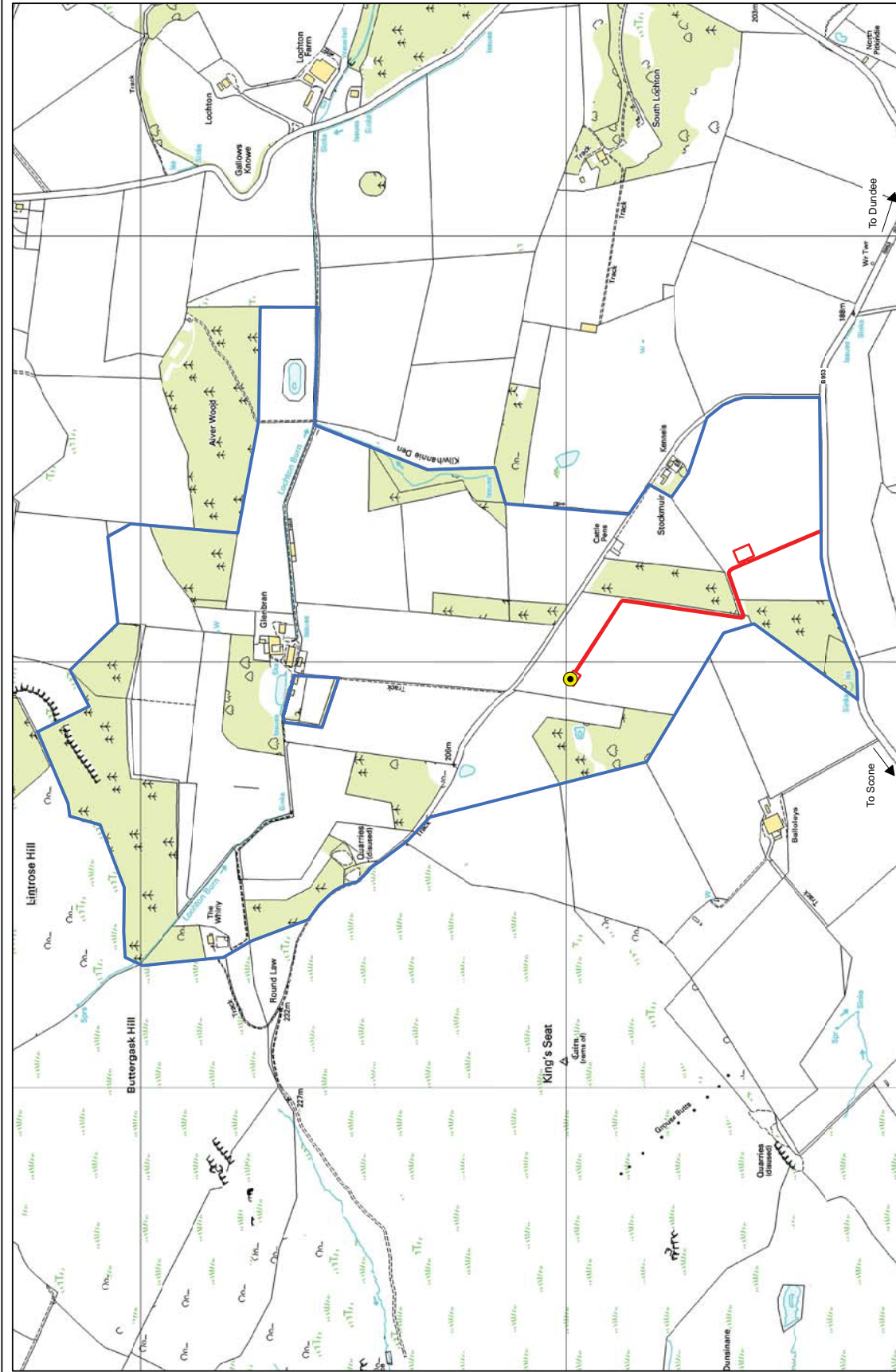
None

PROCEDURAL NOTES

None

REFUSED PLANS

13/01230/1 - 13/01230/12 (inclusive)



Key

- Proposed wind turbine
- Site boundary
- Total application area

Proposed turbine location
323959, 732990

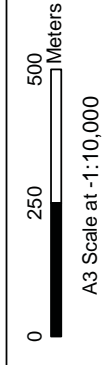
Location map



Notes:
1. Proposed site location



Glenbrann Farm Wind Turbine



Revision No.

1

Figure 1

Date: 16/11/12

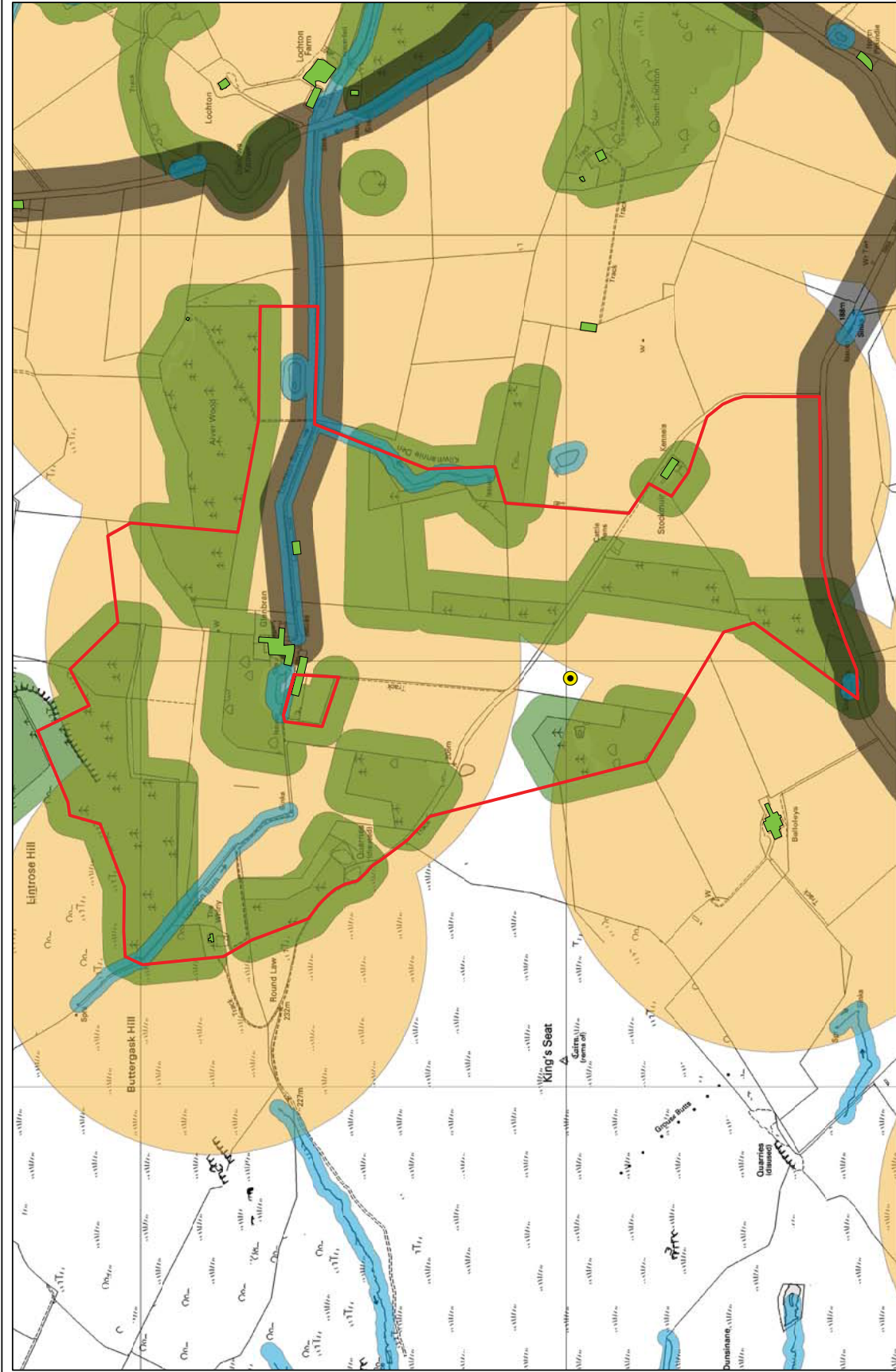
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Checked by: MJ

Drawn By: SC

Site Location



Key

- Proposed wind turbine
- Site boundary
- Property
- Water feature 20m buffer
- Road 60m buffer
- Woodland 50m buffer
- Property 500m buffer

Proposed turbine location
323959, 732990

Location map



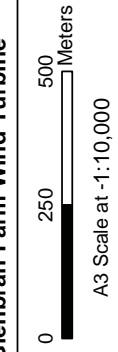
Notes:

1. Constraint map data taken from OS Vector Mapping.

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Glenbrann Farm Wind Turbine



Revision No.

1

Figure 1a

Date: 16/11/12

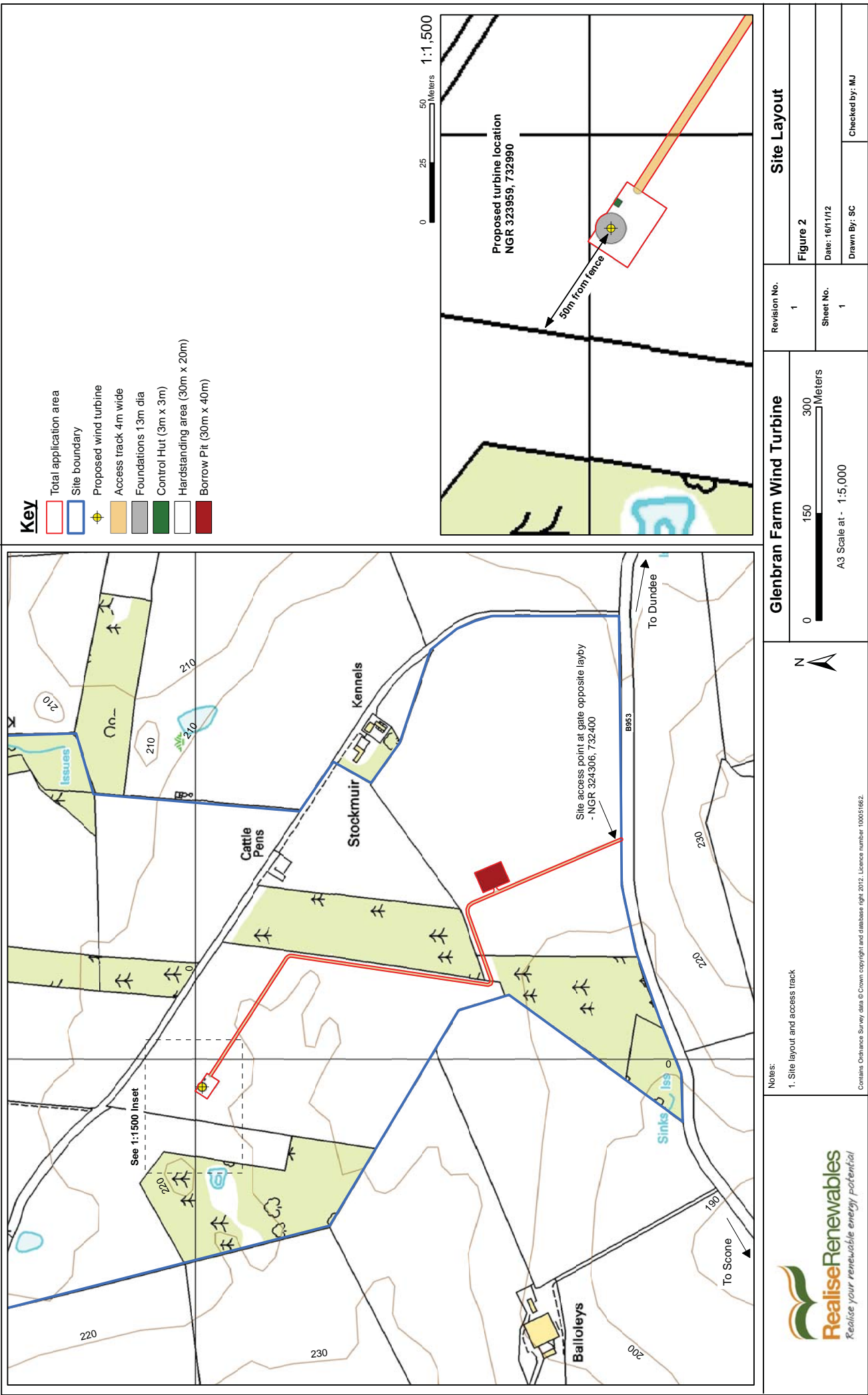
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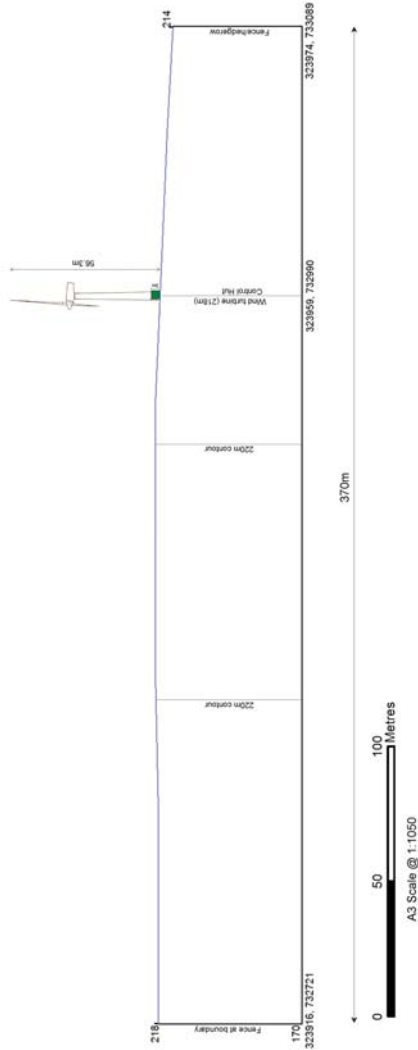
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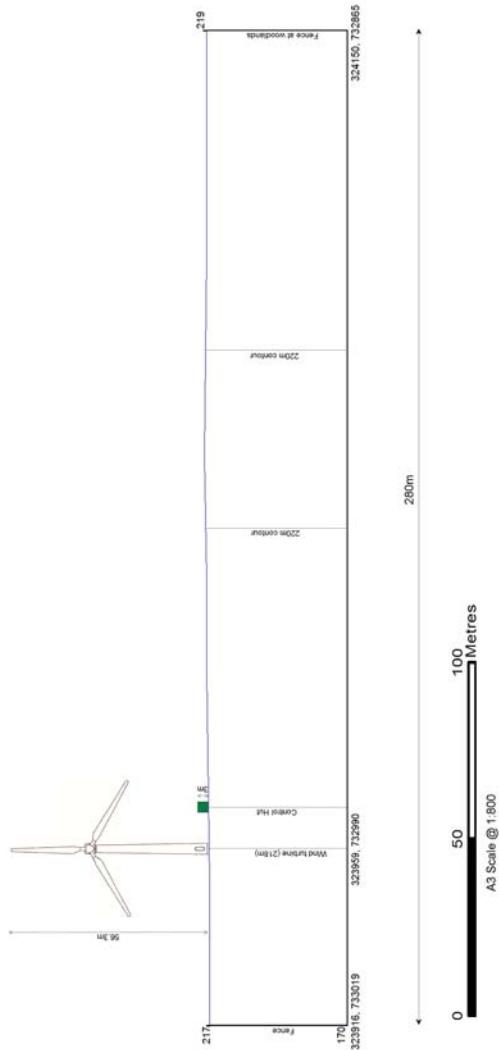
Site Constraints



Side View: Section S-N (Looking W)

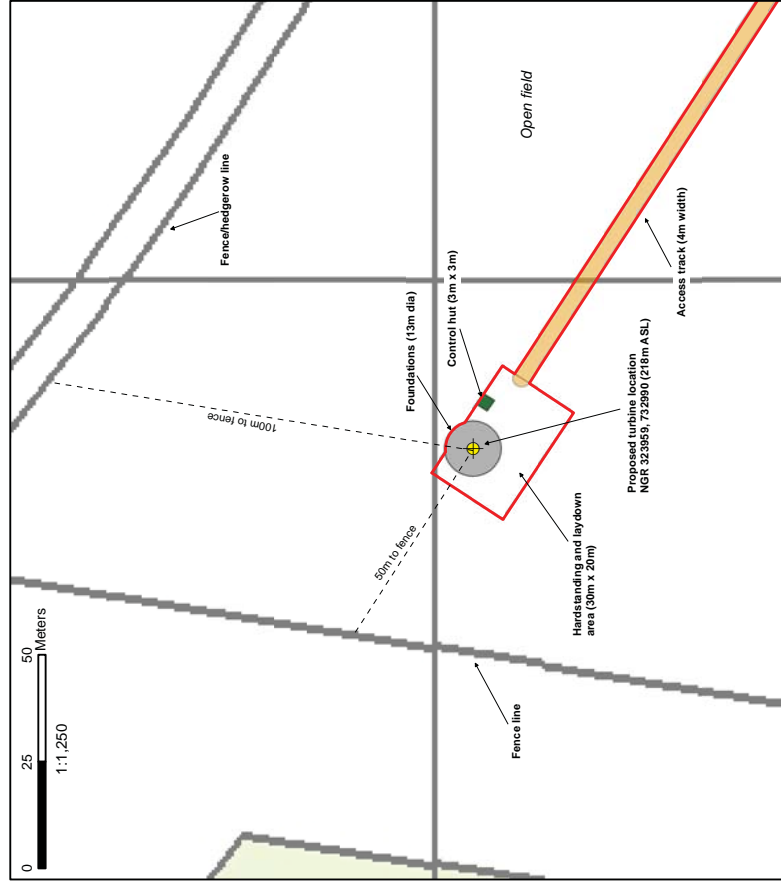


Front View: Section W-E (Looking N)



Key

- Turbine location
- Hardstanding
- Application area
- Foundations
- Access track
- Control Hut



Notes:
1. 1:1250 block plan of proposed turbine layout.
2. Side and front view cross sections of proposed turbine site.

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Glenbran Farm Wind Turbine

Revision No.

1

Cross Sections/Block Plan

Figure 2a - 1:1250 plan

Date: 16/11/12

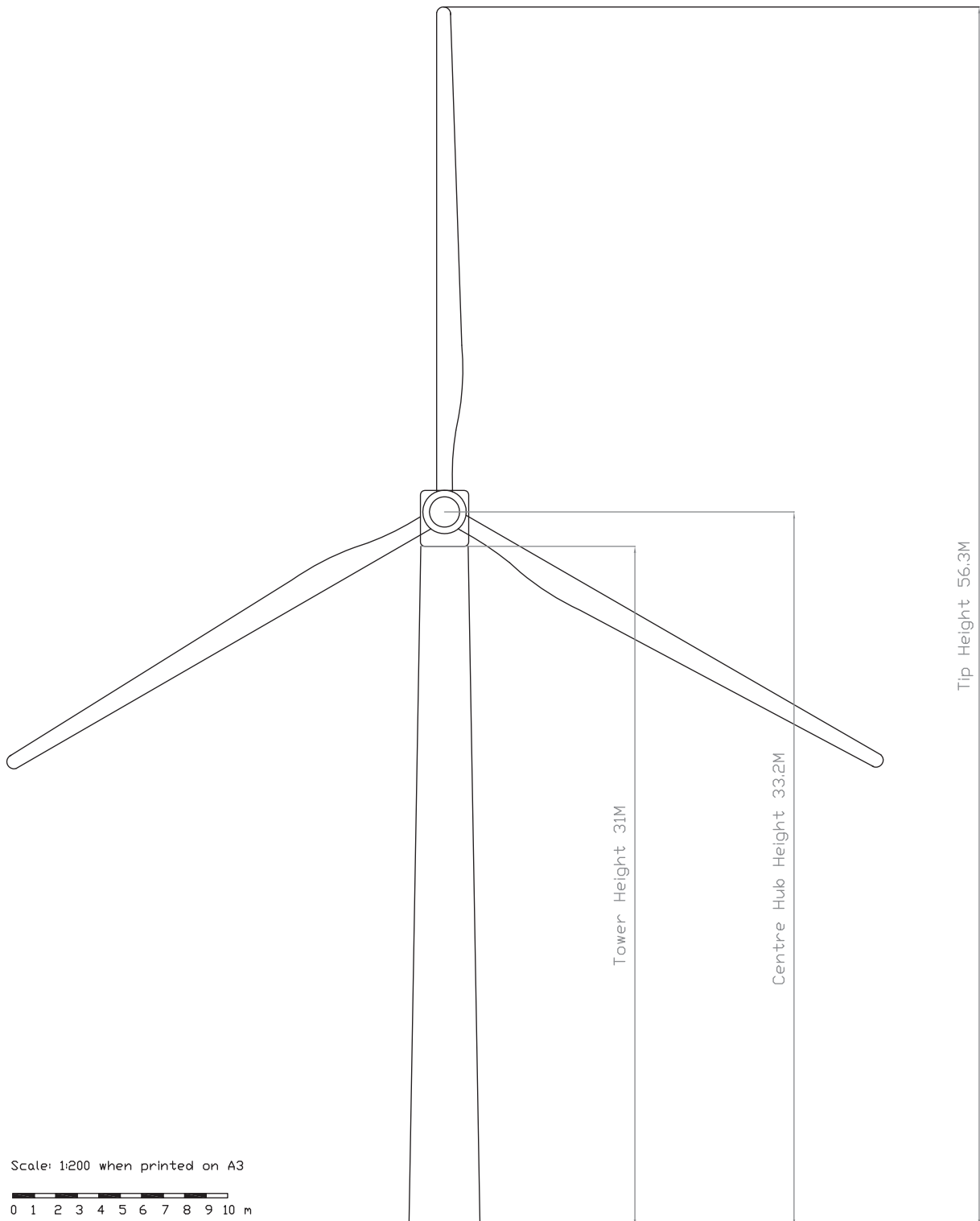
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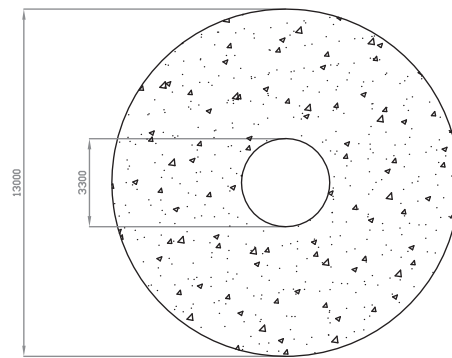
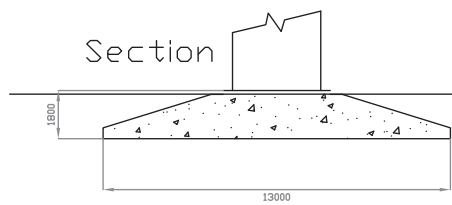
A3 scale at - 1:1,250

Checked by: MJ

Drawn By: SC

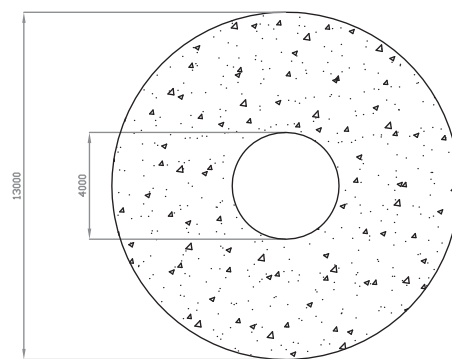
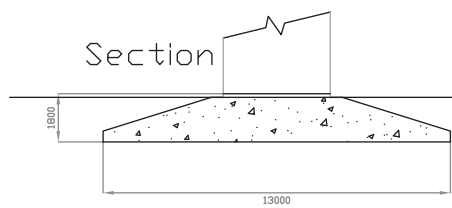


Indicative Foundation for 31m Tower



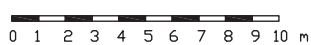
Plan

Indicative Foundation for larger based Towers



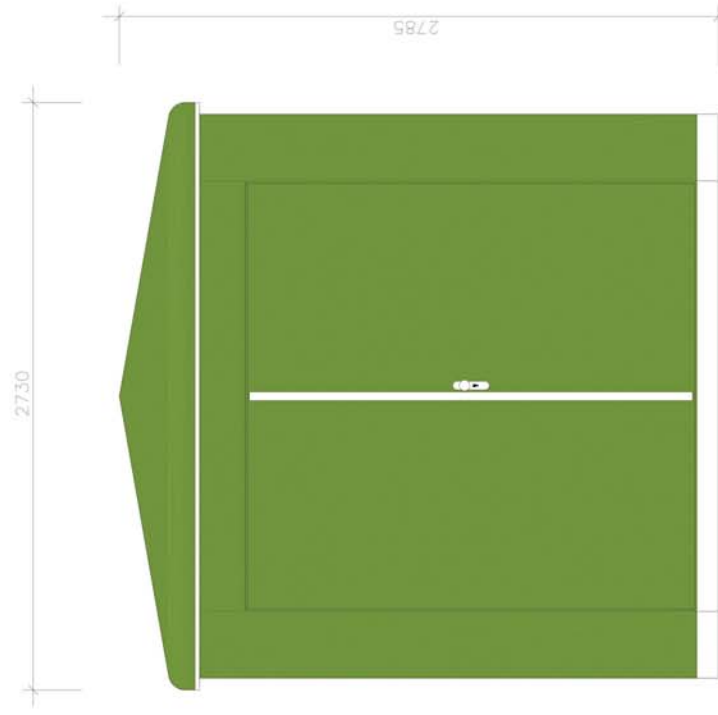
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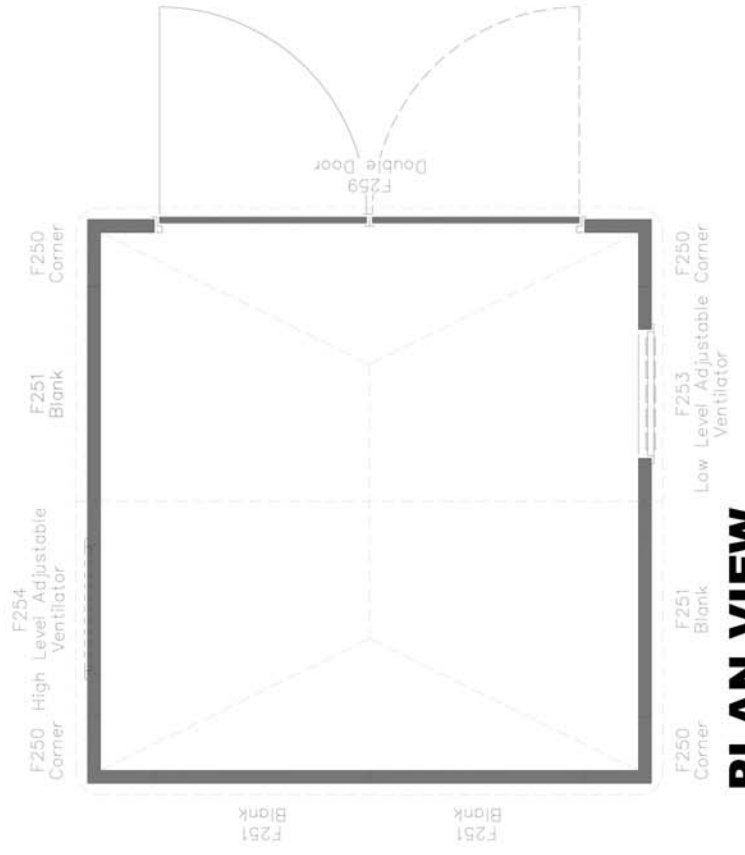




FRONT ELEVATION



SIDE ELEVATION

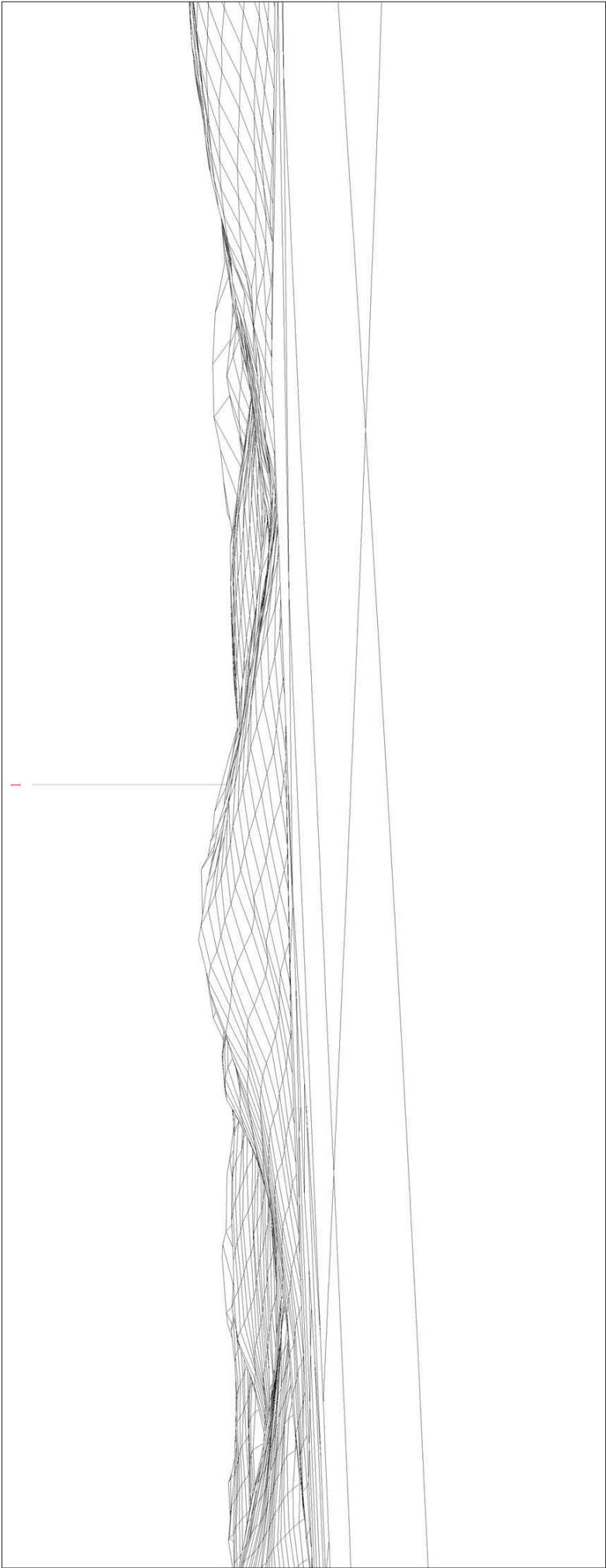


PLAN VIEW

NOTES :

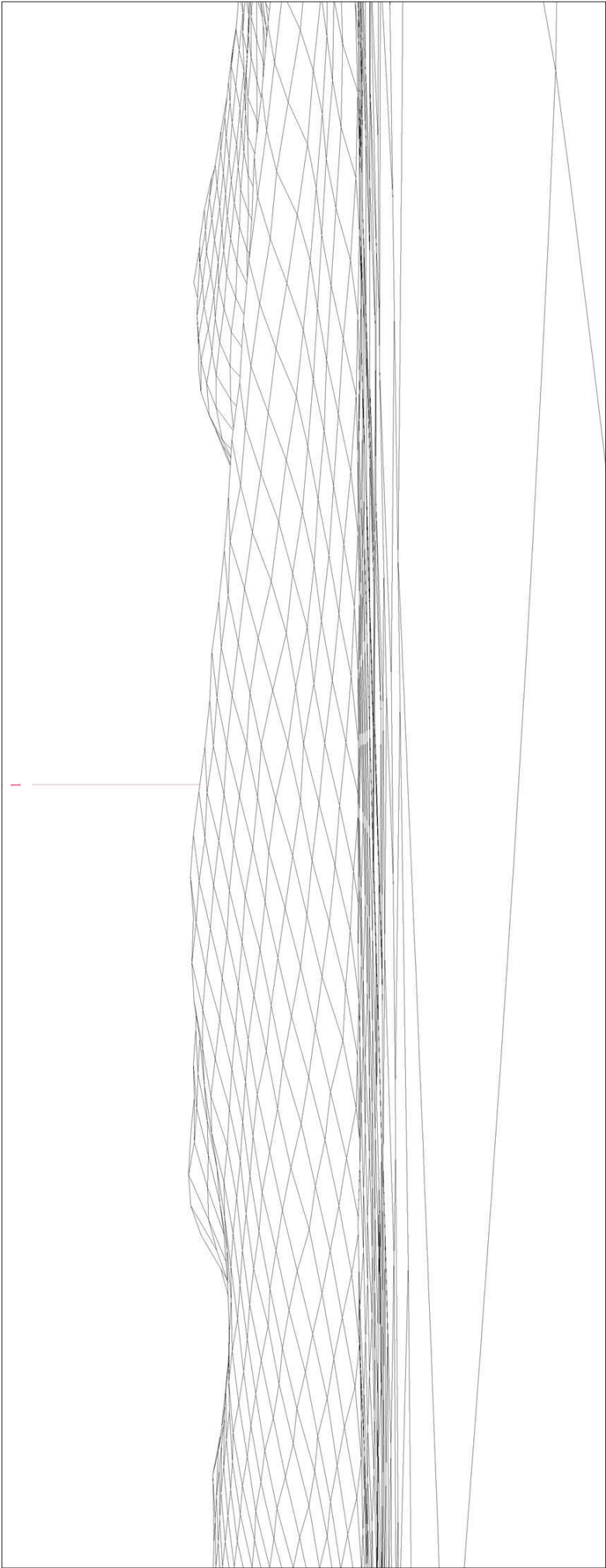
- Colour – Standard 'Dark Green' approx. BS.4800 (12.B.27).
- Colours shown on this drawing are for illustrative purposes only.
- Base fixing bolts supplied as standard (base fix and seal by others).





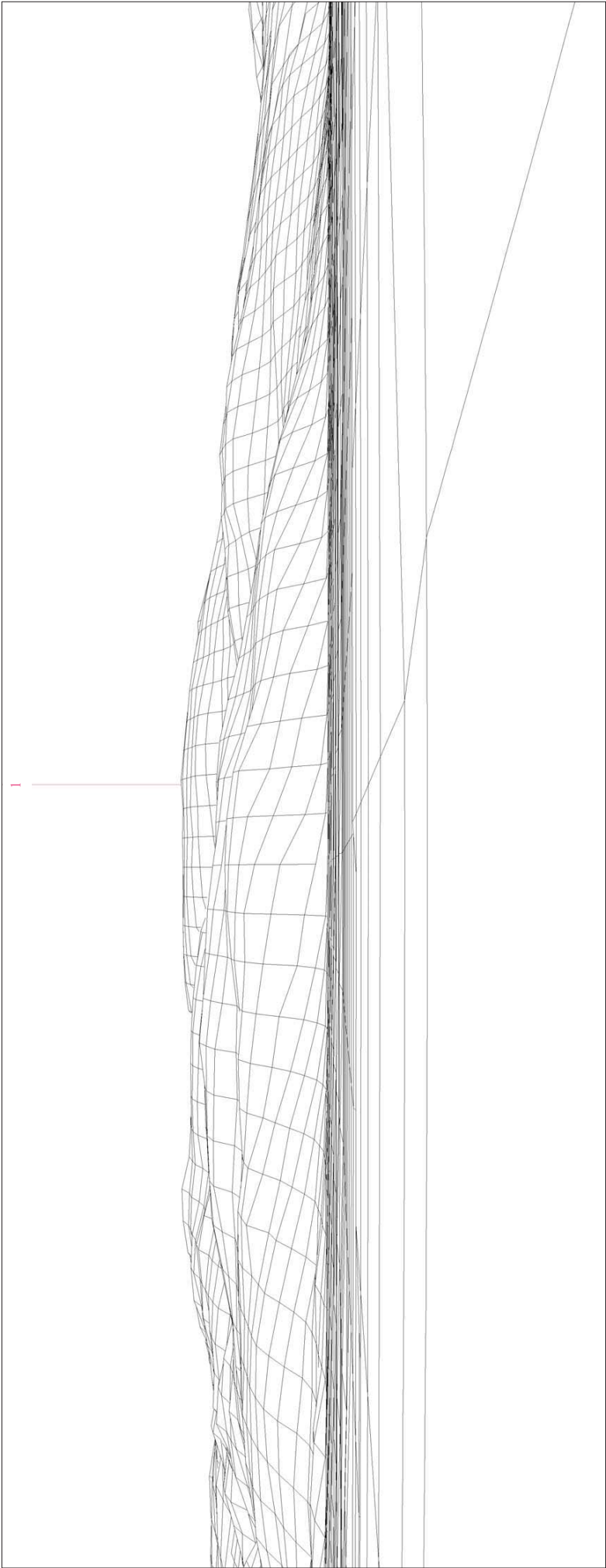
Viewpoint 8 - Wireframe view from A90 nr Longforgan

 Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF	VIEWPOINT 8: A90 nr Longforgan			Glenbran Farm: LVIA Figure A
	GR: 330587, 730077 Elevation: 45m AOD View Direction: 293.7° Distance to turbine: 7,239m	Tip Height: 56.3m Hub Height: 33.2m Field of View: 39.6° Viewing Distance: 500mm (A3)		Viewpoint 8: A90 nr Longforgan Drawn by: SC Checked by: MJ Date: 04/06/2013 Revision: 1



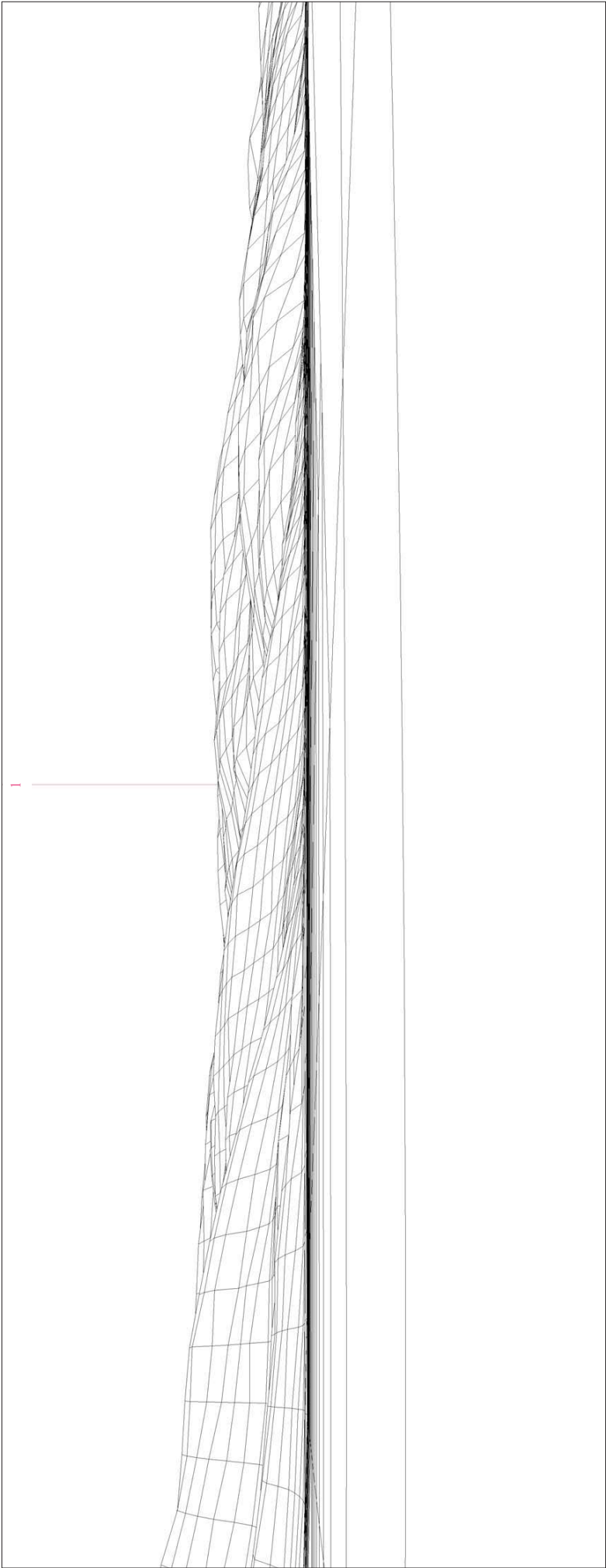
Viewpoint 9 - Wireframe view from A90 nr Inchture

 Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF	VIEWPOINT 9: A90 nr INCHTURE			Glenbrannoch Farm: LVIA Figure B	
	Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF			Viewpoint 9: A90 nr Inchture	
	GR: 328014, 729025 Elevation: 11m AOD View Direction: 314.4° Distance to turbine: 5.671m			Tip Height: 56.3m Hub Height: 33.2m Field of View: 39.6° Viewing Distance: 500mm (A3)	
				Drawn by: SC Checked by: MJ Date: 04/06/2013 Revision: 1	



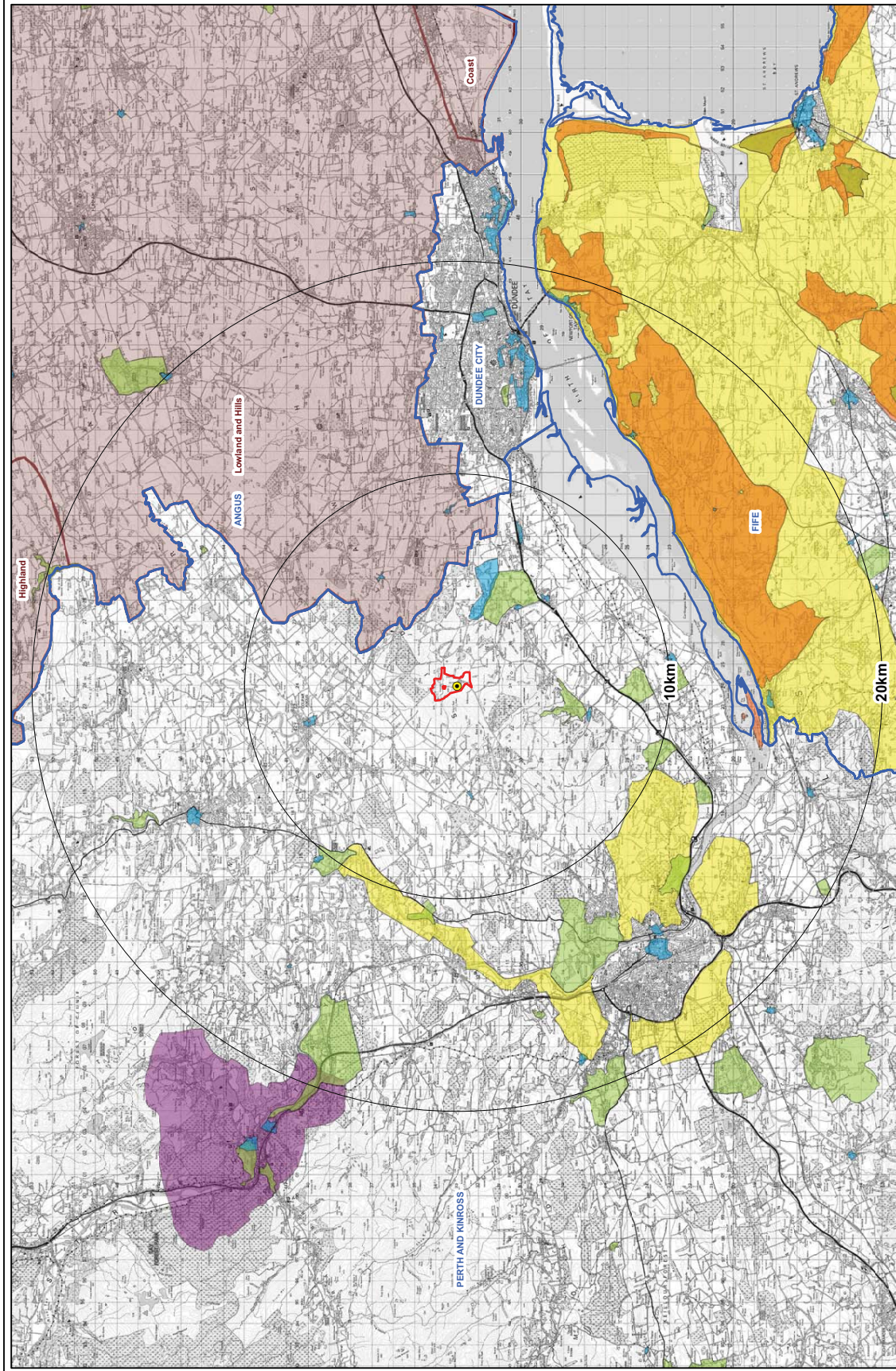
Viewpoint 10 - Wireframe view from A90 South of Rait

 Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF	VIEWPOINT 10: A90 SOUTH OF RAIT			Glenbran Farm: LVIA Figure C	
	GR: 323693, 725348 Elevation: 13m AOD View Direction: 1.99° Distance to turbine: 7,646m	Tip Height: 56.3m Hub Height: 33.2m Field of View: 39.6° Viewing Distance: 500mm (A3)	Viewpoint Height: 2m	Viewpoint 10: A90 South of Rait	Drawn by: SC Checked by: MJ Date: 04/06/2013 Revision: 1



Viewpoint 11 - Wireframe view from A90 nr Glendoick

 Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF	VIEWPOINT 11: A90 nr GLENDIOICK			Glenbran Farm: LVIA Figure D
	GR: 321563, 723264 Elevation: 17m AOD View Direction: 13.8° Distance to turbine: 10,016m	Tip Height: 56.3m Hub Height: 33.2m Field of View: 39.6° Viewing Distance: 500mm (A3)		Viewpoint Height: 2m



Key

- Proposed wind turbine
- Site boundary
- Council boundary
- Buffer
- Conservation area
- Gardens & designed landscape
- National scenic area
- Special landscape area
- Area of great landscape value

Angus Principal Geographic Areas

- Highland
- Lowland and Hills
- Coast

Location map



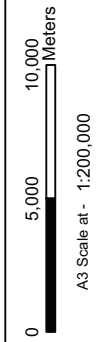
Notes:
1. Map data sourced from Scottish Natural Heritage and Historic Scotland datasets. Special landscape and Areas of great landscape value data sourced from councils.

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Glenbrann Farm Wind Turbine

Revision No. 1

Landscape Policy Context



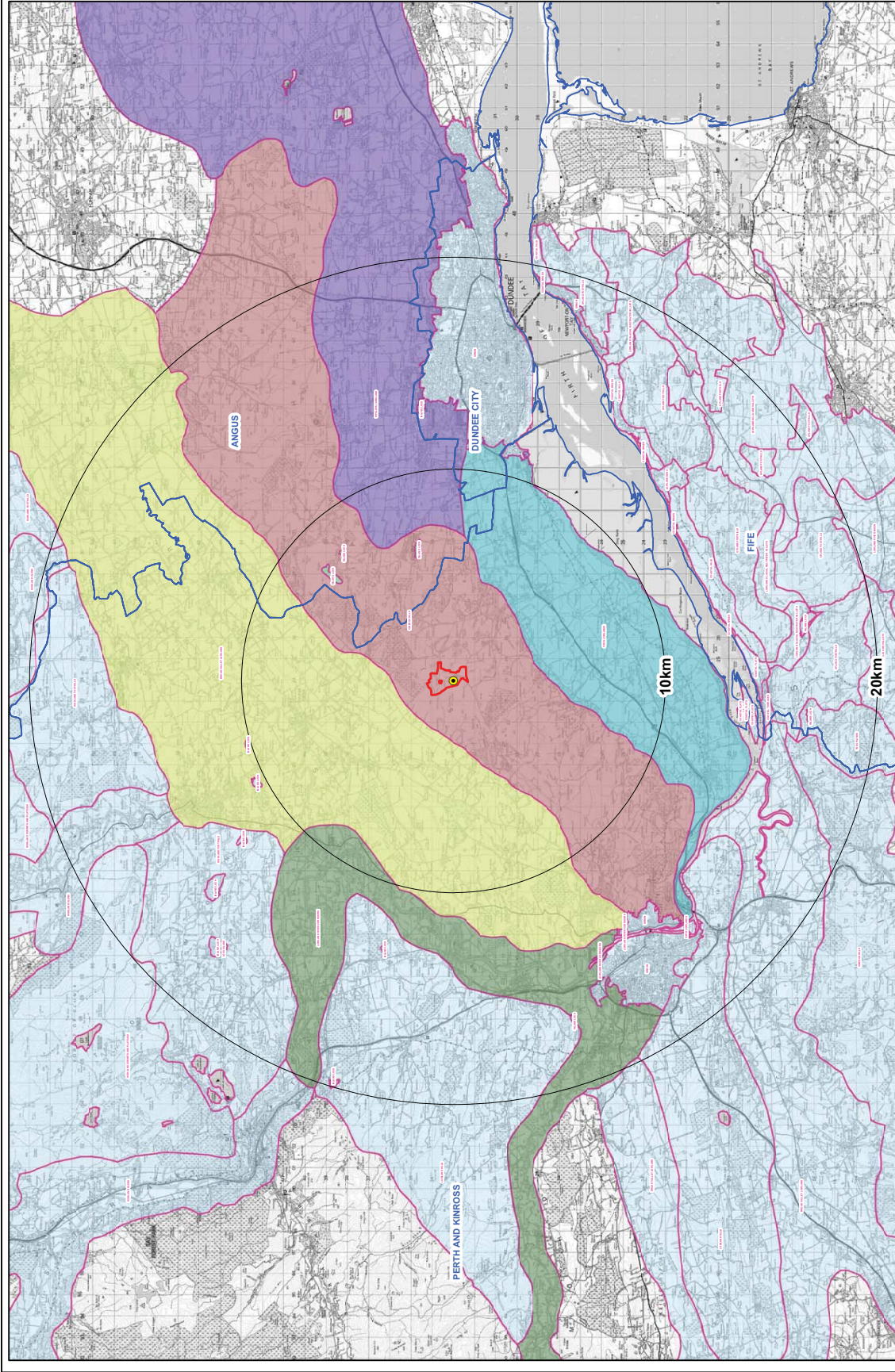
LVIA Figure 1

Date: 19/10/12

Sheet No. 1

Drawn By: SC

Checked by: MJ



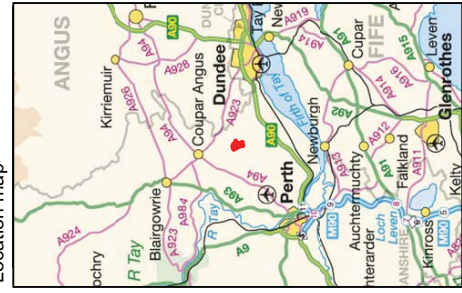
Key

- Proposed wind turbine
- Site boundary
- Council boundary
- Buffer

LANDSCAPE TYPE

- Broad Valley Lowland
- Dipslope Farmland
- Firth Lowlands
- Igneous Hills
- Inland Loch
- Lowland River Corridors

Location map

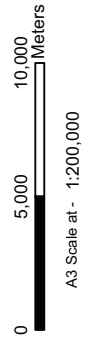


Notes:
1. Map data sourced from Scottish Natural Heritage LCA dataset.

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Glenbrann Farm Wind Turbine



Revision No.

1

Sheet No.

1

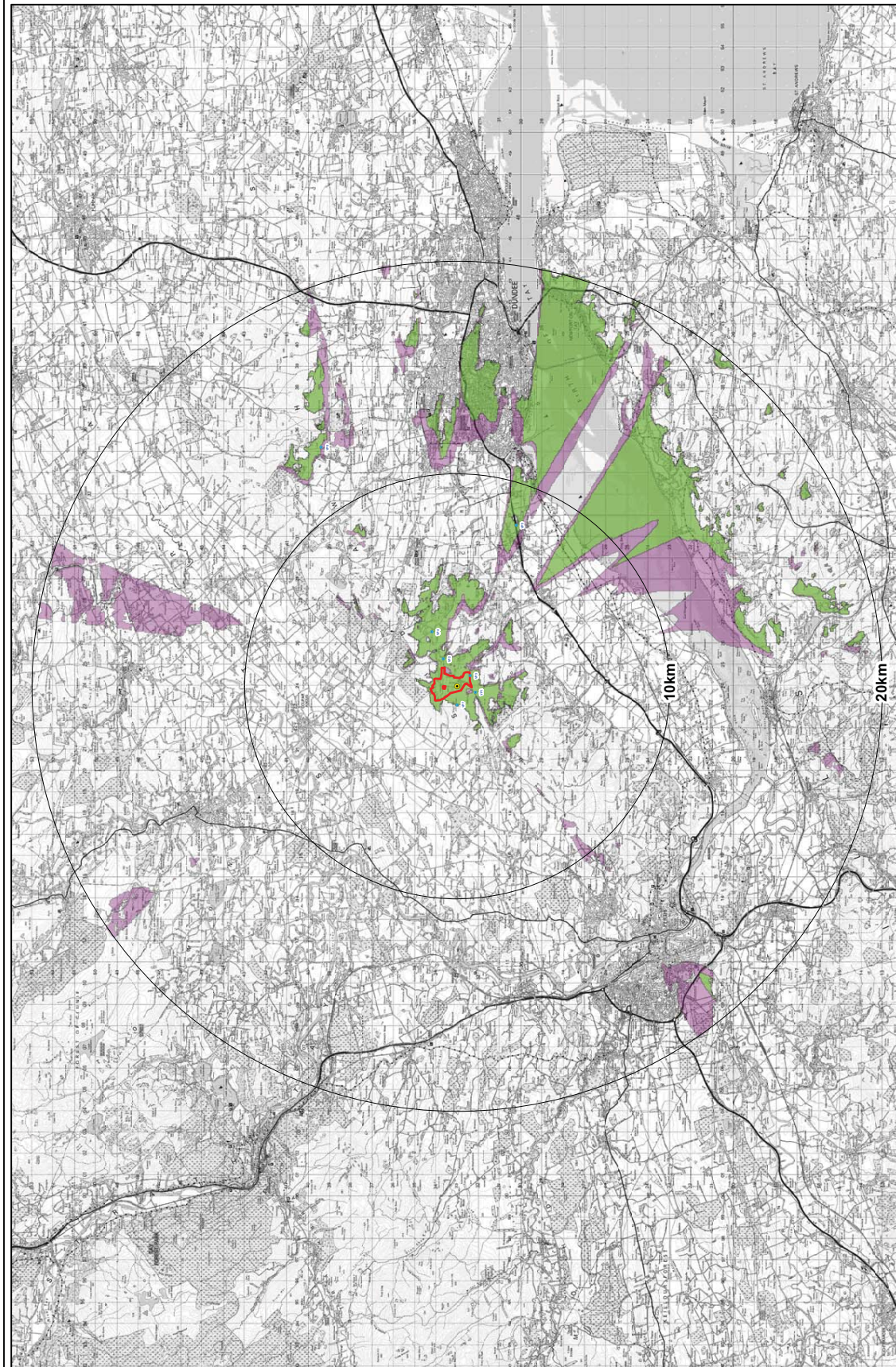
Landscape Character Areas

LVIA Figure 2

Date: 19/10/12

Drawn By: SC

Checked by: MJ



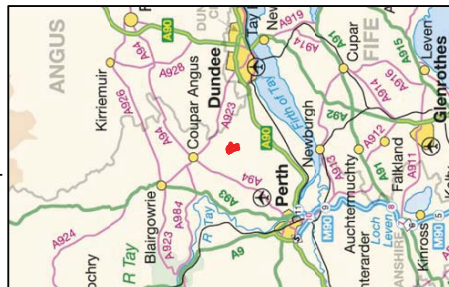
Key

- Proposed wind turbine
- Viewpoints
- Site boundary
- Buffer
- Hub height (33.2m)
- Tip height (56.3m)

Viewpoints

- VP1: B953, access to The Ford
- VP2: Lochton, Gallows Knowe
- VP3: B952, Core Path 129
- VP4: Carseview Cottage, Littleton
- VP5: A90, junction to Longfordin
- VP6: Auchterhouse Hill
- VP7: King's Seat summit

Location map



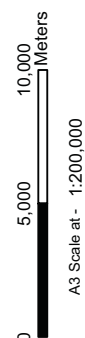
Notes:

1. ZTV generated using Ordnance Survey's landform panorama dataset which does not take into account the screening effects of buildings or vegetation.
2. Earth curvature has been allowed for.
3. Observer eye height 2m above ground has been used.

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Glenbrann Farm Wind Turbine



Revision No.

1

Sheet No.

1

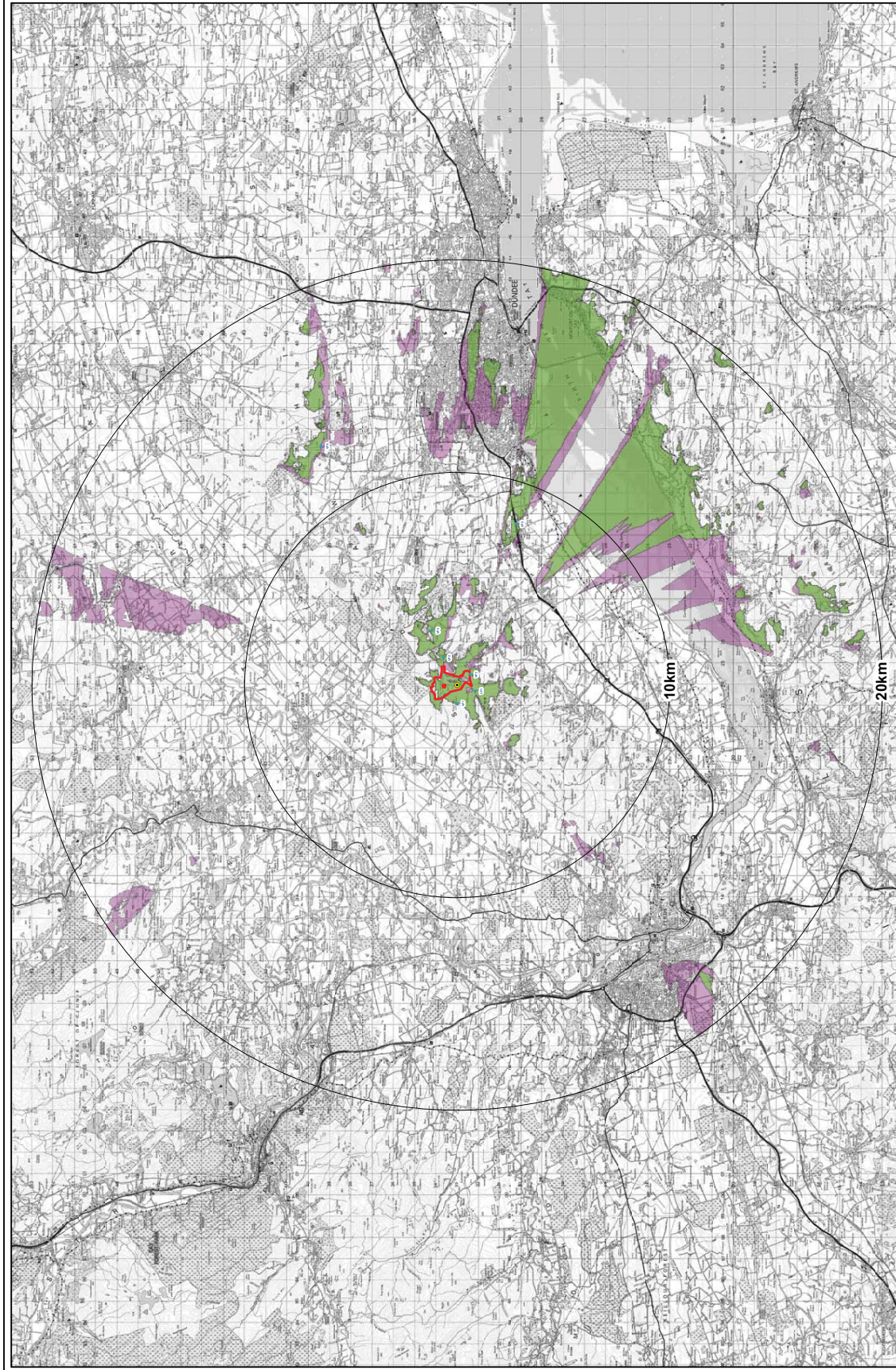
ZTV to 20km

LVA Figure 3

Date: 19/10/12

Drawn By: SC

Checked by: MJ



Key

- Proposed wind turbine
- Viewpoints
- Site boundary
- Buffer
- Hub height (33.2m) screened
- Tip height (56.3m) screened

Viewpoints

- VP1: B953, access to The Ford
- VP2: Lochton, Gallows Knowe
- VP3: B952, Core Path 129
- VP4: Carseview Cottage, Littleton
- VP5: A90, junction to Longforden
- VP6: Auchterhouse Hill
- VP7: King's Seat summit

Location map



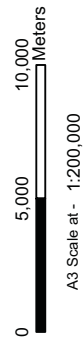
Notes:

1. ZTV generated using Ordnance Survey's landform panorama dataset which does not take into account the screening effects of buildings or vegetation. However, within 10km of the proposed turbine, woodlands have digitised and excluded at 10m height; settlements have been digitised and excluded at 5m height.
2. Earth curvature has been allowed for.
3. Observer eye height 2m above ground has been used.

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Glenbrann Farm Wind Turbine



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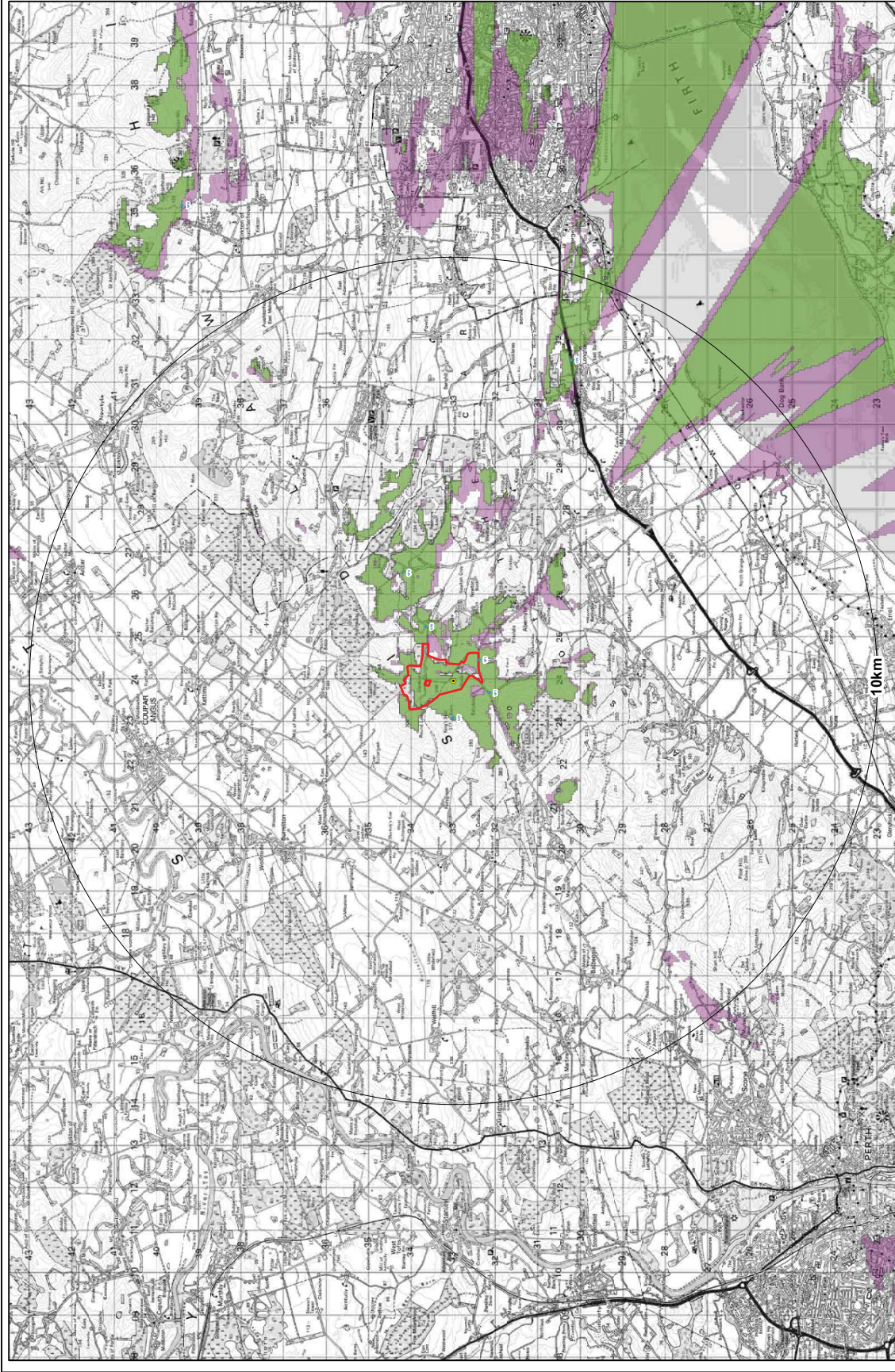
ZTV to 20km: Screened

LVIA Figure 4

Date: 19/10/12

Drawn By: SC

Checked by: MJ



Key

- Proposed wind turbine
- Viewpoints
- Site boundary
- Buffer
- Hub height (33.2m) screened
- Tip height (56.3m) screened

Viewpoints

- VP1: B953, access to The Ford
- VP2: Lochton, Gallows Knowe
- VP3: B952, Core Path 129
- VP4: Carseview Cottage, Littleton
- VP5: A90, junction to Longforden
- VP6: Auchterhouse Hill
- VP7: King's Seat summit

Location map

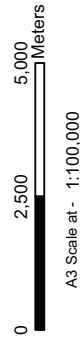


Notes:
1. ZTV generated using Ordnance Survey's landform panorama dataset which does not take into account the screening effects of buildings or vegetation. However, within 10km of the proposed turbine, woodlands have digitised and excluded at 10m height; settlements have been digitised and excluded at 5m height.
2. Earth curvature has been allowed for.
3. Observer eye height 2m above ground has been used.

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Glenbrann Farm Wind Turbine



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Sheet No.

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ZTV to 10km: Screened

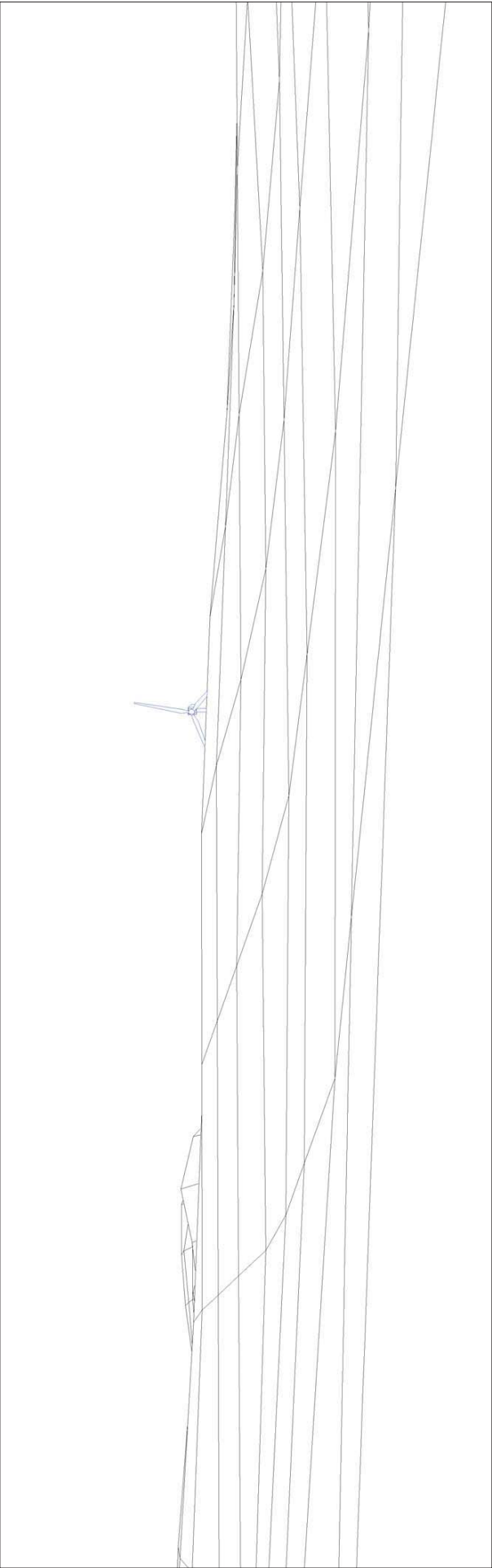
LVA Figure 4a

Date: 19/10/12

Drawn By: SC

Checked by: MJ





Viewpoint 1 - Wireframe view from B953, access to The Ford



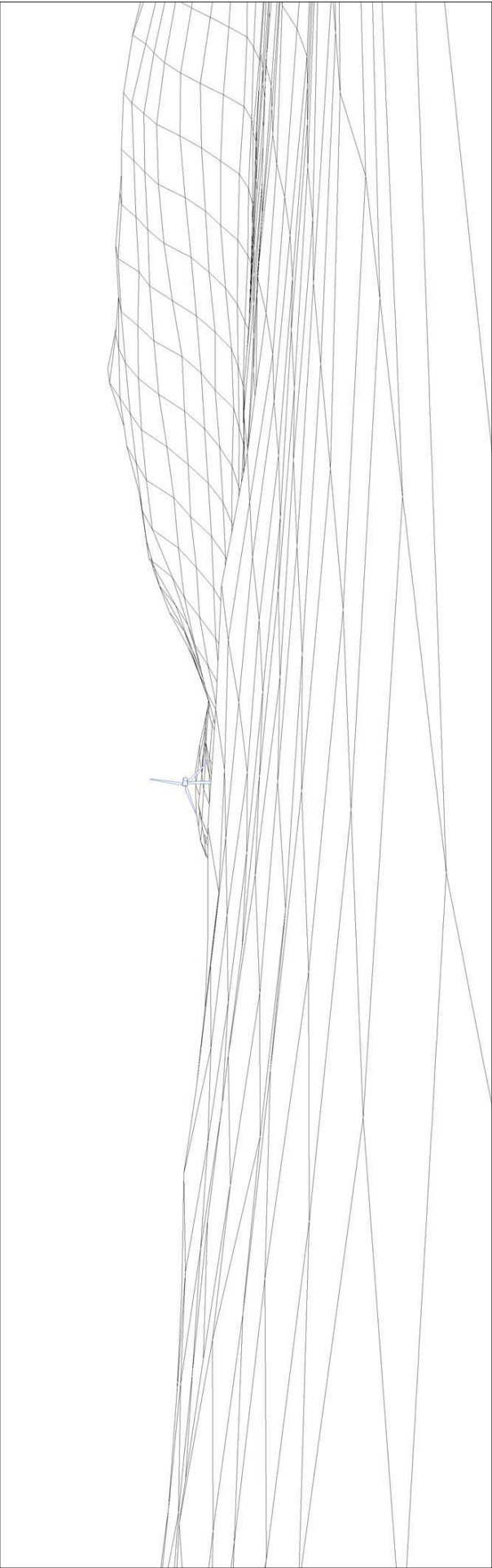
Viewpoint 1 - Existing photograph from B953, access to The Ford

 <p>Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF</p>	VIEWPOINT 1: B953, ACCESS TO THE FORD		<p>Camera: Canon EOS 550D Effective Focal Length: 50mm Lens Height: 1.5m</p>		Glenbrann Farm: LVIA Figure 5	
	<p>GR: 323676, 732147 Elevation: 188m AOD View Direction: 16.6° Distance: 889m</p>	<p>Tip Height: 56.3m Hub Height: 33.2m Field of View: 39.6° Viewing Distance: 500mm (A3)</p>			<p>Viewpoint 1: B953, Access to The Ford Drawn by: SC Checked by: MJ</p>	<p>Date: 12/10/2012 Revision: 1</p>

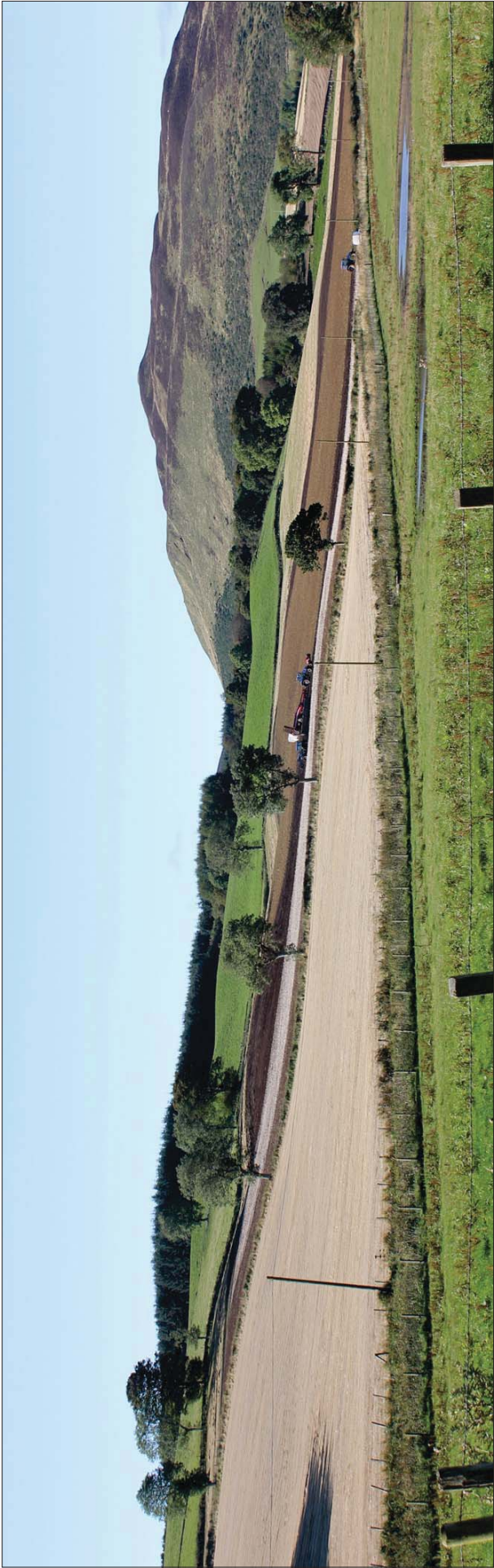


Viewpoint 1 - Photomontage view from B953, access to The Ford


<div><div>Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF</div></div>		VIEWPOINT 1: B953, ACCESS TO THE FORD		Camera: Canon EOS 550D Effective Focal Length: 50mm Lens Height: 1.5m			Glenbrann Farm: LVIA Figure 5
		GR: 323676, 732147 Elevation: 188m AOD View Direction: 16.6° Distance: 889m	Tip Height: 56.3m Hub Height: 33.2m Field of View: 39.6° Viewing Distance: 500mm (A3)	Viewpoint 1: B953, Access to The Ford Drawn by: SC Checked by: MJ			
Date: 12/10/2012 Revision: 1							



Viewpoint 2 - Wireframe view from Lochton, Gallows Knowe



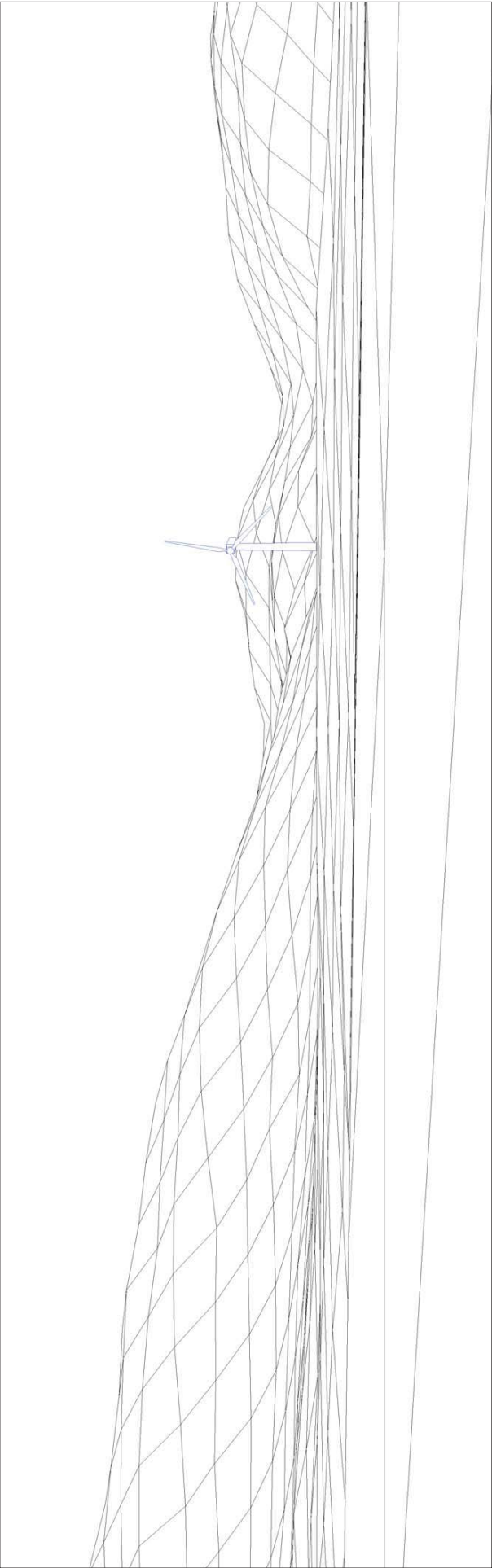
Viewpoint 2 - Existing photograph from Lochton, Gallows Knowe

 Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF	VIEWPOINT 2: LOCHTON, GALLOWES KNOWE		 Camera: Canon EOS 550D Effective Focal Length: 50mm Lens Height: 1.5m
	GR: 325236, 733649 Elevation: 170m AOD View Direction: 243° Distance: 1437m	Tip Height: 56.3m Hub Height: 33.2m Field of View: 39.6° Viewing Distance: 500mm (A3)	
	Glenbrann Farm: LVIA Figure 6		
	Viewpoint 2: Lochton, Gallows Knowe		
	Drawn by: SC Checked by: MJ Date: 16/10/2012 Revision: 1		

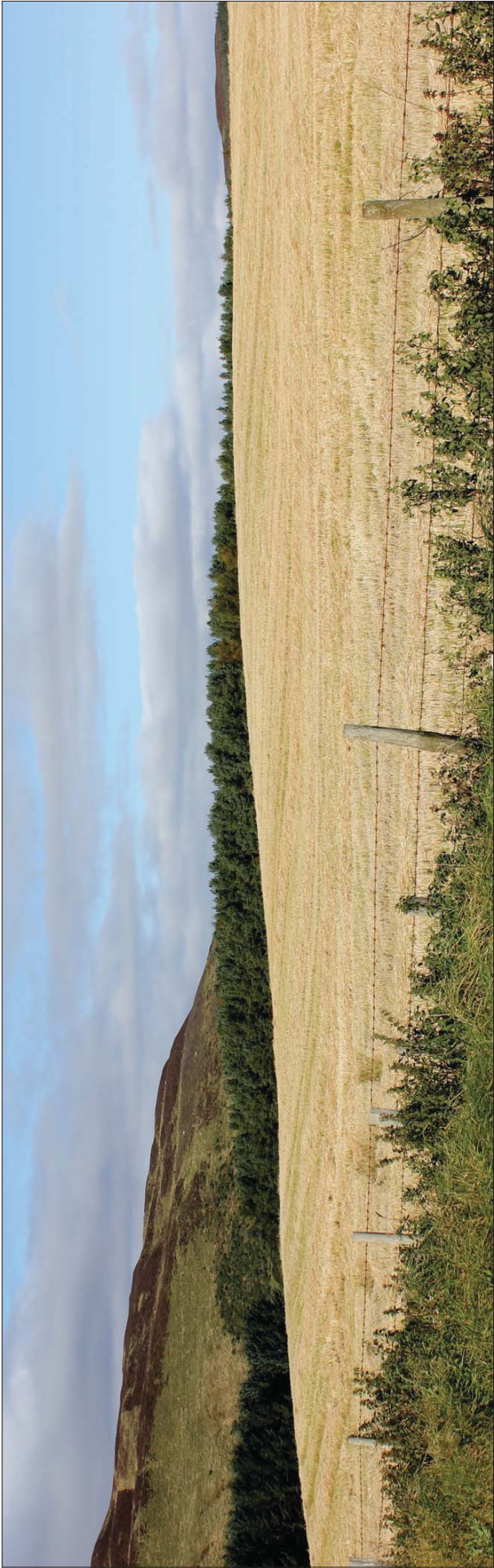


Viewpoint 2 - Photomontage view from Lochton, Gallows Knowe



		Glenbrann Farm: LVIA Figure 6	
		VIEWPOINT 2: LOCHTON, GALLOWES KNOWE	
Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF		GR: 325236, 733649 Elevation: 170m AOD View Direction: 243° Distance: 1437m	
		Tip Height: 56.3m Hub Height: 33.2m Field of View: 39.6° Viewing Distance: 500mm (A3)	
		Camera: Canon EOS 550D Effective Focal Length: 50mm Lens Height: 1.5m	
		Viewpoint 2: Lochton, Gallows Knowe	
		Drawn by: SC Checked by: MJ	
		Date: 16/10/2012 Revision: 1	



Viewpoint 3 - Wireframe view from B953, adjacent to Core Path 129



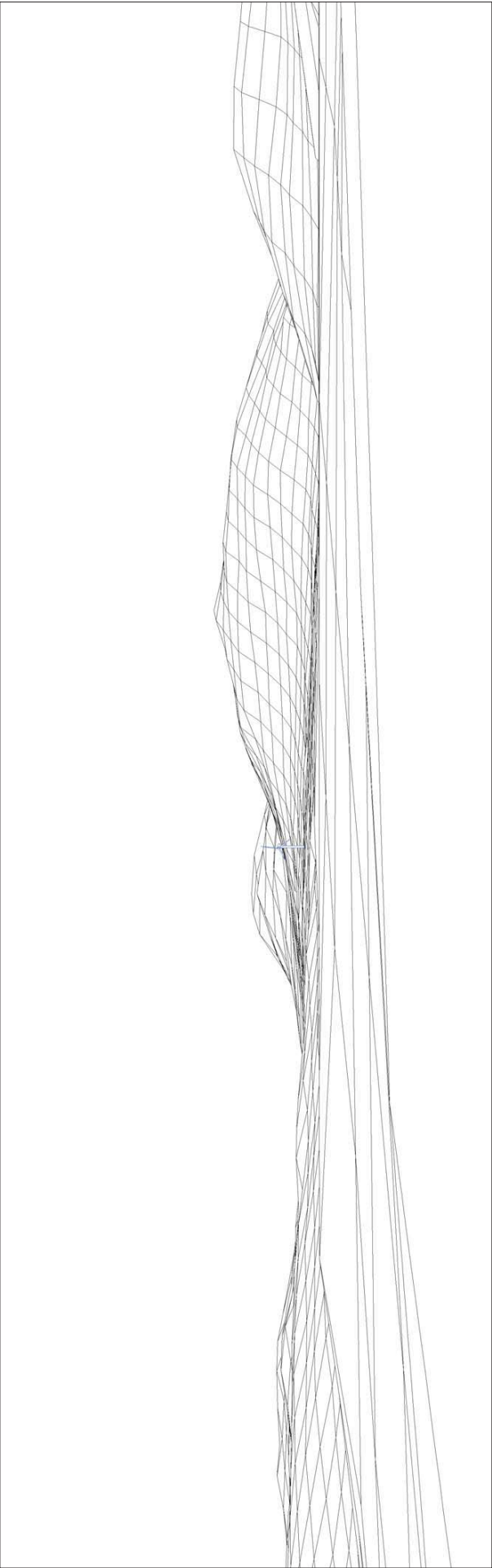
Viewpoint 3 - Existing photograph from B953, adjacent to Core Path 129

<div> <div>  <div> Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF </div> </div> </div>		<div> <div> <div>VIEWPOINT 3: B953, ADJACENT TO CORE PATH 129</div> <div> GR: 324456, 732382 Elevation: 217m AOD View Direction: 314.5° Distance: 785m </div> </div> <div> <div>Tip Height: 56.3m Hub Height: 33.2m Field of View: 39.6° Viewing Distance: 500mm (A3)</div> </div> </div>		<div>  </div>	<div> <div>Glenbrann Farm: LVIA Figure 7</div> <div> <div>Viewpoint 3: B953, adjacent to Core Path 129</div> <div> Drawn by: SC Checked by: MJ Date: 16/10/2012 Revision: 1 </div> </div> </div>
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Viewpoint 3 - Photomontage view from B953, adjacent to Core Path 129

<p>Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF</p>		<p>VIEWPOINT 3: B953, ADJACENT TO CORE PATH 129</p> <p>GR: 324456, 732382 Elevation: 217m AOD View Direction: 314.5° Distance: 785m</p> <p>Tip Height: 56.3m Hub Height: 33.2m Field of View: 39.6° Viewing Distance: 500mm (A3)</p> <p>Camera: Canon EOS 550D Effective Focal Length: 50mm Lens Height: 1.5m</p>			<p>Glenbrann Farm: LVIA Figure 7</p> <p>Viewpoint 3: B953, adjacent to Core Path 129</p> <p>Drawn by: SC Checked by: MJ</p> <p>Date: 16/10/2012 Revision: 1</p>
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Viewpoint 4 - Wireframe view from Carseview Cottage, Littleton



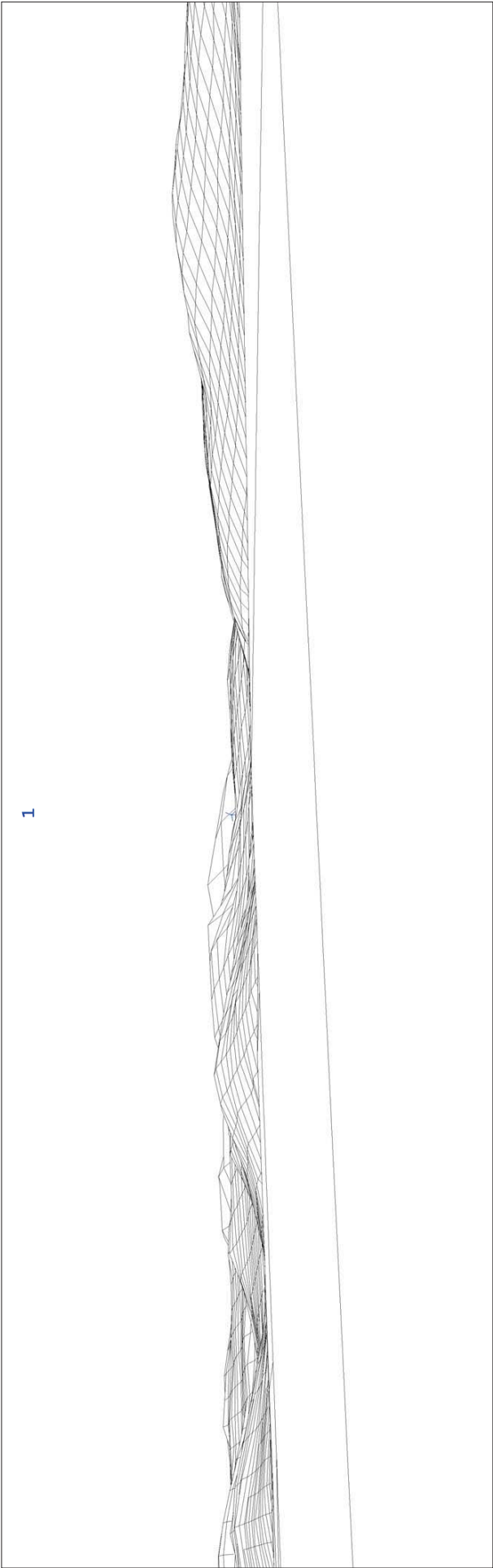
Viewpoint 4 - Existing photograph from Carseview Cottage, Littleton

<div><div>Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF</div></div>	<div>VIEWPOINT 4: CARSEVIEW COTTAGE, LITTLETON</div> <div><div><div>GR: 326508, 734186</div><div>Elevation: 199m AOD</div><div>View Direction: 246.5°</div><div>Distance: 2815m</div></div><div><div>Tip Height: 56.3m</div><div>Hub Height: 33.2m</div><div>Field of View: 39.6°</div><div>Viewing Distance: 500mm (A3)</div></div></div>		<div>Glenbrann Farm: LVIA Figure 8</div>
<div>Viewpoint 4: Carseview Cottage, Littleton</div> <div><div>Drawn by: SC</div><div>Checked by: MJ</div></div> <div><div>Date: 16/10/2012</div><div>Revision: 1</div></div>			

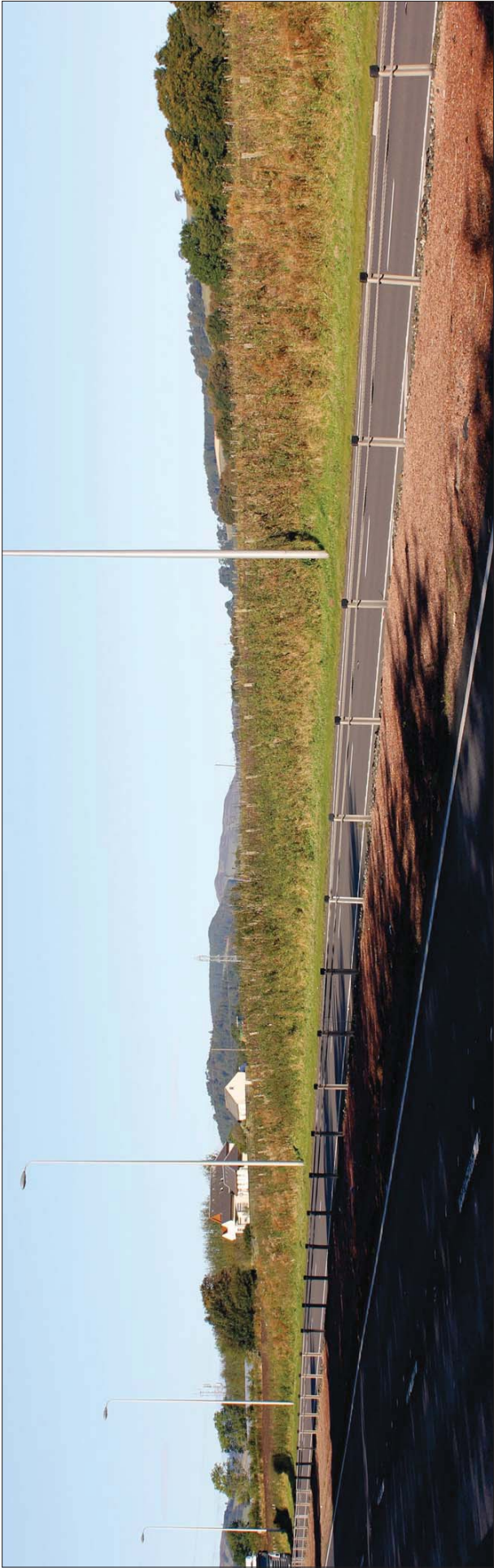


Viewpoint 4 - Photomontage view from Carseview Cottage, Littleton


<div><p>Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF</p></div>		<div>VIEWPOINT 4: CARSEVIEW COTTAGE, LITTLETON</div> <div>GR: 326508, 734186 Elevation: 199m AOD View Direction: 246.5° Distance: 2815m</div> <div>Tip Height: 56.3m Hub Height: 33.2m Field of View: 39.6° Viewing Distance: 500mm (A3)</div>		<div></div>	<div>Glenbrann Farm: LVIA Figure 8</div> <div>Viewpoint 4: Carseview Cottage, Littleton</div> <div>Drawn by: SC Checked by: MJ Date: 16/10/2012 Revision: 1</div>
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Viewpoint 5 - Wireframe view from A90 Junction to Longforgan




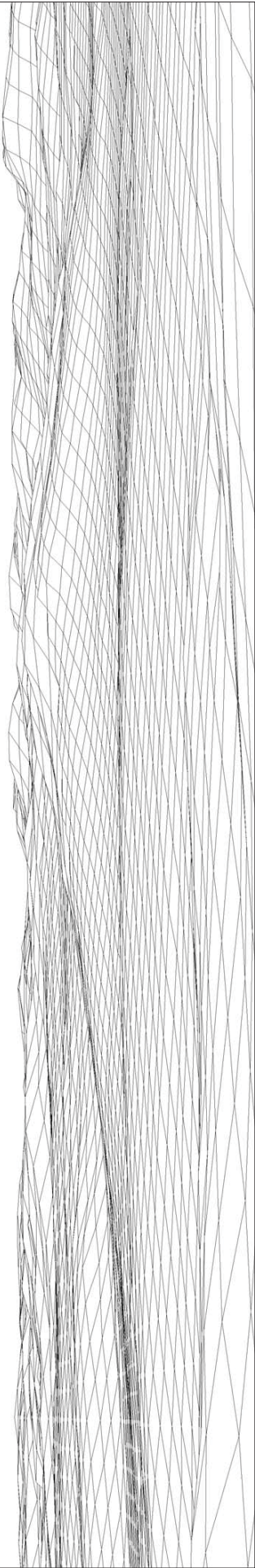
Viewpoint 5 - Existing photograph from A90 Junction to Longforgan

 Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF <i>Realise your renewable energy potential</i>	VIEWPOINT 5: A90 JUNCTION TO LONGFORGAN		 Camera: Canon EOS 550D Effective Focal Length: 50mm Lens Height: 1.5m
	GR: 331530, 730219	Tip Height: 56.3m	
	Elevation: 46m AOD	Hub Height: 33.2m	
	View Direction: 291°	Field of View: 39.6°	Lens Height: 1.5m
	Distance: 8062m	Viewing Distance: 500mm (A3)	
Glenbrann Farm: LVIA Figure 9			Drawn by: SC Checked by: MJ
Viewpoint 5: A90 junction to Longforgan			Date: 16/10/2012 Revision: 1



Viewpoint 5 - Photomontage view from A90 Junction to Longforgan

 Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF	VIEWPOINT 5: A90 JUNCTION TO LONGFORGAN		 Camera: Canon EOS 550D Effective Focal Length: 50mm Lens Height: 1.5m	Glenbrann Farm: LVIA Figure 9
	GR: 331530, 730219 Elevation: 46m AOD View Direction: 291° Distance: 8062m	Tip Height: 56.3m Hub Height: 33.2m Field of View: 39.6° Viewing Distance: 500mm (A3)	Viewpoint 5: A90 junction to Longforgan Drawn by: SC Checked by: MJ Date: 16/10/2012 Revision: 1	



Viewpoint 6 - Wireframe view from Auchterhouse Hill



Viewpoint 6 - Existing photograph from Auchterhouse Hill

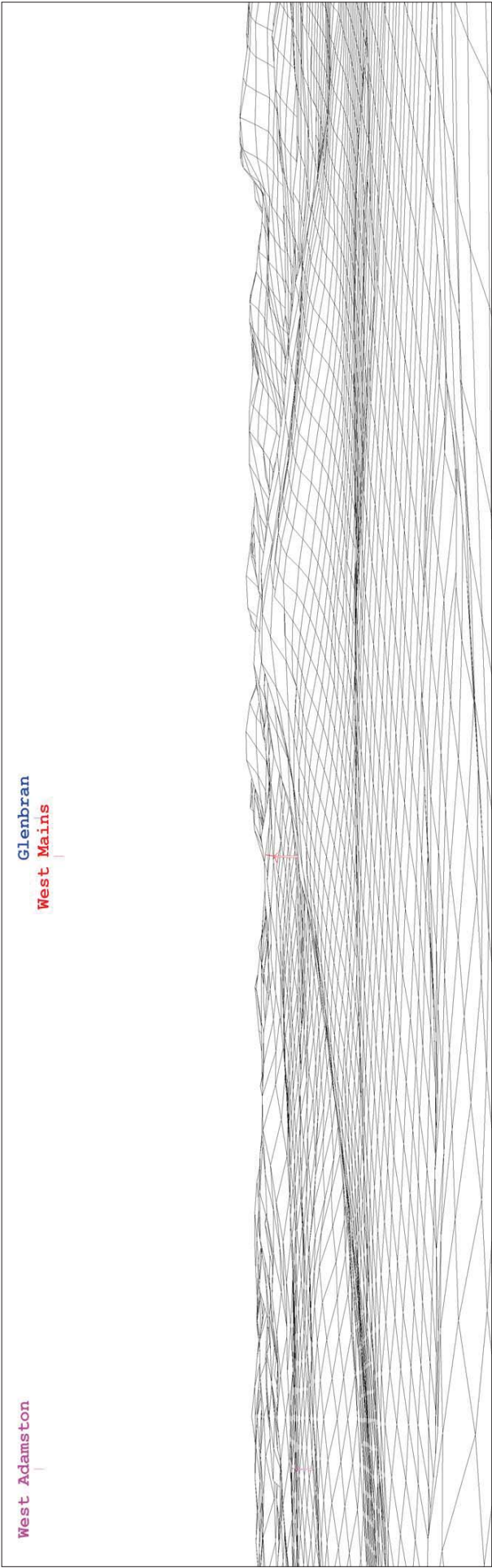
 Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF	VIEWPOINT 6: AUCHTERHOUSE HILL		 Camera: Canon EOS 550D Effective Focal Length: 50mm Lens Height: 1.5m
	GR: 335185, 739393 Elevation: 295m AOD View Direction: 241° Viewing Distance: 12923m	Tip Height: 56.3m Hub Height: 33.2m Field of View: 39.6° Viewing Distance: 500mm (A3)	
	Glenbrann Farm: LVIA Figure 10		

Viewpoint 6: Auchterhouse Hill	
Drawn by: SC	Date: 16/10/2012
Checked by: MJ	Revision: 1



Viewpoint 6 - Photomontage view from Auchterhouse Hill

	<p>VIEWPOINT 6: AUCHTERHOUSE HILL</p> <p>GR: 335185, 739393 Elevation: 295m AOD View Direction: 241° Distance: 12923m</p>	<p>Tip Height: 56.3m Hub Height: 33.2m Field of View: 39.6° Viewing Distance: 500mm (A3)</p>	<p>Camera: Canon EOS 550D Effective Focal Length: 50mm Lens Height: 1.5m</p>		<p>Glenbran Farm: LVIA Figure 10</p>
					<p>Viewpoint 6: Auchterhouse Hill</p>
					<p>Drawn by: SC Checked by: MJ Date: 16/10/2012 Revision: 1</p>

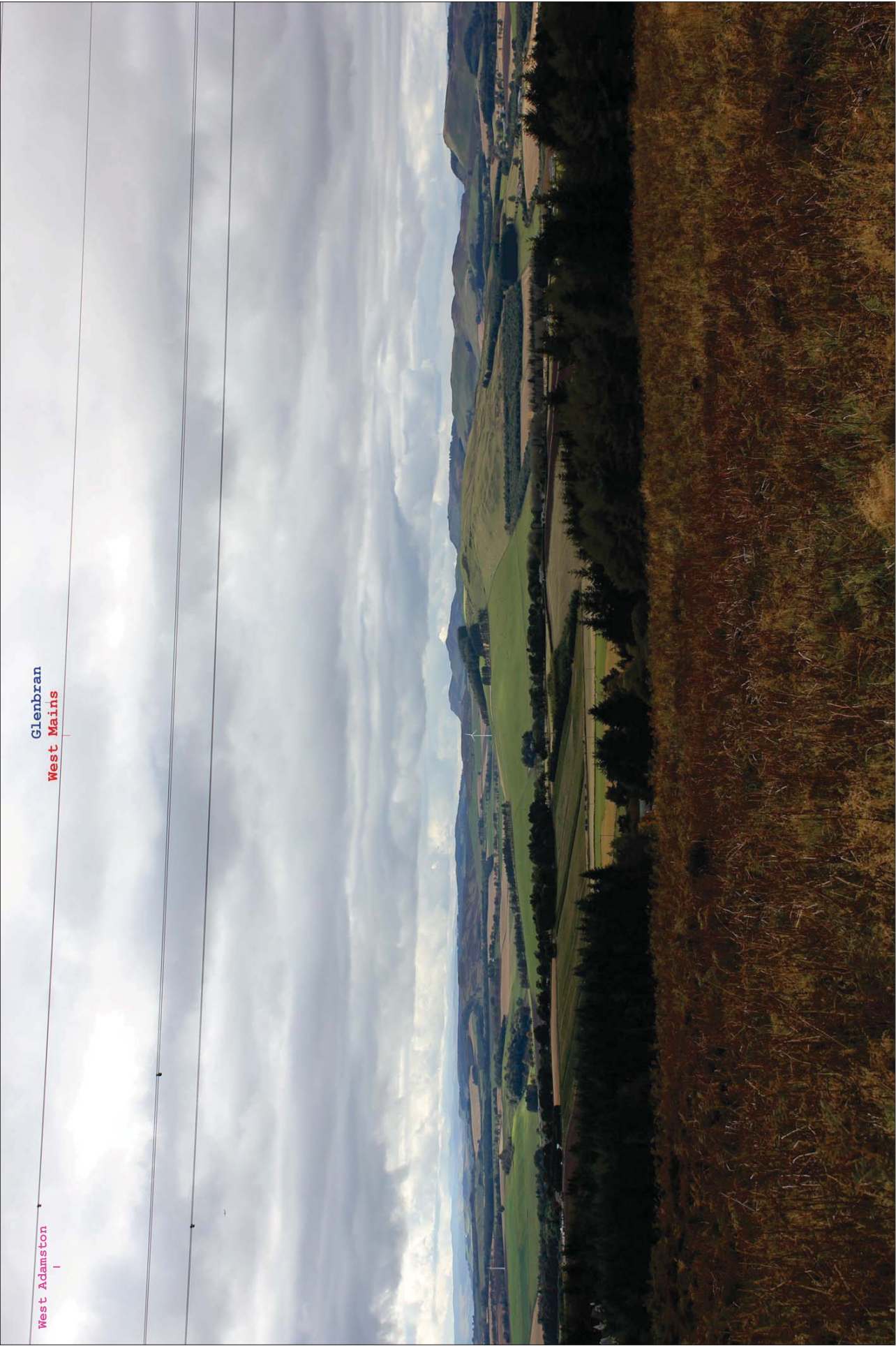


Viewpoint 6 - Cumulative wireframe view from Auchterhouse Hill



Viewpoint 6 - Existing photograph from Auchterhouse Hill

<p>West Adamston</p> <p>Glenbran</p> <p>West Mains</p>		<p>VIEWPOINT 6: AUCHTERHOUSE HILL</p> <p>GR: 335185, 739393 Elevation: 295m AOD View Direction: 241° Viewing Distance: 500mm (A3)</p> <p>Distance to (nearest turbine) - West Mains: 4155m West Adamston: 4960m Glenbran: 12923m</p> <p>Camera: Canon EOS 550D Effective Focal Length: 50mm Lens Height: 1.5m Field of View: 39.6°</p>	<p>Glenbran Farm: LVIA Figure 10</p> <p>Viewpoint 6: Auchterhouse Hill</p> <p>Drawn by: SC Checked by: MJ Date: 16/10/2012 Revision: 1</p>
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West Adamston

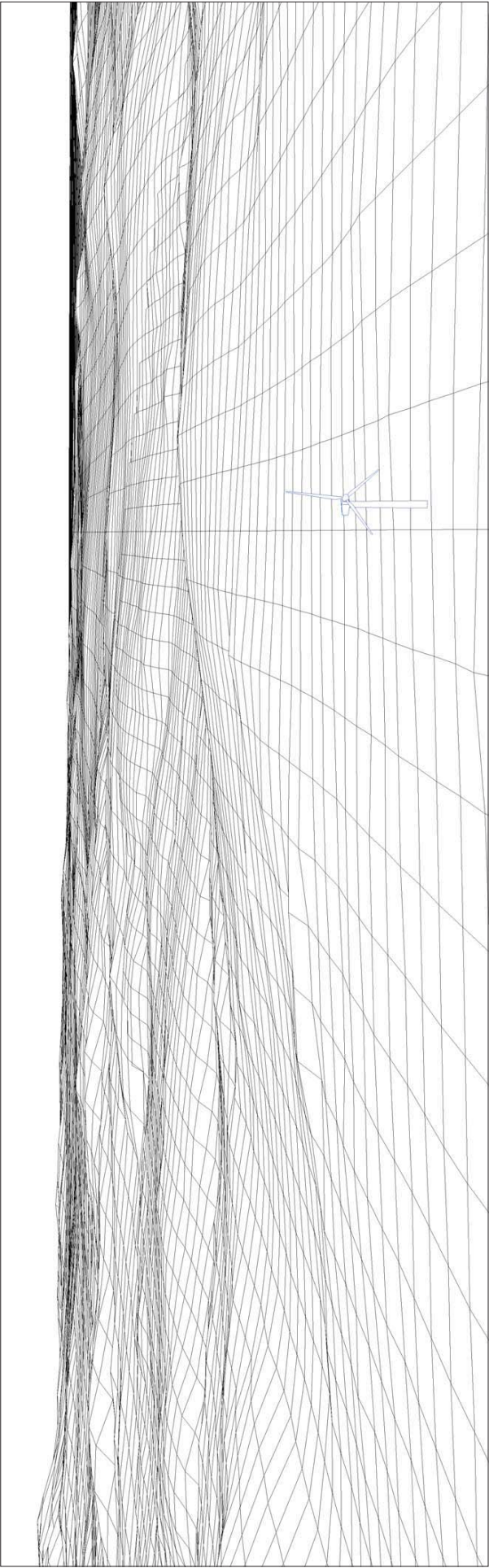
Glenbran
West Mains

Viewpoint 6 - Cumulative photomontage view from Auchterhouse Hill

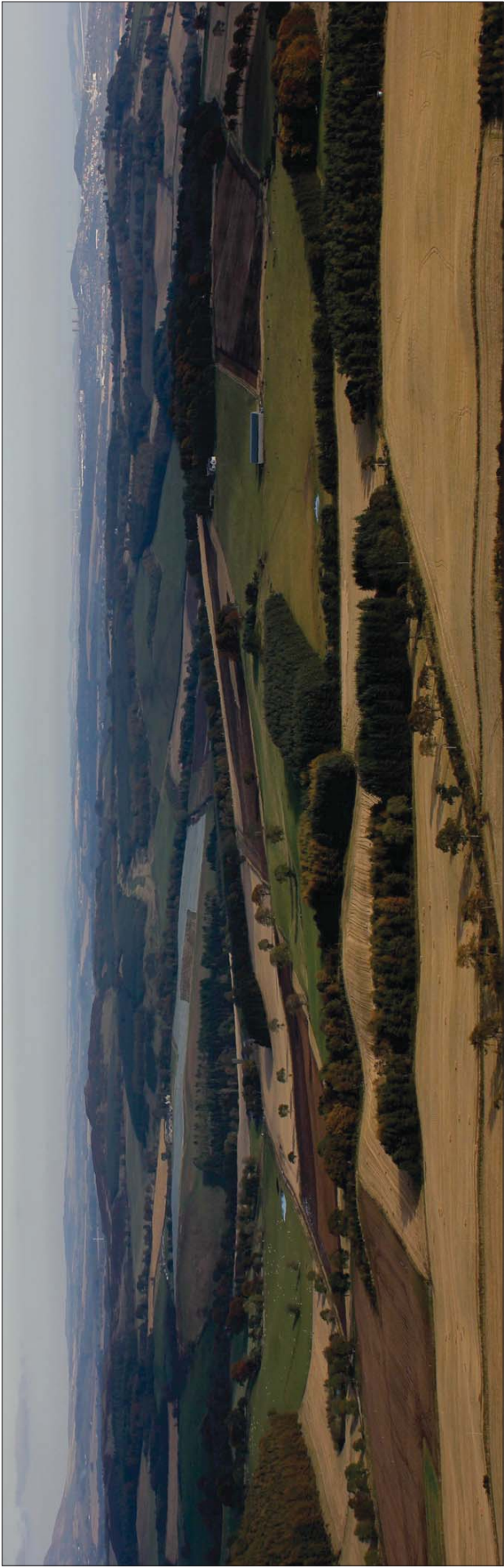
 <div>Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF</div>	VIEWPOINT 6: AUCHTERHOUSE HILL			<p>Camera: Canon EOS 550D Effective Focal Length: 50mm Lens Height: 1.5m Field of View: 39.6°</p> <p>Distance to (nearest turbine) - West Mains: 4155m West Adamston: 4960m Glenbran: 12923m</p>		
	GR: 335185, 739393 Elevation: 295m AOD View Direction: 241° Viewing Distance: 500mm (A3)					
	Glenbran Farm: LVIA Figure 10					

Viewpoint 6: Auchterhouse Hill


Drawn by: SC
Checked by: MJ
Date: 16/10/2012
Revision: 1



Viewpoint 7 - Wireframe view from King's Seat summit



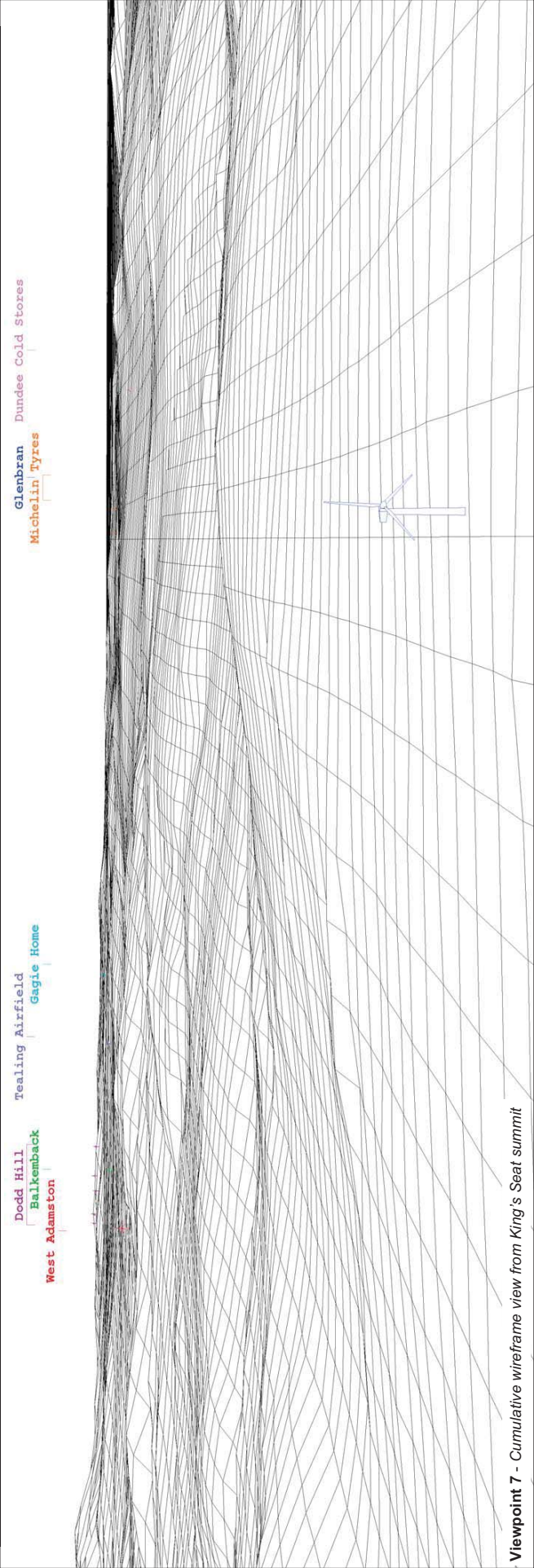
Viewpoint 7 - Existing photograph from King's Seat summit

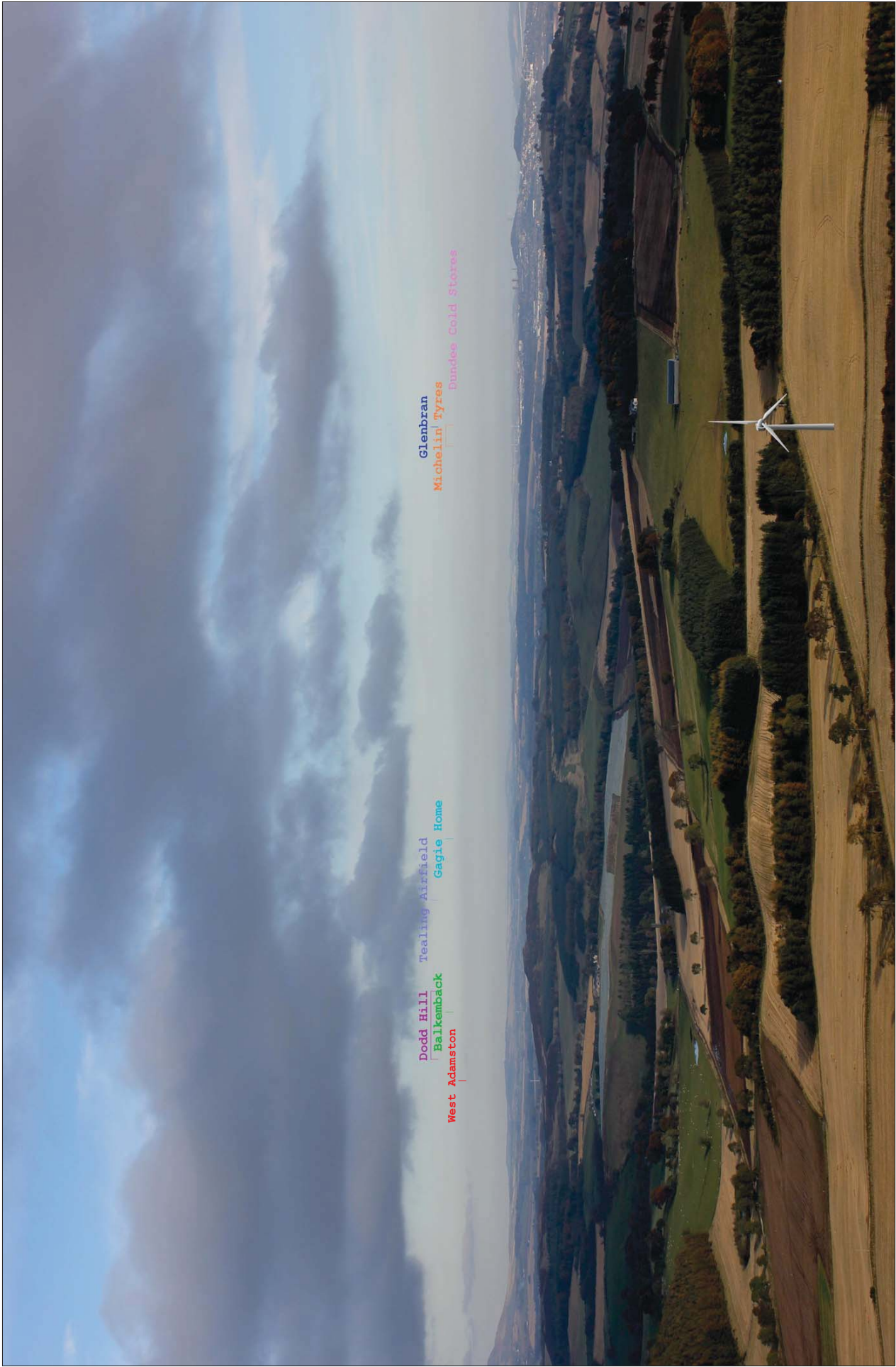
 Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF <i>Realise your renewable energy potential</i>	VIEWPOINT 7: KING'S SEAT SUMMIT		 Camera: Canon EOS 550D Effective Focal Length: 50mm Lens Height: 1.5m
	GR: 323086, 733001	Tip Height: 56.3m	
	Elevation: 370m AOD View Direction: 83.5° Distance: 873m	Hub Height: 33.2m Field of View: 39.6° Viewing Distance: 500mm (A3)	
Glenbran Farm: LVIA Figure 11			Viewpoint 7: King' Seat summit Drawn by: SC Checked by: MJ Date: 16/10/2012 Revision: 1



Viewpoint 7 - Photomontage view from King's Seat summit

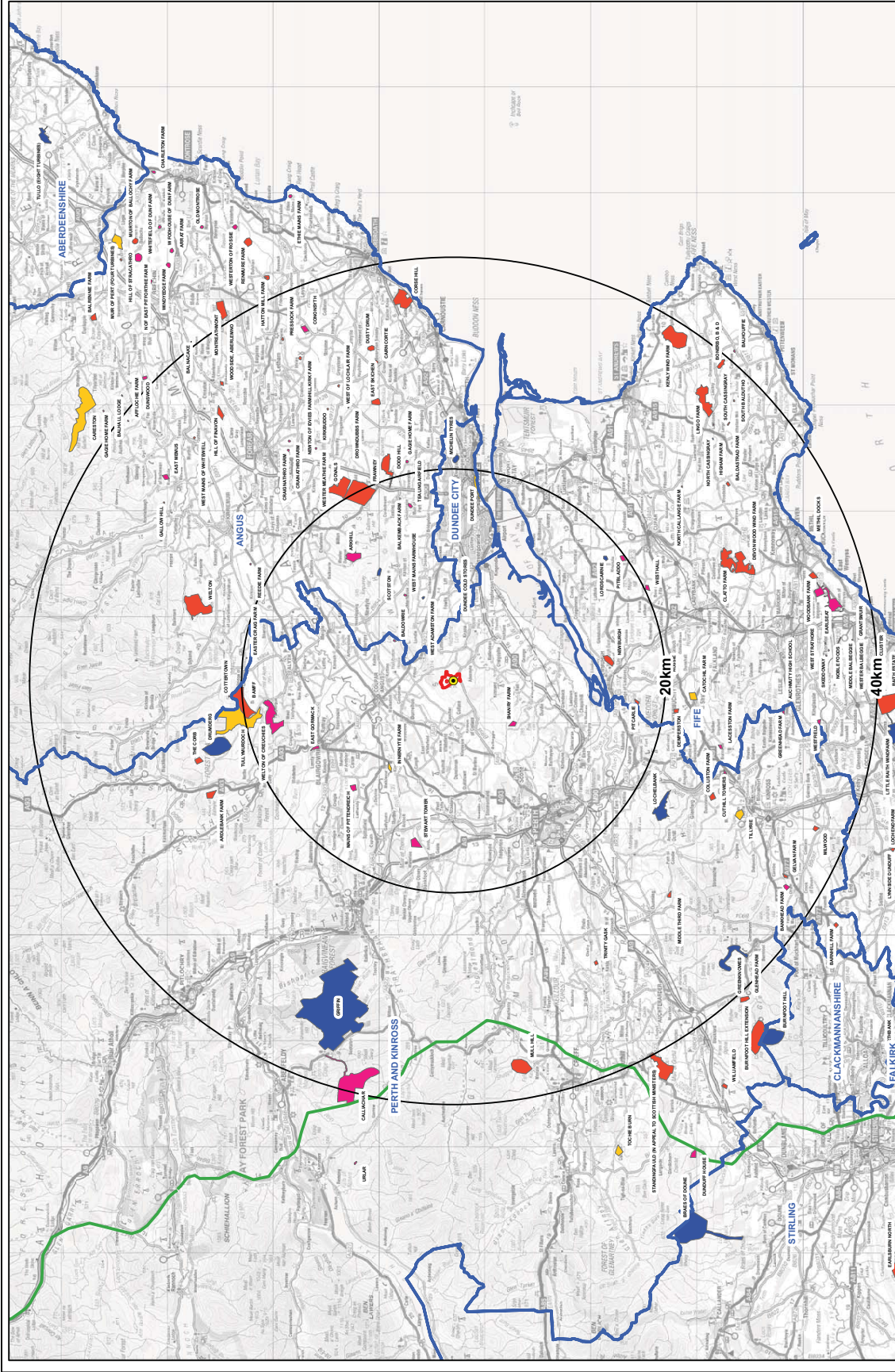
 <div>Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF</div>	VIEWPOINT 7: KING'S SEAT SUMMIT				Glenbrann Farm: LVIA Figure 11	
	GR: 323086, 733001 Elevation: 370m AOD View Direction: 83.5° Distance: 873m	Tip Height: 56.3m Hub Height: 33.2m Field of View: 39.6° Viewing Distance: 500mm (A3)	Camera: Canon EOS 550D Effective Focal Length: 50mm Lens Height: 1.5m		Viewpoint 7: King' Seat summit	
			Drawn by: SC Checked by: MJ		Date: 16/10/2012 Revision: 1	





Viewpoint 7 - Cumulative photomontage view from King's Seat

 Realise Renewables East Lodge, Kindrogan Perthshire PH10 7PF	VIEWPOINT 7: KING'S SEAT SUMMIT		<p>Distance to (nearest turbine) -</p> <p>Glenbrann: 873m</p> <p>West Adamston: 917m</p> <p>Dundee Gold Stores: 12720m</p> <p>Balkenback: 16320m</p> <p>Tealing Airfield: 18040m</p> <p>Michelin Tyres: 21700m</p> <p>Dodd Hill: 21940m</p> <p>Gagie Home: 21980m</p>
	GR: 323086, 733001 Elevation: 370m AOD View Direction: 83.5° Viewing Distance: 500mm (A3)	Camera: Canon EOS 550D Effective Focal Length: 50mm Lens Height: 1.5m Field of View: 39.6°	
Glenbrann Farm: LVIA Figure 11			Viewpoint 7: King' Seat summit
			Drawn by: SC Checked by: MJ Date: 16/10/2012 Revision: 1



Key

- Proposed wind turbine
- Site boundary
- Council boundary
- Buffer
- Beaulieu - Denny Line

Windfarms

STATUS

- 3 Scoping
- 4 Application
- 5 Approved
- 8 Installed

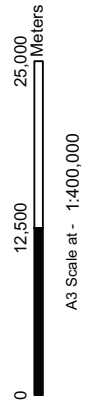
Location map



Notes:
1. Base windfarm data from SNH windfarm data set. Cumulative windfarm data further verified within 20km of proposed site, including all wind turbines above 25m tip height.



Glenbrann Farm Wind Turbine



Revision No.
1

Sheet No.
1

Windfarms within 40km

LVA Figure 12

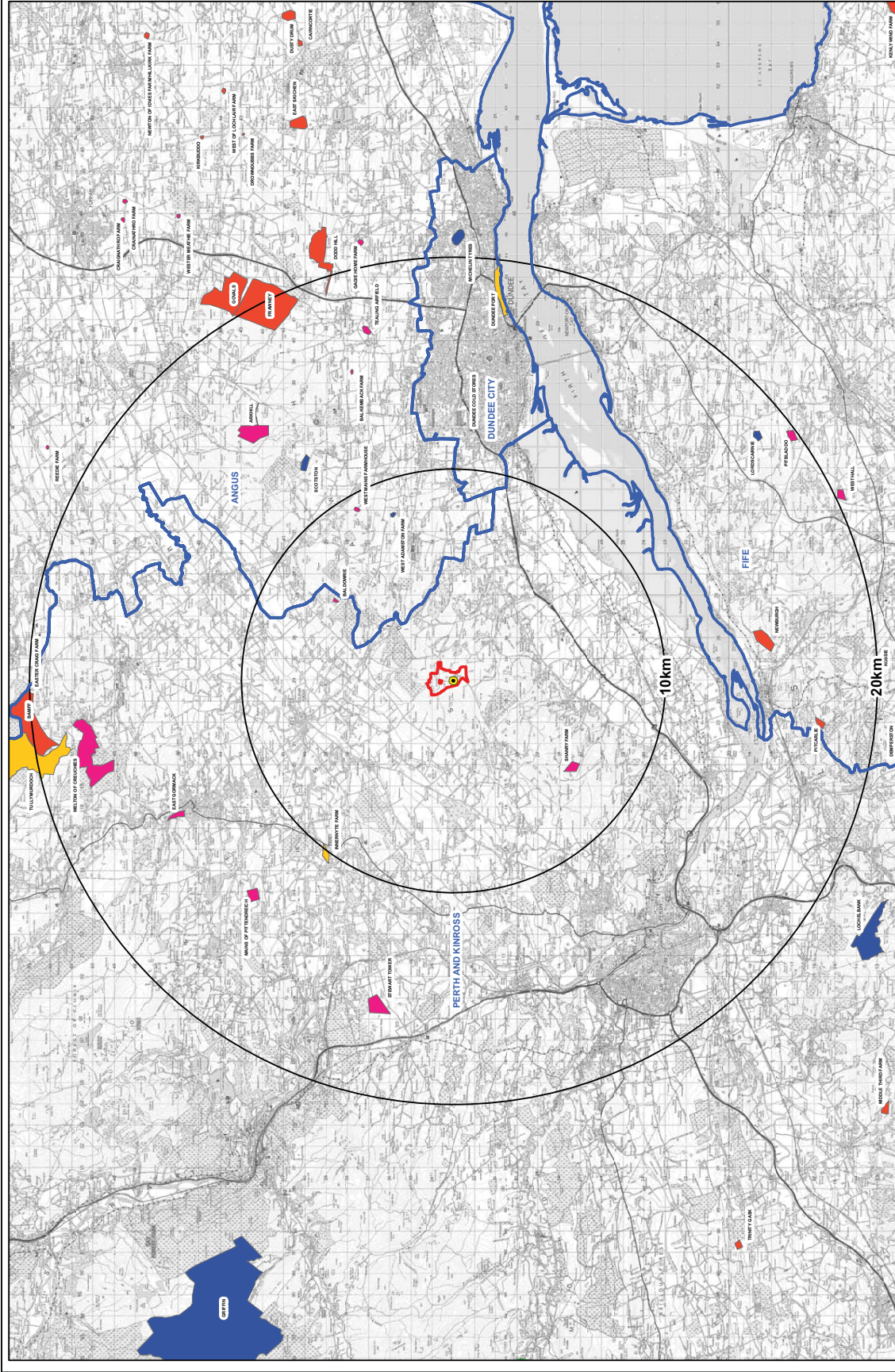
Date: 19/10/12

Drawn By: SC

Checked by: MJ



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Key

- Proposed wind turbine
- Site boundary
- Council boundary
- Buffer
- Beaulieu - Denny Line

Windfarms

STATUS

- 3 Scoping
- 4 Application
- 5 Approved
- 8 Installed

Location map



Notes:

1. Base windfarm data from SNH windfarm data set. Cumulative windfarm data further verified within 20km of proposed site, including all wind turbines above 25m tip height.

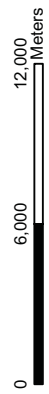
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Glenbrann Farm Wind Turbine

Revision No.

1



A3 Scale at - 1:200,000

Sheet No.

1

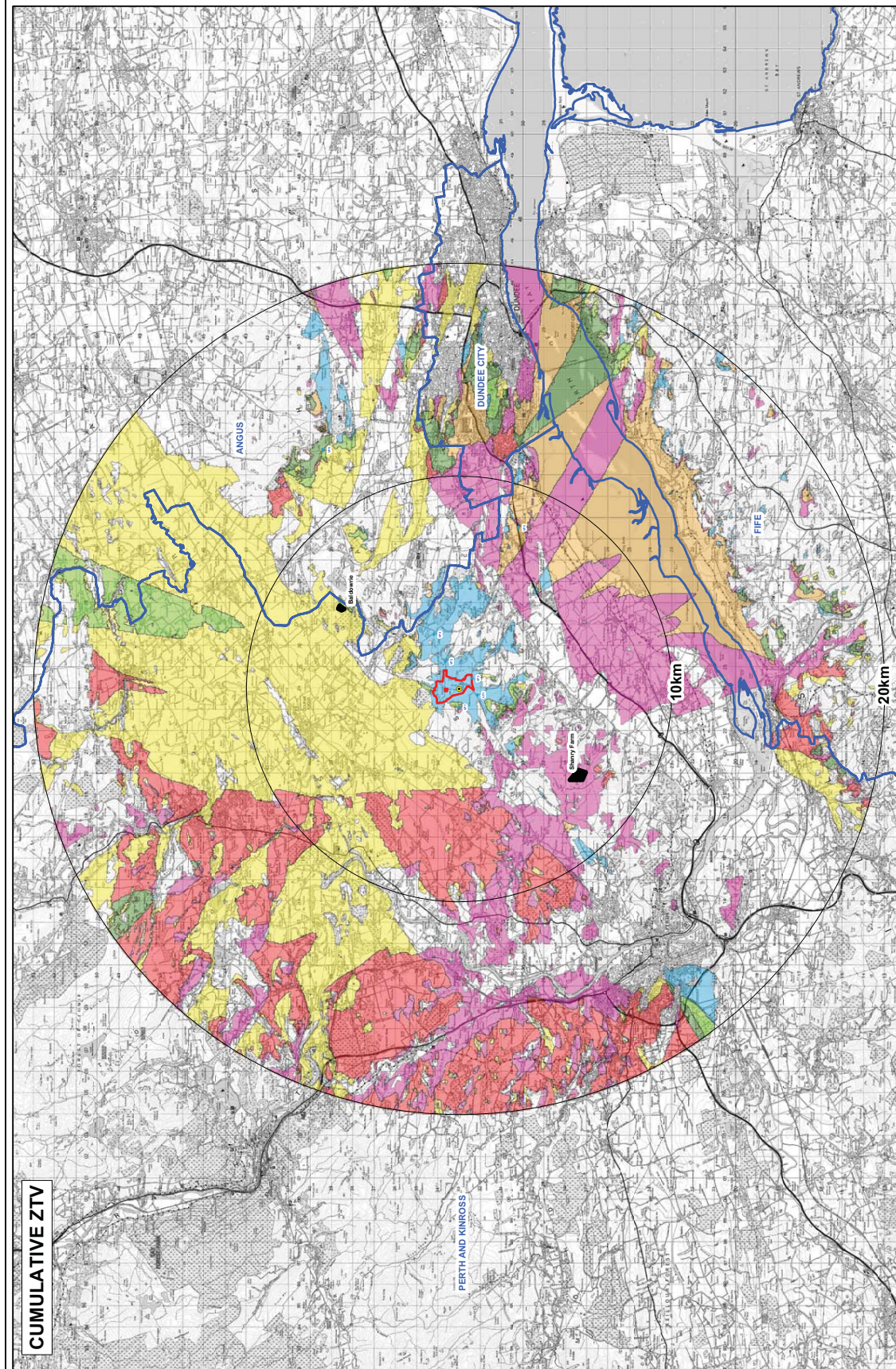
Windfarms within 20km



LVA Figure 12a

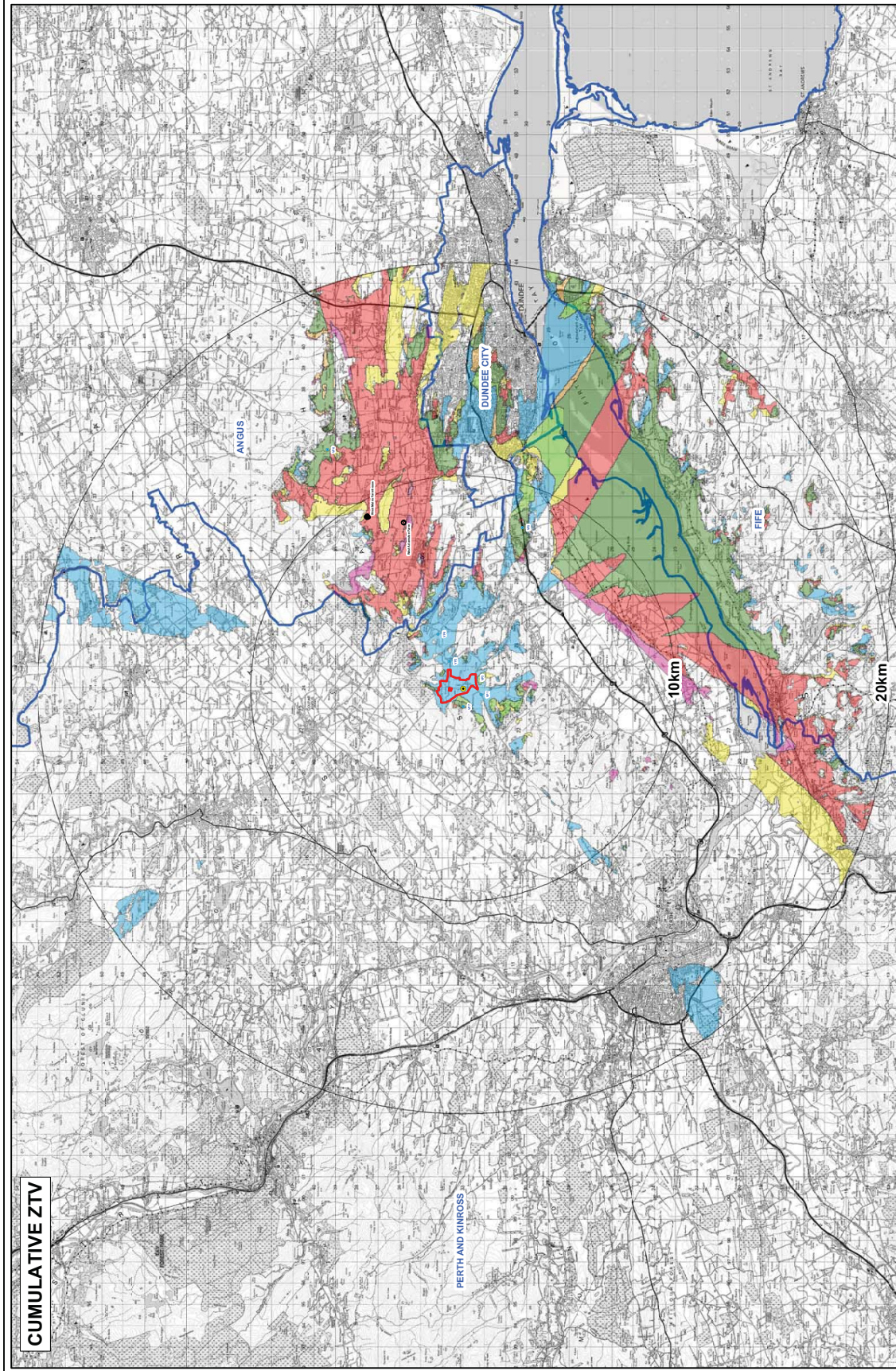
Date: 19/10/12

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Checked by: MJ



 <p>Realise Renewables <i>Realise your renewable energy potential</i></p>	<p>Notes:</p> <ol style="list-style-type: none"> 1. Cumulative ZTV to tip height for 20km buffer around site. 2. ZTV generated using Ordnance Survey's landform panorama dataset which does not take into account the screening effects of buildings or vegetation. 3. Earth curvature has been allowed for. 4. Observer eye height 2m above ground has been used. 		<p>Glenbran Farm Wind Turbine</p> <p>0 5,000 10,000 Meters</p> <p>A3 Scale at - 1:200,000</p> <p>N </p>	Revision No. 1	Cumulative ZTV 1 - Approved
				Sheet No. 1	LVA Figure 13
					Date: 19/10/12 Drawn By: SC Checked by: MJ



CUMULATIVE ZTV

Key

- Site boundary
- Proposed wind turbine
- Viewpoints
- Other projects location
- Council boundary
- Buffer

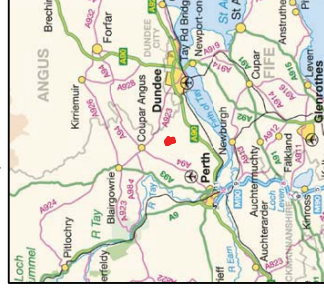
Cumulative ZTV

- Glenbrann (1 x 56.3m to tip)
- West Adamston (1 x 47.5m to tip)
- West Mains (1 x 61m to tip)
- Glenbrann + West Adamston
- Glenbrann + West Mains
- West Adamston + West Mains
- Glenbrann + West Adamston + West Mains

Viewpoints

- VP1: B953, access to The Ford
- VP2: Lochn, Gallows Knowe
- VP3: B952, Core Path 129
- VP4: Carseview Cottage, Littleton
- VP5: A90, junction to Longforden
- VP6: Auchterhouse Hill
- VP7: King's Seat summit

Location map



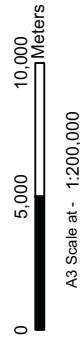
Notes:

1. Cumulative ZTV to tip height for 20km buffer around site.
2. ZTV generated using Ordnance Survey's landform panorama dataset which does not take into account the screening effects of buildings or vegetation.
3. Earth curvature has been allowed for.
4. Observer eye height 2m above ground has been used.

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Glenbrann Farm Wind Turbine



Revision No.

1

Cumulative ZTV 2 - Approved

LVA Figure 14

Date: 19/10/12

Sheet No.

1

Drawn By: SC

Checked by: MJ

Landscape Report

Glenbran Wind Turbine

Landscape and Visual Impact Assessment Report

November 2012

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1.1 INTRODUCTION

This chapter presents the Landscape and Visual Impact Assessment (LVIA) for the proposed Glenbran Wind Turbine. The purpose of the assessment is to determine the significance of impact (or effect) of the proposed development on the landscape and visual resource of the area.

LVIA's are separate, although linked, procedures. Landscape effects relate to the direct physical changes to the fabric or individual elements of the landscape. They also relate to the potential indirect changes to the wider patterns of land use, land cover and the arrangement of landscape features which determine the character of the landscape. Visual effects relate to the potential changes in views and perception of the proposed development on visual amenity within the area from which it would be seen, also known as a Zone of Theoretical Visibility (ZTV).

1.1.1 The Proposed Development and the Basis for Assessment

The LVIA is based on the development of a single turbine up to the maximum tip height of 56.3m. This turbine would be located on the west side of the Sidlaw Hills, approximately 7km to the south of Coupar Angus, 12km to the west of Dundee and 15km to the northeast of Perth. The proposal would also include a control building, access tracks, temporary construction and laydown areas, a borrow pit and underground cabling to the control building. The assessment of these associated elements is considered, where relevant, to the assessment of effects upon the landscape and visual resource.

1.2 METHODOLOGY AND APPROACH

1.2.1 Scope Guidance

This appraisal has been completed in accordance with the Scottish Natural Heritage (SNH) guidance on the "Natural Heritage assessment of small scale wind energy projects which do not require formal Environmental Impact Assessment (EIA)", March 2008 in accordance with the Perth and Kinross Council (PKC) screening response. This guidance indicates that for turbines of over 50m in height, the following should be undertaken:

- Consultation with the planning authority over the scope of the assessment;
- Production of a Zone of Theoretical Visibility (ZTV) map;
- Visualisations and photomontages, focusing on key viewpoints;
- Assessment of sensitivity, magnitude of change and residual effects;
- Map of all wind turbine proposals in the public domain within the study area;
- Assessment of all applied, consented or constructed proposals within 30km of the application proposal.

Data Sources and Guidance

The LVIA will follow relevant standards and guidance, principally set out in the Landscape Institute and Institute of Environmental Management & Assessment's (IEMA) Guidelines for Landscape and Visual Impact Assessment, second edition, published in 2002 (GLVIA). The LVIA will also draw upon other guidelines detailed in section 1.8.

1.2.2 Defining Baseline Sensitivity

To determine the significance of landscape and visual effects of the proposed wind turbine, the sensitivity of the existing landscape and visual resource are first considered.

Landscape sensitivity is defined within GLVIA as “the extent to which a landscape type or area can accept change of a particular type and scale without unacceptable adverse effects on its character”. The identification of sensitivity, therefore, needs to be considered in relation to the nature of the change, i.e. the type and scale of proposed development within a particular area or a type of landscape and the association and tolerance of the identified landscape to that change.

The sensitivity of the visual resource is dependent upon a combination of parameters, including: the location, context and orientation of views; the relative focus of the view and the principal or secondary interest in that view; the quality or importance of the existing views; the direction and extent of the views; the ability of the views to accommodate the type of development; the activity/occupation/pastime of the receptors; and the frequency and duration of the view.

Landscape and visual sensitivity is categorised as High, Medium or Low or by a combination of two categories to provide a more detailed, group i.e. High to Medium or Medium to High. These categories are defined below. It is important to recognise that some landscapes may exhibit characteristics that fall within more than one sensitivity level and as such professional judgement is required when determining sensitivity and the rationale for assigning a specific sensitivity assessment should be explained in the assessment

Table 1: Landscape / Visual Sensitivity

Sensitivity	Receptor	Definition
High	Landscape	Typically small scale, enclosed landscapes with complex landform / a mosaic of habitat and landcover where turbines would be out of scale. Irregular patterns of enclosure / traditional settlement pattern with a general absence of modern structures giving a sense of remoteness and wilderness. Well used recreational areas with extensive views within/ into/out of area to distant horizons; Landscape of distinctive character with strong cultural associations
	Visual	Residents with principal/direct views; Visitors to scenic viewpoints/ beauty spots with views constantly available; Long distance footpath routes with prolonged viewing opportunities; Important landscape features with physical, cultural or historic attributes; locations likely to attract high numbers of people with a primary interest in the view.
Medium	Landscape	Medium scale landscape with a combination of open and more enclosed landform. Modern structures/development are an element of views either within/into/out of area. Rural working landscapes containing evidence of human activity with strong characteristics, relatively intact.
	Visual	Residents and visitors with secondary, distant views; Footpaths with fleeting/transient/peripheral views. Other tracks; roads used for tourism or journeys of a recreational nature, locations likely to attract moderate numbers of people. Viewers with a moderate interest in their surroundings e.g. users of outdoor recreation areas
Low	Landscape	Large scale open/exposed landscapes with smooth regular flowing landform and limited variation in landcover in which turbines would not be out of scale. Modern structures such as pylons, masts and other infrastructure evident. Visually contained by landform or vegetation with limited views within/into/ out of area with near horizons. Limited cultural

Sensitivity	Receptor	Definition
		associations and little if any recreational or amenity function.
	Visual	Viewers with a passing interest in the view e.g. Views from industrial or commercial buildings or areas; roads used primarily for commercial travel and/or commuting; views from trains, locations likely to attract low numbers of people. visitors engaged in an occupation/pastime, rather than focused on the wider landscape

1.2.3 Defining Magnitude of Effect

Magnitude of change is defined within GLVIA as “a combination of the scale, extent and duration of an effect” and are categorised as High, Medium, Low or Negligible or as a combination of two categories to provide a more detailed, intermediate group i.e. High to Medium or Medium to High. Effects can be direct, where they involve a physical change to a defined element or characteristic of the landscape, or indirect, where effects are secondary and perceived on the wider pattern of elements or on visual amenity, away from the proposed site.

Criteria for defining the level of magnitude are identified below. Magnitude of Visual change is derived from guidance in the Visual Assessment of Wind Farms: Best Practice (University of Newcastle 2002). The magnitude will also be influenced by the spatial extent of the effect, the duration and the degree to which the effect is reversible.

Table 2: Magnitude of Effect

Magnitude	Receptor	Definition
High	Landscape	Very obvious or notable change in the balance of landscape characteristics; ranging to particularly intensive change (i.e. a dominating effect) over a more limited area. The proposal would be a prominent feature in the make-up of the character area
	Visual	Dominant: Major changes in the make-up and balance of the view and a defining influence upon it. Commanding, controlling the view, striking, sharp, unmistakable, easily seen, dominant.
Medium	Landscape	Whilst notable or obvious, the change would not fundamentally alter the balance of the landscape characteristics
	Visual	Prominent/Conspicuous: Moderate changes in the nature of the view. Noticeably distinct or prominent, catching the eye or attention, clearly visible and well defined.
Low	Landscape	Very small change in the balance of overall characteristics, such that post development the change would be discernible but the underlying pattern of characteristics would remain similar to the baseline condition.
	Visual	Apparent: Minor change in the nature of the view. Evident but lacking sharpness of definition, not obvious, indistinct, not clear, obscure, blurred indefinite. Visible but not prominent. Discernible but the underlying nature of the view would remain similar to the baseline (limit of potential visual significance).
Negligible	Landscape	Change, which whilst occurring would not influence the wider landscape character and would be barely discernible, perceptible or legible, approximating to a “no change” situation
	Visual	Faint: Very minor change to the view, weak, not legible, near limit of acuity of human eye. Change would be barely discernible, approximating to the “no change” situation.

1.2.4 Establishing Extent (and Significance) of Effect

Once the sensitivity and magnitude are classified, they are considered together to assess the extent of effect and its potential significance. This is done using the assessment in the matrix in Table 3 to guide the determination of significance. This assessment considers effects above Moderate to be significant in Environmental Impact Assessment (EIA) terms.

Table 3: Extent of Landscape / Visual Effect

		SENSITIVITY (of the landscape or visual receptor)		
		Low	Medium	High
MAGNITUDE (of the anticipated effect upon the landscape / visual resource)	High	Moderate	Moderate/Major	Major
	Medium	Minor/Moderate	Moderate	Moderate/Major
	Low	Minor	Minor/Moderate	Moderate
	Negligible	Negligible	Negligible	Negligible

The prediction and extent of effect cannot always be absolute. Paragraph 7.38 of GLVIA, states that *"Significance of effect is not absolute and can only be defined in relation to each development and its location. It is for each assessment to determine the assessment criteria and the significance thresholds, using informed and well-reasoned judgement supported by thorough justification for their selection, and explanation as to how the conclusions about significance for each effect assessed have been derived"*. A conclusion that an effect is 'significant' should not be taken to imply that the proposed development is unacceptable. Significance of effect needs to be considered with respect to the extent of a landscape or a view over which it is experienced.

1.2.5 Consultation

The scope and extent of work for the LVIA, including the study area radius, methodology and the proposed number and location of representative viewpoints (VPs) was consulted on and agreed with PKC in September 2012.

1.3 Baseline Conditions

The proposed development site lies within the Sidlaw Hills. These hills run between the lowland valleys and mountains of the Scottish Highlands to the north and the Firth of Tay lowlands and estuary to the south. Whilst considerable areas exhibit a large, open character with notable coniferous forestry plantations and woodland, human influence is also evident, with a dispersed settlement pattern and notable built influences at various points, including power lines, pylons, communication masts and existing wind turbines at similar elevated points on the Sidlaw Hills to the east.

1.3.1 The Site Context and Landscape Fabric

The landscape fabric of the site consists of open, elevated and ascending landform between 210m AOD and 220m AOD, with the turbine located at approximately 215 AOD. Landform continues to rise sharply to the west and north, to the local high points of 377m AOD at Kings Seat and 348m AOD at Gaskhill Wood. Land cover is defined by intermittent linear woodland blocks and a medium to large scaled field pattern. The fabric of the site is considered to be of Medium sensitivity to change on account of its

simple scale, frequency and contrast, scale and coverage of moderately valued elements.

The nearest residential properties to the site and of note to the assessment are located at Sheepfold, Stockmuir and Balloleys within 1km to the south and east and Glenbran within 1km to the north. Further properties are then located at Lochton and Littleton within 2.5km to the northeast. Beyond these points, notable visibility would be theoretically limited. This is demonstrated in the ZTVS in Figures 3 and 4, which show that the principal area of visibility would be contained within the immediate slopes to the east of the Kings Seat and within 1.5km, extending up to 3km to the east and to isolated high points to the east.

1.3.2 Landscape Policy Context

Within the study area a number of designated landscapes exist (Figure 1). Of note to the LVIA, there are no national landscape designations within 15km and no local landscape designations within 8km. The nearest areas are locally designated Areas of Great Landscape Value (AGLV) within PKC. These lie between 8-20km to the west and southwest around Perth and along the River Tay. Further AGLVs within Fife then stretch to the south of the Firth of Tay in Fife at a minimum of 13km to the south at the nearest point. These areas are also recognised as Special Landscape Areas (SLAs). At a more distant point the River Tay (Dunkeld) National Scenic Area (NSA) lies between 18 and 30km. Theoretical visibility would largely be absent from these areas, except for the distant landscapes to the south of the Firth of Forth. As a result the potential for effect on the character, setting and views would be limited, given the separate location focus and orientation of these areas. This is summarised below.

While no local landscape designations exist within Angus, there are three 'principal geographical areas' defined. These include the Highland, Lowland and Hills and Coast. The proposed development is located approximately 4km to the west of Lowland and Hills area, with the Highlands area and the Coast area lying beyond 18-20 to the north and southeast. Local policy and the supporting Angus Windfarms Study, considers that the Highlands and Coast areas are sensitive to wind farm developments. These are indicated on Figure 1. Visibility and the potential for effect will be limited from these areas.

A number of historic landscape features also exist. Whilst these areas are considered within the Cultural Heritage report, they are identified as part of the landscape chapter, as they have a wider setting in the landscape and can be important elements in determining the landscape character of the baseline.

In terms of the landscape setting of these historic landscape features (their visual and contextual relationship with their surroundings) two Gardens and Designed Landscapes (GDL) and three Conservation Areas (CA's) are present within 5km, where there is potential for effect on the setting. These areas include the CAs at Knapp, Baledgarno and Kinrossie and the GDL's at Fingask Castle Rossie Priory. Further CA's and GDL's exist beyond 5km but with limited visibility and potential for effect on the setting, given the combination of distance, orientation and general containment within low lying well vegetated landscapes.

1.3.3 Landscape Character

The character of the landscape that has potential to be affected by the proposed wind turbine is defined within SNH Review No. 122 - Tayside Landscape Character Assessment (LCA). At around 13km to the south, the character is defined within the Fife LCA (SNH Review No.113, CRC, 1997). In common these reviews classify the area into broad Landscape Character Types (LCT) with sub-character units, defined by landform and landcover. These LCTs are defined on Figure 2.

The proposed site is located within a central section of the Igneous Hills LCT which covers the Sidlaw Hills. This linear LCT extends to cover much of the surrounding context to 15km to the west, 25km to the east, 3km to the north and 4km to the south. As a result any direct effects on character would be limited to this LCT. The Tayside Landscape Assessment summarises the landscape characteristics of the LCT as follows:

'....the Sidlaws are lower and less extensive than the Ochils. They are most distinct at the southern end where south-east facing scarp (the Braes of the Carse) rises almost vertically to tower over the Carse of the Gowrie and where the shallower, north facing dipslope meets the Strath Tay near Scone. Further to the north the hills subside, partly along their south-eastern side, gradually merging into the farmland plateau. From the north the hills continue to present a distinctive profile of smooth rounded hills which contain views within Strathmore. The lower elevation is reflected in more productive agricultural land.'

The area is an open, large-scale landscape, with conical summits and unimproved grass moorland, distinctive scarp and dipslopes, short glens, and considerable areas of coniferous forestry in the form of large prominently geometric plantations and shelterbelts. Other planting is more sensitive and better reflects the natural flow of the landform. The landscape of the igneous hills also reflects a long history of settlement with a number of burial mounds, medieval castles and mottes and other hill-forts and follies exploiting the natural defences of steep slopes. There are many modern influences with telecommunication masts at the summit of a number of hills, operational wind turbines and a number of existing and disused quarries. The sensitivity to the type of change in the context of the a single turbine towards the northern fringes of the hills is Medium to High on account of its contrast of scale, level of openness, moderate value and general simplicity of its key characteristics, which have been modified by the introduction of renewable energy infrastructure in the form of wind turbines.

Surrounding Landscape Character Types

The surrounding areas will have differing levels of sensitivity to development depending on the composition and quality value of the key characteristics, their location and the related tolerance to the nature of the change, as detailed in section 1.

The lower lying and more settled character of the Broad Valley Lowland LCT at Strathmore Valley and Firth Lowlands LCTs are considered to be slightly more sensitive, given the location and relationship with the Igneous hills LCT. While there would be some intermittent points of visibility across these LCTs, the expansive and varied nature of the intervening landscape, combined with the general distance, orientation and separate focus of these LCT's would generally reduce the degree to which the character would be affected. This is also the case for the Upland Foothills LCT's in Fife where the proposed turbine would be seen clearly in a separate distance context to the north of the expansive firth landscape. Elsewhere, visibility and the potential for

effect on character is limited from the Lowland River Corridors LCT, the Highland Foothills, Glens and Plateaux LCTs and the Dipslope Farmland LCTs. The baseline sensitivity of the Broad Valley Lowland LCT and Firth Lowlands LCT's is detailed below in Table 4. This also takes into account the subtly changing character as a result of renewable energy generation, referenced above.

1.3.4 Tayside LCA, Wind Farm Guidance

Chapter 4 of the Tayside LCA gives regard to the issue of wind power and the possible landscape effects associated with the development of wind farms. It was recognised that pressure for wind farm development may occur in a number of Tayside areas and the Sidlaw Hills are identified as one of these areas. The report continues to state that *'Over the years, the Sidlaws (among other areas) have accommodated a considerable amount of development including masts, pylons, roads, plantations and reservoirs. While the overall aim should be to reduce the impact of these past developments, the different character and quality of these areas suggests that they may be better for wind farm development. The suitability of areas will vary considerably within the hills, and it is inevitable that some degree of landscape impact will result. However, it is possible that the balance between benefits and impacts is easier to find in the Sidlaws, than in more sensitive landscapes.'*

An indicative map (Appendix C of the Tayside LCA), then illustrates the sensitivities of the landscape for wind farm development in the Sidlaws. As indicated in the main report, the proposed development site will lie within an area of lowest constraint. This area stretches from the Kings Seat to the west of the development and covers the whole development site and along similar elevated points of the Sidlaw Hills to the east.

1.3.5 Landscape Baseline Summary

Table 4 highlights the key LCT's and other policy areas that are of relevance to the proposed development and have potential to be significantly affected by the proposed development and summarises the sensitivity to change.

Table 4: Landscape Baseline

Character Type (Vol 122)	Distance (min/max)	Sensitivity to change
Igneous Hills – Sidlaw Hills	0-20km+	Medium – High
Broad Valley Lowland – Strathmore	2.5-20km+	Medium– High
Firth Lowlands	4-20km+	Medium – High
Designated Landscape		
AGLV	8-20km+	High - Medium
Historic Landscape (landscape Setting)		
Conservation Areas Within 5km	3-5km	High
GDLs Within 5km	3-5km	High
Application Site		
Landscape Fabric	0km	Medium

1.3.6 Visual Baseline conditions

The purpose of the visual assessment is to identify from where and how it may be possible to see any part of the proposed development and to determine how this would affect the visual resource. The extent of visibility is firstly considered within the ZTV

and then principally from a number of representative viewpoints that cover a broad range of sensitive viewpoints to represent different types of view and different types of viewer (ie visual receptors). Integral to this process is the need to define the existing visual character and sensitivity to change of the visual resource, which provides the baseline, against which the assessment of effects can be made.

Extent of Visibility

The computer generated ZTVs to hub height (33.2m) and blade tip height (56.3m) (Figures 3 and 4) identify key stretches of the landscape, from where the proposed wind turbine may theoretically be visible within the defined 20km radius. The ZTVs have been prepared following the Visual Representation of Windfarms Good Practice Guidance (SNH). However it is important to note that ZTVs are tools for assessment and these are limited in several ways, including that, bare ground ZTVs make no allowance for any screening effects that may arise due to existing vegetation or built development (Figure 3). To limit this exaggerated impression, significant areas of woodland have been modelled into the terrain model to provide a more realistic impression of anticipated visibility, using woodland areas identified on the 1:50k OS base (Figure 4). The real extent of the ZTV will also be influenced further, by the subtle variations of landform and landcover that are not covered by the digital terrain modelling data (DTM).

Key Visual Receptor Groups

A range of visual receptors and receptor groups can be expected to be affected by the proposed development from both static and sequential points. These receptors will include, but not be limited to residents, travellers and those visiting the area for recreational, amenity and tourism purposes. The extent of the effect upon certain groups will then vary according to their level of sensitivity to the type of development. For the purpose of this assessment three key groups are identified: (1) local residents; (2) the travelling public; and (3) recreational visitors / tourists to the area. The baseline sensitivity of these groups is summarised in Table 1.

Representative Viewpoint Appraisal

The viewpoints presented in the LVIA, represent a range of visual receptors and view types, and have been selected following SNH Guidance. The viewpoint photomontages have also been taken from a range of publically accessible points, to cover a representative range of viewing distances, elevations and orientations, with different viewing experiences. The micro-siting of viewpoints in the field has, sought to maximise an open and clear view where available, whilst still representing an identified 'key receptor group' for the viewpoint in question.

A total of 7 viewpoints were selected for assessment and agreed in consultation with PKC (Figure 3). The viewpoints are detailed below in Table 5 along with the sensitivity to change. The visual characteristics are then provided in section 5 with a description of the magnitude and extent of effect.

Table 5: Representative Viewpoint Baseline

VP	Location	Grid Ref	Distance	Key Receptor Grp Static*/Sequential**	Sensitivity to change
1	B953, access to The Ford (Core Path 145)	323676, 732147	0.9km	Travellers**	Medium - Low
2	Lochton, Gallows Knowe	325236, 733649	1.4km	Residents *	High

VP	Location	Grid Ref	Distance	Key Receptor Grp Static*/Sequential**	Sensitivity to change
3	B953 adjacent to Core path 129	324456, 732382	0.8km	Travellers**	Medium – Low
4	Carseview Cottage, Littleton	326508, 734186	2.8km	Residents *	High
5	A90, junction to Longforgan	331530, 730219	8km	Travellers **	Medium – Low
6	Auchterhouse Hill, footpath	335185, 739393	12.9km	Visitors - walkers **	High-Medium
7	Kings Seat Summit	323086, 733001	0.9km	Visitors – walkers at summit *	High

1.4 Construction Effects

1.4.1 Landscape Effects

There would be some temporary (2 – 3 months) effects on the landscape fabric of the site as the result of ground disturbance during the construction phase. This would include minor earthworks for sections of the access track, the turbine base and a borrow pit. These elements would not involve the removal of any notable landscape features or characteristic elements and would be visually contained within the site. Existing vegetation would, therefore, be retained. This will help to moderate the effect on the site fabric and its contribution to the wider landscape context. As such there would be no adverse effects on the existing landscape fabric of the site.

With regard to the wider landscape character of the study area, it is anticipated that there would be no significant effect on the key characteristics of the surrounding LCTs until the later stages of construction when the turbine is more visible from these areas. These operational effects are dealt with separately in Section 1.5.

1.4.2 Visual Effects

Site activity would inevitably be visible from locations within proximity to the site. Principally, effects during construction would arise from the presence of plant used to construct the access track, cable trenches, turbine foundation and crane pad, for the construction of the control building and for the progressive erection of the turbine. The presence of this machinery on site would only be temporary.

Whilst there would be a degree of visual disturbance arising from construction activity, the proposals aim to minimise disturbance to the land itself and careful thought has been given to the detailed siting of the turbine and borrow pit in order to minimise potential disturbance to the physical landscape and the effect on views. The access track would also be contained, within the existing site undulations and would otherwise be integrated, where necessary, with minor earthworks, which would tie into the existing landform character with natural flowing contours. As a result of their temporary nature, construction effects are judged to be considerably lower than those during the operational phase of the development and there would be no significant effect. The operational effects are dealt with separately in Section 1.5.

1.4.3 Mitigation Measures

The inherent characteristics of wind turbines suggest that the opportunity for incorporating mitigation measures within the development, to minimise the effects upon the landscape and visual resource, are limited. The principal opportunity for incorporating mitigation into the scheme has evolved, therefore, during the scheme development, where a number of turbine locations and sizes were considered within the site.

In relation to landscape and visual issues, the final turbine location as selected at a low point of the site to help anchor and screen the turbine base from views. This would help to integrate the turbine, primarily within its immediate site context and limit imposition on local residents.

1.4.4 Predicted Residual Effect

As noted above, the potential effect on the site fabric is considered to be insignificant. Potential effects would also be minimised by using the existing site tracks on site as far as possible and would be short-term. Good site management plus reinstatement at the end of the construction phase would minimise the extent and duration of these effects

1.5 Operational Effects

In the medium term, during the operational lifetime of the turbine, the principal landscape and visual effects would come from the presence of the turbine and the movements of the blades. There would also be occasional vehicle movements for maintenance but these would not be a significant factor. The judgements made regarding the landscape effects below are based on the operational effects of the development as these would be the more enduring, although still temporary, given the anticipated operational lifespan of the wind turbine.

1.5.1 Landscape Character

Igneous Hills LCT

The development would be situated within a central section of the Igneous Hills LCT. This linear LCT extends across the Sidlaw Hills and covers most of the immediate landscape context, particularly to the east and west. It is therefore the LCT most susceptible to affects from the proposal.

As the ZTVs indicate, the potential for a notable visual exposure is limited. The principal area of visibility would be contained within the immediate slopes to the east of the Kings Seat and within 1.5km, extending up to 3km to the east. More extended visibility would be limited to isolated high points to the east, including Scotston Hill, Auchterhouse Hill and Craigowl Hill at 12km. At these points, views would be limited typically to the blade tips. Elsewhere within this LCT, the visual exposure would be limited. This is due to the prominence of the characteristic landform and notable coniferous plantations.

Where the turbine is visible it would provide a new focus in the immediate context within 1.5km and up to 3km to the east. However, from most points beyond 1km to the north, it would appear largely to the rear of intervening landform variations and would be nestled into the local hillside at a noticeably lower point to the surrounding landform

to the north and west. These elements help to contain the visual profile of the proposed turbine. In turn this would also reduce the potential to affect the more distinctive profile of higher slopes, summits, and the setting of any important landscape features and monuments, which form the key character of the LCT. It would also help to limit the potential for notable or distinct skylining and “*disruption to the principal ridgelines*” as defined in the Angus Draft SPG, for Renewable Energy Implementation.

In the wider context of the LCT the proposed turbine would also contribute to an emerging pattern of dispersed single wind turbines at intermittent high points within the Sidlaw Hills and would add to the scale relationships that exist between various built and natural characteristics. Given the contained nature of visibility and the scale of the intervening landform the consistency and strength of characteristics, the addition of a further single turbine would not fundamentally alter the key characteristics of this LCT.

The magnitude of change on the characteristics of the LCT is therefore considered to be Medium within 1.5km and up to 3km to the east and Low to Negligible elsewhere. When combined with a baseline sensitivity of Medium to High, the extent of effect on Igneous Hills is judged to be Moderate within 1.5km and up to 3km to the east. Elsewhere, and from the large majority of the area, the extent of effect would be no more than Minor, with no significant effect on the general scale, simplicity and wider pattern of key characteristics of moderate value.

Effects on Surrounding LCTs

The ZTVs (Figures 3 and 4) indicate that intervisibility between the Glenbrann wind turbine and the surrounding character areas is very limited. Where visibility would be present it would be restricted to isolated patches of open farmland. Within the Broad Valley Lowland LCT this would stretch between 10-14km to the north east between Meigle and Alyth and will only be to the extended blade tip. Within the Firth Lowlands LCT this would stretch between 7-10km to the east of Longforgan (VP5) and to the southeast of Inchture. At these points the turbine would be observed at varying degrees, to the rear of undulating landform patterns associated with the adjacent Igneous Hills LCT and therefore away from the focus and orientation of key characteristics across the low lying flat LCT. Where there would be visibility from the Upland Foothills in Fife, the turbine would be seen as a minor distant element across the expansive Firth of Tay with a substantial separation from the focus of characteristics in this LCT. As a result there is no potential for significant effect on the characteristics of the surrounding LCTs. This is summarised in Table 6.

1.5.2 Landscape Designation

There are a number of landscape designations within the study area. However, none exist within the context of the development across the Sidlaw Hills or lie within the principal areas of the ZTV (Figures 3 and 4). As a result there would be no notable visibility from these areas or potential to affect the qualities for which the areas have been designated. The proposed turbine, located at a clearly separate point and distance in excess of 8km, would not therefore undermine the integrity or setting of these areas. The overall magnitude and extent of effect is therefore considered to be insignificant. This is detailed in table 6.

1.5.3 Effects on Historic Landscape (Setting)

The majority of identified historic features within the study area are connected with the surrounding lower lying valley landscapes or the lower fringes of the Sidlaw Hills. They are also situated at contained points, beyond the principal areas of ZTV (Figures 3 and 4). As a result there is limited potential for effect on their setting within the wider landscape. The underlying nature, setting, sense of place and historical focus of these areas will thus remain intact with the turbine proposal being physically, culturally and visually separate from these areas. The potential effects on the actual designated areas are discussed in more detail within the Cultural Heritage section of the main report.

1.5.4 Landscape Effects Summary

The landscape assessment has shown that effects on the landscape and its characteristics would be limited in extent and significance. Where they do occur they are limited to the immediate contained sections of the Igneous Hills LCT within 1.5-3km. While the turbine would create a new focus at these isolated points, it would only provide a minor focus with no adverse affect on the wider scale, focus, integrity or setting of key features. It would also relate to an area of existing wind turbine influence and it would not, therefore, be out of place with other elements in similar sections of the landscape. This is summarised below in table 6.

Table 6 - Landscape Effects

Character Type (Vol 122)	Sensitivity to change	Intervisibility with the site	Magnitude of Effect	Extent of Effect
Igneous Hills – Sidlaw Hills	Medium –High	Medium - Low	Medium 1.5-3km Low- Negligible	Moderate 1.5-3km Minor
Broad Valley Lowland – Strathmore	Medium –High	Low- Negligible	Low- Negligible	Minor- Negligible
Firth Lowlands	Medium –High	Low	Low- Negligible	Minor
Designated Landscape				
AGLV	High –Medium	Negligible	Negligible	Negligible
Historic Landscape (landscape Setting)				
CAs - 5km	High	Negligible	Negligible	Negligible
GDLs - 5km	High	Negligible	Negligible	Negligible
Application Site				
Landscape Fabric	Medium	-	Low	Moderate - Minor

1.5.5 Principal Zones of Theoretical Visibility

As the ZTVs (Figures 3 and 4) illustrate, the extent of visibility would be limited due to the notable variation in landform in the immediate context surrounding the site. The principal zones of visibility would be concentrated within an isolated, visually sheltered section of the Sidlaw Hills to the east of the Kings Seat Hill, with notable visibility restricted to generally to within 1.5km and up to 3km to the east. More extended visibility, would then be found principally at isolated high points, along the Sidlaw Hills at to the east. Elsewhere notable visibility would be considerably limited. As a result the potential for visual exposure would be limited to just the immediate context, with landform variations positively assisting in screening the proposed turbine from most of the surrounding low lying settled landscapes

1.5.6 Representative Viewpoint Effects

The analysis detailed in Table 7, refers to the potential visual effects on the 7 representative viewpoints identified in the baseline. To help understand the assessment, reference should be made to the existing panoramas, wireframes and photomontages (Figures 5 to 11), which illustrate the existing and proposed view from each location.

Table 7 – Visual Effects

No	Location	Baseline Sensitivity	Visual Effect	Magnitude of Visual Change	Extent of Effect
1	B953, access to The Ford (Core Path 145)	Medium - Low	From this local point to the south, on a minor road, a short ascending view extends north to an open, moderately flat skyline. This local landform curtails any further views to the north. The intervening view is characterised by open fields with isolated field boundary trees providing some focus within an otherwise simple context. From this point, the proposed turbine will be apparent, sitting notably to the rear of the local skyline with the hub and blades visible (Figures 5a-b). The turbine would therefore, sit beyond the immediate context of the view and would not visually conflict with the overall balance of elements in the wider view, with the Kings Seat landform providing a large sweeping scale to the north. This would represent a Medium to Low magnitude of visual change. The extent of visual effect will then be no more than Moderate to Minor when combined with a baseline sensitivity of Medium to Low for the key receptor group of travellers on the minor road with transitory peripheral views to the north. From other representative groups including the residents at The Ford, the extent of effect would be no greater given the change of focus, lower elevation and increased scale of local landform help to screen the turbine further, as indicated by the fringe location of the TVT.	Low - Medium	Moderate - Minor
2	Lochton, Gallows Knowe	High	The proposed turbine would only be intermittently visible from this local point to the northeast as it sits substantially to the rear of the local ascending foreground. As the wireframe (Figure 5a) illustrates, the hub and blade tips of the turbine would be evident in the view over bare ground. However as the photomontage (Figure 6b) indicates, the hub and lower sections of the blades would be typically screened by existing coniferous woodland, which it is anticipated to remain in place for the lifetime of the proposed development. Where visible in the wider view the blade tips would also be seen at a comparatively low elevation and to the side of the key focus of the view, which is defined by the notable landform of Kings Seat and Gask Hill. These provide clear elements of scale and height to the view. The turbine would, therefore, not be that distinct in the overall context and contribute to a Low to Negligible magnitude of visual change in a peripheral view from the local property, away from the key focus of views from the house. When combined with a High baseline sensitivity from the key receptors of local residents, the extent of visual effect will be no more than Moderate to Minor. When considering other receptors, most residents beyond this local point would be screened with no significant effect predicted. If the trees are removed then the visual effect would be increased but probably no more than Moderate given the scale of the surrounding landform features help to reduce the turbine prominence.	Low - Negligible	Moderate - Minor
3	B953 adjacent to Core path 129	Medium - Low	At this local point to the south on the B953 near to the start of the core path 129, the proposed turbine would just be evident above the broad, rolling farmland and conifer plantation that defines the short views to the north from this point (Figures 7a-b). This local variation in landform would then restrict views from the local section of the core path to the south of the proposed turbine. At this point the turbine would also be seen with just the blade tips intermittently visible, to the side of the more notable landform of Kings Seat which contains views further. This would limit the magnitude of visual change to Low. When combined with the Medium to Low baseline sensitivity from the key receptor group of travellers on the B953, the extent of visual effect is considered to be no more than Moderate to Minor. The potential for this type of view from other representative receptors along the southern section of the path would be limited by vegetation and local landform until the path runs close to the turbine to the north. This will limited the potential for notable visual effect at these points.	Low	Moderate - Minor
4	Carseview Cottage, Littleton	High	From this point at 2.8km to the northeast, a sweeping view stretches over rolling hills towards the distinctive landform of Kings Seat and further to Black Hill, which provide a key focus in the view. In this context the proposed turbine would sit beyond the immediate context of the view and just to the rear of intervening landform, with the full blade diameter visible (Figures 8a-b). From this point it would also be seen in front of Black Hill and just to the lower side of the notable change in landform connected with the Kings Seat landform, with some offset and separate focus from the hillside and its immediate context. While it would add a conspicuous element in the view, it would nestle in to the low hill slopes and would sit beneath the elevated skyline with no notable conflict with the hill summits and peaks. This would represent a Medium magnitude of visual change. When combined with the High sensitivity from the key receptors of residents the extent of visual effect is considered to be Moderate to Major from this isolated point. At other local points, views of this type to the west are limited with no further significant effect anticipated on any sensitive receptors.	Medium	Moderate - Major
5	A90, junction to Longforgan	Medium - Low	From this point on the A90, to the north of Longforgan, a view is channelled along the road to the west, with the elevated Sidlaw Hills providing notable landform features to the side of the view to the north. This view is also supported by the linear roadside embankments, which limit views to intervening sections of the landscape. At this point, the hub and blades of the turbine would just be faintly visible to the side of the road, wholly backclothed by the significant landform of Kings Seat (Figures 7a-c). This landform rises up to a much greater elevation from the turbine and consequently the turbine will have limited visual overlap or conflict with any distinctive hill summits or principle ridgelines. This would represent a Low to Negligible magnitude of visual change at these points to the southeast. When combined with a medium to low sensitivity to change from the key receptors of travellers on the A90, with glimpsed peripheral views to the north, the extent of visual effect is considered to be Minor to Negligible. Given the isolated point of visibility the opportunity for representative views at this point is fairly limited, with visibility quickly reduced from further points along the road and surrounding residential areas, by intervening landform, land cover with no significant effect anticipated.	Low - Negligible	Minor - Negligible
6	Auchterhouse Hill	High-Medium	At an elevated point of 12.9km to the east, the proposed turbine would barely be visible, with views to just the blade tip (Figure 10). The turbine will also sit substantially to the rear of the rolling slopes of the Sidlaw Hills and would be viewed at a lower point away from other notable peaks at Kings Seat and Gask Hill, with no notable conflict of elements. The turbine would also sit in the context of large, smooth rounded hills, with notable woodland blocks defining most of the view to the west. It would also be viewed alongside other existing tall structures including electricity pylons, telecommunications masts and an emerging pattern of other single wind turbines including the Scotston turbine to the north. The magnitude of visual change will, therefore, be Low to Negligible and the extent of effect will be Minor to Negligible when combined with a baseline sensitivity of High to Medium for the key receptor group of visitors on this section of footpath with just intermittent feeling peripheral views available to the west. While there would be slightly higher visibility from the summit of this hill the effect is not considered to be significant given the existing context.	Low - Negligible	Minor - Negligible
7	Kings Seat Summit	High	From a notable high point at 0.9km to the west, the lower, hub and blades of the proposed turbine would be clearly visible within the rolling farmland slopes at the foot of the hill (Figure 11a-b). It would also sit at a distinctly lower point from the hillside and away from the immediate context of the hill. While the turbine would provide a prominent new focus at a lower elevation, it would be seen wholly backclothed by the open rolling farmland and to the side of the upper slopes and principal ridgelines which define the Sidlaw Hills further to the northeast. As a result there would be no notable interruption or conflict with more distinctive landform summits or peaks. The turbine would also be seen with other single wind turbine influences at intermittent points across the Sidlaw Hills and also in the context of the urban influences of Dundee which define the distant skyline to the east. It would not therefore, entirely be seen as a new element in this section of the landscape. The magnitude of visual change is, therefore, considered to be Medium to High and the extent of visual effect Moderate to Major when combined with a baseline sensitivity of High for the key receptor group of visitors to this viewpoint.	Medium - High	Moderate - Major

1.5.7 Summary of Effects on Visual Receptors

The visual assessment shows that, geographically, the extent of significant visual effect would be relatively low. It would be restricted principally to isolated points within 1.5-3km. This would include isolated significant effects from the nearest residents at Glenbran, Balloleys and Littleton Cottages to the north, southwest and northeast, where open views are available towards the development. There is also likely to be some potential for significant effect away from the principal aspect of houses, within the curtilage and general approach to the properties at Stockmuir, South Latch, Lochton, South Lochton, Ballairdie and The Ford where parts of the turbine will be clearly visible in views away from the principal focus and orientation of properties. The proposed turbine would not, therefore, lie close to large numbers of properties, which would limit the potential effect on residential amenity to just these nearest properties. Most other properties are then orientated away from the proposed turbine and are typically screened by landform and landcover. This is evidenced by the limited extent of ZTVs in Figures 3 and 4.

The visual change as a significant effect would, therefore, be experienced by a relatively small number of people. From travellers on roads, this would also be limited with no significant effects predicted, with just fleeting views to the turbine to the rear of intervening landform from the nearest roads to the south, such as demonstrated by viewpoints 1, 3 and 5.

More extended visibility would be available from isolated high points across the Sidlaw Hills, which form a key focus for recreation and tourism receptors in the area. At these more distant points, the proposed turbine would be viewed mainly within far reaching panoramas across the elevated hills and generally as a minor element below the skyline. At these points it would also be seen in the wider context of other existing wind turbine influences, often at more prominent, elevated points within the Sidlaw Hills. Beyond these points, and from a number of the more intricate low lying settled, historic landscapes views would be notably restricted by intervening landform variation and urban form. This would include the majority of the tourist areas around the historic towns of Perth and Dundee and the network of core paths across the study area. Effects on visitors to the area, is not therefore considered to be significant.

The detailed viewpoint assessment has indicated a positive picture regarding the significance of effects upon visual receptors. In EIA terms, there would be significant effects of Moderate to Major at two local viewpoints. There are no Moderate significant effects predicted on the identified viewpoints. For the remaining five viewpoints assessed no significant effects were anticipated. When considered together with the effects on all relevant key receptor groups present at viewpoints and the limited geographical extent of the ZTV across the area, the overall effect on visual amenity is considered to be acceptable.

1.6 Cumulative Effects

The purpose of any cumulative assessment is to consider the potential effects upon the landscape and visual environments in relation to existing wind turbine developments and other known consented and proposed wind turbine developments in the area. It raises questions over thresholds of acceptable change (spatial and temporal) and the landscape's capacity to accept change. The 'Guidelines for Landscape and Visual Effect Assessment' (2nd edition, 2002) advises that "*cumulative landscape and visual*

effects result from additional changes to the landscape or visual amenity caused by the proposed development in conjunction with other developments (associated with or separate to it), or actions that occurred in the past, present or are likely to occur in the foreseeable future"

1.6.1 Scope of the Cumulative Assessment

The potentially significant cumulative effects arising from the proposed turbine would be confined to an area within which one or more operational, consented or 'in planning' wind farms are located within 20km of a defined sensitive receptor as noted above. This section does not consider the magnitude or significance of the effects arising from the individual cumulative developments, or all of them together, but looks at the additional landscape and visual effects arising from the proposed Glenbran Wind turbine, with one or more of the identified wind farms, on the identified study area.

As supported by the SNH publication 'Assessing the Cumulative Impact of Onshore Wind Energy Developments' (March 2012), there are a number of specific factors which can influence the extent of cumulative landscape and visual effects. These include effects on sense of scale; sense of distance; existing focal points and/or effects on the skyline.

1.6.2 Cumulative Effects Summary

Collectively, should all of the identified wind farms be built (Figure 12), they would result in a fairly regular built influence across the Sidlaw Hills, around Dundee and along the Highland fringes. As the Cumulative ZTVs illustrate (Figures 13-15), the cumulative theoretical visibility of the existing and proposed wind farm developments would extend across much of the study area. However, of note to the Glenbran LVIA the extent of combined visibility is generally limited, particularly at local points where the Glenbran turbine is prominent in views, primarily within 1.5-3km. This would limit the potential for notable cumulative effects on the pattern of landscape characteristics and on potential combined views, with the Glenbran turbine sitting in a slightly separate, contained section of the Sidlaw Hills to the west of other sites. Also of note to the LVIA the ZTV of most other developments extend across more significant geographical areas within the surrounding landscape with greater potential for visibility from the surrounding landscape. Given the contained context of the Glenbran turbine and the separation between different ZTVs, the potential for notable sequential visibility will also be limited.

This is evidenced further by the cumulative views from viewpoints 6 and 7 (Figures 10-11), which illustrate that where the cumulative turbines would be seen in combination, the proposed Glenbran turbine would sit at a separate, sheltered point in the Sidlaw Hills landscape, as a minor distant element, with limited potential for overlap, conflict or complexity between developments. As a result the Glenbran turbine would more typically be seen to strengthen the influence of wind turbines, without fundamentally altering the scale, balance, pattern and density of existing characteristics across the Sidlaw Hills. The cumulative effect on both landscape and visual receptors is not therefore considered to be significant.

1.7 SUMMARY

Following the landscape and visual appraisal, it is considered that while the proposed turbine would represent a new element in a small section of the Sidlaw Hills, it would largely be seen as an additional, comparably scaled, single feature alongside other notable built structures including existing wind turbines, which already provide key foci and built influence in this landscape. The location of this proposed turbine would also be positively screened from most points in the wider landscape, given the notable landform variation in the site context. This would help to limit the potential for significant visual intrusion on the lower lying more settled and valued areas and potential conflict with the wider pattern of distinct landscape elements.

Although the proposed turbine would bring some local significant effects on the landscape and visual resource, these are considered to be relatively slight, in the context of the wider study area. The turbine and its location within a sheltered hillside location is, therefore, considered to be appropriate, given the character of the receiving environment. Moreover, whilst the proposed wind turbine would bring about acknowledged changes these would be wholly reversible, given the turbine's anticipated life span of no more than 25 years.

1.8 REFERENCES

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- SNH Review No. 122 - Tayside Landscape Character Assessment (LCA) and
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ECOLOGICAL ASSESSMENT OF SINGLE WIND TURBINE AT GLENBRAN FARM

For Realise Renewables LLP
23rd November 2012

NOTE

The full copy of this report will be made available to the members of the Local Review Body. However, due to the nature of the report it has not been published.

Glenbran Farm Wind Turbine

Environmental Report

Volume 1 of 2



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Note:

* Figure in appendices only, separate from text in report.

** Figure with text in report **AND** in appendices, separate from text.

EXECUTIVE SUMMARY

This Environmental Report (ER) has been prepared to support a new planning application to be submitted to Perth & Kinross Council (P&KC) for the development of a single 500kW wind turbine up to 33.2m hub height (56.3m to blade tip height) at Glenbran Farm, approximately 2.5km north west of Abernethy.

An earlier application was refused by the Council in February of this year (Ref 12/02151/FLL) for the following reasons:

1. *As the proposed turbine will have a significant adverse impact on the visual amenity of the area, which is presently enjoyed by a host of receptors including (but not exclusively) visiting recreational users, the proposal is contrary to Policy 1 of the Perth Area Local Plan 1995 (Incorporating Alteration No1, Housing Land 2000), which seeks to protect existing (visual) amenity from new developments within the landward area from inappropriate developments.*
2. *As the proposal will have a detrimental impact on the landscape associated with Kings Seat, the proposal is contrary to Policy 1 of the Perth Area Local Plan 1995 (Incorporating Alteration No1, Housing Land 2000), which seeks to ensure that new developments do not cause unacceptable environmental impact.*
3. *The approval of this proposal would establish an undesirable precedent for similar sized developments within the local area, which would be to the detriment of the overall visual character of the area, and which in turn could potentially undermine (and weaken) the established Development Plan relevant policies.*

Whilst disappointed by that decision the applicants consider that the submission of additional information in relation to siting, design, landscape, and economic justification, can enable the Planning Officer to be reassured in his assessment that the proposal would fully accord with the Development Plan, would have an acceptable landscape setting and would not establish any precedent which would be detrimental to the amenity of the area.

In particular the applicants seek to:

- provide a fuller explanation of economic importance of proposal as a farm/business diversification proposal;
- provide clarification in relation to the choice of siting;
- provide additional wireline detail to respond to Landscape Officer's comments, particularly in relation to potential visibility from the south; and to
- provide clarification of constraints within Sidlaw hills would render concerns of precedent unlikely or unrealistic; and
- demonstrate that the proposal would accord with current Government Planning Guidance in relation to renewable energy developments.

Proposal

The turbine is being developed by Messrs. A & G Young, owners of the land, and the purpose of the proposal is to provide a more secure and sustainable supplementary income to the Glenbran Farm business.

Planning permission is being sought for 25 years for:

- A single wind turbine, up to 33.2m hub height; 56.3m in height to blade tip is proposed.
- Associated infrastructure including: foundations, access tracks, control hut, cabling and construction-related laydown areas.

Policy Context

This report concludes that the proposed single wind turbine development complies with all the relevant national and local development policies and policy guidelines, and together with other specific assessments, demonstrates all key planning considerations have been addressed.

The report reviews the following specific areas:

POLICY - Relevant planning policy and guidance can be seen to provide support for wind turbines proposals where impacts on areas of visual sensitivity; noise; electro-magnetic interference; roads; bridges and traffic; aircraft; flight paths/MOD operations and cumulative effects are all found to be acceptable. This report fully assesses all those detailed considerations and concludes that the landscape can accommodate the proposal without any material detriment to local amenity. Furthermore, a full review of Scottish Government's planning guidance will show support for the sort of fully justified on-farm, diversification proposal proposed. It will be shown that the proposal for Glenbran Farm is an important farm diversification initiative, is critical to the future viability of the business; would accord with the approved Development Plan policy objectives and would fully satisfy the specific wind energy supplementary guidance of Perth & Kinross Council. When weighed 'in the round' it will be shown that these other material planning consideration may outweigh any previously perceived landscape detriment.

ECONOMIC BENEFITS - The role of the turbine will be to provide an additional sustainable income, one which is independent of a reliance on fossil fuels and less affected by their rapidly rising costs. This extra income will help preserve profit margins and allow a competitive position in the Garden Centre supply market to be maintained. This will safeguard up to 45 jobs that are dependent on the businesses. It will also allow greater financial freedom to further develop and expand business activities. Further information will be presented to demonstrate the direct benefits to the applicants businesses and to the local economy which would follow on from the implementation of a planning approval.

CONSULTATION - Consultation measures undertaken have been satisfactory for a project of this size. Statutory consultee comments have been taken on-board and have helped to shape the final proposal. Local, neighbours and community councils have been informed about the proposal. It should be noted that the previous planning application did not generate the submission of any third-party letters of objection; nor objections from key consultees. Cognisance has been taken of the *concerns* previously raised by the Council's Landscape Officer. Additional wirelines are presented to illustrate the lack of visibility of the proposed turbine in the serial views along the A90 transport corridor.

ACCESS - Efforts have been made to minimise the necessary civil works. The site is accessible to construction traffic and abnormal loads, while causing minimum interruption to public roads during the construction phase. In addition, the site is large enough to accommodate the development without significantly affecting the current land operations.

LANDSCAPE - Given the character of the receiving environment, the turbine and its location within a sheltered hillside location are considered to be appropriate. The proposed turbine will be set at a relatively low level in the landscape and will not be on any prominent ridge or hill. The wireframes

included in the LVIA also demonstrate that any impact on the skyline when viewed from identified receptor locations will be of relatively low significance.

CUMULATIVE WIND DEVELOPMENTS - Cumulative effects of wind development at the site have been assessed as part of the LVIA. As the cumulative visualisations illustrate, the cumulative theoretical visibility of the existing and proposed wind farm developments would extend across much of the study area. As a result, the Glenbran turbine would more typically be seen to strengthen the influence of wind turbines, without fundamentally altering the scale, balance, pattern and density of existing characteristics across the Sidlaw Hills. The cumulative effect on both landscape and visual receptors is not therefore considered to be significant.

CULTURAL HERITAGE - It is considered by Historic Scotland that although some visual impact is likely upon the nearest Scheduled Monument, the magnitude of the proposed impact is not of a level to raise significant concerns from a historic interest. This is also demonstrated as part of the cultural heritage assessment.

ECOLOGY AND ORNITHOLOGY - The site is free of any key environmental designations and for the size and magnitude of the proposed wind turbine scheme, overall effects on ecological and ornithological interests are considered to be minimal.

HYDROLOGY - Any impacts on water quality are only predicted to occur during the construction phase. Mitigation measures (if required) undertaken throughout the construction phase will be carried out in accordance to relevant SEPA guidance and legislation.

NOISE - Noise emissions associated with the operation of the proposed wind turbine are considered unlikely to cause any loss of amenity to the occupants of the nearest properties, and meet the requirements of the ETSU-R-97 noise guidance.

SHADOW FLICKER - Shadow flicker has been shown to have no actual impact on any residential amenity, and adheres to the relevant Scottish Government guidance.

OTHER CONSIDERATIONS - Various technical constraints have been investigated, including aviation impact, EMI microwave link and television interference, and underground services. All constraints investigated are unlikely to cause any operational problems; for the smooth running of the turbine and local residents' considerations.

In summary, it will be shown that landscape impacts and other detailed planning considerations would be satisfied by the proposed wind energy scheme. Consequently the proposal can be seen to accord with the Perth & Kinross Council Development Plan and all other relevant material planning considerations and planning permission should be granted.

1 INTRODUCTION

This Environment Report (ER) has been prepared to support a planning application submitted to Perth and Kinross Council (P&KC) and to address the local environmental effects of the proposed development of a single 500kW wind turbine at Glenbran Farm.

The ER details the supporting information for the proposal and should be read in conjunction with the A3 figure appendices.

1.1 The Applicant

The applicant (and developer) Messrs' A & G Young, are the owners and operators of Glenbran Farm where the proposed development will be installed.

1.2 Contributors

The Realise Renewables personnel who have been involved in this study are:

- Sanjay Chundoo, Consultant: Main report, GIS mapping
- Clint Betteridge, Project Manager: Report review, noise assessment
- Mark Jennison, Project Director: Planning review and overall review

Other associate personnel who have been involved in this study are:

- Skorpa Consultancy: Dr Ian Hulbert - Ecology and Ornithology Assessment
- Atmos Consulting: Andy Jones - Landscape and Visual Impact Assessment

1.3 Project Background and Economic Benefits

The applicants are Messrs' A & G Young who will own and operate the turbine. They are proposing a wind energy project on land which they own at Glenbran Farm, approximately 2.5km north-west of Abernethy (Figure 1). The output of this scheme would be up to 500kW and consist of one wind turbine, up to 33.2m hub height (56.3m to blade tip height).

The proposal would generate sufficient energy to power the equivalent of more than 300 households per year and displace the equivalent of 614 tonnes of CO₂ emissions per year from conventional forms of electricity generation.

The purpose of the proposal is to provide, through the Government's Feed-in Tariff, a secure and sustainable supplementary income to the farm and plant Nursery business operated by the applicants. The FIT scheme is aimed at supporting the development of small scale renewable projects and to encourage people to be part of the green energy revolution.

The turbine will be of benefit to both the farming business at Glenbran Farm and the wholesale plant nursery located at Newbigging Farm - a site unfortunately unsuitable for a wind turbine development. Both the farm and the nursery are coming under pressure due to dependence on fossil fuel for heating, transport and plastics and the associated large increases in the cost of these inputs.

The role of the turbine will be to provide an additional sustainable income for both businesses, and, as high energy users, to protect them from the effects of rapidly rising costs. This extra income will help preserve profit margins and allow a competitive position in the Garden Centre supply market to be maintained. This will safeguard the 45 jobs that are dependent on the businesses. It will also

allow greater financial freedom to further develop and expand business activities. The project will also offset a large part of the businesses carbon emissions together with complimenting the carbon capture element of the thousands of hardwood trees that have been planted at Glenbran since the farm was purchased.

The applicant is firmly of the view that the proposal would deliver sustainable economic development in an environmentally acceptable way, consistent with both Scottish Government (see below) and the Council's objectives for renewable energy development.

Economic Justification

In his Report of Handling the Case Officer previously indicated that insufficient evidence had been presented to outweigh the visual concerns he then had with the proposal. The visual and landscape impacts will be separately appraised later in this Report but **new and additional** information relating to the energy use of the business, its vulnerability to rising costs, the need to remain commercially competitive and the opportunity to maintain viability are now presented and provide an economic justification for this project. This important information is set out below:

- The farm itself is run by the applicants and comprises 350 acres, predominantly operating as an arable based farm enterprise with some permanent grazing. In addition and within the Farm, the applicants operate a wholesale plant nursery business supplying stock throughout the Northern UK.
- The Farm provides permanent employment for 2 workers together with many temporary employment opportunities generated by seasonal farm operations.
- The Nursery business has been established since 1980; has operated from its current base within Newbigging farm, Grange, since 1992 and is a year round commercial operation. This business is an integral part of the applicants farming operation and provides full-time, year round employment to 10 staff with an additional 10 full time posts during the busy summer season. The Nursery operates with 2 full time drivers with an additional 3 drivers in the busy summer months; and employs up to 20 additional regular seasonal staff on a varying hours basis during those busier months.
- On this scale the farm and nursery business can be recognised as an important and major local employer in this part of rural Perthshire.

The businesses are dependent on fossil fuel for heating, transport and ancillary plastic products. Significant increases in energy costs over the last two years have been incurred.

With a business based on growing and distribution the applicants have struggled to readily absorb those additional high capital cost. Responding to those costs through an increase in market prices would threaten their commercial competitiveness.

The applicants have carefully appraised their businesses and concluded that the Governments Feed-in Tariff scheme provides a commercial opportunity to 'cushion' the farm and nursery enterprises against those rising energy related costs. In this way the proposals would assist commercial viability and safeguard the trading position of an important and significant local employer.

To assist the Planning Officer's understanding the applicant has taken the time to explain more fully the importance of the proposal as a farm and business diversification project. The applicant's comments on this issue are set out below:

Employment:

The income support that would be provided by the turbine will allow us to continue to run the business on lower margins and thus safeguard the 40-45 jobs we provide - the majority of which are held by local people. Whilst I acknowledge that the visual impact of the turbine is an important consideration this cannot be the only or primary consideration. Surely the impact of the turbine must be weighed against the employment we can continue to provide for the local area?

Fuel Costs:

Nursery glasshouses are heated by LPG. The LPG cost is only one of the inputs to the nursery business that are fossil fuel based. We also use a lot of diesel for transport, plastic trays to grow the plants in, plastic labels and plastic packaging - all oil based manufacture items. These costs represent over a quarter of our turnover but are rising faster than inflation and our selling prices due to the fact that they are non-renewable resources and subject to environmental taxation.

Business Response:

The obvious answer would be for us to raise our selling prices however the recent and continuing consolidation of both the Garden Centre and Nursery trades have left much bigger and far fewer players in the market. The result of this is that bedding plants have become a commodity, and of course the selling price of a commodity is set by the market based on supply and demand and not by the cost of production. If we raise prices we seriously risk pricing ourselves out of the market.

Future Plans

A further and more forward looking point is the continuation of our employment creating business beyond the current management. Now in our mid-50's we are looking to bring in the next generation of our family to run the business. Within the projected financial model of the turbine the next 10 years will provide an income which will fund the long term training required to give the next management team sufficient experience to take over. The final 15 years of the turbine, after the loan is repaid, will then allow us to begin to retire from the business without us placing an undue financial strain on the new management team and lead to the long term continuation of a sound business providing employment in the Carse of Gowrie.

Conservation Principles

Generating an income stream from a renewable resource will support the business margins and also significantly reduce our carbon footprint, and goes hand in hand with the positive conservation measures we have adopted in recent years such as the 1000's of hardwood trees we have planted at Glenbran which will act as a carbon sink.

One further point of note is how carbon emission and global warming is affecting our business. In most of the climate change models that have been produced, the northern British climate is forecast to become wetter and windier. This has a bad effect on the nursery business which relies on good weather to get people out gardening and buying plants. Although poor weather has had an adverse effect on the whole gardening industry over the last three years, people do still wish to garden. However windier is better for the operation of wind turbines. The opportunity presented by the Feed-in tariff scheme would enable us to

balance the business as a whole. Ironically it is the effect of burning fossil fuels that is burdening our business whilst at the same time that same effect is now presenting the opportunity to commercially invest in wind turbines and so provide a financial support to our business.

Future Pressure:

The economics of a small scale mixed farming unit of the size of Glenbran is very marginal. Without the support of agricultural subsidies in the form of the Single Farm Payment (SFP) viability at Glenbran, a traditional Perthshire family farm embracing traditional land management practices typical of the area, would be compromised. It is the current policy within the EU to gradually reduce the dependence of agriculture on subsidies.

The profitability of the traditional farming rotations are unlikely to be adopted where sustained commercial losses are encountered. In the absence of subsidies the commercial pressure on small farms such as Glenbran is likely to be to change land management practices through using land more intensively- ie forestry, vegetable netting, pig-arcs or chicken sheds. This in turn would adversely influence the appearance of this part of the countryside.

The appellant regards the wind turbine proposal as the *enabling mechanism* that can deliver increased competitiveness to the farm and nursery business whilst sustaining the long-term viability of those enterprises. In turn this would sustain a significant number of local jobs and enable future planned investment in training and management of the family Nursery to pass on to a new generation of family members.

The farm and nursery are also major energy users. The applicant considers that the proposal is an opportunity to: (i) offset rising operational costs by taking advantage of new and secure economic opportunities provided by the introduction of the feed-in tariff scheme; (ii) embrace the Scottish Governments aspiration for the generation of more renewable energy; and (iii) be consistent with Scottish Governments drive towards the decentralisation of energy generation through investment in ownership of renewable energy developments by communities and small businesses in rural areas.

In a responsible way the applicant has appraised his business and seeks to provide, by way of investment in a single wind turbine, a further farm diversification initiative. This turbine proposal represents a significant capital cost to the applicant's business. The progression of the proposal, even through the planning stage, has entailed considerable costs and risks with no certainty of outcome. However in the opinion of the applicant further, significant investment can be justified as a means of securing the long-term viability of the farm and nursery.

The appellant has used local professional consultants in assembling this project (Perth based); would use locally based turbine contractors for erection and future maintenance (Perth based); and intends to use local construction and ground work companies for the construction of access tracks and foundations and ancillary works. This is a sizeable construction project of significant worth to the local economy.

Whilst the appraisal section of the previous Report of Handling makes clear that landscape and visual impacts are key considerations in the determination of any new development proposal, the applicant's position is that this should not be the only or necessarily the primary consideration. Each case is required to be dealt with on its individual merits and in this case the economic

importance of this proposal to the local economy and the operation of two successful local businesses run by the applicants and their long term future must be accorded *significant* weight.

In these challenging economic times the proposal represents a significant capital cost for the applicants businesses. It would however provide an additional and critically important income stream.

1.4 Project Location

The application site is planned to extend to approximately 0.5 hectares, with the turbine located at:

- NGR 323959, 732990

The location of the single wind turbine at Glenbran Farm is proposed to be positioned in the field, approximately 650m south of the housing area at Glenbran Farmhouse.

The position of the proposed turbine is approximately 218m AOD and is situated in an open arable paddock flanked by a number of hedgerows, and is just over 680m north of the B953. Hills rise approx. 500m to the west of the proposed wind turbine location and as such any turbine would not be on a prominent ridge. The turbine is located near the centre of the site boundary and with the land rising towards the northern and southern aspect of the boundary is situated at a lower elevation. The Glenbran turbine would become part of the main farming activities by producing electricity in order to export to an off-site grid connection.

The proposed site location is shown in Figure 1 below.

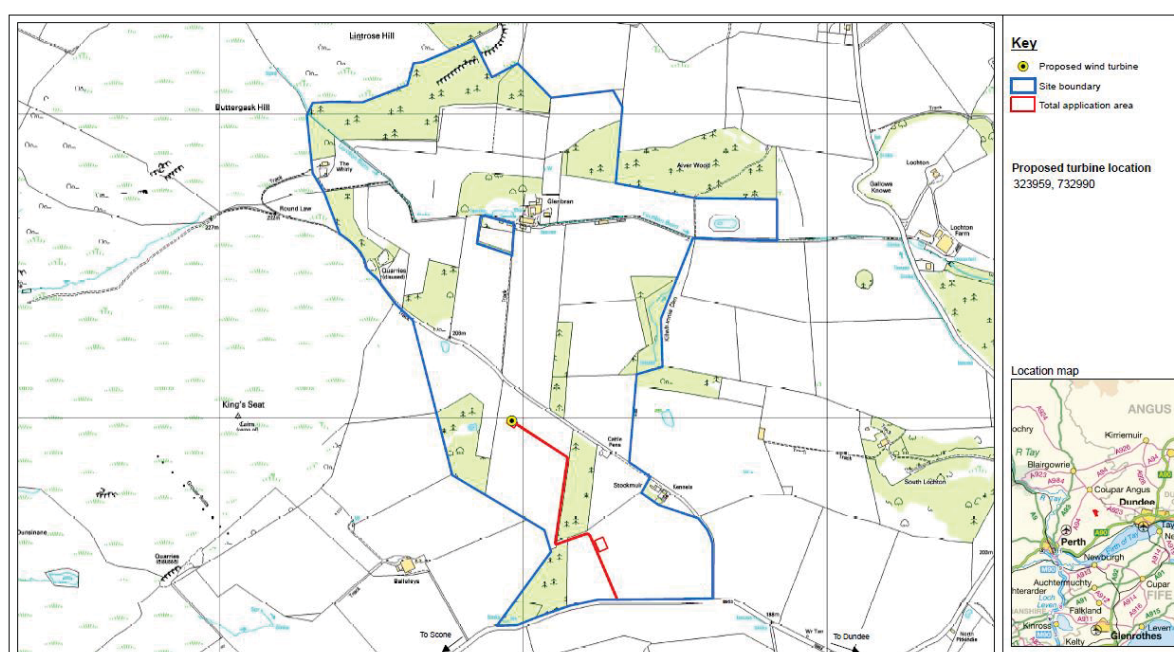


Figure 1: Site Location (full size version available in appendices)

In response to the Landscape Officers comments on the previous planning application the applicant has, in a constructive way, explored the potential for micro-siting to improve the juxtaposition to King Seat hill. This has proved impractical for several reasons:

- Established and new woodland copse features to the south and west of the site would require removal to ensure a free flow of wind and the removal of turbulence. Those woodland features have biodiversity interest which would be lost through removal. In addition their continued presence would provide an element of screening to the new turbine and help to assimilate the structure in the landscape;
- The chosen site, occupying a small plateau is within an area of 'shadow' to Leuchar's air base radar. Consequently no objection has been raised by MOD to the current site. Re-siting on the lower slopes of the hill or to the west of the site would expose the turbine to radar coverage and be likely to raise an objection from MOD on grounds of detriment to operational flight safety.

1.5 The Application

Planning permission is sought for:

- One wind turbine, up to 33.2m hub height; 56.3m in height to blade tip.
- Associated infrastructure including: foundations, access tracks, control hut, cabling and construction-related laydown areas.

These elements are illustrated in the Project Description diagrams and Site Layout map, which accompany the planning application in the A3 appendices.

Planning permission is sought for this development for 25 years, from the first generation of electricity on site; after which time the turbine will be removed and the site restored.

It is proposed that turbine components and erection equipment will be delivered along the B953 from the A90 near Inchtute. These roads have sufficient width to accommodate the large vehicles required to deliver the component parts for the turbine.

From the local road entrance to site, approximately 840m of new track will be required to access the location of the turbine. All access routes not on the public road will pass over land within the control of the applicant. It should be noted that in response to the previous application the Council's Transport Manager did not raise objection.

1.6 Pre-Application Discussions

A Pre-screening request was submitted to Perth & Kinross Council in August last year ahead of submission of the previous planning application to consider whether an Environmental Assessment would be required for the proposal. The Council confirmed in writing that the single 56.3m height wind turbine would not require formal EIA assessment, see Appendix 4(1). As this new planning application remains unchanged from that previously screened it is reasonable to conclude that this same single turbine proposal would also not be EIA development.

In discussion ahead of submission of the previous planning application the Council's planning department had indicated that a turbine of the scale proposed could be accommodated at the site. In addition to this, consultation with Andy Baxter of Perth and Kinross Council was undertaken and viewpoint locations agreed for the Landscape and Visual Impact Assessment on the 10/09/2012.

1.7 Scope of Environmental Report

Although not requiring formal assessment under EIA Regulations an appraisal of environmental impacts in sufficient detail to address the matters referred to in planning policy has been carried out. This environmental report covers the following issues:

- Site selection and design
- Project description
- Planning policy
- Landscape and visual impact
- Cultural heritage and archaeology
- Ecology and ornithology
- Hydrology
- Noise
- Shadow flicker
- Aviation, telecommunications, television, existing infrastructure and safety

2 SITE SELECTION & DESIGN

2.1 Site Selection

The possibility of installing a wind turbine at the application site was assessed as part of feasibility work undertaken by Realise Renewables in 2012. The site at Glenbran Farm has been selected as suitable for wind energy development due to its wind resource and proximity to the electricity grid.

A number of other environmental and technical constraints were considered during the site selection and project development process (see Figure 1a, Volume 2).

The proposed site benefits from a suitable commercial predicted wind resource. In accordance with the NOABL wind database the average annual wind speed on the site is calculated at 7.9m/s at 25m height. This data reveals a practical and viable opportunity for a *medium scaled* wind turbine proposal in this part of the Sidlaw Hills which could make a meaningful contribution towards the delivery of Scottish Governments Green Energy targets.

Conservation principles are at the heart of the Land management on the farm. To this end the applicants have undertaken within the holding, over time, significant new woodland planting and biodiversity initiatives and are committed to traditional land management.

It should be noted that the applicant's approach to this turbine project has not been one of development at all costs. Conservation principles have been respected through choice of site and design. The applicants are also residents of the area and as a consequence have sought to present a thoughtful and thoroughly researched proposal which could be sensitively integrated into the local landscape. Through careful choice of site and turbine this application would deliver for a local business, a modest wind energy development with limited impacts on local amenity, landscape, historic environment, natural heritage interests, and without giving rise to any significant cumulative impacts

2.2 Micro-Siting

Ancillary development will include a small control hut, crane and hard-standing areas beside the turbine, and underground cabling between turbine and control hut. Works will also be carried out to ensure access to the turbine site via new sections of track. A 25m micro-siting tolerance is sought for all proposed infrastructure features, subject to detailed ground investigations.

2.3 Environmental Appraisal

The design has considered the wind regime; technical and environmental constraints, including particular consideration of landscape and visual impacts. Considerations have included:

- **Environmental and Cultural Heritage:** The proposed development is out-with any landscape, cultural heritage or ecological designations whether of national or local importance. It should be noted that in response to a consultation on the earlier planning application Historic Scotland concluded that the proposal would not raise any issues of national significance and thus did not object to this application.
- **Distance from Residential Buildings:** A key consideration has been to ensure an acceptable relationship to nearby residential dwellings to mitigate issues such as noise, shadow flicker, and loss of visual amenity. A 500m residential exclusion zones from all properties was

adopted. The Council's Environmental Health Manager raised no objections to the previous application.

- **Access:** Efforts will be made to minimise the effects of necessary civil works. The site is readily accessible to construction traffic and abnormal loads and would be unlikely to cause and significant local disruption during the construction phase. It can be noted that the Council's Transportation Service raised no objection to the earlier application.
- **Available Land:** The site is large enough to accommodate the development without significantly affecting the current land operations.
- **Technical Constraints:** Various technical constraints have been investigated and key agencies consulted at pre-planning stage. It has been found in relation to noise, shadow flicker, aviation impacts, and EMI microwave link interference that an acceptable relationship to residential properties and key telecommunications equipment would be likely to result. It can be noted that in relation to the earlier application the Planning Officers Report of Handling these issues raised no concerns.

3 PROJECT DESCRIPTION

3.1 Site Layout

The proposed development would comprise the installation of a single wind turbine, foundations, control hut, crane hard standing area and access track. The footprint of the proposed site is small and will have little impact on the existing agricultural activity. Access to the turbine location from the public highway is obtained over land owned by the applicant. The proposed site layout is shown on Figure 2 below.

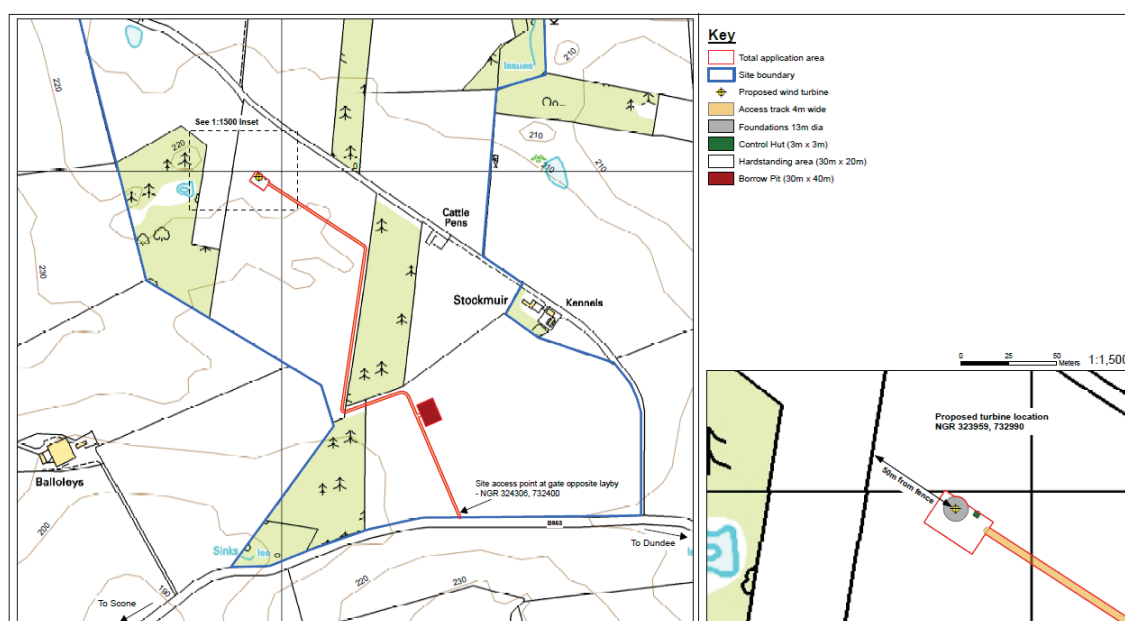


Figure 2: Proposed Site Layout (full size version available in appendices)

3.2 Proposed Wind Turbine

The applicant has identified a candidate turbine - the RRB Energy V47 - 500kW turbine. The key statistics of this turbine:

- Hub height: 33.2 m
- Rotor diameter: 47 m
- Maximum tip height: 56.3 m
- Number of blades: 3
- Length of blades: 23 m
- Output rating: 500 kW

Due to technological advances and turbine manufacturers constantly improving the efficiency and design of their turbines in a fast paced and evolving market, a candidate turbine has been used as the basis of the environmental appraisal. The applicant requires the flexibility to choose the most appropriate model for the site at the time of turbine purchase. Should planning permission be granted, the final turbine model selected will not exceed the proposed tip height, as set out in this planning application.

The RRB Energy V47 wind turbine is designed to produce renewable energy efficiently, reliably, safely, and quietly. The turbine is a 3 blade, horizontal axis, up-wind configured wind turbine. It is a geared machine, with rotor speed of 26.2rpm. The turbine has a hub height of 33.2m on a free-standing monopole and a rotor diameter of 47m, giving it an overall height to blade tip of 56.3m (see Figure 3).

The candidate turbine at the site is estimated to generate approximately 1,427,880kWh of renewable energy per annum; the equivalent of 303 households per yearⁱ and enough to displace the equivalent of up to approximately 614 tonnes of CO₂ emissions per yearⁱⁱ from conventional forms of electricity generation. This figure has been calculated, based on the estimated average wind speed at site and the RRB Energy V47 power curve data.

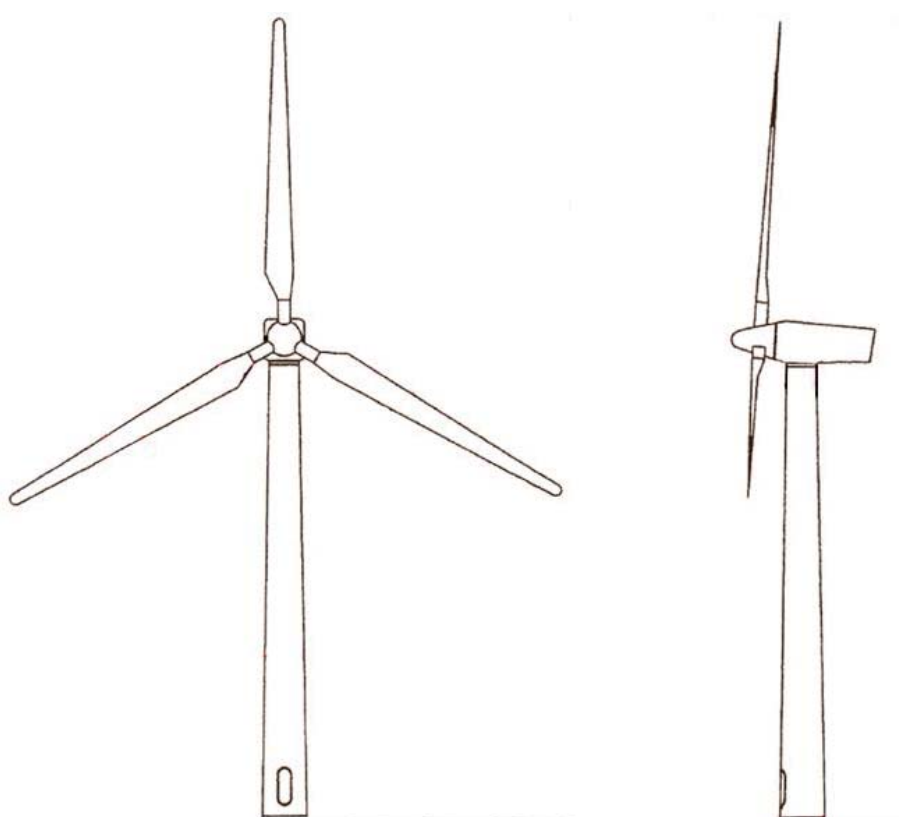


Figure 3: Side and front elevations of the proposed turbine

ⁱ Based on 'average' UK domestic electricity consumption of 4,700 kWh/pa, as used by Renewable UK.

ⁱⁱ Derived using a carbon dioxide offset ratio of 430g carbon dioxide per kWh of wind generation. It should be noted that future changes in the power generation mix and fuel costs in the UK over the life of the wind turbine, means this figure may change over time.

3.3 Foundations

The bottom of the monopole is bolted onto a reinforced concrete base, using heavy grade concrete with dimensions of 13m in diameter, and 1.8m depth installed below ground level.

Exact foundation requirements for this development will be officially assessed on-site prior to construction – indicative details of the foundations are included in the A3 figures.

3.4 Access

Turbine components and erection equipment will be likely delivered from the intended UK arrival port at Dundee, along the B953 from the A90 near Inchtute (see Fig 4). Initial transport assessment indicates no pinch points exist along the route for turbine delivery, with the only work required may be a small amount of access widening and clearance at the site entrance point. There is adequate length of road on both sides of the proposed new entrance way to allow for motorist visibility on to and away from the site.

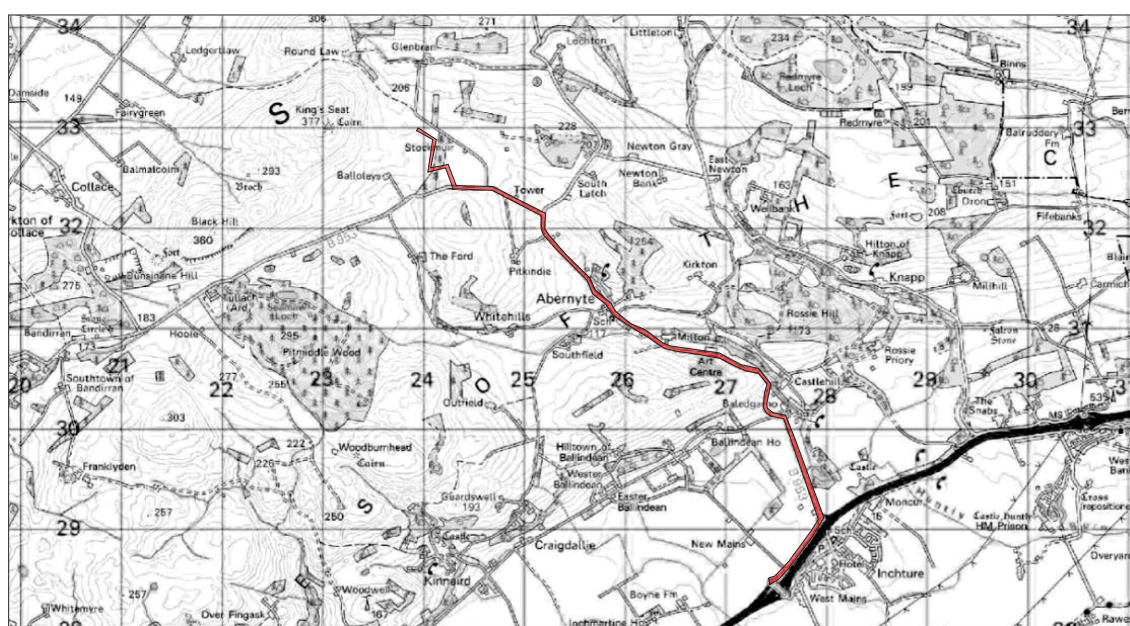


Figure 4: Access route to site

On-Site Access

The access track route is shown on Figure 2.

A new access track is proposed from the public road to the site, across the applicants land. This will also reduce potential interference on the local access road to the properties at Stockmuir, south east of the turbine location.

Access Point

The access point will require upgrading at the current gate position of the B953 to ensure adequate room for the larger turbine component deliveries. This will be achieved by excavating each of the grass verge edges, sweetening and strengthening with imported crushed stone.

Construction of New Track

The section of new track consists of approximately 840m through a forest clearing and two fields over the applicants land.

The track is required during the construction phase for the delivery of components by lorry into the site and to provide access for the movement of construction vehicles about the site. Post-construction, during the operational period of the proposed development, the track will provide access for operations and maintenance staff to service the wind turbines, and other infrastructure.

The exact final specification for the new access track will be approved by the wind turbine supplier or transport company, however the following is indicative of the type of road construction expected.

The full length of the new track will be excavated to 200mm with excavated material being stored in the field for later use to form the track verges. The new track will be formed by compacting 300mm of onsite borrow pit material and topped off with 200mm of compacted clean imported crushed stone (Typical track detail, Figure 5).

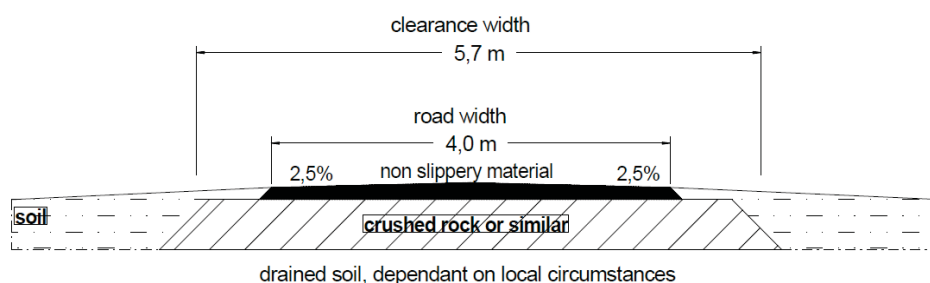


Figure 5: Typical access track section

3.5 Temporary Hard-standing area

A hard-standing area is required at the turbine location to provide a stable working platform, from which a mobile crane can assemble and erect the wind turbine. The hard-standing is also needed as a parking area and turning place for the transport and construction vehicles and for temporary storage of plant and equipment during construction.

The hard-standing will be finished as described for the tracks. Some parts of the hard-standing may be re-vegetated, retaining the capacity for future use, but minimising the visible extent of the works.

3.6 Control Hut

Turbine control facilities will be required within the site boundary, depending on the final optimised electrical design. The facility, will have a number of operational purposes, and can house equipment including, but not restricted to:

- Transformer & Switchgear equipment;
- Protective devices, telemetry and control interfacing equipment associated with the switchgear and transformer equipment;
- Network operator's metering and switchgear (at the site distribution voltage) as the point of connection to the grid system;
- Operator metering and switchgear (at the site distribution voltage);

The control hut will be sited next to the turbine, outside the turbine foundation area. It will consist of an approx. 3m high steel cabinet sitting on a 3m x 3m reinforced slab. The concrete for the slab will be poured on the same day as the wind turbine foundation.

Technical design considerations include:

- Proximity to the main site access routes;
- Reducing the on-site cabling requirements.

The control hut will be constructed to accommodate the facilities as described above. The exact dimension and detail of these will be decided following detailed electrical design and optimisation, which will be performed post-application.

3.7 Grid Connection

A cable trench will be dug between the turbine and control hut. Excavated material will be stored alongside the trench and reinstated after cable installation. The underground cables from the turbine would be brought together at the on-site control building, within the site boundaries. The on-site control and metering building is required to convert the voltage to 11kV, for transmission to the main grid connection point, which will be determined by Scottish and Southern Energy (SSE). An application for new connection will be lodged with SSE. The point of connection for the grid connection is expected to be made on the applicants land, close to the turbine site, however this will be confirmed by SSE at time of offer.

Trenches for cables and ducts shall be constructed in a manner in accordance with engineering good practice and to suit the ground conditions of installation. This shall include the appropriate use of cable identification and marking devices.

3.8 Construction Programme

The construction period would last for approximately 3 - 4 months, from forming the access track, through to erection of the wind turbine and commissioning. The indicative construction programme is shown in Table 1 below.

Activity	Duration	Timescale from Planning Consent (Months)			
		7	8	9	10
Roads, Hardstanding & Drainage	2 Weeks				
Foundation Excavation	1 Week				
Foundation Steelwork	1 Week				
Foundation Concrete	2-3 Days				
Control Building Construction	3 Weeks				
On-Site Cabling	1 Week				
Grid Connection	TBC				
Turbine Delivery	2 Days				
Turbine Erection	2 Days				
Turbine Commissioning	2 Days				
Site Reinstatement & De-Mobilisation	2 Days				

Table 1: Typical Construction Programme

3.9 Site Reinstatement

Temporary site construction elements, including the site compound and any temporary turning areas, will be removed and landscaped within six months from the date of final commissioning. The access track verges, cable backfill and area around the turbine base will be re-vegetated. The crane pad/hard-standing and access tracks will remain in place for any essential maintenance during the wind turbine operation period.

3.10 Decommissioning

At the end of the project's life (approximately 25 years) the site will re-instated. Wind turbine components will be removed from site, including electrical switch room and underground cabling. Generally, foundations will be removed to below the finished reinstated surface and re-seeded.

The decommissioning process would take approximately a month to complete. A decommissioning programme would be agreed with Perth & Kinross Council prior to the commencement of decommissioning works.

4 PLANNING POLICY

This chapter provides an overview of the most relevant national and local planning policy documentation which is applicable to a wind energy development of this scale. An application for the development of a wind project should be assessed in the context of national policy and guidance; the local planning authority development plan and supplementary guidance.

4.1 Scottish Planning Policy

Introduction

National planning policy is set out in the Scottish Planning Policy (SPP), which includes support for the development of a range of renewable energy technologies and spatial guidance for wind farms.

In support of this, The Climate Change (Scotland) Act 2009 requires Scottish Ministers to take advice in relation to the setting of annual targets for the amount of electricity generated from renewable resources. Current advice is now set out in the 2020 Route-map for Renewable Energy (2011) and commits to what Scottish Government identifies as a 'formidable but achievable' goal of 100% of electricity from renewable energy by 2020. More recently in October 2012, the Scottish Government have announced an interim target of 50% by 2015, indicating an expectation of strong continued growth in the immediate term for the sector. The increase in renewable energy generation is viewed by Scottish Government as a vital step in reducing Scotland's greenhouse gas emissions.

The importance of the cumulative value of small-scale wind energy developments towards achieving that goal is highlighted, indicating that this target should be met by a range of technologies and sizes.

The SPP advises that planning authorities should take national planning policy on renewables into account in preparing their development plan and that they should support the development of a diverse range of renewable energy technologies. Authorities should take a proportionate and practical approach to placing detailed policies on individual technologies in Strategic Development Plans, Local Development Plans or supplementary guidance. Through Development Plan policies and Supplementary Guidance, guide development to appropriate locations and provide clarity on the issues that will be taken into account when specific proposals are assessed.

Development plans should support all scales of development associated with the generation of energy and heat from renewable sources, ensuring that an area's renewable energy potential is realised and optimised in a way that takes account of relevant economic, social, environmental and transport issues and maximises benefits.

Comment on Previous Report of Handling in relation to SPP.

Whilst the previous Report of Handling touches on the broad objectives set out in this important Planning document, relevant key guidance has not been referred to. The effects of those omissions is that a narrow landscape focus to the approach of decision making was adopted in the previous case with insufficient weight given to *other important material planning considerations*. Namely the economic benefits arising from the proposal, its importance to an established rural business and its merits as a sustainable economic development initiative.

The following paragraphs from the SPP Guidance demonstrate the proposals consistency with recent Government Planning advice:

Development Management

Para 25 makes clear that planning decisions are required to accord with the provisions of the development plan unless material considerations indicate otherwise. It is advised that:

Where a proposal is in accordance with the development plan, the principle of development should be taken to be established and the process of assessment should not be used by the planning authority or key agencies to revisit that.

The previous Report of Handling concluded that the impact of the proposal on the environment in landscape and visual terms was such that the proposal could not be considered to accord with the broad objectives of the Development Plan. It is the applicant's position that the narrow focus of appraisal previously set out in the Report of Handling accorded undue emphasis to perceived landscape detriment and did not fully weigh other important material considerations. The applicant does not agree with the conclusions on landscape impacts and this will be explained further in the sections below. However, the point is also made that if a 'holistic' approach to appraisal of the development at Glenbran is adopted it is clear that the proposal would not conflict but can be seen to accord with the Development Plan.

Sustainable Economic Growth

Para 33 sets the context for the delivery of sustainable economic growth in Scotland by identifying that:

Increasing sustainable economic growth is the overarching purpose of the Scottish Government.

It is further advised that:

The planning system should proactively support development that will contribute to sustainable economic growth and to high quality sustainable places

The paragraph concludes by advising that:

Achieving sustainable economic growth requires a planning system that enables the development of growth enhancing activities across Scotland and protects and enhances the quality of the natural and built environment as an asset for that growth. Planning authorities should take a positive approach to development, recognising and responding to economic and financial conditions in considering proposals that could contribute to economic growth.

Para 36 makes clear that:

The fundamental principle of sustainable development is that it integrates economic, social and environmental objectives. The aim is to achieve the right development in the right place. The planning system should promote Development that supports the move towards a more economically, socially and environmentally sustainable society.

Any wind turbine, by its nature, must have a certain exposure to wind to be viable. Invariably optimum sites will be elevated. Such new features may give rise to issues of landscape sensitivity. Where sensitive it does not automatically follow that landscape harm would follow. In this case, the applicant has sought to deliver an environmentally sustainable form of development. Visual impacts are minimised through a sensitive and careful approach to design and site selection.

The SPP guidance offers a broad approach to decision making and one which **balances** environmental impacts with other, important material considerations. It accords significant emphasis to the economic implications of new development in the planning decision making process whilst adopting a positive approach to sustainable economic growth.

It is the applicants firm contention that in this case, if applying a **balanced** approach to decision making it can be recognised that any perceived concerns of landscape harm should be outweighed by the environmental and economic benefits. The Glenbran proposal is one which can be seen to contribute to the economic growth of the applicants businesses and the local economy and would rest comfortably with the Scottish Governments aspirations for the Planning system through the delivery of sustainable economic development.

Economic development

Para 45 identifies that:

Authorities should respond to the diverse needs and locational requirements of different sectors and sizes of businesses and take a flexible approach to ensure that changing circumstances can be accommodated and new economic opportunities realised.

And further:

The planning system should support economic development in all areas by:

- *taking account of the economic benefits of the proposed development in development plans and development management decisions;*
- *support development which will provide new employment opportunities and enhance local competitiveness.*

This is a proposal seeking to take advantage of a new economic opportunity (Feed-in Tariff scheme) as a means of ensuring the long-term viability and security of a key local employer.

Rural Development

Para 92 advises that the aim should be:

.....to enable development in all rural areas which supports prosperous and sustainable communities whilst protecting and enhancing environmental quality.

Para 93 identifies that an important role for Development Plans will be to:

..promote economic activity and diversification in all small towns and rural areas , including development linked to tourism and farm diversification whilst ensuring that the distinctiveness of rural areas, the service function of small towns and the natural and cultural heritage are protected and enhanced..

The previous Report of Handling and indeed the refusal reasons draw heavily on the policies of the Perth Area Local Plan (1995). That plan is more than 15 years old and does not fully reflect the current aspirations of Scottish Government as set out in SPP, specifically in relation to increasing the proportion of Scotland's Energy produced through renewable; the need for a planning system to take a positive approach to development, and for the need to have regard to economic and financial conditions in considering proposals that could contribute to economic growth.

A **balanced** approach to decision making would accord due weight to these key Government aspirations which comprise *other material planning considerations* and which all post-date the Perth Area Local Plan which was relied on previously in forming the reasons for refusal. It can be recognised that any perceived concerns of landscape harm should be outweighed by the environmental and economic benefits. The new turbine would sustain the viability and long-term future of Glenbran farm and Newbigging Nursery whilst delivering broader environmental quality through a reduction in the use of fossil fuels.

Renewable Energy

Para 183 recognises that there is potential for small businesses in rural areas to invest in ownership of renewable energy projects and to develop their own projects for local benefit. It is advised that: Planning authorities should support communities and small businesses in developing such initiatives in an environmentally acceptable way.

Para 184 in relation to Development Plans it is advised that:

....Development plans should support the wider application of medium and smaller scale renewable technologies such as decentralised energy supply systems, community and household projects.

Para 185 goes on to identify that:

Factors relevant to the consideration of applications will depend on the scale of the development and its relationship with the surrounding area, but are likely to include impact on the landscape, historic environment, natural heritage and water environment, amenity and communities, and any cumulative impacts that are likely to arise.

This is a *medium* scaled wind energy project for an important commercial business in a rural area. The LVIA shows that landscape impacts are localised and the site does not lie within a protected landscape. The previous application did not draw any objections from key consultees or the public. The proposal would deliver sustainable economic development. The applicants seek to invest in ownership of this renewable energy project and to develop their own project for local benefit.

A **balanced** approach to decision making would accord due weight to these factors which are consistent with key Government aspirations for wind energy developments in Scotland and which comprise *other material planning considerations*.

Other National Guidance

Government Planning Guidance is set out in the form of web-based renewables advice (specific advice sheets) which replaced PAN 45 in February 2011 and was most recently updated on 24th October 2012. Web-based advice is seen as an advantage for renewable energy policy, considering the rate at which new technologies are evolving, becoming more widespread and being introduced into the planning system.

Although the SPP provides guidance to planning authorities on the national policies the issues councils should take into account in determining planning applications are set out in the online

guidance in the 'Typical Planning Consideration in Determining Planning Applications for Onshore Wind Turbines' (updated August 2011) these include:

- Landscape Impact and Assessment
- Impact and Assessment on Wildlife and Habitat, Ecosystems and Biodiversity
- Buffer Zones
- Impact on Communities
 - Shadow Flicker
 - Noise

From the consideration of the relevant criteria in that report, it can be noted that the approach to assessment of this project and set out in this Report is consistent with National guidance. The proposal would make a positive contribution towards realising the national objective for Scotland set out in the 2020 Routemap for Renewable Energy (2011), namely meeting a 100% demand for Scotland's electricity from renewable energy sources by 2020.

4.2 Perth & Kinross Planning Policy

Introduction

Perth & Kinross Council has a number of documents which form the development plan for the area and which have relevance to wind energy projects:

The relevant Development Plan consists of the recently approved TayPlan Strategic Development Plan, approved in June 2012, and the Perth Area Local Plan, approved in 1995 but scheduled to be replaced by a new Local Development Plan.

The Supplementary Planning Guidance (SPG) of 2005 is more recent and more focused, and therefore will be the primary part of local policy used to determine a wind energy proposal. These documents will now be reviewed.

TayPlan Strategic Development Plan (June 2012)

The previous structure plan (Perth and Kinross Structure Plan, 2003) was formally replaced in June 2012 by the TayPlan. The TayPlan Strategic Development Plan (SDP) is the key strategic land-use planning document produced by councils within the Tayside region and provides the long term land use planning vision for development and the environment within Perth & Kinross to the year 2032. The SDP provides the framework for local plans which contain more detailed and site-specific policies.

This plan sets out a spatial strategy which indicates where development should and should not go. It is designed to deliver the many location-related components of sustainable economic development, good quality places and effective resource management.

The key aims of the Plan are:

- Supporting sustainable economic development and improving regional image and distinctiveness
- Enhancing the quality of place through better development outcomes

- Ensuring effective resource management and promoting an accessible, connected and networked region

Relevant Policies

TayPlan identifies the importance of Renewable Energy with Policy 6: Energy and Waste/Resource Management Infrastructure:

A. Local Development Plans should identify areas that are suitable for different forms of renewable heat and electricity infrastructure and for waste/resource management infrastructure or criteria to support this; including, where appropriate, land for process industries (e.g. the co-location/proximity of surplus heat producers with heat users).

B. Beyond community or small scale facilities waste/resource management infrastructure is most likely to be focussed within or close to the Dundee and/or Perth Core Areas (identified in Policy 1).

C. Local Development Plans and development proposals should ensure that all areas of search, allocated sites, routes and decisions on development proposals for energy and waste/resource management infrastructure have been justified, at a minimum, on the basis of these considerations:

- *The specific land take requirements associated with the infrastructure technology and associated statutory safety exclusion zones where appropriate;*
- *Waste/resource management proposals are justified against the Scottish Government's Zero Waste Plan and support the delivery of the waste/resource management hierarchy;*
- *Proximity of resources (e.g. woodland, wind or waste material); and to users/customers, grid connections and distribution networks for the heat, power or physical materials and waste products, where appropriate;*
- *Anticipated effects of construction and operation on air quality, emissions, noise, odour, surface and ground water pollution, drainage, waste disposal, radar installations and flight paths, and, of nuisance impacts on of-site properties;*
- *Sensitivity of landscapes (informed by landscape character assessments and other work), the water environment, biodiversity, geo-diversity, habitats, tourism, recreational access and listed/scheduled buildings and structures;*
- *Impacts of associated new grid connections and distribution or access infrastructure;*
- *Cumulative impacts of the scale and massing of multiple developments, including existing infrastructure;*
- *Impacts upon neighbouring planning authorities (both within and outwith TAYplan); and,*
- *Consistency with the National Planning Framework and its Action Programme.*

Compliance with TayPlan

Decisions on renewable energy development proposals are required to be justified on the basis of the specific considerations set out through bullet points within that policy. It may be noted from the details contained in this environmental report that the wind turbine proposal at Glenbran fully meets those considerations.

The single, *medium* scaled turbine proposal at Glenbran has a small footprint and will not produce waste once constructed; an acceptable landscape fit can be secured; cumulative impacts have been assessed as minor for the site and it is considered that the proposal would fit in well with the nearest wind energy developments.

Bullet point 5 of the policy identifies that any appraisal in relation to sensitivity of landscape should be informed by landscape character assessments. The Tayside Landscape Character Assessment is relied on by the applicant in the submission of this proposal. It is a key policy document given weight by the most up to date Plan of the Council. The applicant will show that the Guidance for the area which includes the application site and which is set out in that document advises most strongly that this part of the Sidlaw hills is the most suitable areas for wind turbine development in Tayside.

A **balanced** approach to decision making would accord due weight to this document which would comprise a *material planning consideration*.

Perth Area Local Plan (1995 -2000)

The Local Plan sets-out the land-use policies for the area of Perth & Kinross in which Glenbran Farm is located. It contains guidance on where Council will encourage development and where it is unlikely to be allowed.

The Perth Area Local Plan, along with other local plan areas in Perth and Kinross, are scheduled to be replaced by a single Local Development Plan (LDP) covering the whole of the Council area.

The Plan is now 18 years old and pre-dates the current Government Planning Guidance for renewable energy proposals set out in SPP. There is no specific plan policy relating to the delivery of wind development projects in the Landward area. In the absence of any specific Plan policy the applicant would contend that the Policy of the approved TAYplan together with prevailing Government planning Guidance should be accorded significant weight in the decision on this application.

Relevant Policies

While there are no specific policies relating to renewable energy proposals, there is a general policy detailing the criteria to be applied to the consideration of any type of development proposal in the landward area. This policy (Policy 1) was relied on heavily by the Case Officer when undertaking his appraisal of the previous application and when formulating the Council's reasons for refusal.

Policy 1 refers to General Policies:

Developments in the landward area, and which is not identified for a specific policy, proposal or opportunity will generally be restricted to agriculture, forestry or recreational and tourism projects

and operational developments including telecommunications development for which a countryside location is essential. Developments will also be judged against the following criteria:-

- *The site should have a good landscape framework within which the development can be set and, if necessary, screened completely.*
- *In the case of built development the scale, form, colour and design of development should accord with the existing pattern of building.*
- *The development should be compatible with its surroundings in land use terms and should not cause unacceptable environmental impact.*
- *The local road network should be capable of absorbing the development and a satisfactory access onto that network provided.*
- *Where applicable, there should be sufficient spare capacity in local services to cater for the new development.*
- *The site should be large enough to accommodate the development satisfactorily in site planning terms.*
- *The need to accommodate development as part of the on-going requirements of existing commercial land uses in the countryside.*

The applicants would strongly assert that all criteria listed are fully satisfied by this proposal.

Policy 6

Advises that encouragement will be given to farmers wishing to diversify their business, particularly where this will generate additional local employment.

This is a farm diversification proposal and benefits to the local economy would follow.

Policy 21

Advises that the setting of Scheduled Ancient Monuments should be safeguarded.

It should be noted that Historic Scotland previously confirmed that the proposal would not conflict with the objectives of this policy.

Compliance with Local Plan

The previous Report of Handling lists all of the above plan policies however the focus of the case officer assessment was limited to *perceived* landscape detriment only. This narrow conservation based focus is at odds with the broader approach to assessment of development projects, and particularly renewable energy proposals now encouraged by Scottish Government through its prevailing planning guidance. That guidance, reviewed above, encourages a more holistic, supportive planning system where economic, social and environmental objectives will all have importance in the delivery of sustainable economic development.

It should be noted that there is no specific Local Plan policy relating to wind energy development.

This is a farm diversification proposal which would support existing and generate additional local employment.

The proposal would not adversely affect the setting of any Scheduled Ancient Monument.

There is no policy within the Plan reflecting prevailing Government support for the delivery of sustainable economic development and in particular the commitment to the delivery of 50% of Scotland's energy by 2020 from renewable sources.

Where more up-to-date guidance is available it would be appropriate to accord **significant** weight to such guidance in any planning decision.

The applicants position is that the proposal is fully compliant with the Perth Area Local Plan and will not result in any significant detriment to the area. However, should it be perceived that localised landscape harm would result and that such perceived harm would be contrary to the Local Plan objectives, it must be acknowledged that the environmental and economic benefits of the proposal, together with the age of the Plan and the lack of a specific renewables policy, would mean that *other material planning considerations* must outweigh that single concern.

Proposed Local Development Plan 2012 -

This plan has yet to be adopted and, following the conclusion of a process of public consultation in 2012, Examination by Reporter will now follow.

Policy ER1A -set out in that document is the most up-to-date policy of the Council representing its settled view in relation to wind energy developments.

It should be noted that the factors (a) - (h) set out in the policy, against which it is advised that renewable energy proposals will be assessed, are **fully satisfied** by the proposal. Furthermore:

- Previously no concerns were raised by consultees in relation to biodiversity, water or heritage interests. The applicant is firmly of the view that the individual and cumulative landscape effects of the proposal would be acceptable in this location (a),
- a meaningful contribution (500kw) towards carbon reduction targets would be delivered (b);
- an acceptable connection to the electricity distribution system can be achieved (c) ;
- acceptable site access for this medium-scale proposal can be secured (d);
- no adverse visual effects would arise from ancillary tracks and borrow pit (e);
- there would be no adverse effects on any carbon rich soils at this site (f);
- positive effects on the Perth economy would be delivered (g);
- the landscape section of this report details why the appeal site has been favoured over others on the farm (h).

Perth and Kinross Supplementary Planning Guidance

In addition to these general policies and criteria in the Development Plans, the Supplementary Planning Guidance for Wind Energy Proposals in Perth and Kinross 2005 (SPG), has considerably more detailed and prescriptive policies with regards to wind energy proposals.

As the most recently adopted policy of relevance to wind energy proposals, we understand the SPG provides the primary focus for the consideration of this planning application.

The SPG contains two Policies and eleven Policy Guidelines. The Policies are supportive of renewable energy projects in principle and define the Broad Area of Search which set the general locations in which wind turbines will be regarded acceptable. The Policy Guidelines then set out the detailed criteria by which any proposal will be assessed.

SPG Policies: Wind Energy - Principles of Scale and Location

The SPG's two wind energy policies can be read together to define the Council's preferred locations for wind energy development.

Wind Energy Policy 1: States that the Council wishes to contribute towards national renewable energy targets in locations least damaging to landscape character, amenity, habitats and species in Perth & Kinross. These locations are shown on a diagram (reproduced below as Figure 6) and referred to as the "Wind energy development - PKC area of search". Policy 1 states that the Council will look favourably on proposed wind energy schemes within the Broad Area of Search if the criteria in its Policy Guidelines are satisfied. We consider that the proposed development would assist Perth & Kinross Council to contribute towards national renewable energy targets, by being sited in a location that meets the appropriate requirements - through consideration of key constraints and design mitigation.

The policy also states that this favourable attitude applies in the period until 2010. This date has now passed. However we understand from the introductory section of the SPG that 2010 was selected simply to reflect its reference by the Scottish Govt as a landmark year in seeking to achieve renewable energy targets, at the time the SPG was adopted. We contend that, as national targets for renewable energy have since been continued and rolled forward by Scottish Govt, the SPG policy support must continue to apply beyond 2010 and remains relevant for this application.

Wind Energy Policy 2: States that in the Broad Area of Search (designated for guiding suitable wind energy projects), Community and Commercial wind energy developments will be supported where they would be consistent with the council's detailed Policy Guidelines and it had been demonstrated that they utilise turbines of a size and a scale appropriate to their location, are in locations least damaging to settlements, landscape character, visual amenity, habitats, and will not have unacceptable cumulative impacts.

The proposed turbine at Glenbran Farm **is within** the Broad Area of Search (see Fig 6) which, we consider, confirms it benefits from the in-principle support of Policy 1, subject to satisfying the Policy Guidelines.

The proposal falls clearly within the broad area of search zone, as illustrated in Figure 6 below.



The Policy Guidelines in the SPG set out detailed considerations in respect of the following criteria:

1. *Landscape Impact*
2. *Visual impact*
3. *Cumulative Landscape and Visual impacts*
4. *Impact on Biodiversity*
5. *Cumulative Impact on Ornithological Interests*
6. *Operational impacts (noise, shadow flicker, construction traffic, electromagnetic interference)*
7. *Water Resources*
8. *Aviation*
9. *Maintaining “Carbon Sinks”*
10. *Decommissioning and Site Reinstatement, and*
11. *Protection of Wind Energy Developments*

These criteria are covered in the following sections of this report with relevant sections also being addressed in the appendices.

The Policy Guidelines refer several times to a guide threshold of 20 times blade tip height as a distance from neighbouring houses and other sensitive sites, such as Scheduled Monuments, where it is likely that effects will be acceptable without the need for detailed assessment.

For a 56.3m tip height turbine, this equates to 1,126m setback from sensitive sites and properties. However the Policy Guidelines that refer to 20x tip height also allow for detailed assessment to find that the significance of effects are slight or not significant and therefore acceptable. Within this

distance there are also no settlements, prominent landforms, Scheduled Monuments, significant archaeological sites, conservation areas or listed buildings with only a few isolated properties within this threshold.

The LVIA demonstrates that in the professional opinion of Atmos Consulting (section 1.5.4, Table 6) the impact on the Igneous Hills LCA/Sidlaw Hills will be “moderate-minor” in the immediate vicinity of the turbine and “minor” or “negligible” on all other identified landscape areas of relevance. Also the proposed turbine will be set at a relatively low level in the landscape and will not be on any prominent ridge or hill. The wireframes included in the LVIA also demonstrate that any impact on the skyline when viewed from identified receptor locations will be of relatively low significance.

The ZTV shows that the turbine will be visible from only a small proportion of the surrounding area. In EIA terms, there would be significant effects of *Moderate to Major*, at two local viewpoints (VP’s 4 and 7) with *Moderate to Significant* effects predicted. For the remaining five viewpoints assessed no significant effects were anticipated. When considered together with the effects on all relevant key receptor groups at viewpoints and the limited geographical extent of the ZTV across the area, the overall effect on visual amenity is considered to be acceptable.

The LVIA also demonstrates that there are only a small number of existing or proposed turbines within the study area and these will have only limited cumulative relationship with the Glenbran turbine. It concludes that the additional cumulative landscape and visual effects arising from the proposed single turbine at Glenbran, with one or more of the identified wind farms is not predicted to be significant.

We also consider that the proposed development will not have a significant effect on local cultural heritage features in the wider vicinity. This is primarily due to the limited magnitude and scale of the proposal, but also due to the level of woodland and topographic screening elements present at the site.

Relevant planning policy and guidance reviewed here provides support for wind turbines proposals where impacts on areas of visual sensitivity; noise; electro-magnetic interference; roads; bridges and traffic; aircraft; flight paths/MOD operations and cumulative effects are all found to be acceptable. The detailed noise assessment in Section 9 of the ER confirms that all dwellings in the vicinity of the turbine will experience noise levels within acceptable recognised ETSU thresholds. MOD and NATS previously confirmed that there will be no interference caused by the proposed turbine.

This report fully assesses all these factors through the various chapters which follow to assess how the proposal for Glenbran Farm would accord with the approved Development Plan policy objectives and would fully satisfy the specific wind energy supplementary planning guidance of Perth & Kinross Council.

Tayside Landscape Character Assessment (TLCA)

The purpose of this approved document prepared for the Council and SNH is to offer guidance to the planning authority and developers on how various types of development or land use changes might best be accommodated within the countryside of Perthshire. Through providing an understanding of landscape character, the capacity of the countryside to absorb and accommodate change is assessed.

The application site lies within the *Igneous Hills (8)* Landscape Character type identified by the Tayside Landscape Character Assessment (TLCA).

Although a limited précis of the landscape character of this area is included in the previous Report of Handling under *Other Guidance*, the specific *Landscape Guidelines* which identify that this character type is an area which can accommodate wind turbine developments has been omitted.

As we have noted Policy 6 of the TAYplan 2012, would suggest that considerable weight should be accorded to the TLCA when assessing development proposals and determining applications.

The following specific guidance from the TLCA in relation to tall structures can be noted:

5.8.18 Tall Structures

The government's commitment to the stabilization of carbon dioxide emissions and the resulting emphasis on developing a market for renewable energy is likely to result in more proposals for wind turbines. At a regional level, suitable sites will be influenced by the presence of adequate wind speeds and proximity to the electrical grid. These operational requirements are likely to favour upland areas fairly close to centres of population. Potential areas therefore includethe Ochils and Sidlaws and other lowland hills. From an environmental perspective, such areas need to be evaluated in terms of the sensitivity of the landscape and its capacity to absorb development. There is a strong argument in favour of steering such schemes away from sensitive upland landscapes and towards areas where human influences are already more marked. For this reason it is likely that wind characteristics permitting, the Sidlaws and Ochils may be the most suitable areas for wind turbine development in Tayside.

It must be noted that the landscape around the application site and including the hills nearby is not subject to any protective designation as a *sensitive upland landscape*.

The TLCA goes on to advise in relation to tall structures, that planning authorities should:

- ensure that undeveloped hilltops and ridges are avoided;
- 'backclothing' is secured when siting new proposals to ensure that skylining is avoided;
- locations where the visual influence of new turbine features extends to both the north and south of the hills should be avoided;
- the potential for siting within shallow bowls and valleys away from ridges should be encouraged;
- visual impacts should be assessed in relation to the local landscape of the hills and surrounding areas.

As the submitted photomontages show these design guidelines are satisfied by this proposal.

4.3 Conclusion

The proposed development is considered to be appropriately designed and sited; environmental and cumulative impacts would be satisfactorily addressed by the wind energy proposal, and the development would make a positive contribution towards the Scottish Government's challenging goal of 100% of electricity from renewable energy sources by 2020 (50% by 2015).

It is considered that the revised proposal is in compliance with the recently adopted TayPlan Strategic Development Plan and the Perth Area Local Plan, and will not result in any significant adverse effects.

In addition to this, the proposed site is located within Perth & Kinross Council's Broad Area of Search diagram for wind energy projects, and is consistent with the detailed policies found in the Supplementary Planning Guidance for Wind Energy Proposals in Perth & Kinross (2005), as justified by the detailed consideration of relevant environmental criteria which follows in the subsequent sections of this ER.

This report has assessed all Perth & Kinross Council policies and policy guidelines regarding wind energy development. It is concluded that the Glenbran Farm turbine proposal would meet the policy objectives of all Plans and Guidelines reviewed.

The environmental and planning report supporting the planning application has demonstrated a development that would accord with the broad objectives of the Development Plan. The adopted Perth Area Local Plan contains no specific planning policy relating to Renewable energy and specifically wind developments. Prevailing Scottish Government Planning Guidance approved since the adoption of the Perth Area Local Plan now encourages Local Planning Authorities to give support to economic development in all development management decisions (para 45 SPP); to promote economic activity and farm diversification (para 93 SPP); provides encouragement for small businesses in rural areas to invest in the ownership of renewable energy projects (para 183 SPP) and offers support to the wider application of small and medium scale renewable technologies.

A **balanced** approach to decision making would accord due weight to these factors and mean that these *other material planning considerations* must be taken into account in any planning decision. It is contended that in this case, when weighed in the balance, these factors can outweigh the detriment to landscape amenity previously perceived by the Planning Officer.

5 LANDSCAPE & VISUAL IMPACT

5.1 Introduction

The issue of site suitability for landscape reasons was the key point of concern to the Planning Officer when dealing with the previous application.

It can be noted from the comments of the Council's Landscape Officer when dealing with the previous application that he did not object to this proposal but registered the comment only that*I'd feel more comfortable with a smaller turbine.*

Accompanying this application is a comprehensive landscape and visual impact appraisal (LVIA) prepared by professional Landscape consultants (*atmos consulting*).

This section should be read in conjunction with the Landscape and Visual Impact Assessment (LVIA) appendix text and associated figures, including Zones of Theoretical Visibility, Photomontage and Wireframes Images.

5.2 Viewpoint Selection

As part of the original screening/scoping exercise and on-going consultation, seven viewpoints were selected for the proposed site and agreed with the Planning Service.

These were:

- VP1 B953 access to The Ford
- VP2 Lochton, Gallows Knowe
- VP3 B953, Core Path 129
- VP4 Carseview Cottage, Littleton
- VP5 A90 junction to Longforgan
- VP6 Auchterhouse Hill

Perth and Kinross Council also requested a viewpoint from Rossie Priory, however on-site investigation verified no visibility towards the turbine from this site and it was therefore not considered for this assessment.

Following additional consultation, Historic Scotland also requested:

- VP7 King's Seat summit

This was carried out following the original photography and has been included as part of this assessment.

Supplementing this LVIA are new wireline images which have been prepared from an additional 4 points along the A90 to the south of the site. The wirelines are representative of the serial views afforded from this busy transport corridor. It can be noted that the good siting of the turbine, its position someway below the ridge line of the Sidlaw hills and the presence of screening presented by land contouring and woodland features, are such that any visual impacts from the south are of limited significance. These images are presented as Appendix 1a *Additional Wireframe figures*.

Methodology

The LVIA was completed in accordance with the good practice guidance prepared by SNH for the assessment of small scale wind energy projects and has drawn upon established industry methodology for Landscape Character Assessment.

The recommended methodology has been used in an objective and disciplined way to appraise the landscape and visual impacts of the proposal and to predict the significance of change. By employing good practice guidelines and agreed methodology the appellant has sought to remove any *subjectivity* in assessment,

The LVIA incorporates a number of professionally prepared photographic and wireframe montages from viewpoints within and around the Carse of Gowrie and Sidlaw Hills.

It can be noted that:

- viewpoints were agreed with the Council in advance of submission;
- the application site lies within an area identified in the TLCA as a an area of low constraint for wind development;
- this finding is further reinforced by SNH Policy Statement 02/02 'Strategic Locational Guidance for onshore wind turbines in respect of natural heritage';
- Perth & Kinross' own Wind Energy Policy Guidelines include the application site within a broad area of search for turbines;

5.3 Baseline

This section identifies relevant landscape sensitivities and summarises the effects of the proposal on perceived sensitive receptors. A full account of the effects is set out in the LVIA forming Appendix 1 to this report. It will be shown that the *medium scaled* proposal for a 33.2m hub height (56.3m to tip) turbine proposal at Glenbran Farm could be sensitively designed and sited without any material detriment to the amenity of the area.

Landscape Policy and Designation

Relevant landscape policy and guidance has been consulted to determine the baseline conditions of the landscape within the area. This has helped to gauge the sensitivity and significance towards the development. In doing so, designated landscapes of national, regional and local value have been reviewed against the preliminary ZTV (LVIA Figure 4).

Within the study area a number of designated landscapes exist. However there are no national landscape designations within 15km and no local landscape designations within 8km. The nearest areas are locally designated Areas of Great Landscape Value (AGLV) within PKC. These lie between 8-20km to the west and southwest around Perth and along the River Tay. Further AGLVs within Fife then stretch to the south of the Firth of Tay in Fife at a minimum of 13km to the south at the nearest point. These areas are also recognised as Special Landscape Areas (SLAs). At a more distant point the River Tay (Dunkeld) National Scenic Area (NSA) lies between 18 and 30km. Theoretical visibility would largely be absent from these areas, except for the distant landscapes to the south of the Firth of Forth. As a result the potential for effect on the character, setting and views would be limited, given the separate location focus and orientation of these areas.

While no local landscape designations exist within Angus, there are three 'principal geographical areas' defined. These include the "Highland", "Lowland and Hills" and "Coast". The proposed development is located approximately 4km to the west of the Lowland and Hills area, with the

Highlands area and the Coast area lying beyond 18-20 to the north and southeast. Local policy and the supporting Angus Windfarms Study, considers that the Highlands and Coast areas are sensitive to wind farm developments. These are indicated on LVIA Figure 1. However visibility and the potential for effect will be limited from these areas as a consequence of their distance from Glenbran Farm.

Planning Guidance for Landscape and Visual Effects

An indicative map (Appendix C of the Tayside LCA), then illustrates the sensitivities of the landscape for wind farm development in the Sidlaws, see Figure 7. As indicated, the proposed development site will lie within an area of lowest constraint. This area stretches from the Kings Seat to the west of the development and covers the whole development site and along similar elevated points of the Sidlaw Hills to the east.

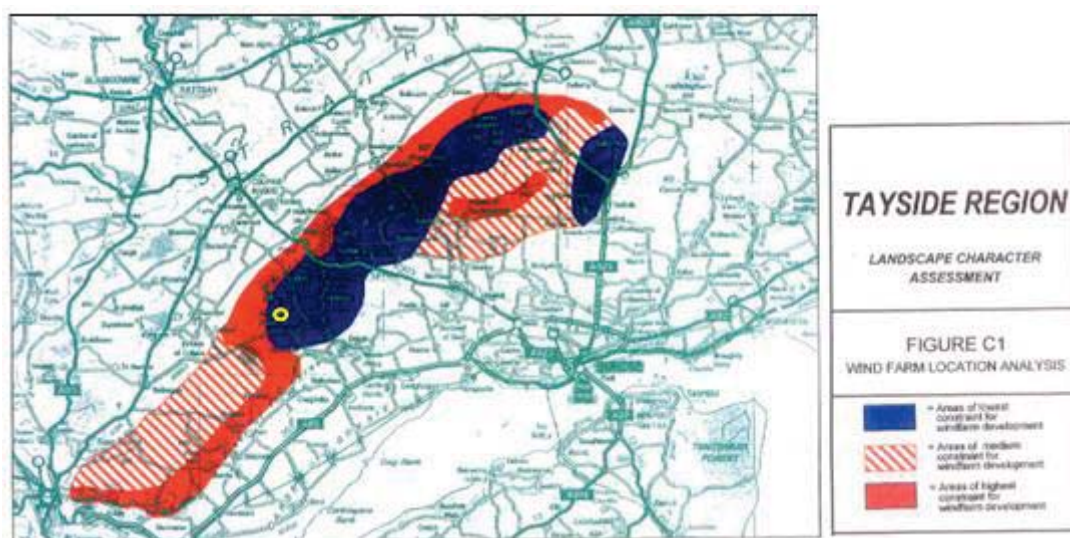


Figure 7: Tayside Region - Landscape Character Assessment

The SNH Policy Statement No 02/02 'Strategic Locational Guidance for Onshore Wind Turbines in respect of the Natural Heritage' then reinforces the level of constraint, where the proposed development site and its immediate context, lies within a zone defined as having the **Lowest** Natural Heritage Sensitivity to Wind Turbines (Map 5 within the guidance).

Based on this, it would appear that the proposed site for the Glenbran Farm turbine lies within an area of lowest constraint and is therefore considered to be potentially suitable for this type and scale of development.

Perth and Kinross Council's Wind Energy Policy Guidelines (SPG) also identifies that the site is located within a broad area of search, with theoretical visibility limited from strategically sensitive areas. Given this context the size and scale of turbine is considered to be appropriate for the location, in line with Wind Energy Policy 2.

5.4 Assessment of Effects

Landscape Effects

There would be some temporary (2 - 3 months) effects on the landscape fabric of the site as the result of ground disturbance during the construction phase. This would include minor earthworks

for sections of the access track, the turbine base and a borrow pit. These elements would not involve the removal of any notable landscape features or characteristic elements and would be visually contained within the site. Good site management plus reinstatement at the end of the construction phase will minimise the extent and duration of these effects.

The development would be situated within a central section of the Igneous Hills LCT (Landscape Character Types). This linear LCT extends across the Sidlaw Hills and covers most of the immediate landscape context, particularly to the east and west. The potential for a notable visual exposure is limited, as indicated in the ZTVs. The principal area of visibility would be contained within the immediate slopes to the east of the Kings Seat and within 1.5km, extending up to 3km to the east. More extended visibility would be limited to isolated high points to the east, at these points, views would be limited typically to the blade tips only. Elsewhere within this LCT, the visual exposure would be limited. This is due to the prominence of the characteristic landform and notable coniferous plantations.

In the wider context of the LCT the proposed turbine would also contribute to an emerging pattern of dispersed single wind turbines at intermittent high points within the Sidlaw Hills and would add to the scale relationships that exist between various built and natural characteristics. Given the contained nature of visibility and the scale of the intervening landform the consistency and strength of characteristics, the addition of a further single turbine would not fundamentally alter the key characteristics of this LCT.

Site Choice and Landscape Impacts

The appellant, as a conscious decision in order to minimise landscape impacts, proposes to site the turbine on a part of the farm which benefits from woodland screening and where the backdrop of the hills together with the undulating nature of the terrain would assist in successfully assimilating the development into the landscape. The turbine would be positioned at a level 217 AOD whilst the ridge of Kings Seat can be noted at 355AOD - a difference of +**140m**. It should be noted that the tip of the turbine would be 84m below the ridge of Kings Seat.

It can also be noted from the photomontages presented that from the representative viewpoints selected (viewpoints 1 - 4 in particular) much of the turbine shaft would be masked by terrain and the rotors would be read against a backdrop of upland.

Viewpoints 6 and 7, taken from the hill summits illustrate the broad sweep of countryside within which the new turbine would sit. Those photomontages also illustrate that the scale of turbine would be appropriate to this landscape.

Other operational factors which have influenced both the choice of site and the turbine design include:

- the proposed site would not interfere with flight operations from Leuchars air base whilst other locations on the farm would fall within an area of radar shadow and be likely to attract objection from MOD for flight safety reasons. It should be noted that other planning proposals within the local area have previously encountered difficulties in securing an acceptable relationship to Leuchars Radar installations. The application site at Glenbran is able to take advantage of the 'screening relief' provided by Kirkton Hill. This *advantage* cannot be guaranteed at other sites in the local area and is likely to be a constraint to the introduction of other wind turbines in this part of the Sidlaw Hills. As a consequence the Case Officers concerns relating to precedent and expressed through refusal reason 3 should not be overriding;

- wind flow at other locations on the farm would be compromised by turbulence from existing established woodland;
- removal of existing young woodland on the farm to resolve the impediment to clear wind flow would have adverse effects on local biodiversity;
- a lower rated turbine would be unable to deliver the required economic benefit to the farm and nursery business.

Visual Effects

As the ZTVs (Figures 3 and 4) illustrate, visibility is fairly limited and contained by notable variations in landform, particularly to the north. The principal zones of visibility will extend across the immediate, open sections of the Sidlaw Hills for 2km to the southwest and 3km to the northeast, with a relatively limited number of sensitive receptors present across the area. This will help to moderate the potential for significant effects on key receptors and general visual amenity, including the majority of properties in the area.

Effects on the Residential Receptor Groups

The visual assessment shows that, geographically, the extent of significant visual effects would be relatively *low*. It would be restricted principally to isolated points within 1.5-3km. This would include isolated significant effects from the nearest residents at Glenbran, Balloleys and Littleton Cottages to the north, southwest and northeast, where open views are available towards the development. There is also likely to be some potential for significant effects away from the principal aspect of houses, within the curtilage and general approach to the properties at Stockmuir, South Latch, Lochton, South Lochton, Ballairdie and The Ford where parts of the turbine will be clearly visible in views away from the principal focus and orientation of properties. The proposed turbine would not, therefore, lie close to large numbers of properties, which would limit the potential effect on residential amenity to just these nearest properties. Most other properties are then orientated away from the proposed turbine and are typically screened by landform and landcover. This is evidenced by the limited extent of ZTVs in Figures 3 and 4.

Effects on Travellers

The effect on travellers on roads would also be limited with no significant effects predicted, with just fleeting views to the turbine to the rear of intervening landform from the nearest roads to the south, such as demonstrated by viewpoints 1, 3 and 5. The extent of visual effect will therefore be no more than *Medium to Low*. New wirelines in support of this application have been included from points along the A90 Perth Dundee Road to the south. This additional information was prepared in response to the Council's Landscape Officer's concern that inadequate assessment from the south had previously been included and as a means of responding to the concerns expressed through previous refusal reason 1. It can be noted that visitor traffic using the A90 will be subject to only limited, immediate passing views of the turbine in a narrow corridor to the south east of the site.

Effects on Visitors and the Tourism / Amenity Resource

From a tourism and recreation perspective, extended visibility would be available from isolated high points across the Sidlaw Hills, which form a key focus for recreation and tourism receptors in the area. At these more distant points, the proposed turbine would be viewed mainly within far reaching panoramas across the elevated hills and generally as a minor element below the skyline. At these points it would also be seen in the wider context of other existing wind turbine influences, often at more prominent, elevated points within the Sidlaw Hills. Beyond these points, and from a number of the more intricate low lying settled, historic landscapes views would be notably restricted by intervening landform variation and urban form. This would include the majority of

the tourist areas around the historic towns of Perth and Dundee and the network of core paths across the study area. Effects on visitors to the area, is not therefore considered to be significant.

Cumulative Effects

As the Cumulative ZTVs illustrate (Figures 13-15), the cumulative theoretical visibility of the existing and proposed wind farm developments would extend across much of the study area. However, of note to the Glenbran LVIA the extent of combined visibility is generally limited, particularly at local points where the Glenbran turbine is prominent in views, primarily within 1.5-3km. This would limit the potential for notable cumulative effects on the pattern of landscape characteristics and on potential combined views, with the Glenbran turbine sitting in a slightly separate, contained section of the Sidlaw Hills to the west of other sites.

This is evidenced further by the cumulative views from viewpoints 6 and 7 (Figures 10-11), which illustrate that where the cumulative turbines would be seen in combination, the proposed Glenbran turbine would sit at a separate, sheltered point in the Sidlaw Hills landscape, as a minor distant element, with limited potential for overlap, conflict or complexity between developments. As a result the Glenbran turbine would more typically be seen to strengthen the influence of wind turbines, without fundamentally altering the scale, balance, pattern and density of existing characteristics across the Sidlaw Hills. The cumulative effect on both landscape and visual receptors is not therefore considered to be significant.

5.5 Conclusion

The aim of the LVIA submitted in support of the planning application for this proposal has been to identify the potentially significant effects arising from the proposed development, to consider the magnitude of change, and to evaluate these impacts with regard to the sensitivity of the landscape, and of each identified receptor.

Following the landscape and visual appraisal, it is considered that while the proposed turbine would represent a new element in a small section of the Sidlaw Hills, it would largely be seen as an additional, comparably scaled, single feature alongside other notable built structures including existing wind turbines, which already provide key foci and built influence in this landscape. The location of this proposed turbine would also be positively screened from most points in the wider landscape, given the notable landform variation in the site context. This would help to limit the potential for significant visual intrusion on the lower lying more settled and valued areas and potential conflict with the wider pattern of distinct landscape elements.

Although the proposed turbine would bring some local significant effects on the landscape and visual resource, the authors of the LVIA consider these to be relatively slight, in the context of the wider study area. We support this conclusion. The turbine and its location within a sheltered hillside location are therefore, considered to be appropriate, given the character of the receiving environment. Moreover, whilst the proposed wind turbine would bring about acknowledged changes these would be wholly reversible, given the turbine's anticipated life span of no more than 25 years.

The proposed turbine will be set at a relatively low level in the landscape and will not be on any prominent ridge or hill. The wireframes included in the LVIA also demonstrate that any impact on the skyline when viewed from identified receptor locations will be of relatively low significance.

Given the contained nature of visibility and the scale of the intervening landform its consistency and strength characteristics, the addition of this *medium scaled* turbine would not fundamentally alter the characteristics of this landscape character type.

Localised Impacts

With the previous planning application the Case Officer narrowed his focus to the visual impacts when viewed from Kings Seat. The concern being that the prominence of the hill and its focus in the landscape would be materially harmed, to the detriment of local residents and visitors.

The applicant would acknowledge that the proposed turbine would be a new point feature in the landscape and visible from the summit of Kingseat. However, it should be noted that this would comprise a small part of a 360° panorama and sit at a point more than 140m lower than the summit.

When viewed from distance (north, south, west and east) the siting of the turbine some way below the ridge and against a backdrop of rising land would ensure that the pre-eminence of Kings Seat Hill within this stretch of the Sidlaw Hills would not be compromised.

Kings Seat is the site of a bronze age burial cairn where outlook in all directions is likely to have been a key reason for site selection. The cairn remains are a Scheduled Ancient Monument and as a consequence Historic Scotland was an important consultee to the earlier planning application.

In their consultation reply HS identified that:

.....whilst the King's Seat Hill cairn has panoramic views in all directions, we consider that the proposed turbine doesn't dominate these views, and that the landscape setting remains capable of being understood and appreciated.

It can be noted that HS concluded that the proposal would not raise any issues of national significance and thus did not object to that application.

In his Report of Handling the PKC Case Officer previously asserted that *the proposed turbine would have an adverse impact on the visual appearance of the area which is largely focused on the summit* and further that *the visual appearance of the turbine will appear extremely prominent and dominate*.

The applicant is not satisfied that this is a fair reflection of the *localized* impacts of this proposal where the turbine would be visible only from the summit and the immediate eastern approaches of Kings Seat. A small part only of the panoramic view afforded view from the summit would be interrupted. Within that small field of view the turbine would be set down some way below the viewer. Whilst the turbine would be apparent it would not be dominant and, due to its *medium* scale, neither would it be assertive. In this context it was previously concluded by the Case Officer that this limited interruption of view and setting was such as to outweigh all other material planning considerations and justify a planning refusal for reasons of materially weakening the dominance and pre-eminence of the hill. In the applicants opinion this is not a *proportionate* assessment of the landscape effects of this proposal.

The applicant's LVIA has appraised the likely effects on residential receptor groups, travellers through the area and visitors and tourism. The report concludes that (i) most properties are orientated away from the proposed turbine and are typically screened by landform and land cover; (ii) the extent of visual effects on travellers will be no more than Medium to Low; and (iii) effects on visitors to the area, would not be significant as the turbine would be seen in the wider context

of other existing wind turbine influences, often at more prominent, elevated points within the Sidlaw Hills.

Cumulative Impacts

It can be noted that in the Report of Handling the Case Officer previously did not raise any concerns with cumulative visual impacts and there was no refusal reason relating to this issue. However comment is included here as it is apparent from the public web file that the Council's Landscape Officer did raise this issue in his consultation response.

Having regard to the distance between the proposed turbine and other built and consented installations, and the position of the proposed turbine which would not be visible from both sides of the Sidlaw Hills, the applicant's commissioned professional assessment concludes that adverse cumulative effects would not arise in this instance.

Conclusion

Landscape and visual impact has been the subject of rigorous and disciplined professional appraisal using methodology recommended by SNH. A *subjective* approach to appraisal has not been adopted.

Through careful siting, it can be seen that the Igneous Hills Landscape Character type has the capacity to accommodate the *medium* scale turbine without diminishing the quality of the landscape and natural environment of this part of the Sidlaw Hills.

The Case Officer's previous approach to landscape appraisal led to a very narrow localized focus effectively exaggerating the impact of the turbine in its landscape setting. This narrow focus provided reason for him to conclude that this outweighed all other considerations and rendered the development contrary to the Development Plan. The applicant would contend that undue weight was previously given to this issue in the Planning Authority's decision to refuse.

In contrast a **balanced** approach to decision making would also accord due weight to other factors which have been reviewed in this Report. In the applicants view this should mean that those *other material planning considerations* when weighed in the balance, can outweigh any perceived detriment to landscape which is confined to the localised views of and from Kings Seat on its eastern side.

6 Cultural Heritage & Archaeology

6.1 Introduction

This section assesses the impact of the proposed Glenbran Farm wind turbine on the known cultural heritage and archaeological features within the surrounding area. The assessment will primarily focus on the impacts upon noted archaeological features within the immediate area of the turbine.

The assessment will also examine important Scheduled Monuments, Listed Buildings and Historic Gardens and Designed Landscapes within the wider area, up to 2 km around the site.

6.2 Approach to Assessment

A detailed assessment was carried out on the effect of wind energy development on any surrounding cultural heritage site with the area. This assessment focused on the extent of landscape and visual impacts of the proposal, as well other potential impacts where relevant.

A desk-based study was carried out using Historic Scotland's available GIS dataset, and all heritage sites listed as Scheduled Monuments within a 2 km radius were identified.

The following information sources have also been consulted as part of this assessment:

- Sites and Monuments Record (SMR)
- National Monuments Record Scotland (NMRS)

6.3 Baseline Conditions

There is one significant cultural heritage feature located within the site boundary - Glenbran Ring fort, 500m north east of proposed turbine location. The monument lies within a plantation on a low rise, at around 205m AOD. It consists of a circular enclosure, measuring about 21m in internal diameter, defined by a low turf-covered bank, and protected by natural defences on the east. The bank measures up to 4.5m in thickness and about 0.3m in height.

Also near to the site is the King's Seat Cairn, approx. 930m west of proposed turbine location, comprising of a cairn of prehistoric date, visible as a stony, turf-covered mound. The monument is situated on the summit of a hill at around 370m OD. It is a circular, flat-topped cairn, measuring about 40m in diameter and about 2m in height.

6.4 Assessment of Effects

Although there are a number of listed buildings within the 2km buffer around the proposed turbine, none of these are considered to have a significant view of the site due to their position and existing development in closer proximity.

No Historic Garden and Designed Landscape areas exist within 2km of the site, but the Rossie Priory HG/DL is located just outwith of the 2km buffer to the south east of Glenbran Farm. Due to forestry cover at Rossie Priory, visibility from this HG/DL towards the Glenbran site will be very limited and is not considered significant.

Below is a table and map (Figure 8) detailing the likely visibility effects from the nearest Scheduled Monuments (SM) to the turbine.

Name	Distance (km)	Visibility
1. Glenbran Ring Fort SM	0.5 NE	The single turbine is likely to be partially visible, although forestry features and landscape backdrop are likely to mitigate the effect through screening. Further visualisation of this illustrated on nearby VP2 photomontage/ wireframe.
2. King's Seat Cairn SM	0.93 W	The single turbine is likely to be fully visible from the eastern aspect. Visualisation on VP7-King's Seat Summit photomontage/wireframe.

Table 2: Likely Visibility Effects

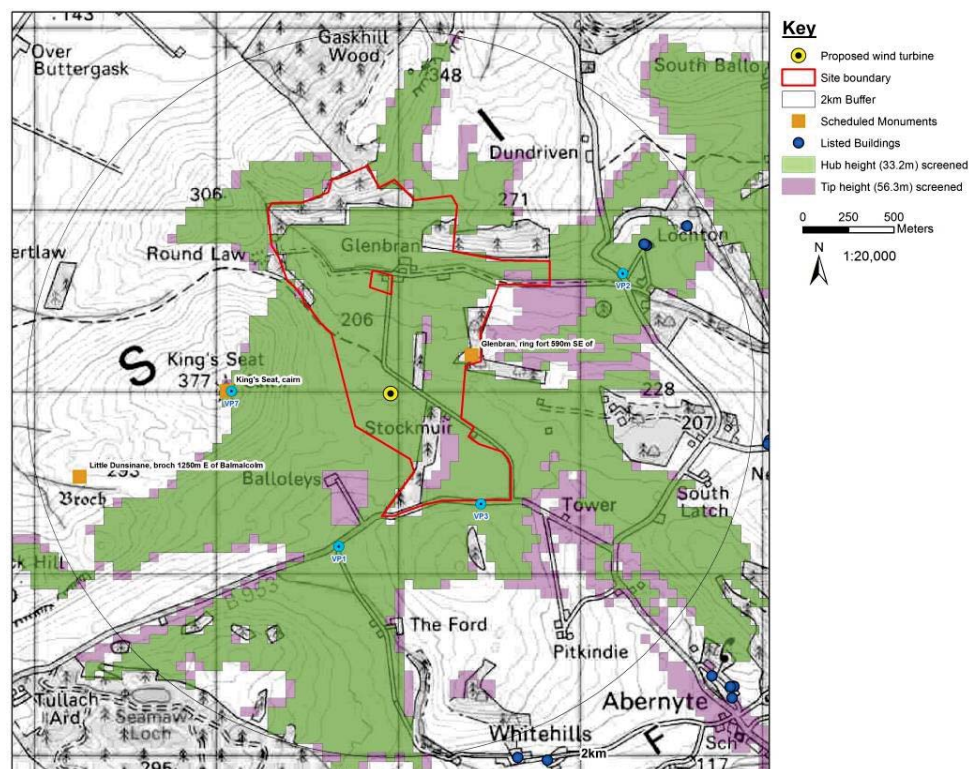


Figure 8: Map of Cultural Heritage Features around Site

Some degree of inter-visibility is likely between these two Scheduled Monuments close to the site. However, due to the magnitude and scale of the proposal, it is considered that Historic Scotland would be unlikely to raise significant concerns. This was discussed with Historic Scotland through provision of ZTVs and agreed photomontages from King's Seat Cairn, summit.

The direct and indirect impacts on the cultural heritage resource of the site and its surroundings are likely to be acceptable.

6.5 Conclusion

A review of the local cultural heritage context and assessment of the visibility of the proposed single turbine has been undertaken and it is considered that the proposed development will not have a significant adverse effect on local cultural heritage features.

7 ECOLOGY & ORNITHOLOGY

7.1 Introduction

This section considers the potential impact on ecology and biodiversity from the proposed wind turbine during operation.

The ecology report undertaken for this proposal has been included within the appendices, see Appendix 2.

Site Context

The site holds no ecological or ornithological designations, although there are a number of SSSI's within 3-10km of the proposed turbine location - the nearest of these including Little Ballo, Laird's Loch, and Lochindores (see Ecology Figure 1). In addition to this, the nearest relevant designated area is the Firth of Tay and Eden Estuary which lies 8km south east of the proposed Glenbran site.

These areas are designated for their biology but due to the distance from the proposed site are unlikely to cause any concerns. All other designated sites are considered sufficient distance so as not to cause an issue.

7.2 Assessment of Effects

A site visit and ecological report was undertaken by Skorpa consultancy to support the Glenbran proposal. The report indicates there are no major ecological constraints that must be taken into consideration in the design of the proposed development, although several areas may be subject to further mitigation strategies.

The likely effects on Protected Species interests are summarised below:

Brown Hare: This species has been listed as a priority species for conservation action under the UK Biodiversity Action Plan. According to the National Biodiversity Network (NBN) this species is present within the 10km square of the turbine. There is therefore a possibility that brown hare will be present in the Turbine field and adjacent fields. However, as a very mobile species that ranges over 10s of hectares, it is most probable that during construction hares would just move to areas that were unaffected by the development and no mitigation would be necessary.

Red Squirrel: Mr Young, the land owner indicated that red squirrel were present in the woodlands to the north of the site (1km distant) and the NBN also records the presence of red squirrels within 1km of the site. There is therefore a possibility that red squirrels will be present in the Scots pine woodland adjacent to the Turbine field.

Badger: Mr Young and his keepers have not recorded badger in the area and the NBN does not either. It is therefore unlikely that badgers are in the vicinity and no further work is required. However, if during construction badgers are observed, then a quick survey of the area to find the sett might be required.

Bats: a number of bat species are likely to be present in the area. The nearest potential roost site would be the house and outbuildings at Glenbran farm 1km to the north. However, the turbine is in the middle of an open field where the passage of bats would be limited. Therefore the author of this report believes that bats would not be a concern with this project.

Other EPS species include otters, water vole and pine marten, but these have not been recorded in the area (NBN) and the author of this report believes them to be absent and of no concern.

7.3 Site Design and Mitigation

Although not likely to be directly affected, red squirrels may occupy the semi-mature Scot's pine woodland on the eastern boundary of the field and/or the spruce strip woodlands north and south of the pine woodland.

Brown hares are present but are highly mobile. Their young lie up in above ground shelters known as forms and can move rapidly from one field to the next. So although a UK BAP species, the short period of construction will only disturb the animals for a short period of time and would therefore be of no concern.

Bats are likely to be present in the area, but not likely to be flying across the middle of the field. They generally restrict their flying patterns to field boundaries and woodlands. It is therefore questionable whether the turbine will have any effect on the bat populations in the area and no mitigation would be required.

Previously the Council's Biodiversity Officer raised no objections to the submitted proposal.

7.4 Conclusion

The single turbine (56.3m to tip) will be centred in the middle of an existing arable field bounded to the east by a Scot's pine woodland and on all other sides by fields of a similar nature. The fields and surrounding landscape are fairly typical of those areas found in the foothills of the Sidlaw hills.

The nearest relevant designated site (SSSI/SPA/SAC/Ramsar on the Tay estuary) is over 8km distant. Combined with the small scale of the Glenbran project and the swept area of the turbine blades, the impact that this scheme will have on the birds from the Tay estuary would be negligible and can be discounted. No other ecological impacts are foreseen at this stage.

8 HYDROLOGY

8.1 Introduction

This section considers the potential impact on hydrology and water resources from the proposed wind turbine during construction and operation.

The construction and operational phases of the proposed development have the potential to affect the hydrology within the localised area, including draining patterns and watercourses. Although hydrological issues are expected to be relatively minor at this site, the risk of pollution of watercourses, groundwater bodies and private water supplies within or near the site should be assessed and appropriately mitigated where required.

8.2 Guidance

This assessment has been undertaken primarily using a qualitative assessment based on professional judgement and statutory and general, national and local guidance as follows:

- SEPA Policy No.19 - Groundwater Protection Policy for Scotland
- SEPA Pollution Prevention Guidance Notes (PPG)
 - PPG 1 - General guide to the prevention of water pollution;
 - PPG 2 - Above ground oil storage tanks
 - PPG 5 - Works in, near of liable to affect watercourses;
 - PPG 6 - Working at construction and demolition sites;
 - PPG 21 - Pollution incident response planning.
- SPEA Water quality classification interactive database (2009 data)
- CIRIA construction and pollution guidance documents

Other sources of information consulted included:

- Ordnance Survey map data at 1:10k and 1:50k scales;
- SEPA online flood risk map
- Groundwater Vulnerability Map of Scotland;
- Hydro-geological Map of Scotland;
- Scottish Water for information on public water supply infrastructure;

8.3 Methodology

The methodology of this assessment is based on the collection of data from published material as well as consultation with statutory bodies - primarily SEPA, Council, and the land owner's knowledge of the site.

The assessment methods used to assess the impacts on the water environment at the proposed development are described as follows:

- All hydrological information is gathered and potential receptors that may be at risk from the proposed development are identified;
- Each activity of the development including construction, operation and decommissioning is assessed for the potential to create a pollution risk;
- Proposed mitigation measures and preventative actions are detailed

8.4 Baseline

Surface Water

All mapped watercourse were mapped as a constraint and a minimum 20m buffer was applied to protect watercourses from disturbance and potential effects on water quality during construction.

There will be no need to cross any existing courses to deliver the turbine and any associated infrastructure to the site.

There are a number water bodies near to the site but these are approximately over 5km away. Loch from the turbine site and are unlikely to be affected due to adequate separation distance. All hydrological features within 1km are shown below in Figure 9.

In addition, a review of the SEPA flood risk map for the application site confirmed that it is not located within a designated flood risk zone.

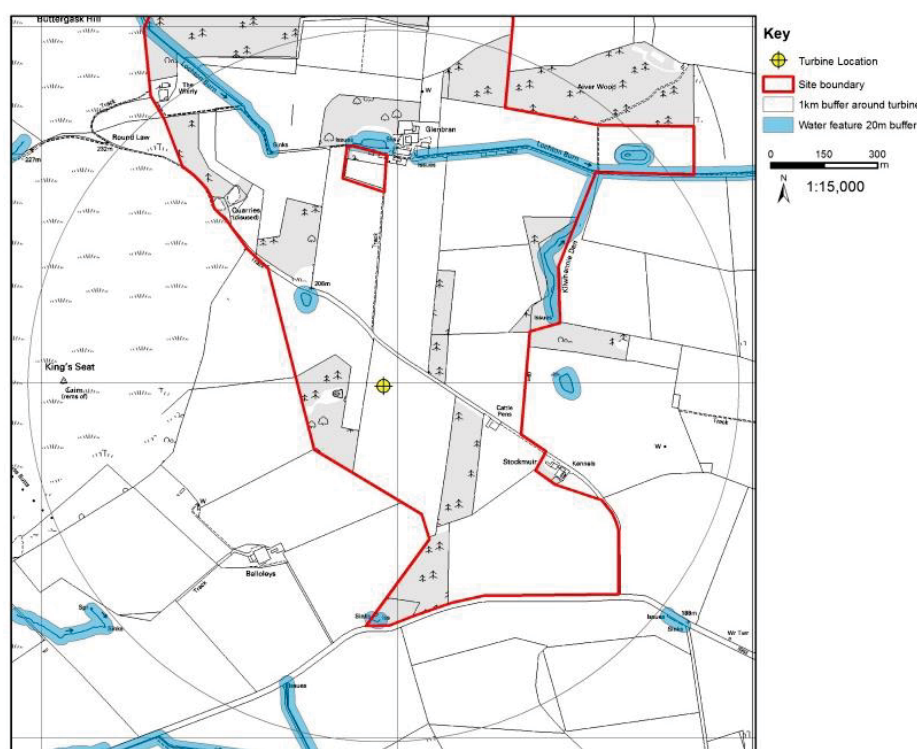


Figure 9: Water features (as shown on OS 1:10k map)

Groundwater

Groundwater is present under most landforms, although some geological formations are more permeable than others.

A review of the Groundwater Vulnerability Map of Scotland indicates that the site is located within an area of medium vulnerability of groundwater in the uppermost aquifer but due to the small size of the project and application site, this should therefore not pose any major problems on groundwater aquifers in the general area.

There are no known wells within 1km of the development site and therefore no further assessment was on groundwater aquifer's was carried out.

Hydrogeology

Any ground water within the area may be used as a source of water and is also important for irrigation within agricultural areas. The hydrogeology at the site has been assessed to determine whether any groundwater at the site is at risk of contamination.

A GIS review of the bedrock geology for the area indicates the site is likely to be made up of unnamed extrusive rocks, Silurian to Devonian nature.

A review of the Hydrogeological Map of Scotland indicates that the site is considered to be in a region underlain by impermeable rocks, generally without groundwater except at a shallow depth. These strata are therefore classified as regions without significant groundwater.

Water Resources

Consultation carried out with Scottish Water indicates that they do not have any Scottish Water infrastructure in the area.

A map courtesy of Scottish Water (Figure 10) indicates the site and the shows that it is clear with regards to Scottish Water infrastructure.



Figure 10: Water resources map (source: Scottish Water)

8.5 Assessment & Significance of Potential Effects

Surface Water

As previously described there is not a large presence of water courses running through the site. As the turbine will not be in the lower field, any impact on turbine foundations at required depth is therefore unlikely.

With regards to the risk of pollution during the install phase, trenching activities during construction have the potential to introduce new drainage pathways at the site and produce silt laden run-off. There is also the risk, although low that the drainage ditches could be contaminated by chemical spillages at the site. These risks can be mitigated during the construction phases, as per use of best practice construction methods.

Groundwater

As described previously, there are not considered to be any private water supplies within the area that utilise groundwater from the site. It is therefore deemed to be a negligible potential risk that any useable groundwater beneath the site may be vulnerable to contamination from required works during construction.

In order to protect the bedrock from entry of contaminants, mitigation measures will be put in place to deal with possible (however unlikely) concrete displacement within the bedrock.

The turbine foundations will be dug at a depth of approximately 1.8 metres, and it is considered unlikely that groundwater may be present at this level. This will be examined during the ground truth works and will determine whether disposal of groundwater at the foundations is necessary.

8.6 Site Design - Effects & Mitigation

Mitigation measures for this development primarily focus on preventing the pollution of watercourses and groundwater aquifers.

Access Works

A crossing of any of the current water courses will not be required to reach proposed turbine location.

Environmental Construction Best Practice

As with any construction project, there is a risk of a pollution spill that may flow into nearby watercourses or sink into the water table and contaminate groundwater. These risks can be dealt with satisfactorily through use of best practice construction methods.

Environmental damage, as a result of the inadequate storage or misuse of any substance hazardous to health, will be avoided by adopting the principal contractor's COSHH procedures.

During construction, any oil, fuel or other chemicals will be stored in a suitable temporary storage area. Oil and lubricants will be stored within the confines of a bund and or bunded container. Locks will be fitted to all fuel storage tanks or containers. There shall be a nominated trained person to oversee refuelling and delivery and to ensure there is no spillage.

In event of potential risk, emergency procedures will be prepared and pollution control equipment provided, such as "spill kits" and absorbent granules. These will also be carried by appropriate vehicles on site. The above arrangements shall be adopted both during the construction period and the operational phase of the development.

8.7 Conclusion

The majority of potentially significant negative impacts on water quality are only predicted to occur in the short-term, through potential increased sediment run-off and pollution/spillage during the construction phase.

It is therefore anticipated that the adoption of best practice management and control procedures by all site personnel and the implementation of the mitigation measures outlined, will reduce the amount of overall risk. Mitigation measures undertaken throughout the construction phase will be carried out in accordance to relevant SEPA guidance and legislation, along with on-going discussions with these groups.

9 Noise

9.1 Introduction

There are a few residential properties in the general vicinity of the proposed Glenbran Farm site. These properties may possibly be sensitive to noise generated by a wind energy development and the wind turbine will be designed to minimise disturbance to these receptors.

The proposal consists of the erection of a single 500kW wind turbine (Model V47 500kW, manufactured by RRB) on a 31m free-standing tower. The turbine incorporates a geared mechanism, with a cut-in wind speed specified as 4 m/s.

9.2 Guidance

Principles and guidelines for the environmental assessment of wind turbine related noise are given in the report entitled ETSU-R-97 'The Assessment and Rating of Noise from Wind Farms', based on the findings of the Working Group on Noise from Wind Turbines.

This document describes a framework for the measurement of wind farm noise and suggests noise limits to offer a reasonable degree of protection to the neighbouring properties, whilst, at the same time, bearing in mind the significance of wind farm development as a renewable energy source.

The following table shows the recommended noise limits for wind farm related noise at the nearest noise sensitive properties in line with ETSU-R-97.

Period	Lower absolute noise limit $L_{A90,10min}$ (dB)	Relative noise limit $L_{A90,10min}$ (dB)
Daytime (07:00–23:00)	35 – 40	5 dB(A) above background noise
Night time (23:00–07:00)	43	5 dB(A) above background noise

Table 3 - Recommended noise limits

Note: At low wind speeds (where background noise is expected to be quieter), the lower absolute noise limits apply, until the background noise has risen to within 5 dB of this level (as wind speed increases) wherein the relative noise limits come into force.

9.3 Turbine Noise Emissions

The noise emission data for a 'RRB V47 500kW' wind turbine has been provided by the manufacturer of the wind turbine, RRB, and is contained in Noise Appendix 1 and 2 of this report for reference.

The data illustrates that the sound power level (L_{WA}) of the wind turbine varies from 97.65 dB(A) to 100.9 dB(A), respectively, under wind speeds ranging from 5 metres per second to 10 metres per second (measured at 10m height).

The calculations have been made on a wind speed of 10m/s using Resoft Windfarm software. A 2 dB margin of error has been added to manufacturer's noise data to allow for any measurement uncertainty.

9.4 Assessment

There are a number of dwellings within the site boundary, although the closest properties to the proposed site are outwith of the site boundary and are located at Stockmuir (H1), approximately 530m; and the next closest property at Balloleys (H2), approximately 570m from the proposed site.

The scoping layout has incorporated a minimum 500m buffer from residences to minimise impacts to residential amenity, including noise disturbance. Relatively few dwellings are apparent within 1km.

The map below (Figure 11) shows the noise contours based on the sound power level of the candidate RRB V47 500kW wind turbine at 10m/s wind speed. The LA90, 10min measurement that is recommended in ETSU-R-97 for the assessment of wind farm noise has been adopted in these figures.

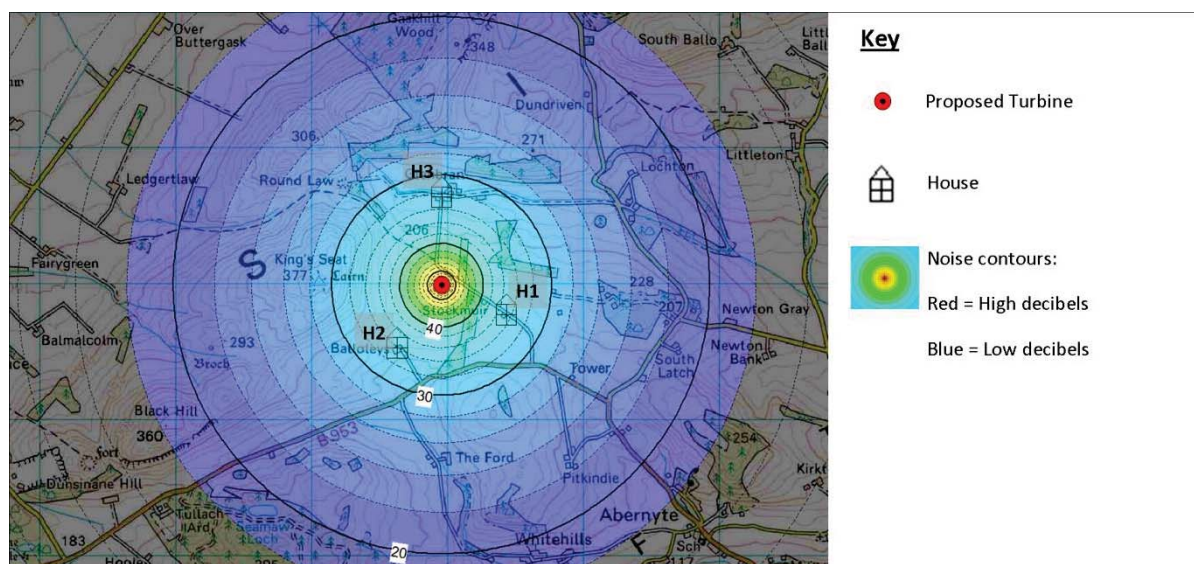


Figure 11: Proposed wind turbine location with nearest properties

The maximum predicted noise with this derived sound level would be 34.6dB at closest property H1 (530m away from proposed site). As predicted sound levels are within recommended ETSU-R-97 lower absolute noise limits, the V47 turbine option would be expected to meet noise criteria without the need for any noise monitoring.

The maximum predicted noise for the next closest property at H2 is 33.84dB. As this predicted sound level is well within recommended ETSU-R-97 limits (below 35dB), it is considered the V47 option would be expected to meet noise criteria at H2 and further afield without the need for noise monitoring.

For wind turbines where there are reasonable separation distances to properties, ETSU-R-97 suggests a simplified noise condition. If the noise is limited to an LA90, 10 min of 35dB(A) up to wind speeds of 10m/s at 10m height, then this condition alone would offer sufficient protection of amenity and background noise surveys would be unnecessary. It is noted that all properties assessed fall within this category and therefore do not require any noise monitoring.

Noise Propagation

The propagation calculations have been undertaken in accordance with the recommended methods in the article entitled "Prediction and Assessment of Wind Turbine Noise" published in the Acoustics Bulletin of March/April 2009.

The noise prediction shown above (in accordance with ISO 9613-2) uses the following input parameters:

- The atmospheric conditions have been assumed as 10°C and 70% RH
- A 2dB margin of error has been added to manufacturers noise data to allow for measurement uncertainty

With regards to the turbine sound power levels, these are confirmed by the manufacturer as warranted sound power levels. In addition to this, it should be noted that the noise prediction shown above uses ground factors of 0.5 with a 4m receptor height.

9.5 Conclusion

On the basis of the predicted noise levels detailed at the closest properties and diagram in Figure 14, it is evident that noise emissions due to the operation of the proposed wind turbine will not exceed the 35dB $L_{A90, 10min}$ threshold, up to a wind speed of 10m/s (in accordance with the simplified assessment methodology contained in ETSU-R-97) at the nearest sensitive receptors.

Therefore, it is considered that noise emissions associated with the operation of the proposed wind turbine are highly unlikely to cause a loss of amenity to the occupants of the nearest properties.

Previously the Council's Environmental Health Manager raised no objections in relation to noise.

NOISE APPENDIX 1 - GLOSSARY OF ACOUSTIC TERMS

Appendix A – Glossary of Terminology

In order to assist the understanding of acoustic terminology and the relative change in noise, the following background information is provided.

The human ear can detect a very wide range of pressure fluctuations, which are perceived as sound. In order to express these fluctuations in a manageable way, a logarithmic scale called the decibel, or dB scale is used. The decibel scale typically ranges from 0dB (the threshold of hearing) to over 120dB. An indication of the range of sound levels commonly found in the environment is given in the following table.

Table A-1
Sound Levels Commonly Found in the Environment

Sound Level	Location
0dB(A)	Threshold of hearing
20 to 30dB(A)	Quiet bedroom at night
30 to 40dB(A)	Living room during the day
40 to 50dB(A)	Typical office
50 to 60dB(A)	Inside a car
60 to 70dB(A)	Typical high street
70 to 90dB(A)	Inside factory
100 to 110dB(A)	Burglar alarm at 1m away
110 to 130dB(A)	Jet aircraft on take off
140dB(A)	Threshold of Pain

Acoustic Terminology

dB (decibel) The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2×10^{-5} Pa).

dB(A) A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.

L_{Aeq} Defined as the notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.

L_{10} & L_{90} If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The L_n indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L_{10} index when describing traffic noise.

L_{Amax} The maximum A-weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall L_{Aeq} noise level but will still affect the noise environment.

NOISE APPENDIX 2 – SOUND POWER LEVEL DATA

Sound Power Warranty Levels

Free Breeze Energy Systems Ltd. guarantees that the tonal noise will not exceed warranted sound power levels when calculated from the certified noise data below and according to ETSU-R-97, which is the tone levels above audibility, and which is also referred to as tonalities. Furthermore, Free Breeze will warranty that the noise levels will not exceed levels stated below within the statutory order no.304 using the LWA definition law.

The measurements were performed according to the International Standard IEC 61400-11 December 2002: "Wind turbine generator systems – Part 11: Acoustic noise measurement techniques".

The degree of accuracy of $L_{WA,ref}$ based on the definitions given in statutory order no.304 is $\pm 2\text{dB(A)}$.

The calculation of the standardised wind speed at 10m height according to IEC 61400-11 is based on a terrain roughness length $Z_0=0.05\text{m}$. The values in the table are calculated at normal operating speed of V47 50Hz at 26.2 RPM, V27 at 43 RPM & V29 at 41 RPM.

If the noise measurements are shown to exceed those stated below by more than 2dB(A) then Free Breeze will at it's own expense make the necessary modifications or settings adjustments to comply with the warranted sound power levels below.

Verification will be done according to the preferred methods set out in IEC-61400-11 by an independent institute which is accredited to ISO/IEC 17025.

The warranted sound power levels are presented with reference the following certified acoustic measurements:

DNV Acoustic Report No. T.041.88 for V27 225kW

DANAK Acoustic Report No. P8.005.94 for V29 225kW

DANAK Acoustic Report No. DK 304 for V47 500kW - Item no.: 943113.R2

DANAK Acoustic Report No. for V47 600kW

DANAK Acoustic Report No. P4.010.97 for V47 660kW

Vwind @ 10m height	V27 225kW	V29 225kW	V47 500kW	V47 600kW	V47 660kW
4m/s	95.5 dB(A)	96.0 dB(A)	97.2 dB(A)	98.6 dB(A)	99.0 dB(A)
5 m/s	95.95 dB(A)	96.45 dB(A)	97.65 dB(A)	99.05 dB(A)	99.45 dB(A)
6 m/s	96.4 dB(A)	96.9 dB(A)	98.1 dB(A)	99.5 dB(A)	99.9 dB(A)
7 m/s	96.85 dB(A)	97.35 dB(A)	98.55 dB(A)	99.95 dB(A)	100.35 dB(A)
8 m/s	97.3 dB(A)	97.8 dB(A)	100.0 dB(A)	100.4 dB(A)	100.8 dB(A)
9 m/s	97.75 dB(A)	98.25 dB(A)	100.45 dB(A)	100.85 dB(A)	101.25 dB(A)
10 m/s	98.2 dB(A)	98.7 dB(A)	100.9 dB(A)	101.3 dB(A)	101.7 dB(A)
11 m/s	99.65 dB(A)	99.15 dB(A)	101.35 dB(A)	101.75 dB(A)	102.15 dB(A)
12 m/s	99.1 dB(A)	99.6 dB(A)	101.8 dB(A)	102.2 dB(A)	102.6 dB(A)

Distance from Turbine	V27 225kW	V29 225kW	V47 500kW	V47 600kW	V47 660kW
100 m	46.5 dB(A)	47.2 dB(A)	48.6 dB(A)	49.7 dB(A)	50.3 dB(A)
200 m	40.5 dB(A)	41.2 dB(A)	42.6 dB(A)	43.7 dB(A)	44.3 dB(A)
300 m	36.9 dB(A)	37.6 dB(A)	39.0 dB(A)	40.1 dB(A)	40.7 dB(A)
400 m	34.4 dB(A)	35.1 dB(A)	36.5 dB(A)	37.6 dB(A)	38.2 dB(A)
500 m	32.5 dB(A)	33.2 dB(A)	34.6 dB(A)	35.7 dB(A)	36.3 dB(A)
600 m	30.9 dB(A)	31.6 dB(A)	33.0 dB(A)	34.1 dB(A)	34.7 dB(A)
700m	29.6 dB(A)	30.3 dB(A)	31.7 dB(A)	32.8 dB(A)	33.4 dB(A)
800 m	28.4 dB(A)	29.1 dB(A)	30.5 dB(A)	31.6 dB(A)	32.2 dB(A)
900 m	27.4 dB(A)	28.1 dB(A)	29.5 dB(A)	30.6 dB(A)	31.2 dB(A)
1000 m	26.5 dB(A)	27.2 dB(A)	28.6 dB(A)	29.7 dB(A)	30.3 dB(A)



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10 SHADOW FLICKER

10.1 Introduction

This section considers the potential shadow flicker impact on local properties from the proposed wind turbine during operation.

10.2 Guidance

The Scottish Government online guidance for Onshore Wind Turbines (updated 03/10/2011), addresses shadow flicker:

‘Under certain combinations of geographical position, time of day and time of year, the sun may pass behind the rotor and cast a shadow over neighbouring properties. When the blades rotate, the shadow flicks on and off; the effect is known as “shadow flicker”. It occurs only within buildings where the flicker appears through a narrow window opening. The seasonal duration of this effect can be calculated from the geometry of the machine and the latitude of the potential site.

Where this could be a problem, developers should provide calculations to quantify the effect. In most cases however, where separation is provided between wind turbines and nearby dwellings (as a general rule 10 rotor diameters), “shadow flicker” should not be a problem, However, there is scope to vary layout/reduce the height of turbines in extreme cases.’

10.3 Site Context

There are no residential dwellings within the 10 x rotor diameter distance from the proposed turbine location.

With regards to the shadow flicker assessment guidance, the proposed turbine should be located at least 470m (10 x rotor diameter of 47m) from the nearest residential dwelling for shadow flicker not to be considered an issue.

Given that the closest residence is located approximately 530m away (see H1 of Noise Assessment) from the proposed turbine, no effects on residential amenity, in terms of shadow flicker, are anticipated.

10.4 Conclusion

Based on the above, it has been demonstrated that the effect of shadow flicker is considered to have no actual impact on residents’ amenity.

11 OTHER CONSIDERATIONS

11.1 Aviation & Radar Aviation

Consultation

The standard development proformas have been sent to Ministry of Defence (MOD) and Highlands and Islands Airports (HIAL) but it is unlikely that any response will be received from MOD until it is received as a planning application - due to their current workload situation and priority to comment on formal planning applications only. This has recently also become the case for NATS, and will only be assessed at time of planning submission. However, we are able to make initial desktop assessment using data provided from both MOD and NATS and the results of this are detailed below.

Military - Ministry of Defence (MOD)

The site is in a low priority military low flying area less likely to raise concerns. In addition to this, development of up to 40m at this site appears to have no interference with any military radar station. Development up to 60m however, could have interference towards Leuchars ATC radar. Further assessment was carried out with Pager Power, an independent aviation consultancy.

Pager Power Site Assessment

A list of 6 proposed co-ordinates for a wind turbine were sent to Pager Power for a Line of Site Assessment, see Figure 12 below. Of these, 3 came back indicating possibility of turbine heights over 50m but below 60m. It would appear that the high point at Kirkton Hill to the south east of the site is providing adequate blocking for a number of options to exist at over the 50m mark for the Glenbran site. Turbine position 2 (323959, 732990) was then selected as the site, as it has been indicated that a turbine up to 59.6m height here would not have any line of sight issues.

This has also been backed up in the radar detectability assessment that was carried out in order to understand the amount of radar energy likely to be picked up here considering the distance between the site and ATC radar Leuchars. The detectability assessment also concluded detection unlikely. Although this was based on an initial turbine height estimate of 48.4m tip height, we have increased the height in the study based on the Line of Sight findings and to allow a greater range of turbines to be considered suitable for the site.

Although, these findings can only be confirmed by MOD, we are confident at this stage that their own assessment would be consistent with Pager Power's findings.

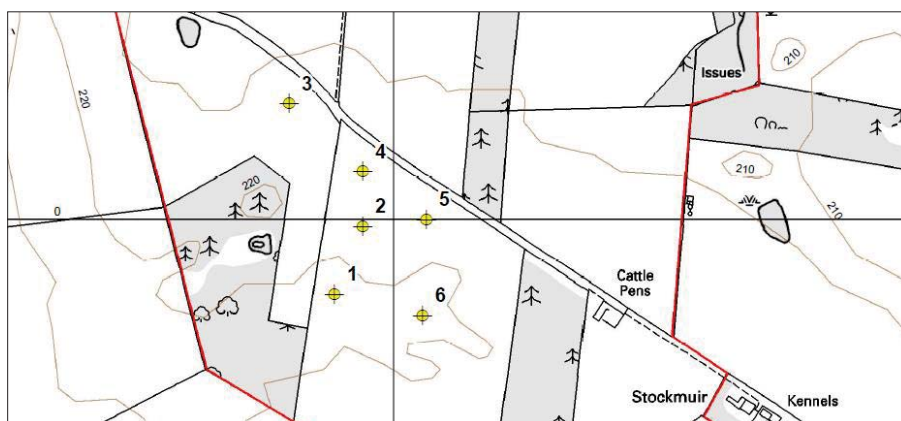


Figure 12: Map of potential turbine positions used for Line of Site assessment from ATC Radar Leuchars

Civilian - Highlands and Islands Airports (HIAL) / National Air Traffic Services (NATS)

The nearest airfield is Dundee and the site within the 17km safe guarding limits; however details of the proposal have been sent to HIAL for safeguarding assessment. The site is outwith of any civil aviation radar interference zones including Primary Surveillance Radar (PSR), Secondary Surveillance Radar (SSR), Air-Ground-Air communications station (AGA), although is at the edge of Perth Airports Navigational Aid Stations.

Details of the proposed development have been sent to HIAL and they have responded by stating that the proposal would not infringe the safeguarding surfaces for Dundee airport, however a red obstacle light on the turbine is likely to be requested.

11.2 EMI Microwave Links

Consultation

The Ofcom consultation for the site has confirmed that there is one licensed link that could be affected by the proposal.

UK NGR NO2395932990 at Search Radius 500 Includes additional 500m margin to customers requested search Radius) - Results

Links	Company	Contact	Telephone	Email
0503110/3	Airwave Solutions Limited	Brian Johnson		windfarms@r4telecom.co.uk

Table 4: Telecommunication Link Assessment

Further consultation was carried out with Airwaves Solution but there is a substantial charge for this check and we have no reason to believe this link to be of concern, due to the limited size and scale of the proposal. If an objection is raised the work will be undertaken to confirm that this link does not affect the site and/or the proposed development.

Joint Radio Company (JRC) and Atkins Global were contacted as they operate telecommunications links which can be affected by turbine installations. Responses have been received from both organisations confirming that no interference is predicted at the sites.

Television

A BBC online assessment check was carried out, which highlighted that a small number of homes in the area may be affected. In the unlikely occurrence of any adverse effects with regards to television interference, these can be resolved through technical solutions and will be agreed between the applicant and Council, if appropriate.

Possible mitigation measures may include:

- Upgrading of existing receivers;
- Replacement of receiving aerials;
- Retuning of television receivers;
- Provision of satellite/digital services to affected households.

11.3 Existing Infrastructure

A Linesearch request was submitted for the proposal to identify the proximity of existing infrastructure in the vicinity of the proposed turbine. A response was received that no further actions were necessary.

11.4 Conclusion

It has been assessed that all listed items as part of this chapter are unlikely to cause any operational problems, for both the smooth running of the turbine project and local residents' considerations.

As demonstrated in the aviation assessment, impacts on aviation interests are considered to be minimal and this should therefore not be seen as an element of concern.

12 SAFETY

12.1 Introduction

Safety is an important consideration for any development project, as there are a number of potential hazards for the general public and contractors.

The greatest hazards occur during construction, repair works and decommissioning of turbines but the risks will be minimised by ensuring work is done by competent staff, following established methodologies which have been risk assessed in advance of the work. During the construction period, public access will be prevented and the site supervisor will ensure that safety is paramount.

12.2 Legislation & Safety

A nominated Health and Safety officer will be allocated to the site during construction phases and all works will be carried out in accordance with CDM regulations.

The wind turbine being considered for use at Glenbran Farm is designed and manufactured to industry standard and will withstand the weather extremes which can arise in Scotland.

12.3 Construction Best Practice

During the construction, decommissioning and operational phases; relevant guidance and standards as well as the SNH document 'Good practice during wind farm construction', will be adopted to maintain site safety and for the protection of ecology and hydrology interests.

All personnel working on the site will be formally inducted, covering topics including health and safety, environmental protection and pollution prevention.

Prior to commencing works, a detailed health, safety and environmental plan would be submitted to ensure a safe and coordinated approach to delivering the project.

12.4 Representations

In his Report of Handling the Case Officer previously indicated that, in relation to the issue of visual impacts that he agreed with *...some of the objectors concerns..*

It should be noted that:

1. no letters of objection were received and neither did any consultee raise objection; furthermore
2. the Report of Handling did not fully recount the number of support letters received nor the matters raised in those letters. Specifically the following material points were raised:
 - Positive impacts of the development to the local economy;
 - Positive nature of the proposal as a farm diversification initiative;
 - Value of proposal in sustaining the viability of the Farm and business;
 - Importance of contribution of the applicants business to the local economy and in particular employment opportunities;

- The contribution towards national targets for the delivery of green energy;
- The good conservation practices adopted by the applicant in relation to land management.

Importantly those support comments were not captured in the Report of Handling nor was it clear what weight, if any, was given to those matters when appraising the development?

The applicant is firmly of the view that those omitted social, environmental and economic support comments were important and relevant *material planning considerations* and by reference to the section on Scottish Planning Policy above it can be seen that weight in the decision making process should have been accorded to those views.

12.5 Precedent

The applicant is unclear why **precedent** should previously have been incorporated as a reason for refusal (Reason 3)?

It is an established tenet of Planning Law that each proposal should be dealt with on its own particular merits. The case set out here demonstrates that this carefully designed proposal on this particular site would successfully integrate this *medium* scaled turbine within this part of the Sidlaw Hills. The proposal meets the Council's own guidelines on siting and previously no objections were received by consultees or the local community. Unlike other locations along the Sidlaw Hills, this site would not interfere with radar and flight operations from Leuchars Air base. Furthermore, and importantly, as a farm diversification proposal this project would deliver substantial economic benefits to both the local community and an important and significant local employer. In the opinion of the applicant it would be inappropriate to conclude that these particular circumstances would be widespread within the local area.

13 CONCLUSIONS

This report establishes that the proposed single wind turbine development complies with all the relevant national and local development policies and policy guidelines, and together with other specific assessments, demonstrates all key planning considerations have been addressed.

Key considerations have included:

- **Access:** Efforts should be made to minimise the necessary civil works. The site is accessible to construction traffic and abnormal loads, and interruption during the construction phase is considered likely to be minimal.
- **Available land:** The site is large enough to accommodate the development without significantly affecting the current land operations, as well as maintaining sufficient clearance from other nearby properties in terms of visual impact and residential amenity.
- **Environmental and cultural heritage:** The application site is not located on any national or local designated sites for landscape and cultural heritage. In addition, there are no designated sites of ecological importance on the site.
- **Technical constraints:** Various technical constraints have been investigated, including noise, shadow flicker, aviation impact, and EMI microwave link interference. All constraints investigated are unlikely to cause any operational problems – for both optimal running of the turbine and local resident's considerations.

National planning policy is supportive of the principle of wind energy development, whilst highlighting the relevant planning and environmental criteria that will need to be considered for individual development proposals. Projects such as Glenbran Farm, which is estimated to generate enough electricity to supply the equivalent of 303 households per year and displace the equivalent of up to approximately 614 tonnes of CO₂ emissions per year from conventional forms of electricity generation, will make a significant contribution to achieving renewable energy targets and is considered a good example of a small-scale wind energy scheme in the proposed location.

With regards to the Development and Local Plans adopted by Perth & Kinross Council, they are receptive to the development of wind turbine schemes; subject to planning and environmental criteria being satisfied.

The applicant's case has shown that the landscape within which the new turbine would be sited can accommodate this *medium scale* wind proposal. Although a new 'point feature' would result, site characteristics and design would ensure that visual impacts are mitigated. It is the applicant's contention that any localized impacts giving rise to a perception of visual harm are not sufficient to outweigh those other material planning considerations. Accordingly the proposal would not conflict with the planning policies of the Perth Area Local Plan.

The proposal would comprise a farm diversification activity that would contribute to the viability and sustainability of an established farm and plant nursery business which are a key local employer in a rural part of Perthshire.

The applicant has provided a full account of the importance of this proposal to his business interests. The proposal would off-set increased energy costs which have threatened commercial viability and competitiveness. Furthermore the proposal would enable those businesses to plan

ahead with confidence. The proposal would also enable traditional farming practices to be continued. Those practices contribute to the character and appearance of this part of the Sidlaw hills.

The proposal represents a sustainable economic development proposal. The economic benefits to the local economy arising from the development have been fully explained. Such matters are material in planning terms. New information presented with this application represents a significant justification in support of the proposal and should be accorded great weight in any new planning decision.

The economic benefits to an established business and employer can, and should be, a significant factor when weighed against any concerns relating to localized visual impacts. The applicant would request that a balanced approach to the consideration of all material planning considerations is adopted.

The applicant's failure to deliver this farm diversification project would impact on the viability and long term sustainability of the farm and plant Nursery operations.

The proposal represents a balanced approach to the delivery of a renewal energy development project in a manner which:

- would not be sited within a protected landscape;
- has regard to the need for countryside protection;
- makes a meaningful contribution to reducing Scotland's dependence on fossil fuels;
- provides security of energy production for an important business in a rural area;
- offers potential for that businesses to invest in ownership of a renewable energy project;
- meets the operational needs of an important local employer;
- would provide direct benefits to the local economy; and would
- enable the viability of the businesses to be sustained.

The applicant would contend that in this way this *medium* scale wind turbine proposal would constitute an acceptable form of sustainable economic development that has respect for environmental protection. Such an approach to renewable energy development would be consistent with that most recently advocated by Scotland's Planning Minister Derek Mackay when launching the consultation draft of the new SPP in May 2013.

Taking account of all policies relevant to the proposed development together with all other material planning considerations which have been reviewed, the development can be seen to be in compliance with the overarching aims and objectives of the development plan. As such, it is requested that consent is granted for the development as any perceived concerns of localised landscape harm can be seen to be outweighed by the environmental and economic benefits arising from the development.

Appendix 1 - Landscape & Visual Impact

1) Landscape and Visual Impact Assessment Report

Atmos Consulting Ltd

** All Landscape & Visual Impact figures
included in Volume 2*

Appendix 2 - Ecology & Ornithology

1) Ecological Assessment of Single Wind Turbine at Glenbran Farm

Skorpa Consultancy Ltd

** All Ecology & Ornithology figures
included in Volume 2*

Appendix 3 - Visualisations Quality Statement

With reference to Perth and Kinross Council 'Guidance for the Preparation and Submission of Photographs and Photomontages to illustrate the impacts of Wind Energy Development; for inclusion in Planning Applications and Environmental Statements', the following points are noted:

1) ZTV Production Software

All ZTV figures have been produced in Resoft Windfarm software, and then presented in a final GIS map using ESRI ArcView.

2) Photograph Information

- a) For each of the agreed viewpoints 50mm single frame images were taken in order to conform with the fields of view as defined in the SNH good practice guidelines and shown below:

Focal length (mm)	Horizontal field of view (degrees)	Vertical field of view (degrees)	Diagonal field of view (degrees)
50	39.6	27.0	46.8

- b) The photographs were taken using a Canon EOS 550D Digital SLR Camera at a viewing height of 1.5m.
- b) The ISO rating, colour/white balance adjustments, date, time, aperture 'f' stop and shutter speed are all included in the metadata which is stored with each photograph. This is viewable in most photo viewing software. As an example, double clicking on a photograph in Microsoft picture viewer and then selecting to view more details will show all the metadata. Additionally, all metadata can be viewed in the image properties.
- e) The electronic photograph images with associated metadata have been provided on CD ROM.

3) Photomontage Standards

The photomontage and wireframes have been produced using Resoft Windfarm software. The terrain dataset used was Ordnance Survey's Landform Panorama.

All photomontages are single frame only and have been produced as per Perth and Kinross specification, along with points taken from SNH Good Practice Guidelines.

All photomontages have been produced for viewing in A3, at a correct viewing distance of 500mm.

Appendix 4 - Consultee Responses

1) Perth and Kinross Council screening response - dated 02/08/12



2) Historic Scotland Consultation response - dated 08/10/12

Sanjay Chundoo

Subject: RE: Glenbran; Scheduled Monument - Index No: 7303

From: Oliver.Lewis@scotland.gsi.gov.uk [mailto:Oliver.Lewis@scotland.gsi.gov.uk]

Sent: 05 October 2012 17:48

To: sanjay.chundoo@realiserenewables.com

Subject: RE: Glenbran; Scheduled Monument - Index No: 7303

Dear Mr Chundoo,

I write regarding your email of 27 September 2012 requesting comments on the proposed erection of a single 56m high turbine on land at Glenbran Farm, near Abernethy. As you may be aware, we do very much value pre-application discussions as they enable bodies such as ourselves to influence schemes at a stage where making changes is straightforward for applicants and agents such as yourself.

Overview

As part of the pre-planning consultation process, you asked us to provide comments on the proposed wind turbine. There are no scheduled monuments, A listed buildings, designed landscapes, or Inventory Battlefields within the footprint of the proposed development, but there are within the wider area.

There are a number of scheduled monuments (an archaeological site designated as being of national importance under the Ancient Monuments and Archaeological Areas Act 1979) within the wider vicinity of the proposed turbine, of which the closest (as you've correctly identified) is 'SM 7303 Glenbran, ring fort 590m SE of' which is located approximately 460m NE of the proposed turbine. Further afield, 'SM 7259 King's Seat, cairn' is located on top of King's Seat Hill to the SW of the proposed turbine.

In preparing any future planning application, you will wish to refer to national and local policies on scheduled monuments, listed buildings, designed landscapes, battlefields, and the preservation of their settings. See the following on our website for further details: <http://www.historic-scotland.gov.uk/index/heritage/policy/shep.htm> and also <http://www.historic-scotland.gov.uk/index/heritage/policy/managingchange.htm>.

Detailed comments

It is considered likely, given the height of the proposed turbine, that its location and the local topography will mean that it will be visible from a reasonable proportion of the wider landscape. The setting of 'SM 7303 Glenbran, ring fort 590m SE of' is fairly localised, although its position overlooking Kilwhanie Den suggests that its focus may be more to the north, rather than SW towards the proposed turbine. Whilst the cairn on top of King's Seat Hill has panoramic views in all directions, a turbine of this size when viewed from this height would not likely be so dominant as to present a significant adverse impact upon the setting of the scheduled monument.

Given the above, the impact of the proposed turbine upon the setting of the various heritage assets in the area (including those outlined above) is considered not likely to be something that we would raise significant concerns about. However, this impact should still be assessed as part of any future planning application, and in particular we would be keen to see photomontages

taken from the summit of King's Seat Hill as well as from just outside the woodland within which 'SM 7303 Glenbran, ring fort 590m SE of' is located.

For additional advice archaeology and other heritage assets you should contact the local authority archaeologist (David Strachan, Perth and Kinross Heritage Trust, The Lodge, 4 York Place, Perth, PH2 8EP – DLStrachan@pkc.gov.uk).

Generic advice

Whilst you are likely aware of it already, you may find the following generic advice useful.

We don't have any specific policy guidance on the location of wind farms / turbines, and likewise don't have any maps due to the nature of the resource that our remit covers. Our predominant concern will likely be the potential indirect impacts on the settings of assets within our remit, be they scheduled monuments, category A listed buildings, sites on the Inventory of Gardens and Designed Landscapes, or Inventory Battlefields. All direct impacts on any of these assets should be avoided.

GIS datasets can be obtained from our website to give you and/or your archaeological consultant details of where each asset is located. We usually suggest that you then apply a Zone of Theoretical Visibility (ZTV) to that data as an initial way of establishing what may be visible (at least in theory) of the turbine(s) at each site and to identify where setting impacts might be likely. We can then provide more focussed advice on any scheduled monument, A listed building, or designed landscape issues that might come up once you have undertaken this initial assessment. You will also likely wish to consult with the relevant local authority archaeologist regarding the potential impacts upon unscheduled archaeology.

You may find our guidance on setting useful – see <http://www.historic-scotland.gov.uk/index/heritage/policy/managingchange.htm> for further details.

Hope this is helpful for you.

Regards,

Oliver Lewis | Senior Heritage Management Officer (Ancient Monuments - North)

Historic Scotland | Alba Aosmhor
 Longmore House, Salisbury Place, Edinburgh, EH9 1SH
 t| 0131 668 8092
 m| 07824 518 200
 e| oliver.lewis@scotland.gsi.gov.uk

www.historic-scotland.gov.uk

TCP/11/16(279)**Planning Application 13/01230/FLL – Erection of wind turbine and ancillary works, land 700 metres south of Glenbran Farm, Abernyte**

REPRESENTATIONS

- Representation from Historic Scotland, dated 23 July 2013
- Representation from Dundee Airport Limited, dated 25 July 2013
- Representation from Perth and Kinross Heritage Trust, dated 25 July 2013
- Representation from Regulatory Services Manager, dated 29 July 2013
- Representation from Transport Planning, date 7 August 2013
- Representation from Ministry of Defence, dated 8 August 2013
- Representation from Conservation Officer, dated 13 August 2013



HISTORIC SCOTLAND
ALBA AOSMHOR

Sent by e-mail:
developmentmanagement@pkc.gov.uk

Planning
Perth and Kinross Council
Pullar House
35 Kinnoull Street
PERTH
PH1 5GD

Longmore House
Salisbury Place
Edinburgh
EH9 1SH

Direct Line: 0131 668 8092
Direct Fax: 0131 668 8722
Switchboard: 0131 668 8600
Oliver.Lewis@scotland.gsi.gov.uk

Our ref: AMH/7303/10
Our Case ID: 201302539
Your ref: 13/01230/FLL

23 July 2013

Dear Sir,

Town And Country Planning (Development Management Procedure) (Scotland) Regulations 2008

**13/01230/FLL Installation of a wind turbine (total height 56.3m) on land 700m S of Glenbran Farm, Abernyste
SM 7303 Glenbran, ring fort 590m SE of**

Thank you for your consultation of 17 July 2013 requesting comments on the above application for the installation of a wind turbine (total height 56.3m) on land 700m S of Glenbran Farm, Abernyste. We note that we have previously provided comments on an earlier planning application (12/02151/FLL) for a turbine at this site, and that this application was refused.

There are several scheduled monuments within the wider vicinity of the proposed turbine, of which the closest is known as '**SM 7303 Glenbran, ring fort 590m SE of**' and is located approximately 460m NE of the proposed turbine. The scheduled monument comprises a prehistoric ring fort visible as a circular enclosure defined by an enclosing bank, and is located within a plantation on a low rise overlooking Kilwhanie Den. Further afield, '**SM 7259 King's Seat, cairn**' is located on top of King's Seat Hill to the SW of the proposed turbine, and comprises a Bronze Age burial cairn.

We note from the application that the proposed 56.3m wind turbine will be located approximately 460m SW of the Glenbran ring fort at an altitude of 215m. At this location and altitude, as shown by the ZTV and associated photomontages, the turbine will be largely visible from the margins of the Glenbran ring fort, and entirely visible in views from the King's Seat cairn and prominent in some views towards it. However, the setting of the ring fort is fairly localised and its position overlooking Kilwhanie Den suggests that its focus may be more to the north, rather than SW towards the proposed turbine. In addition, whilst the King's Seat Hill cairn has



panoramic views in all directions, we consider that the proposed turbine doesn't dominate these views, and that the landscape setting remains capable of being understood and appreciated. Given the above, we do not feel that this proposal raises issues of national significance and thus do not object to this application. As with the earlier planning application (12/02151/FLL), we would therefore ask that your Council takes local planning policy into account when considering this application.

It is worth noting we would likely have increased concerns if additional or larger turbines were proposed for this location.

Yours sincerely,

OLIVER LEWIS

Senior HM Officer (Ancient Monuments - North)

From: Anne Phillips []
Sent: 25 July 2013 15:31
To: Development Management - Generic Email Account
Cc: Andy Baxter
Subject: Plan App 13/01230/FLL - Erect single wind turbine South of Glenbran Farm Abernyste

Your Ref: 13/01230/FLL
HIAL Ref: 2013/0122/DND

Dear Sir/Madam,

PROPOSAL: Erect single wind turbine (max height 57m to blade tip)
LOCATION: Land 700m South of Glenbran Farm Abernyste

With reference to the above, our calculations show that, at the given position and height, this development would not infringe the safeguarding surfaces for **Dundee Airport**. However the site lies close to the instrument approach procedures for the airport, but there is higher ground behind which offers a degree of shadow.

Due to the height and position, a steady red obstacle light will be required to be fitted at the hub height of the turbine.

Provided that this condition is met Dundee Airport Limited would not object to this proposal.

Anne Phillips
Operations Manager
on behalf of Dundee Airport Limited
c/o Highlands and Islands Airports Limited
Head Office, Inverness Airport, Inverness IV2 7JB
☎ 01667 464244 (DIRECT DIAL)
✉ safeguarding@hial.co.uk 🌐 www.hial.co.uk

To:	DevelopmentManagement@pkc.gov.uk
From:	David Strachan, Area Archaeologist
Tel:	01738 477081
Email:	dlstrachan@pkc.gov.uk

Thursday, 25 July 2013

13/01230/FLL: Erection of wind turbine and ancillary works Land 700 Metres South Of Glenbran Farm Abernyte for A & G Young

Thank you for consulting PKHT on the above application.

Following consultation of the Perth and Kinross Historic Environment Record in tandem with the Zone of Theoretical Visibility figures and Landscape and Visual Impact Assessment photomontages / wireframes submitted, I can confirm that the single turbine proposed does not unduly impact on the settings of significant archaeological and historical sites within its vicinity. The ground-breaking works associated with this development are considered unlikely to disturb any buried archaeological remains.

In respect to archaeology and the planning process, as outlined by Scottish Planning Policy historic environment paragraphs, no archaeological condition is recommended in this instance.

Notes:

This advice is based on information held on the Perth and Kinross Historic Environment Record. This database of archaeological sites and historic buildings is regularly updated.

Memorandum

To	Development Quality Manager	From	Regulatory Service Manager
Your ref	PK13/01230/FLL	Our ref	LRE
Date	29 July 2013	Tel No	01738 476462

The Environment Service

Pullar House, 35 Kinnoull Street, Perth PH1 5GD

Consultation on an Application for Planning Permission

RE: Installation of wind turbine and ancillary works land 700 metres south of Glenbran Farm Abernyte for A & G Young

I refer to your letter dated 17 July 2013 in connection with the above application and have the following comments to make.

Environmental Health (assessment date 22/7/2013) Recommendation

Comments

This application is a re –submission following a previous refused application 12/02151/FLL due to the significant adverse impact on visual amenity of the area. The site area and the proposal remain the same as in the previous refused application. Therefore I reiterate the comments made by this Service in memorandum dated 8 January 2013.

The applicant seeks consent to install a single 500kW wind turbine up to 56.3m in height to blade; the supporting information contains data regarding the noise output from the proposed turbine indicating that the noise levels at the nearest property would not be expected to cause a nuisance.

The application site is approximately 530m and 570m from the nearest residential properties Stockmuir and Balloys respectively. It is therefore possible in principle for a wind turbine, installed at this location, to comply with the simplified noise condition for single turbines as recommended by ETSU-R-97.

ETSU-R-97 suggests the use of simplified noise conditions for a single turbine and these conditions alone would offer sufficient protection of amenity and background surveys would be unnecessary.

Shadow Flicker

Under certain combinations of geographical position and time of day, the sun may pass behind the rotors of a wind turbine and cast a shadow over neighbouring properties. When the blades rotate, the shadow flicks on and off; the effect is known as 'shadow flicker'. It only occurs inside buildings where the flicker appears through a narrow window opening. A single window in a single building is likely to be affected for a few minutes at certain times of the day during short periods of the year. Problems caused by shadow flicker are rare. At

distances greater than 10 rotor diameters from a turbine, the potential for shadow flicker is very low.

It is my contention that considering the distances to the nearest properties I do not envisage any particular problems with shadow flicker being created.

I therefore recommend that the following conditions are attached to any approval.

Conditions

1. Noise arising from the wind turbine shall not exceed an $L_{A90, 10 \text{ min}}$ of 35 dB at the nearest noise sensitive premises at wind speeds not exceeding 10m/s, and measured at a height of 10m above ground at the wind turbine site, all to the satisfaction of the Council as Planning Authority. In the event of that audible tones are generated by the wind turbine, a 5dB (A) penalty for tonal noise shall be added to the measured noise levels.
2. On a formal written request by the Council as Planning Authority, appropriate measurements and assessment of the noise arising from the wind turbine (carried out in accordance with ETSU report for the DTI - The Assessment and Rating of Noise from Wind Farms (ETSU-R-97) shall be submitted for the approval in writing by the Council as Planning Authority





MEMORANDUM

To	Andy Baxter Planning Officer	From	Niall Moran Transport Planning Technician Transport Planning
Our ref:	NM	Tel No.	Ext 76512
Your ref:	13/01230/FLL	Date	7 August 2013

Pullar House, 35 Kinnoull Street, Perth, PH1 5GD

TOWN AND COUNTRY PLANNING (SCOTLAND) ACT 1997 & ROADS (SCOTLAND) ACT 1984

With reference to the application 13/01230/FLL for planning consent for:- **Installation of wind turbine and ancillary works Land 700 Metres South Of Glenbran Farm Abernyste for A & G Young**

Insofar as the Roads matters are concerned I do not object to the proposed development provided the conditions indicated below are applied, in the interests of pedestrian and traffic safety.

- Prior to the commencement of works the Developer shall agree with Perth & Kinross Council the access routes to be used by construction traffic. These routes shall be improved by means of passing places/strip widening and junction improvements at locations to be agreed with the Council as Roads Authority prior to the commencement of works on site and thereafter where deemed necessary over the duration of the contract. All works shall be carried out to the standard and specification required by the Council as Roads Authority to the satisfaction of the Council as Planning Authority.
- Prior to the commencement of works the applicant shall enter into a maintenance agreement under **Section 96 of the Roads (Scotland) Act 1984** in respect of the agreed haul routes. The agreement will formalise the inspection and maintenance regime specified by the Council as Roads Authority to the satisfaction of the Council as Planning Authority.
- Prior to the commencement of works the applicant shall agree a traffic management scheme for abnormal loads with the Council as Roads Authority in accordance with the **Roads Traffic Act 1982**, the **Road Vehicles (Authorisations of Special Types) (General) Order 2003** and the Council's procedure for **Abnormal Loads Routing** to the satisfaction of the Council as Planning Authority.
- The public road shall be kept free from mud, debris etc. at all times and suitable wheel cleaning facilities shall be provided within the site to prevent the deposition of mud, debris etc on to the public road to the satisfaction of the Council as Planning Authority

I trust these comments are of assistance.



Defence Infrastructure Organisation

Debi Parker
Safeguarding Assistant
Ministry of Defence
Safeguarding – Wind Energy
Kingston Road
Sutton Coldfield
West Midlands B75 7RL
United Kingdom

Your Reference: 13/01230/FLL

Telephone [MOD]: +44 (0)121 311 3847

Facsimile [MOD]: +44 (0)121 311 2218

Our Reference: DIO/SUT/43/10/1/ 17871

E-mail: DIOOpsNorth-LMS7a1a1@mod.uk

Perth & Kinross Council
Pullar House
35 Kinnoull Street
PERTH PH1 5GD

8th August 2013

Dear Mr Baxter

Please quote in any correspondence: 17871

Site Name: Land 700m South of Glenbran Farm

Proposal: Erection of 1 Wind Turbine

Planning Application Number: 13/01230/FLL

Site Address: Abernyte

Thank you for consulting the Ministry of Defence (MOD) on the above Planning Application in your communication dated 17th July 2013.

I am writing to tell you that the MOD has no objection to the proposal.

The application is for 1 turbine at 56.30 metres to blade tip. This has been assessed using the grid references below as submitted in the planning application or in the developers' or your pro-forma.

Turbine	100km Square Letter	Easting	Northing
1	NO	23959	32990

In the interests of air safety, the MOD requests that thre turbine is fitted with 25 candela omni-directional red lighting or infrared aviation lighting with an optimised flash pattern of 60 flashes per minute of 200ms to 500ms duration at the highest practicable point.

The principal safeguarding concern of the MOD with respect to the development of wind turbines relates to their potential to create a physical obstruction to air traffic movements and cause interference to Air Traffic Control and Air Defence radar installations.

Defence Infrastructure Organisation Safeguarding wishes to be consulted and notified of the progression of planning applications and submissions relating to this proposal to verify that it will not adversely affect defence interests.

If planning permission is granted we would like to be advised of the following;

- the date construction starts and ends;
- the maximum height of construction equipment;
- the latitude and longitude of every turbine.

This information is vital as it will be plotted on flying charts to make sure that military aircraft avoid this area.

If the application is altered in any way we must be consulted again as even the slightest change could unacceptably affect us.

I hope this adequately explains our position on the matter. If you require further information or would like to discuss this matter further please do not hesitate to contact me.

Further information about the effects of wind turbines on MOD interests can be obtained from the following websites:

MOD: <http://www.mod.uk/DefenceInternet/MicroSite/DIO/WhatWeDo/Operations/ModSafeguarding.htm>

Yours sincerely

Debi Parker
Safeguarding Assistant – Wind Energy
Defence Infrastructure Organisation

SAFEGUARDING SOLUTIONS TO DEFENCE NEEDS

Memorandum

To Andrew Baxter
Planning Officer

From Richard Welch, Conservation Officer,
Development Management, Planning &
Regeneration

Your ref 13/01230/FLL

Our ref

Date 13 August 2013

Tel No 76598

The Environment Service

Pullar House, 35 Kinnoull Street, Perth PH1 5GD

Installation of wind turbine and ancillary works: land 700 metres south of Glenbran Farm, Abernyte

Conservation Officer comments

The nearest listed building to the wind turbine site (within a 2km radius) is Lochton House and Walled Garden. The nature of the topography and landscape is such that there will be no significant impact on the setting of this or any other listed buildings in the vicinity.

The impact upon the setting of the Rossie Priory Garden and Designed Landscape is also not considered to be significant.

Richard Welch
Conservation Officer

