SADDLE HILL
WIND FARM

ENVIRONMENTAL STATEMENT

NOVEMBER 2014

VOLUME 1: NON TECHNICAL SUMMARY

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Preface

This is a non-technical summary of the Saddle Hill Wind Farm Environmental Statement. The Environmental Statement has been prepared to accompany the submission of a planning application for the Saddle Hill Wind Farm, which has been submitted to Angus Council and Perth & Kinross Council.

The Environmental Statement comprises:

Volume 1	A Non-Technical Summary (this volume)
Volume 2	The Environmental Statement (ES) Main Text
Volume 3	Figures
Volume 4	Appendices

Inspection of the Planning Application and Supporting Documents

Copies of the full Environmental Statement may be viewed at the following locations:

- Angus Council: County Buildings, Market Square, Forfar, DD8 3LG
- Perth & Kinross Council: Planning & Development Department, Pullar House, 35 Kinnoull Street, Perth, PH1 5GD
- Alyth Library, Airlie Street, Alyth, PH11 8AJ
- Blairgowrie Library, 46A Leslie Street, Blairgowrie, PH10 6AW

Electronic copies of the full Environmental Statement are also available free of charge from Wind Prospect and available online via the project website (http://www.saddlehillwindfarm.co.uk). Hard copies of the complete Environmental Statement may be purchased from Wind Prospect at a cost of £500 (to cover printing costs). Wind Prospect can be contacted directly at the address below:

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1 Introduction

1.1 Wind Prospect Developments 2 Ltd (hereafter referred to as Wind Prospect) is a joint venture between Wind Prospect and EDF Energy Renewables (EDF-ER) and is the Applicant for the Saddle Hill Wind Farm.

1.2 Wind Prospect proposes to erect fourteen wind turbines and ancillary infrastructure at Saddle Hill (approximately 4.5km north west of Kilry) for the purpose of generating electricity from wind energy. *Figure 1* shows the site location and regional context of the proposal.

1.3 Part of the Application Site lies within Angus and part lies within Perth and Kinross. The same application for the proposal has been submitted to both local planning authorities and the Development will require consent from both Angus Council and Perth and Kinross Council in order to proceed in its current format.

1.4 This Environmental Statement has been prepared in accordance with the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011. Both Angus Council and Perth & Kinross Council, and the relevant statutory consultees have been consulted regarding the scope of the Environmental Assessment and have provided relevant information and guidance throughout the development of the proposal.

2 The Proposed Saddle Hill Wind Farm

2.1 The proposed Saddle Hill Wind Farm is a development comprising fourteen wind turbines and ancillary infrastructure for the purpose of generating electricity from wind energy. Each candidate turbine has a maximum generating capacity of 2.5MW, giving a total combined generating capacity of 35MW. A detailed site layout is shown in *Figure 2*. The proposed turbines will have a three-bladed rotor with an indicative blade length of 45 metres and a hub height of 70 metres resulting in maximum turbine heights from ground level to blade tip, when the blade is in the upright position, of 115 meters, as illustrated in *Figure 3.*

2.2 The construction, operation and decommissioning of the proposed wind farm is anticipated to cover a period of up to 28 years, 25 of which will be for its operation. The wind farm construction will be completed over a period of approximately 12 months.

2.3 The Wind Farm will include the following components:

- Fourteen wind turbines;
- Wind turbine foundations;
- Crane hardstandings;
- Excavated roads;
- Culverted minor watercourse crossings;
- Wind monitoring mast (Anemometer);
- Electrical connection, including switchgear building;
- Temporary construction compound.

2.4 A permanent anemometry mast, with a maximum height of 70m (as illustrated in *Figure 4*) will be located on the site to provide necessary information for the control and monitoring of the wind farm.

2.5 Should the project be granted planning consent, prior to the main construction phase commencing, a number of method statements will be submitted to both Angus Council and Perth & Kinross Council. The method statements include a Transport Management Plan (TMP); Water Management Plan (WMP); Habitat Management Plan (HMP); Waste Management Plan (WMP); Peatland Restoration Plan (PRP).

2.6 Enabling works carried out prior to the main construction phase will include:

- Geotechnical investigations; ground investigation; boreholes; laboratory testing etc;
- Upgrades to the B954, Pitcronkie Bridge and a new site entrance from the U388;
- Borrow pits: establishment of borrow pits and processing of stone.

2.7 Turbines will be shipped to the Port of Rosyth. From there, the turbine delivery will follow the M90 to Perth before joining the A94 through Coupar Angus. The route then leaves the A94 onto the B954 shortly before Meigle, following the B954 north, crossing over the A926 and bypassing Alyth via Glenisla Golf Course. The turbines will continue north on the B954 until it meets the U388 minor road south of Incheoch Farm. After following the U388 for approximately 600 m, delivery vehicles will leave the public road at the site entrance immediately south of New Craig Farm. Here, a new stretch of track will be constructed to circumnavigate New Craig Farm and join an existing track from the farm to the commercial forest plantation on Balduff Hill. This forest track will be upgraded and a stretch of new access track will extend north from the west side of Balduff Hill, crossing the Burn of Watersheal before reaching the north eastern part of the site where the proposed turbines are located.

2.8 Following the construction of the turbine foundations, electrical infrastructure will be installed comprising of transformers located within, or immediately adjacent to, each turbine. A single storey switchgear building measuring approximately 21.15m x 5.85m x 6.2m high will be located on site. A typical switchgear building is illustrated in *Figure 5.*

2.9 There are two temporary construction compounds associated with the proposed Development. The dimensions of the main temporary construction compound, in the north east part of the site are 30m x 80m. This temporary construction compound will contain offices which will be manned during construction hours and the smaller construction compound near the site entrance will provide a signing in / out function for the site and will occupy an area of 10m x 10m.

2.10 There are two on-site borrow pits proposed as part of the Development to provide aggregate for the construction of tracks, crane hard-standings and the switch gear building. The scale of the proposed borrow pits are considered sufficient to meet all of the wind farm's aggregate requirements.

2.11 In total, approximately 81 hectares of commercial forest will be felled as part of the Development. 70 hectares of mature hardwood trees will be felled in the south west of the site. Approximately 11 hectares of trees present along the proposed access route will be felled and a section of the forestry at the southern borrow pit will be cleared. This felling allows the utilisation of shorter turbine towers than would be required for 'keyholed' turbines set in forest. There would be a requirement for compensatory planting.

2.12 Once the turbines are operational, minimal vehicle traffic will be required to access the site. The turbines will be monitored remotely and require only routine maintenance visits.

2.13 The wind farm will have an operational life of approximately twenty-five years. After this time, if an extension to the planning consent is not sought, the development will be

decommissioned and the site restored to its former condition. It is anticipated that decommissioning of the wind farm would take no more than 12 months to complete.

3 The Need for the Development

3.1 There is broad consensus amongst scientists worldwide that greenhouse gas emissions resulting from the burning of fossil fuels is a major contributor to man-made climate change and that there is an urgent need to reduce these emissions to combat global warming. The need to produce electricity from renewable sources stems from the acknowledged need to combat global climate change and is supported by policy at international, European, UK, Scottish and local levels.

3.2 At the end of 2013, there was 6,592 MW of installed renewables electricity capacity in Scotland, an increase of 13.9% (805 MW) over the last year and provisional estimates show that renewable output in 2013 (17,011 GWh) was 16.4% higher than 2012.

3.3 Between 14 and 16GW of installed renewable energy capacity is required in order to reach the Scottish Government target of 100% of Scotland's demand for electricity to be met from renewable by 2020.

3.4 A wind farm's predicted 'capacity factor' is the percentage of its maximum output that is expected to be generated during its operational lifetime. A 100% capacity factor would mean that the wind turbines were generating their maximum output all the time. This would require constant high wind speeds all year round. In reality, the wind speed fluctuates but is sufficiently strong for wind turbines to generate electricity most of the time at, or below, their maximum possible output.

3.5 The capacity factor used to calculate the contributions the proposed 35MW Saddle Hill Wind Farm could make towards meeting the UK and Scottish Government targets is 28% (the Scottish mean for 2000 to 2012 from the Historic Regional Statistics: 2012 Regional Data).

3.6 Based on this 28% capacity factor it is predicted that the Saddle Hill Wind Farm would generate 85,848 MWh of electricity per year.

3.7 It would produce the equivalent electricity as is used by 20,105 households, based on an average usage of 4.27MWh per UK household.

3.8 The wind farm would also avoid the emission of approximately 52,109 tonnes of CO_2 per year, presuming savings of 607g/kWh.

3.9 The total amount of CO_2 and other greenhouse gases emitted from the manufacture, construction and decommissioning phases of wind farms range from between 8 and 20g CO_2eq/kWh), giving the Saddle Hill Wind Farm a carbon payback period of between 0.5 years and 1.9 years.

4 Planning the Development

4.1 A range of factors were considered during the development of this proposal at two distinct levels:

- **Strategic Site Appraisal** at a broad scale, in order to identify, through the analysis of a wide range of technical and environmental criteria, a discrete study area within which proposals for a wind farm could be developed.
- **Detailed Site Design** of the wind farm, involving the design of the site layout, access arrangements, type and finish of the turbines and all ancillary structures, in order to best respond to various technical, operational and environmental constraints to development within the identified study area.

4.2 Environmental criteria were guided by local and national policy:

- Scottish Planning Policy (SPP);
- TAYplan Strategic Development Plan (2012);
- Angus Council Local Plan Review (2009);
- Perth and Kinross Local Development Plan (2014);
- Angus Council Renewable Energy Implementation Guide (2012);
- Strategic Landscape Capacity Assessment for Wind Energy in Angus (2013);
- Perth and Kinross Supplementary Guidance for Wind Energy (2005);
- SNH's (Scottish Natural Heritage) 'Renewable Energy Policy Statement 01/02', 'Strategic Locational Guidance for Onshore Windfarms 02/02', 'Landscape Character Assessments 1998', and 'Siting and Designing Windfarms in the Landscape (2009)'.

4.3 The following environmental, technical and land use constraints are important site selection and design considerations:

- Sufficient wind resource;
- Capacity within, and ease of connection to, the electricity distribution network;
- Availability of the land;
- Access and general ground conditions;
- Nature of land uses;
- Presence or proximity of landscape designations;
- Landscape capacity;
- Presence or proximity of nature conversation designations, such as Special Protection Areas, Special Areas of Conservation, Sites of Special Scientific Interest, or any site of local conservation interest such as Royal Society for the Protection of Birds (RSPB) and Scottish Wildlife Trust (SWT) reserves;
- Likely ecological and hydrological sensitivity, considering land use on-site;

- Presence or proximity of cultural heritage designations such as Scheduled Monuments and Listed Buildings;
- Proximity to communities and residential properties; and
- Aviation considerations.

4.4 The findings of the strategic appraisal included the following.

- NOABL wind speed data estimated that wind speeds across the site were in the range of 7.9 – 8.7 m/s
- Electrical connection was deemed to be feasible.
- The site is accessible for turbine delivery.
- The site is partially man-modified and consists of a mixture of arable and pastoral fields, moorland and commercial forest plantation.
- There are no on-site local or national landscape designations.
- The site lies within the Highland Summits and Plateau landscape character area. This is attractive for wind farm development because it tends to be open, large scale, and exposed.
- It was recognised that an assessment of any effects on the site's protected species would be a key consideration, and mitigation would be considered if appropriate.
- A number of cultural heritage assets within the site and within 15km of the site were identified, with detailed site design and appropriate mitigation considered if appropriate.
- It was possible to achieve buffers in excess of 1km between turbines and properties.
- There were no aviation constraints.

4.5 Having established the Saddle Hill site as being suitable for a wind farm development, an iterative EIA and design process refined the scale and design of development best suited to the location, considering a number of alternative layouts. This took into account the results of environmental surveys, which have continued since 2010 and as further results became available, these also fed into the layout evolution.

4.6 The following sections of this Non-Technical Summary (NTS) summarise the findings of the environmental assessment by topic.

5 Ecology

5.1 The purpose of the Ecological Impact Assessment was to identify and describe the likely significant environmental effects on non-avian ecology arising from the development.

5.2 A review of the existing biological data records relating to the proposed Saddle Hill Wind Farm site, together with consultations with relevant nature conservation organisations was undertaken prior to any survey work taking place.

5.3 Ecological surveys included an extended Phase 1 habitat survey, a botanical survey to identify plant communities of higher nature conservation value and/or those that may be sustained by groundwater (a NVC survey) and detailed protected species surveys for badger, bat, otter, water vole, red squirrel, pine marten, and wild cat.

5.4 The area proposed for the development is located at the margins of extensive uplands and is dominated by dry dwarf shrub heath in the north and coniferous plantation woodland in the south. An access track of approximately 5km (excluding tracks within the core wind farm site) traverses a range of pasture, heath, arable and woodland habitats.

5.5 Dun Moss and Forest of Alyth Mires SAC and its constituent SSSIs (Dun Moss SSSI and Forest of Alyth Mires SSSI) are present approximately 700m to the west of the site. The River Tay SAC is which is located approximately 4.8km to the west of the Application albeit, in terms of hydrological connectivity, the upper reach of the SAC is approximately 9.1km downstream of the Development. No significant effects on any statutory designated sites are predicted to occur.

5.6 No significant effects are predicted on any plant communities of high nature conservation value.

5.7 The presence of otter and at least four bat species (soprano pipistrelle, common pipistrelle, brown long-eared and Myotis species) was confirmed during surveys. Possible pine marten presence was noted, along with previous badger presence (a single disused sett). The surveys identified the presence of habitat that could support water vole, reptiles and wild cat.

5.8 No significant effects are predicted on any animal species of high nature conservation value or any legally protected animal species.

5.9 With the provision of the mitigation (and enhancement) measures (embedded within the scheme design or identified as being a requirement for the construction, operation and decommissioning processes), no significant residual ecological effects on valued ecological receptors have been identified and the potential for contravention of protected species legislation has been minimised.

5.10 There is potential for positive effects on heathland communities, otter and pine marten due to enhancement measures incorporated into the scheme.

5.11 An Environmental/Ecological Clerk of Works (ECoW) will be appointed to ensure compliance with the EMP to provide advice in the event of any unforeseen protected species issues that arise during construction, and to oversee the implementation of mitigation measures.

6 Ornithology

6.1 This section describes and evaluates the current ornithological interest of the proposed Saddle Hill Wind Farm, and its surroundings, and provides an assessment of the likely significant effects of the proposed development upon ornithology.

6.2 A review of the existing ornithological data records relating to the proposed Saddle Hill Wind Farm site, together with consultations with relevant consultees was undertaken prior to any survey work taking place.

6.3 Ornithological field surveys were carried out from April 2010 through to September 2013 (inclusive). The methods used in the surveys followed SNH guidelines. These included:

- Vantage Point Surveys - 36 hours of observations were made from each of the two Vantage Points during the summer of 2011 and the winter of 2012/13;
- Vantage Point Surveys - A total of 36 hours of observations were made from each of the two Vantage Points during the summer 2013 period and the winter 2012/13 period.
- Breeding Bird Surveys- Three visits were undertaken between April and July 2010, 2011 and 2013
- Breeding Raptor Surveys - Three visits were undertaken between March and August 2013 (inclusive)
- Black Grouse Surveys - Surveys were undertaken in 2011 and 2013
- Winter Walkover Survey - Three visits were undertaken between October 2012 and March 2013

6.4 The survey area for this work included the proposed wind farm plus a 500m buffer. This incorporated areas of rough pasture, grassland, watercourses and plantation forestry.

6.5 During the field surveys, there was a total of 46 species recorded between April 2010 and September 2013. Of these, 15 species are protected by either international or national legislation, and are included in the UK BAP (Biodiversity Action Plan) or LBAP (Local Biodiversity Action Plan), or on the BoCC (Birds of Conservation Concern) Red or Amber Lists. These are Black Grouse; Common Cuckoo; Eurasian Curlew; Greylag Goose; Hen Harrier; Northern Lapwing; Merlin; Peregrine; Pink-footed Goose; Red Kite; (Eurasian) Skylark; (Common) Snipe; and Song Thrush.

6.6 Precautionary mitigation measures for all breeding birds are proposed including the avoidance of breeding periods when commencing the construction of the access tracks and felling of trees.

6.7 An Ecological Clerk of Works would be present on site during construction and would ensure that mitigation measures are implemented.

6.8 The residual effects of the development may include some negligible habitat loss and displacement around the wind farm infrastructure, and access tracks.

6.9 Overall, it is concluded that there will not be significant impacts on ornithology as a result of the Saddle Hill Wind Farm, assuming appropriate mitigation measures are adopted.

7 Hydrology and Soils

7.1 An assessment was undertaken of potential environmental effects on three key hydrological and hydrogeological receptor groups that could be potentially be impacted upon by the proposed Saddle Hill Wind Farm, namely surface water, groundwater and Groundwater Dependant Terrestrial Ecosystems (GWDTEs). This assessment identified suitable measures to avoid or mitigate, as far as possible, potential adverse effects.

7.2 The assessment involved the collection and interpretation of a wide range of data and information from published material, plus consultations relating to the local and wider hydrological environment with statutory bodies, principally SEPA, Perth and Kinross Council (PKC) and Angus Council (AC). The study area considered the entire wind farm site, including the proposed access route from the adopted road, as well as receptors outwith the site boundary. The proposed site lies entirely within the surface water catchment of the River Isla. Runoff enters the Burn of Kilry, Burn of Watersheal, and Bottom Burn, each of which is a confluent of with the River Isla.

7.3 The assessment methodology employed to evaluate the significance of potential effects of the Development on surface water and ground water takes into account the sensitivity (or importance) of potential receptors and the magnitude of predicted effects.

7.4 Walkover surveys were undertaken in November 2013 and observations were made of each of the following water courses: Burn of Watersheal, Bottom Burn, Trib. Burn of Kilry, Well of Bowhale/Latch of Bowhale, Burn of Kilry, and Burn of Kilry downstream.

7.5 The hydrological assessment highlighted a number of potential effects on site hydrology and hydrogeology; principally during wind farm construction, but potentially also during operation and decommissioning.

7.6 Accordingly, the infrastructure layout has been iteratively developed to avoid hydrologically sensitive areas where possible and to provide appropriate buffer zones between construction elements and watercourses to minimise the risk of water pollution and increased sediment loading.

7.7 Further mitigation measures, such as water quality monitoring, the implementation of Sustainable Drainage Systems and Peat Management Plans would be incorporated into the Environmental Management Plan (EMP), including surface water and peat management, pollution prevention measures that would be in place during construction, operation and decommissioning.

7.8 Through incorporation of the proposed design amendments and mitigation measures, the residual impacts to hydrology and soils would be low or negligible.

7.9 There are no significant hydrological effects predicted from the development.

8 Landscape and Visual Assessment

8.1 This section describes the findings of a landscape and visual impact assessment and cumulative landscape and visual impact assessment undertaken for the proposed fourteen turbines (maximum height 115m to tip) and associated site infrastructure.

8.2 Although the site is within 'Zone 1' of SNH's Strategic Guidance for Onshore Wind Farms and potentially an area capable of accommodating a large number of developments, such development needs to be undertaken *"sensitively and with due regard to cumulative impact"*. Landscape studies commissioned by Perth & Kinross Council and Angus Council both provide landscape management guidance for wind farm development in this area and a sensitive approach to landscape design and the control of cumulative landscape and visual effects is a required key objective for this site that will affect the overall acceptability of the proposed Saddle Hill Wind Farm.

8.3 Landscape design mitigation has therefore formed an important role in leading the overall design and in particular the location, number, scale and visual composition of the proposed turbines, controlling how the wind farm would appear and be experienced, within its proposed landscape setting.

8.4 The following landscape design objectives have been developed through consultation, site survey, assessment and an iterative design process.

- Ensure design compatibility with Drumderg and Tullymurdoch wind farms
- Limit the potential landscape and visual effects of the proposed Saddle Hill Wind Farm.
- Limit the potential landscape and visual effects on Glenisla.
- Limit the potential cumulative landscape and visual effects on residential properties.
- Limit the potential for significant effects on the Cateran Trail.
- Limit the potential cumulative (sequential and simultaneous) landscape and visual effects on the A93 National Tourist Route.
- Limit the potential cumulative effects on the views of the Highland Boundary Fault (HBF) from Strathmore.
- Limit the potential cumulative effects on the Cairngorms National Park in terms of cumulative development, special qualities and wild land.

8.5 Considering a study area extending 35km from the turbines, the LVIA and the CLVIA were carried out in accordance with SNH's guidance. A total of 27 viewpoints were factored into the landscape assessment with photos, wireframes, photomontages and a related assessment of each contained within the Saddle Hill Environmental Statement. In addition use of Zones of Theoretical Visibility (ZTVs) in combination with the

viewpoint analysis was used to identify where significant effects may be likely to be and to assess the proposal against each of the objectives. It was found that:

8.6 Ensure design compatibility with Drumderg and Tullymurdoch wind farms:

- The design of the proposed Saddle Hill Wind Farm would be visually comparable and compatible with the Drumderg and Tullymurdoch Wind Farms in terms of the layout, number, scale / height, proportion and detailing.
- The design of the proposed Saddle Hill Wind Farm would also aim to create a simple and cohesive wind farm composition in its own right, the scale and number of which is compatible to the underlying landscape character.
- In this respect the overall scale of the development has been reduced considerably from the initial design and the physical relationship of the proposed Saddle Hill Wind Farm with the Drumderg and Tullymurdoch Wind Farms is one of a closely associated and visually comparable wind farm cluster that would avoid 'visual confusion' and limit significant visual effects to within 5km.

8.7 Limit the potential landscape and visual effects of the proposed Saddle Hill Wind Farm.

- Theoretical visibility of the proposed wind farm (based on a ZTV plot calculated to blade tip) is limited to 23.7% of the 35km Study Area. Within 6km, the theoretical visibility (calculated to blade tip) would affect 55.87% of the detailed study area, reducing to 36.8% of the area within 6km once the screening effect of large blocks of forestry has been taken into account. These figures indicate a relatively low spread of theoretical visibility compared to many other wind farms of a similar scale and size. Visibility would be reduced further than indicated by the ZTV as a result of local screening effects, as can be seen when travelling through the area.

8.8 Limit the potential landscape and visual effects on Glenisla.

- The layout for the proposed Saddle Hill Wind Farm has been pulled back from the Hill of Fernyhirst to partly screen and reduce the perceived scale and influence of the turbines to one that would be proportionate with the scale of Glenisla. Limit the potential cumulative landscape and visual effects on residential properties.

8.9 Limit the potential cumulative landscape and visual effects on r*esidential properties*.

- There are no properties within 1.2km of the proposed Saddle Hill turbines and no properties would be unacceptably affected in terms of their residential visual amenity, either in respect of Saddle Hill alone or cumulatively.

8.10 Limit the potential for significant effects on the Cateran Trail.

- The Cateran Trail is routed to within 2.2km of the proposed turbines at its closest point and theoretical visibility of the proposed Saddle Hill Wind Farm would affect 23% of the total route. Significant visual effects would be limited to 8% of the total route affecting 2 areas that broadly coincide with visibility of other existing and consented wind farm development (mainly Drumderg and Tullymurdoch). In addition the design of the wind farm would often appear partly screened by landform such that the addition of the proposed Saddle Hill Wind

Farm would not greatly alter the existing and consented landscape character, visual amenity and likely enjoyment of this part of the route.

8.11 Limit the potential cumulative (sequential and simultaneous) landscape and visual effects on the A93 National Tourist Route.

- The ZTV, viewpoint analysis and assessment indicates limited, non-significant potential effects as a result of the proposed Saddle Hill Wind Farm.

8.12 Limit the potential cumulative effects on the views of the Highland Boundary Fault (HBF) from Strathmore.

- The proposed Saddle Hill Wind Farm would not be located on a prominent hill summit, and although it would appear visible on the horizon from Strathmore, it would often appear partly screened by intervening landform or behind other development such as Tullymurdoch.

8.13 Limit the potential cumulative effects on the Cairngorms National Park (CNP) in terms of cumulative development, special qualities and wild land.

- The proposed Saddle Hill Wind Farm would tend to form a cluster or group of development closely associated with other wind farm development at Drumderg and Tullymurdoch, limiting the horizontal spread or potential for 'encirclement' of wind farms to the south of the CNP. The intervening distance, landform screening and limited visibility would limit the potential landscape and visual effects on the CNP.

8.14 The addition of the Saddle Hill Wind Farm would lead to a significant effect on a part of the 'Mounth Highlands: Forest of Alyth' Landscape Character Area (LCA) within 2km of the proposed turbine locations, although the effect would not be significant in overall terms on the overall integrity of this LCA or the wider 'Highland Summits and Plateaux' LCT. A further part of the 'Mid Highland Glen: Glenisla' LCA near Kilry would also be significantly affected, although the views from this area would already be affected by the existing Drumderg and the consented Tullymurdoch wind farms and the Saddle Hill turbines would be partly screened beyond the Hill of Fernyhirst.

8.15 The extent of theoretical visibility as indicated by ZTV plots is limited and significant visual effects would also be limited, affecting 24 residential properties, part of the Cateran Trail, part of a Heritage Path and Scottish Hill Track No. 184. All of these would already view other wind farm development, such that the addition of the proposed Saddle Hill Wind Farm would not greatly alter the overall landscape character and visual amenity.

9 Cultural Heritage

9.1 This section summarises the assessment of the potential effects of the proposed Saddle Hill Wind Farm on the historic environment. The objectives of the assessment include:

- Describe the location, nature and extent of any known heritage assets or areas of archaeological potential which may be affected by the proposed development;
- Provide an assessment of the importance of these assets;
- Assess the likely scale of any impacts on the historic environment posed by the development;
- Outline suitable mitigation measures to avoid, reduce or offset significant adverse effects; and
- Provide an assessment of any residual effects remaining after mitigation.

9.2 The assessment focused on two study areas. The inner study area corresponds to the planning application boundary defined for the proposal, plus a corridor 100m wide centred on the proposed access track. The outer study area extends to 20km from the proposed turbines, which is taken as the maximum extent of potentially significant effects on the settings of heritage assets.

9.3 Field surveys and desk based studies were used to assess the effect of the proposed wind farm on the cultural heritage resources of the area. A targeted walk over survey of the inner study area was carried out in December 2013. Visits were also made to cultural heritage assets in May 2014 to establish the potential for impacts upon their setting and to gather any additional data.

9.4 As part of the consultation process, Historic Scotland, Angus Council (Aberdeenshire Archaeologist Service), and Perth & Kinross Heritage Trust were asked to identify the main archaeological issues at the site.

9.5 The earliest prehistoric features recorded within 5km of the proposed Saddle Hill wind farm include a number of funerary cairns such as Cairn Gleamnach near Hill of Kingseat, and Happy Hillock near Tullymurdoch; the majority of these are likely to date to the early Bronze Age. Stone circles and standing stones are also recorded, such as a 'four-poster' stone circle at Parkneuk. Cup and ring marked stones are also known in the vicinity, with two nearby examples at Drumderg to the south-west of the site.

9.6 From the post-medieval period through to the early modern period, the archaeological record for this area is dominated by agricultural remains of small farmsteads, sheilings, enclosures, limekilns, sheepfolds, quarries, and field systems. While the majority of these are probably post-medieval they may have their origins in the medieval period.

9.7 There are two Scheduled Monuments within the inner study area, both of which are settlements and field systems, thought to date from the Bronze Age, the visible remains

of which include hut circles, field banks, clearance cairns and lunchets. As Scheduled Monuments, these are considered to be assets of high sensitivity.

9.8 There are seventeen undesignated cultural heritage assets within the Inner Study Area. Eight of these were previously recorded in the Historic Environment Records for the area, and the remaining nine were identified during the baseline study.

9.9 Direct effects resulting from construction works have been predicted for the following heritage assets within the Site: HA13 (Mill Lade: Burn of Watersheal to Nether Drumhead), HA16 (Improvement-period field system) and HA19 (possible cultivation remains). The effects on all three assets will be of negligible significance, and no mitigation of these effects is proposed.

9.10 There is also potential for construction effects on currently undiscovered archaeological remains, the significance of which cannot be assessed at present. The first stage of the programme of archaeological works, comprising evaluation and/or monitoring of construction works, will identify any significant undiscovered remains and allow for effects upon them to be mitigated by avoidance and preservation in situ, or excavation and recording, as appropriate.

9.11 Survey, excavation and recording of the remains affected, will largely, though not entirely, mitigate that part of the significance of these assets that derives from their potential as a source of archaeological data. It will not mitigate the loss of the significance that they derive from their presence as features within the landscape, which can be understood in relation to their current settings. The cultural significance of any currently undiscovered archaeological remains derives entirely from their potential as a source of archaeological data, impacts on which will be largely mitigated by the programme of archaeological works, so that the significance of any residual effects will be negligible.

9.12 Beyond the embedded design of the wind farm, no mitigation is proposed for operational effects affecting the settings of heritage assets, which will remain as residual effects. There will be impacts of minor significance on three heritage assets: Parkneuk, two stone circles 550m E of (Scheduled Monument Index no. 1505), Redlatches, settlement and field system 1900m SSE of (Scheduled Monument Index no. 4640), and Airlie Castle Inventory Garden and Designed Landscape. The effects on the two Scheduled Monuments within the Site - Redlatches, settlement and field system 1700m S of (Scheduled Monument Index no. 4673) and Craighead, settlement and field system 900m N of (Scheduled Monument Index no. 5581) – have been assessed as negligible in reference to the current baseline, as both are surrounded by plantation forestry; but as minor in the hypothetical case that the forestry is felled during the period of operation of the wind farm.

10 Telecommunications & Aviation

Telecommunications

10.1 Microwave and other electromagnetic signals are transmitted throughout the country by a wide range of operators, including statutory agencies and commercial companies. All relevant statutory consultees were consulted in order to establish if there would be any interference or other impact from the proposed wind farm.

10.2 There are no significant effects predicted on microwave and other electromagnetic signals as a result of the proposed Saddle Hill Wind Farm.

10.3 Although the possibility of degradation of microwave and other electromagnetic signals would appear unlikely, Wind Prospect is prepared to resolve any such problems should they arise as a result of construction and operation of the wind farm, these could be controlled by means of appropriate planning conditions.

Aviation

10.4 The respective Military and Civilian Air Safety statutory consultees were consulted in accordance with the Wind Energy and Aviation Interests Interim Guidelines. These included the Ministry of Defence (MoD), the Civil Aviation Authority (CAA), NATS En Route Plc (NERL) and Dundee Airport,

10.5 Consultation responses and an assessment by Wind Power Aviation Consultants Ltd conclude that there would be no significant effects on military or civilian aviation as a result of the proposed Saddle Hill Wind Farm.

11 Noise

11.1 This section summarises the assessment of the potential noise impact associated with the proposed Saddle Hill Wind Farm. The guidance contained within ETSU-R-97 has been used to assess the potential noise impact of the proposed development.

11.2 A background noise study was carried out to determine the existing noise environment at locations which are representative of the noise environment neighbouring the proposed wind farm. These locations form the basis of the noise assessment in accordance with the guidance described in ETSU-R-97.

11.3 The background noise study was undertaken between 17th July and 4th September 2014.

11.4 The seven measurement locations were selected based on noise predictions of a preliminary turbine layout. The locations of these dwellings suggested these properties would be the most sensitive, or in some cases would be representative of prevailing background noise conditions at nearby dwellings surrounding the proposed wind farm.

11.5 Predictions of wind turbine noise have been made, based upon a sound power level for a Nordex N90 HS 2.5MW machine and a calculation procedure which is considered to give realistic estimates of noise emission levels.

11.6 A Project Day-time Hours Noise Assessment Criterion has been applied based on the recent appeal decision for the consented Tullymurdoch Wind Farm.

11.7 Two other wind farm sites, the operational Drumderg Wind Farm and the consented Tullymurdoch Wind Farm have been considered as part of a cumulative noise assessment.

11.8 With a proposed mitigation scheme in place (which involves the curtailment of some turbines in certain wind conditions), the predicted cumulative wind farm noise levels resulting from all developments acting together indicate that for all properties, noise levels will meet the Project Day-time Hours Noise Assessment Criterion and Night-time Hours Noise Assessment Criterion proposed by ETSU-R-97.

12 Traffic Assessment

12.1 The traffic assessment summarised in this section considers a range of environmental effects that could arise from traffic generated by the Saddle Hill Wind Farm as result of its construction, operation and decommissioning.

12.2 The assessment is based on a comparison of baseline and forecast development traffic using various criteria set out in the Institution of Environmental Management and Assessment's 'Guidelines for the Environmental Assessment of Development Traffic', the Design Manual for Roads and Bridges and Environmental Protection UK's Air Quality guidelines.

12.3 The Port of Rosyth has been selected for delivery of turbine components for the Saddle Hill wind farm as it is the closest suitable commercial port to the proposed site and has accommodated the delivery of components for numerous other wind farms in Scotland.

12.4 The turbine delivery route then takes the following route:

- M90 from the Forth Road Bridge to its junction with the A85 on the east side of Perth;
- A85 then A94 from Perth to Meigle via Coupar Angus; and
- B954 from Meigle via the east side of Alyth to the wind farm site entrance just west of Incheoch on the U388.

12.5 Baseline traffic data was gathered by undertaking traffic count surveys on the A94 and the B954 north of Alyth at various locations. Forecast wind farm traffic levels are based on the project programme and knowledge of the various construction characteristics and activities associated with the proposal.

12.6 The increase in traffic on the A94 and the B954 was found to be not significant in EIA terms, even when based on a limited duration worst case scenario (i.e. the periods with the highest number of vehicle movements per day) and assuming that all vehicles take the same route to the Application Site.

12.7 No adverse residual impacts are anticipated to arise following the implementation of a detailed Traffic Management Plan which would be agreed prior to the commencement of construction with both Angus Council and Perth and Kinross Council, as well as other local stakeholders such as the Community Councils.

12.8 Given the above observations, it can be concluded that the residual traffic effects associated with traffic generated by the Saddle Hill wind farm will be not significant in EIA terms.

13 Socio-Economic Impacts

13.1 The Socio-Economic assessment considers the potential effects of the Saddle Hill Wind Farm on the social and economic situation at two geographical levels:

- The Local Area - Glen Isla and Glenshee, and the Strathmore area including Blairgowrie and Alyth, within a radius of approximately 20 km from the Application Site
- The Regional Area - The wider area of the South-east Highlands and Tayside, including the southern portion of the Cairngorms National Park

13.2 Some consideration has also been given to economic impacts at the National (Scottish) level.

13.3 The assessment considers the likely implications for communities and businesses in the Local Area, particularly in terms of employment and business opportunities. It also identifies the wider economic and business implications for the Regional Area, as well as at a National level. Particular attention is given to tourism and outdoor recreation, to reflect the relationship of these to the landscape, the importance of tourism to the regional economy, and the contribution of outdoor recreation.

13.4 The potential cumulative effects are also considered, taking account of the Saddle Hill proposal together with other existing and approved wind farms and those for which applications have been submitted within a 35km radius.

Socio-economic effects

13.5 The Local Area straddles the southern edge of the Highlands. The sparsely-populated upland glens, with an ageing population, contrast with the rich farmland and small towns of Strathmore where agriculture and tourism attract migrant labour and significant numbers of people commute to the cities to work. Tourism is a priority for both local authorities, although it is more of a strength in Perth & Kinross than Angus. The Local Area generally performs well against the index of multiple deprivation, apart from some neighbourhoods in Rattray, Coupar Angus and Kirriemuir. The strength of community organisations is a vital contributor to the development of the rural economy, and in recent years the LEADER rural community development programme has channelled EU funding into many projects in the area.

13.6 The Saddle Hill Wind Farm proposal would potentially provide business and employment opportunities in the local area and wider region, if firms and workers can compete successfully.

13.7 The Wind Farm would contribute to a Community Benefit Fund which (although not a material consideration in this Application) would support social and economic development projects in the Local Area. The local economy would also gain some benefit from payments made to landowners involved in the development.

13.8 The proposed development would significantly affect the visual amenity of 24 residential properties (one of which is unoccupied) out of 157 considered within 5km of the Application Site.

13.9 Local residents who enjoy recreational activities in the area, particularly walking, may be affected by views of the Wind Farm, with significant effects on three Core Paths along the Cateran Trail and Scottish Hill Track 184 which passes through the site.

13.10 The cumulative effects of a series of wind farm developments could help to stimulate more significant improvements in the business and skills base at a regional level.

Tourism effects

13.11 Tourism is an important sector of the economy of the Local Area, although it is seasonal and (especially in Angus) low wage. Tourism businesses in Glen Isla and Glenshee are generally relatively small and scattered. Sightseeing by car with short walks is the main market segment, whilst the Cateran Trail and the hills attract more serious walkers. Golf and field sports are other important activities for visitors.

13.12 The Development can help to support the local tourism sector by providing additional demand for accommodation throughout the year during the construction period, with a small amount of further demand during its operational phase.

13.13 The indirect visual effects of wind farms on visitors are particularly contentious. Changes to the Development design, and the number of turbines and their size have reduced its potential visual impact. The LVIA shows that the significant effects would be restricted to a small number of locations within 6km of the Development. These include short stretches of "B" roads and minor roads, together with some sections of the Cateran Trail, and Scottish Hill Track 184. However, the Development would have no significant visual effects on recreational and tourist destinations within 10km, nor on the A93 National Tourist Route or the A9.

13.14 There would also be benefits for some visitors (as well as residents) from access to the site tracks, linked to the Cateran Trail and Scottish Hill Track 184.

13.15 Therefore whilst there may be some lessening in the appeal of local routes for walkers and touring cyclists resulting from the visual effects of the Development (in conjunction with the existing and consented wind farms), the overall impact on tourism at the regional level is assessed as negative, temporary (long term), minor, and not significant in EIA terms.

14 Land Use, Recreation and Access

14.1 This section describes the existing land use and recreational use of the Saddle Hill Wind Farm site and the surrounding area. The likely effects of the wind farm and its associated infrastructure on these activities, assets and access rights is summarised.

Land Use

14.2 The application site at Saddle Hill can be considered as three distinct areas, characterised by their land use.

14.3 The north eastern part of the site is an area of open moorland approximately 252 Ha and used for sheep grazing. The south western part of the site, approximately 171 Ha, is dominated by conifer plantation and includes a central area of open ground comprising of the small Bottom Burn river valley. Together the north eastern and south western parts of the site make up the main wind farm site where the proposed turbines are located. This area traverses pasture land, arable land, commercial forestry and the Burn of Watersheal. The topography on the access track rises from 150m at the public road in the south east to 380m within the forestry north of Balduff Hill.

14.4 The application site for Saddle Hill Wind Farm covers around 457 hectares. Following re-instatement, residual loss of land use would be confined to the areas occupied by the fourteen turbines, the crane hardstandings, the new access tracks, the wind monitoring mast and the switch gear building. This would amount to 10.41 hectares within the application area.

14.5 Approximately 81 hectares of coniferous trees would be felled in the south western area of the site. Compensatory planting would be carried out to offset losses.

14.6 Land used change would be restricted to the duration of the wind farm's 25-year life, following which the development would be decommissioned. There would be no significant long term effects on land use.

Access and Recreation

14.7 Angus Council and Perth and Kinross Council both promote public access in their regions. The A93 is the only National Tourist Route within 10km of the Application Site. The sensitivity of this route is considered to be high due to its status as a tourist route. A section of the route between Blairgowrie and Clach-na-Coileach passes within 5.34km of the Saddle Hill Wind Farm. This has been assessed in detail as part of the Landscape and Visual Impact Assessment (LVIA) where it was found that 16% of this 23km section of the route would experience theoretical visibility of the Saddle Hill Wind Farm proposal. It is concluded that there would be significant indirect impacts as a result of the proposed Saddle Hill Wind Farm.

14.8 National Cycling Routes 77 is the main route which passes through Perth and Kinross. It is anticipated that there will be some theoretical views of the Saddle Hill wind farm from sections of this route between Perth and Dunkeld however given that the route is located 22.4km to the west of the nearest turbine, it is predicted that there will be no impacts on the route.

14.9 The Cateran Trail is designated as a long distance path which crosses the proposed access track south of Knaptam Hill and approximately 400m of the trail overlaps a section of the delivery route on the B954, between Bogside and Incehoch Farm. Whilst users will experience increased traffic on the B954 and may experience disruption when crossing the new access track near Knaptam Hill during construction and decommissioning of the wind farm. Mitigation to limit any impacts will include temporary speed restrictions enforced on delivery vehicles along the B954, as well as temporary measures introduced at the point where the access route crosses the Cateran Trail. Local community groups and residents will be informed of such planned mitigation measures which will be contained within an agreed Traffic Management Plan.

14.10 Core Paths and Rights of Way - Right of Way (TP37) forms part of the Scottish Hill Track 184 which runs through the proposed Saddle Hill Wind Farm site, to the east of turbine number 3. The route runs from the northwest of Alyth through Bamff and then up over the summit of Hill of Craighead within the south-western forestry area. Users of this route could potentially be affected during the construction of the wind farm and forestry felling. Walkers may be stopped by staff at a check point during construction and tree felling until it is deemed safe for them to continue on past the proposed development. It is not envisage that a diversion will be necessary.

14.11 There would be no significant long term effects on access. The wind farm will have a positive effect on public access during its operational lifetime, and beyond, as a result of the provision of access to the wind farm as a recreational area for walkers and cyclists.

LEGEND

- Proposed turbine location
- Application Site Boundary

WIND PROSPECT

Saddle Hill Wind Farm

Site Location, Regional Context

WPDL DOCUMENT REFERENCE	THIRD PARTY DOCUMENT REFERENCE

LAST REVISION DATE	DOCUMENT STATUS	SITE DESIGN VERSION
19/10/14	FINAL	L011

SCALE
1: 100 000 @ A3 (1cm = 1km)

NTS Figure 1

N

T14
320319m E
757103m N

T13
320638m E
757058m N

T12
320421m E
756802m N

T11
320704m E
756729m N

T10
320385m E
756436m N

T9
320743m E
756410m N

MET MAST
320632m E
756219m N

T7
320434m E
756137m N

T8
320093m E
756148m N

T6
319814m E
755835m N

T5
320131m E
755811m N

T2
319824m E
755482m N

T3
319461m E
755453m N

T4
320381m E
755414m N

T1
320035m E
755235m N

Bottom Burn

Drain

LEGEND

- SITE TRACKS
- INDICATIVE PASSING PLACE
- TURBINE POSITION
- TEMPORARY TURNING HEAD
- SITE BOUNDARY
- SWITCHGEAR BUILDING
- TEMPORARY CONSTRUCTION COMPOUND
- LOCATION OF POTENTIAL BORROW PITS

NOTE – FINAL POSITION OF PASSING PLACES TO BE CONFIRMED FOLLOWING DETAILED DESIGN

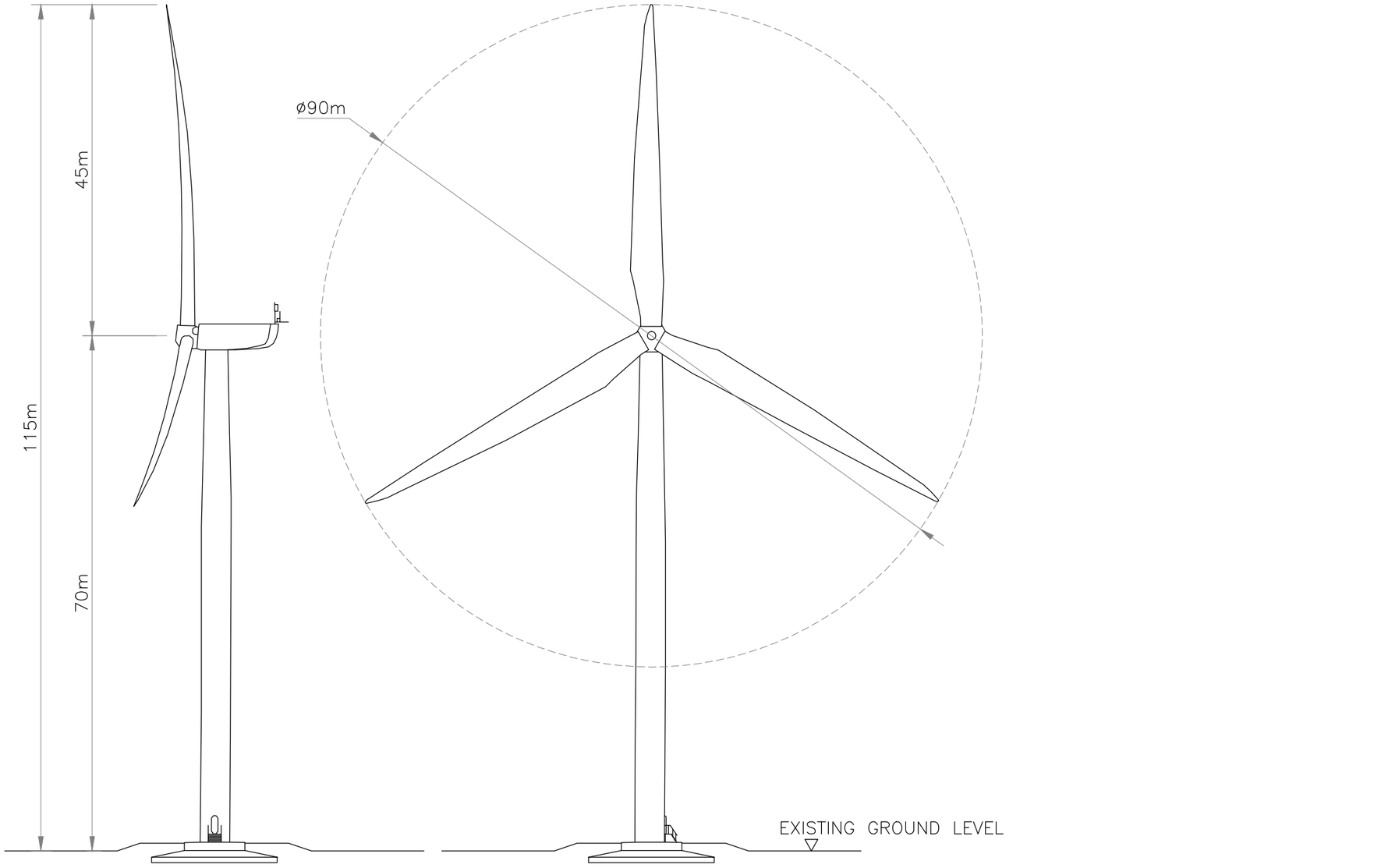
FOR SITE ACCESS SEE FIGURE 2.2b

WIND PROSPECT

Saddle Hill Wind Farm

Site Layout - Main Site

WPDL DOCUMENT REFERENCE		THIRD PARTY DOCUMENT REF.
Figure 2		WPENGd5562
LAST REVISION DATE	DOCUMENT STATUS	SITE DESIGN VERSION
06/11/14	FINAL	Turbine Layout L11
SCALE		
1:10,000@A3 (1km = 10cm)		Figure 2



LEGEND

All details presented are conceptual and are based on current information. © Wind Prospect Ltd

Saddle Hill Wind Farm

Proposed Turbine Elevations

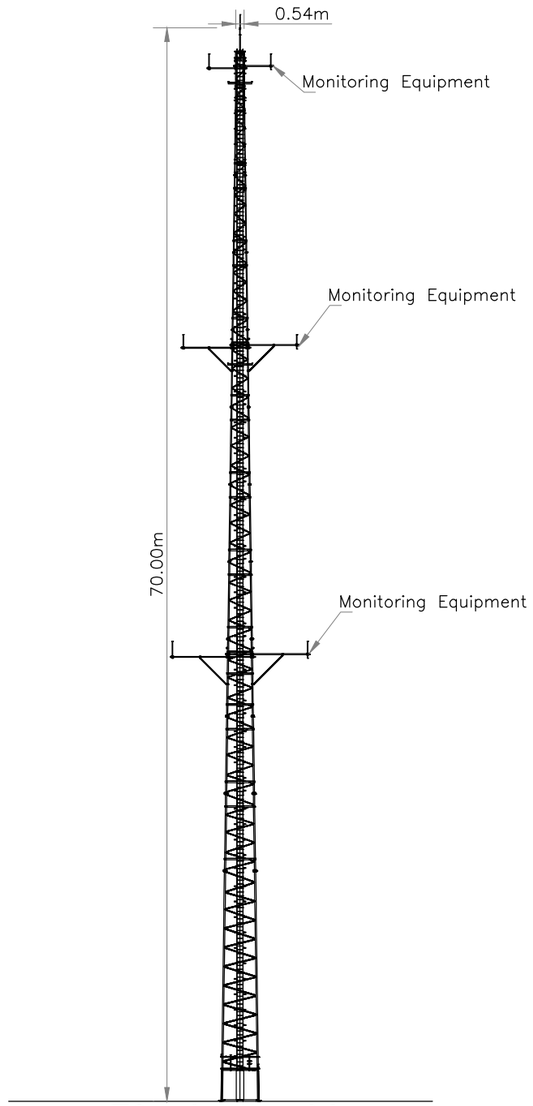
WPDL DOCUMENT REFERENCE	THIRD PARTY DOCUMENT REF.
Figure 2.3	WPENGd5564

LAST REVISION DATE	DOCUMENT STATUS	SITE DESIGN VERSION
22/09/2014	DRAFT	Turbine Layout L11

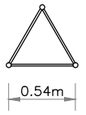
SCALE	
1:650@A3	**Figure 3**

SCALE 1 : 400

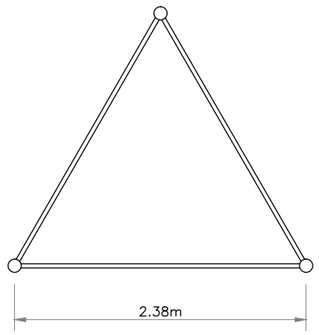
0 10m 40m



70m Lattice Mast



Section Through Top



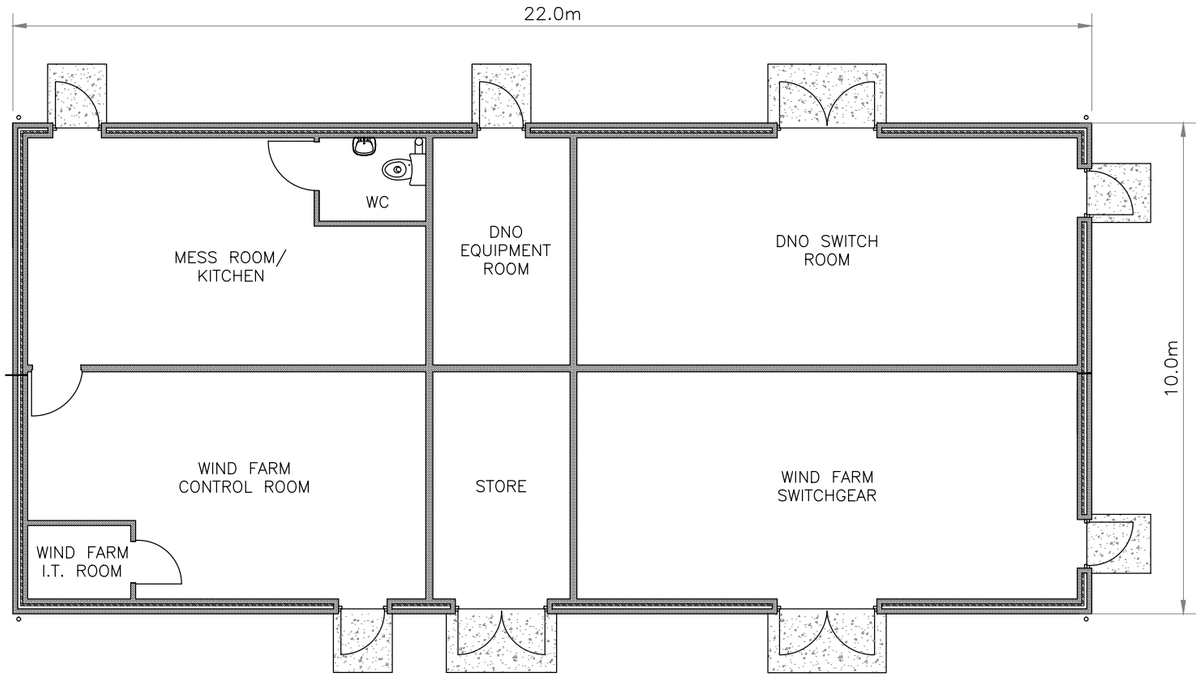
Section Through Bottom

SCALE 1 : 50

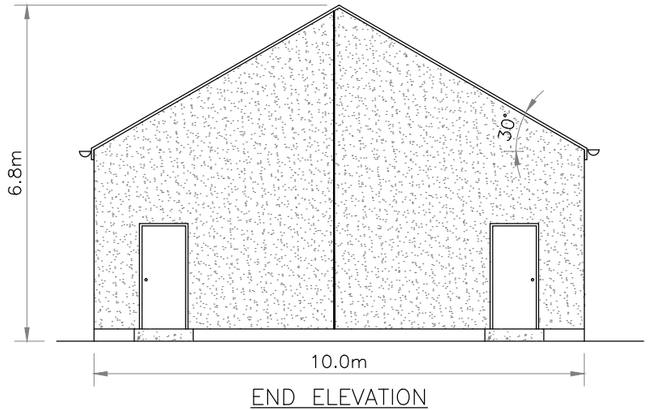
0 1m 4m

LEGEND

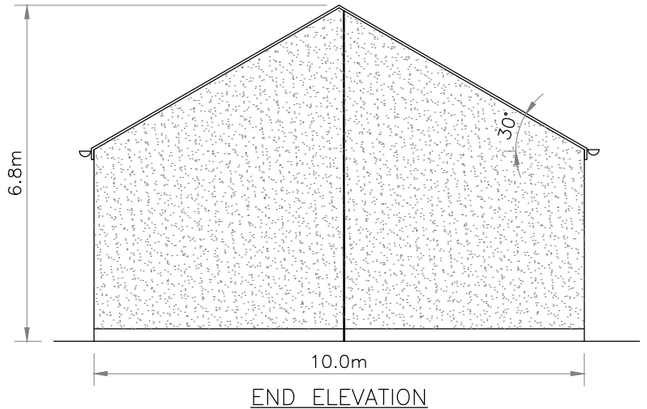
Saddle Hill Wind Farm Permanent Anemometer Mast		
WPDL DOCUMENT REFERENCE Figure 2.4		THIRD PARTY DOCUMENT REF. WPENGd5565
LAST REVISION DATE 12/06/2014	DOCUMENT STATUS DRAFT	SITE DESIGN VERSION Turbine Layout L11
SCALE 1:400/50@A3		**Figure 4**



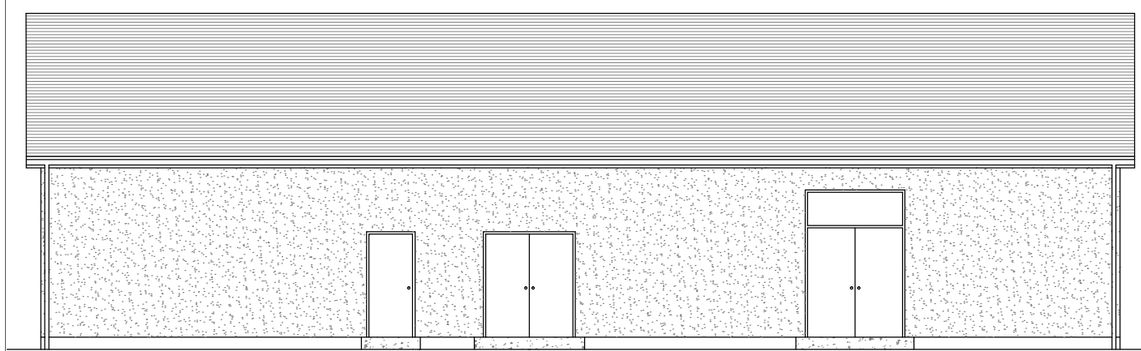
PLAN AT GROUND LEVEL
1:125



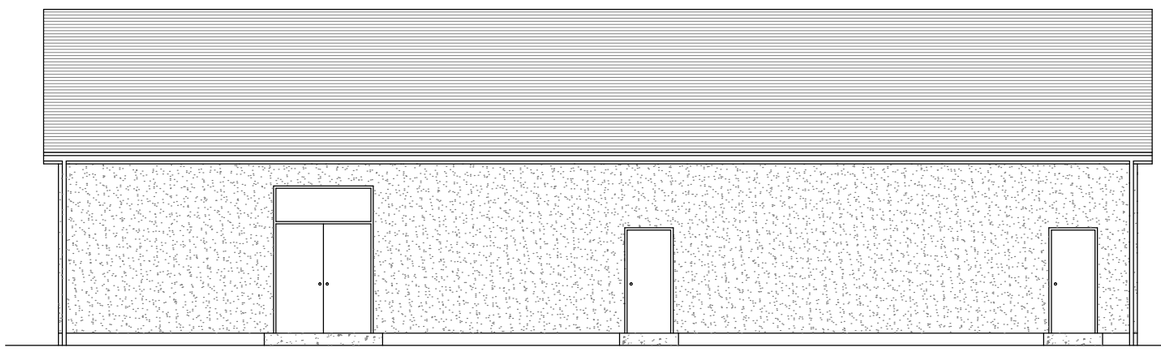
END ELEVATION
1:125



END ELEVATION
1:125



SIDE ELEVATION
1:125



SIDE ELEVATION
1:125

SCALE 1 : 125
0 5m 10m

LEGEND

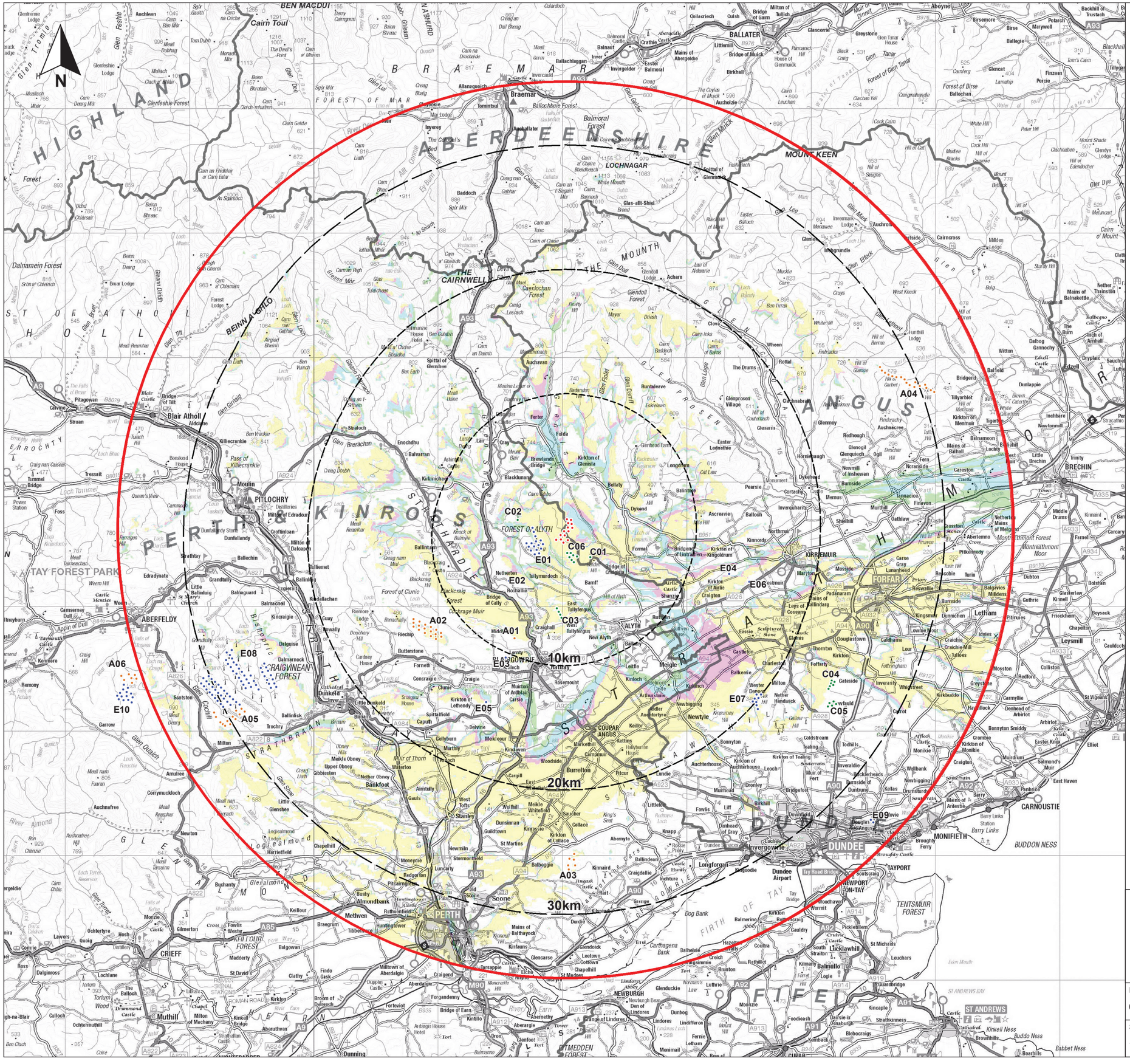
Saddle Hill Wind Farm

Switchgear Building

WPDL DOCUMENT REFERENCE	THIRD PARTY DOCUMENT REF.
Figure 2.10a	WPENGd5574

LAST REVISION DATE	DOCUMENT STATUS	SITE DESIGN VERSION
16/07/2014	DRAFT	Turbine Layout L11

SCALE	
1:125@A3	**Figure 5**



LEGEND

- Proposed Turbine Location
- Landscape and Visual Study Area
- Council Boundaries
- 10km distance indicator from the proposed turbine locations
- 20km distance indicator from the proposed turbine locations
- 30km distance indicator from the proposed turbine locations
- 1 - 3 Turbines may be theoretically visible (2.4% ZTV coverage within 35km)
- 4 - 7 Turbines may be theoretically visible (3.3% ZTV coverage within 35km)
- 8 - 10 Turbines may be theoretically visible (2% ZTV coverage within 35km)
- 11 - 14 Turbines may be theoretically visible (16% ZTV coverage within 35km)

Total ZTV is 23.7% of 35km

E01 Existing Wind Farms

- E01) Drumderg
- E02) Ferns Cloquhat
- E03) East Gormack
- E04) Ghenty
- E05) Mains of Pittendreich
- E06) Reedie Farm
- E07) Ark Hill
- E08) Griffin
- E09) Michelin
- E10) Calliachar

C01 Consented Wind Farms

- C01) Wester Derry
- C02) The Corb
- C03) Welton of Creuchies
- C04) Govals Farm
- C05) Frawney
- C06) Tullymurdoch

A01 Application Wind Farms

- A01) Netherairdof Glasclune
- A02) Dulater
- A03) Bandirran
- A04) Nathro Hill
- A05) Creag A' Bhaird
- A06) North Calliachar

Scale 1:300,000 @ A3

Saddle Hill Wind Farm

Zone of Theoretical Visibility (ZTV) to Blade Tip

WPDL DOCUMENT REFERENCE	THIRD PARTY DOCUMENT REFERENCE
	34036-GOS08a burtl

LAST REVISION DATE	DOCUMENT STATUS	SITE DESIGN VERSION
08/10/2014	FINAL	Turbine Layout 11

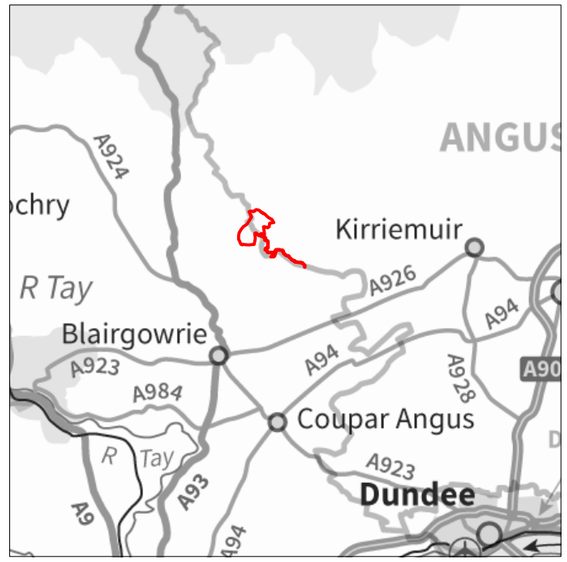
SCALE: 1:300,000 @ A3

Figure 6

LEGEND

Proposed Access Route

Site Boundary



Saddle Hill

Access Route from Alyth

WPDL DOCUMENT REFERENCE		
E094		
LAST REVISION DATE	DOCUMENT STATUS	SITE DESIGN VERSION
09/10/14	ES	Turbine Layout L11
SCALE		
1: 50,000 @ A3 (2.5cm = 1km)		**Figure 7**