Melin Court Wind Farm

Volume 1 Non Technical Summary

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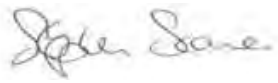
Approver	Steve Scone	

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Preface

This document comprises the Non Technical Summary (NTS) of the Environmental Statement (ES), which has been prepared in support of a planning application for the Melin Court wind farm, hereafter known as the Development. The Development comprises up to six wind turbines and ancillary infrastructure at Grid Reference E284900, N200600. The site is located approximately 2 km east of Resolven, within the Neath Valley.

The ES comprises the following documents:

- Volume 1: Non Technical Summary
- Volume 2: Environmental Statement
- Volume 3: Figures
- Volume 4: Landscape and Visual Impact Assessment Figures
- Volume 5: Technical Appendix

A full copy of the ES will be available to view at Neath Port Talbot County Borough Council offices, together with selected deposit locations.

Copies of all these documents or information on the Development may be obtained from:

Richard Buckland
Infinis
First Floor
500 Pavilion Drive
Northampton Business Park
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Phone: 01604 662 400

A copy of Volume 1: Non-Technical Summary is available free of charge and a copy of the ES is available to purchase as follows:

- Volumes 2, 3, 4 and 5 Environmental Statement for £250
- All documents are available on CD/DVD for £20

Contents

1 Introduction

1.1 Project Context

1.1.1 This Non Technical Summary (NTS) forms part of the Environmental Statement (ES) for the Melin Court wind farm, which accompanies a planning application to Neath Port Talbot County Borough Council (NPTCBC), by the applicant, Melin Court Wind Farm Limited. It is prepared under *the Town and County Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (SI 1999 No 293) 'The EIA Regulations'* (Ref NTS 1) (as amended).

1.1.2 The Melin Court wind farm, hereafter referred to as the Development, is located close to Resolven within the Neath Valley. The Development is located at Grid Reference E284900, N200600 and currently comprises open moorland under grazing agricultural use.

1.1.3 The A465 dual carriageway road between Neath and Merthyr Tydfil passes approximately 2.5 km from the proposed turbines, as shown on NTS Figure 1. Ffynnon Oer, a 16 turbine, operational wind farm is located approximately 1 km to the south of the site and Pen y Cymoedd, a 76 turbine, consented wind farm is located adjacent to the east and north of the site.

1.1.4 The Development would comprise up to six three-bladed wind turbines of up to 145 m tip-height, nominally rated between 2 and 3 MW each, giving ainstalled indicative generating capacity between 12 and 18 MW.

1.1.5 The layout of the Development is shown on NTS Figure 2.

1.1.6 The Development would require a connection to the electrical distribution network. The distribution network operator has indicated their preference to connect the Development into an existing 33 kV overhead line outside Blaengwrach. Application for the grid connection would be made by the distribution network operator (Western Power Distribution (WPD)). As this would form a separate application, grid connection issues are not considered in detail in the ES, however a high level assessment, based on desk studies has been undertaken.

1.2 The Applicant

1.2.1 The Applicant, Melin Court Wind Farm Limited, is a member of the Infinis Energy plc group of companies ("Infinis"). Infinis is the UK's largest independent generator of renewable power and Infinis Energy plc has a premium listing on the London Stock Exchange.

1.2.2 Infinis operates a growing portfolio of onshore wind, landfill gas, and hydro plants across the UK, employing approximately 365 people across 147 operating sites, with an aggregate generating capacity of 621MW.

1.2.3 In the year to 31 March 2013, Infinis produced approximately 7% of the UK's renewable electricity (Ref NTS 2).

1.3 Environmental Impact Assessment

1.3.1 A statutory process of Environmental Impact Assessment (EIA) has been undertaken, under the *Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (as amended) 'The EIA Regulations'* (Ref NTS 1). As part of this process, which is intended to ensure that NPTCBC has full information on the likely significant environmental effects of the Development, an Environmental Statement (ES) has been prepared.

1.3.2 The ES has:

- Gathered information on the existing environment and identified environmental constraints and opportunities associated with development of the area which may be affected by the Development;
- Identified and assessed potential effects that may arise from the construction, operation, and decommissioning of the Development, and identified whether they are significant effects with regard to *the EIA Regulations* (Ref NTS 1); and
- Outlined measures and/or design criteria that may be pursued to mitigate potential concerns or effects.

1.3.3 The ES has been prepared to accompany the planning application for the Development. The ES presents the information that the Applicant is required to provide as part of the process of EIA.

1.4 Scoping and Consultation

1.4.1 Consultation with key statutory and non-statutory bodies is recognised as being critical to the preparation of the ES. It focuses attention on key environmental issues, and opens a dialogue to discuss methodologies for undertaking further investigations and possible mitigation throughout the development of the project. As such, consultation has formed a key part of the EIA process and has continued through all stages of the design of the Development.

1.4.2 NPTCBC were consulted on the scope of the ES in February 2013. This took the form of a Scoping Report which was also issued to key statutory and non statutory bodies. There has been an ongoing dialogue with NPTCBC and other statutory and non statutory bodies since this time.

1.4.3 The following topics were identified as requiring assessment:

- Ecology and Nature Conservation;
- Ornithology;
- Landscape and Visual;
- Noise and Vibration;
- Access, Traffic and Transport;

- Human Environment and Land Use;
- Hydrology and Surface Water;
- Ground Conditions and Hydrogeology;
- Cultural Heritage and Archaeology; and
- Other Topics (including Carbon Balance, Telecommunications and Aviation, Air Quality and Ice Throw)

1.4.4 As part of the wider consultation process, public exhibitions were held on 13, 14 and 15 November 2013 and 19 March 2014.

2 Site Selection and Design Development

2.1.1 This site was identified as being suitable for the Development through the Applicant's internal site selection procedures.

2.1.2 Initial desk studies were undertaken to determine whether the Development met certain criteria. Feasibility studies were then undertaken which demonstrated that the Development site could have the potential to accommodate a wind farm development.

2.1.3 The layout of the Development has evolved in response to the environmental constraints of the site, including ecology, hydrology, ground conditions and landscape and visual considerations. In the final layout, the turbines have been arranged so as to maximise energy yield whilst minimising environmental effects. The layout represents an appropriate balance between renewable energy generation and the technical and environmental constraints of the site.

3 Description of the Development

3.1.1 The three key phases of the Development are as follows:

- Construction;
- Operation; and
- Decommissioning.

3.1.2 The Development comprises up to six wind turbines with a maximum height to blade tip of 145 metres (m). The layout of the Development is shown on NTS Figure 2 Site Layout Plan.

3.1.3 The finish and colour of the turbine is likely to be matt grey. The final choice of wind turbine would be dependent on economics and available technology at the time of construction, but would be within the maximum 145 m blade tip height.

3.1.4 There would be a number of additional infrastructure elements to the Development, in addition to the wind turbines (see NTS Figure 2 Site Layout Plan), including:

- Turbine foundations;

- Crane hardstandings;
- A meteorological mast;
- On-site access tracks;
- Underground cabling;
- A site access route from the public road network;
- A compound containing a substation and control building;
- An on-site pond to supply water for fire-fighting purposes;
- A temporary construction compound; and
- Site signage.

3.1.5 In addition to the above, a series of measures are proposed to enhance habitats for ecology and ornithology.

3.1.4 Stone for construction would be sourced from an existing local quarry. The total operational land take for the Development infrastructure would be 2.45 hectares (ha), with an additional 0.5 ha required on a temporary basis during the construction phase.

3.1.5 Planning permission is sought for a period of 25 years (the operational life of the Development). It is anticipated that the construction period would be approximately nine months and the decommissioning period would be approximately six months. At the end of this period, the Development would be removed and the site reinstated. It is expected that decommissioning of the wind farm would involve dismantling and removing wind turbines, control building and substation; removal to 1 m below ground level of wind turbine foundations; removal of control building and substation foundations; re-instatement of the site.

3.1.6 It is not anticipated that the access tracks or underground cabling would be removed, in accordance with current environmental good practice. All construction, operation and decommissioning activities would follow good practice construction guidance.

4 Energy Policy and Targets

4.1.1 Global climate change is widely recognised as being one of the greatest environmental challenges facing the world today. The principal cause is a rise in the concentration of carbon dioxide (CO_2) in the atmosphere, a major contributor being the growing use of fossil fuels to generate electricity.

4.1.2 In the UK Government's *The Coalition: our Programme for Government* (Ref NTS 3) a range of proposals are set out to ensure *'that we go as far as we can in exploiting the UK's renewable energy resources'*. In this document the Government considers that climate change is one of the gravest threats to be faced, and that urgent action at home and abroad is required. It recognises that a wide range of levers are required to cut carbon emissions, decarbonise the economy and support the creation of new green jobs and technologies.

4.1.3 Wind energy provides a clean, safe, renewable energy source enabling the reduction of damaging emissions and to protect the environment. It also provides diversity and therefore security in the United Kingdom (UK) energy supplies by reducing dependency on imported fossil fuels, such as coal, oil and gas as well as reducing emissions of carbon dioxide.

4.1.4 The Welsh Government views climate change as one of the greatest global challenges. It has published its *Climate Change Strategy* (2009) (Ref NTS 4), and the associated Delivery Plans explain Wales' commitments, action areas, adaptation strategies, and delivery partners.

4.1.5 The Welsh Government's *Technical Advice Note (TAN) 8* (Ref NTS 5) published in 2005 sets the framework for renewable energy development in Wales. TAN 8 acknowledges that *'onshore wind power offers the greatest potential for an increase in the generation of electricity from renewable energy in the short to medium term'*.

5 Planning Policy Context

5.1.1 NPTCBC are required to determine the planning application for the Development, taking into consideration planning policy set out within the current development plan document for the area and other material considerations. At present, the development plan document of relevance to the Development is the *NPTCBC Unitary Development Plan (UDP)* (Adopted 2008) (Ref NTS 6). The UDP provides the relevant development plan framework for the county until the adoption of the Local Development Plan (LDP).

5.1.2 The UDP presents a range of policies setting the context for development in relation to sustainable development, renewable energy, and the built and natural environment. One of the policies relating to the Development is Policy IE6 (Renewable Energy) which provides support to renewable energy schemes where the impacts can be shown to be acceptable and where appropriate the scheme includes measures to reinstate the land.

5.1.3 Also of relevance to the Development is *the NPTCBC's Interim Planning Guidance on Wind Turbine Development* (2008) (Ref NTS 7) and Supplementary Planning Guidance (SPG), namely NPTCBC SPG for Landscape (Ref NTS 8) and NPTCBC SPG for Biodiversity (Ref NTS 9).

5.1.4 The *Interim Planning Guidance on Wind Turbine Development* is intended to clarify how policies relevant to wind turbine development in the UDP relate to the subsequent policy context provided by TAN 8 (Ref NTS 10).

6 Ecology and Nature Conservation

6.1.1 An assessment of the likely impacts of the Development on ecology and nature conservation has been undertaken in accordance with guidance set out by the Institute for Ecology and Environmental Management, *Guidelines for ecological impact assessment in the United Kingdom* (IEEM, 2006) (Ref NTS 11). Ecological surveys, which underpin the assessment, were carried out between September 2012 and October 2013.

6.1.2 Natural Resources Wales (NRW) and NPTCBC were consulted in relation to the requirements for ecological surveys, and also to guide the scope of the assessment. A

detailed desk study and a series of targeted field surveys found that the site supported a range of ecological receptors including improved grassland, acid grassland, marshy grassland, reptiles and bats. Of these receptors, three were identified as key receptors for the purpose of the detailed ecological assessment. These were species-poor marshy grassland; species-rich marshy grassland (Rhos pasture) and bog habitat; and bats.

6.1.3 The likely effects of the Development on each of the key receptors was characterised and assessed as not significant at any geographic level. Mitigation and enhancement measures were nonetheless proposed to provide a 'net gain' for biodiversity. These included reducing grazing pressure within areas of bog, species-rich marshy grassland, woodland and stream corridor habitats; pond creation; hedgerow creation and restoration; and the creation of log piles for reptiles. These measures would be implemented to encourage ecological receptors such as bats to forage within adjacent areas to further reduce the likelihood of small-scale impacts from occurring.

6.1.4 Mitigation was also proposed to safeguard reptiles during the construction and decommissioning phases of the Development. This was principally to ensure legislative compliance during those works since significant adverse effects on reptiles were not predicted as a result of the Development.

6.1.5 Beneficial ecological effects, that would be significant at a local level, would occur as a result of enhancement measures proposed as part of the Development.

6.1.6 Potential cumulative impacts of other developments within 5 km of the Development were also considered during the ecological assessment. This also concluded that no significant cumulative effects on ecological resources would occur as a result of the Development.

7 Ornithology

7.1.1 An assessment of the likely impacts of the Development on ornithology has been undertaken in accordance with guidance set out by the Chartered Institute for Ecology and Environmental Management, *Guidelines for ecological impact assessment in the United Kingdom* (IEEM, 2006) (Ref NTS 11). Ornithological surveys, which underpin the assessment, were carried out between September 2012 and September 2013.

7.1.2 NRW and NPTCBC were consulted in relation to the requirements for ornithological surveys, and also to guide the scope of the assessment. A detailed desk study and a series of targeted field surveys found that the application site supported a range of ornithological receptors that were valued as being of between local and county level importance. Of these receptors, five species were considered to be key receptors for the purposes of the detailed ornithological impact assessment. These species were honey buzzard, red kite, goshawk, kestrel and nightjar.

7.1.3 The likely effects of the Development on each of the key receptors was characterised and assessed as not significant at any geographic level, with the exception of the predicted impacts on kestrel, which was assessed as significant at the local level.

7.1.4 Mitigation and enhancement measures were proposed to offset the predicted effect in relation to kestrel and to provide a 'net gain' for biodiversity. These included reducing grazing pressure within areas of bog, species-rich marshy grassland, woodland and

stream corridor habitats; pond creation; hedgerow creation and restoration; and the provision of bird nest boxes for species such as barn owls and kestrels. These measures would be implemented beyond the planning application boundary to encourage birds to forage within adjacent areas to further reduce the likelihood of impacts from occurring.

7.1.5 In addition to mitigation and enhancement measures, a programme of pre and post-construction honey buzzard monitoring is proposed. The aim of the monitoring would be to provide further scientific information in relation to the likely impacts of wind farms on this species.

7.1.6 The ornithological assessment considered the residual effects following the implementation of the mitigation and enhancement measures. This concluded that beneficial effects, that would be significant at a local level, would occur as a result of the Development.

7.1.7 Potential cumulative impacts of other developments within 20 km of the planning application boundary were also considered during the ecological assessment, including Ffynnon Oer (1 km to the south of the Development) and Pen y Cymoedd (less than 1 km to the north east of the Development). This also concluded that no significant cumulative effects on ornithological resources would occur as a result of the Development.

8 Landscape and Visual Impact Assessment

8.1.1 The landscape and visual implications of the Development have been considered through comprehensive landscape and visual impact assessment in accordance with current guidance produced by NRW, Scottish Natural Heritage (SNH), the Landscape Institute (LI) and Institute of Environmental Management and Assessment (IEMA). The Guidelines for Landscape and Visual Impact Assessment 3rd Edition was followed in this assessment.

8.1.2 The Development is within LANDMAP aspect area NPTVS624 ‘Carn Caca’, but does not fall within any statutorily protected landscapes and is remote from human settlement (and associated visual receptors). Regard has been given during the preparation of this assessment to the Brecon Beacons National Park, which lies approximately 10km from the Development, and the Gower Area of Outstanding Natural Beauty (AONB), which lies approximately 20km from the Development. The area of maximum (blade-tip) theoretical visibility extends northwards to the Black Mountains (within the Brecon Beacons National Park), eastwards and westwards to hilltops/hillsides of the Welsh Valleys (south of the Black Mountains), and southwards to coastal areas, including Swansea Bay. Near visibility is generally concentrated in the Vale of Neath area. Visual receptors include properties, Public Rights of Way (PRoW), and locally these include settlement at and around Resolven, and St. Illtyd's Walk, a recreational trail which passes through the local area. The Development lies adjacent to the consented Pen y Cymoedd wind farm and near the operational Ffynnon Oer wind farm.

8.1.3 The site locality is made up of a simple landscape, dominated by exposed upland agriculture/moorland and surrounding forestry. In respect of landscape and visual future baseline/cumulative considerations, interaction with the adjacent consented Pen y Cymoedd scheme, which comprises 76 wind turbines with 145m tip height, is an

important consideration. Having reviewed the design in the context of these key landscape and visual influences (aided by ZTV and wireline perspective images) it was considered that the proposed 145m turbine tip height achieves coherence with the adjacent consented scheme. Development adjacent to the Pen y Cymoedd scheme would have a unifying and simplifying effect when compared to the development of a number of smaller wind farms across the local area (which could result in a cluttered landscape).

8.1.4 Although the Development would result in changes to the local landscape and would be evident in views, this change should be considered in the context of adjacent consented Pen y Cymoedd wind farm, which the Development would appear a part of. In views from the Brecon Beacons National Park and Gower AONB, the Development would constitute a distant and very minor element such that change would be inconspicuous. Taking these considerations into account, landscape and visual effects are not considered to be significant.

9 Noise and Vibration Assessment

9.1.1 An assessment was made of the potential noise impact from the Development on the residents of nearby residential properties during construction and operation. The noise impact assessment was undertaken in line with relevant UK guidance on assessing construction noise and noise from wind turbines.

9.1.2 The Development is located more than 1 km from residential properties and therefore vibration effects were considered unlikely.

9.1.3 The construction noise assessment determined that predicted construction noise levels are expected to be within acceptable limits such that their temporary impacts are considered negligible.

9.1.4 The operational noise assessment was carried out by comparing predicted operational noise levels (based on manufacturer information about the type of turbine that could be installed) with the consent noise levels from Pen y Cymoedd wind farm. The assessment demonstrated that both the daytime and night time noise limits (set by the Department of Energy & Climate Change (DECC) can be satisfied at all properties across all wind speeds. In addition, the cumulative impact of other developments in the area was also considered and predicted levels remained below the required levels.

9.1.5 The predicted levels of noise during the construction, operational and decommissioning phases are in accordance with relevant guidance, and deemed to be acceptable. Residential properties are located more than 1.5 km from construction works and operational turbines and the separation distance provides adequate mitigation.

9.1.6 Construction traffic would not contribute significantly to traffic volumes on the public road network and therefore increase in road traffic noise would be negligible. Construction traffic would access the site on existing forestry tracks that would be used for the Pen y Cymoedd wind farm development. The large separation distance between residential property and the access tracks means that construction traffic noise impacts would be negligible.

10 Access, Traffic and Transport

10.1.1 An assessment of the access, traffic and transport was undertaken in relation to the development during the construction, operation and decommissioning phases. Consultation was undertaken with NPTCBC Highways Officer, Rhondda Cynon Taf County Borough Council (RCTCBC) Highways Officer, City and County of Swansea (CCS) Highways Officer and the South Wales Trunk Road Agency (SWTRA) Highways Officer.

10.1.2 The wind turbines would be delivered at Swansea Docks. For the purposes of the assessment, it has been assumed that the wind turbines would be transported from Swansea Docks along the A483/Fabian Way, on to the M4 at Junction 42, heading west. The route would leave the M4 at Junction 43 and travel on the A465 towards Merthyr Tydfil. The route leaves the A465 at the roundabout junction at Hirwaun and turns onto the A4061, towards the Hirwaun Industrial Estate. The route then climbs past Tower Colliery before turning right into the existing track used for access to Pen y Cymoedd wind farm. The route would not require any alterations to the public road network.

10.1.3 A study area for the assessment was agreed which reflects the proposed route of traffic to the Development, particularly the route of special 'abnormal indivisible loads' used to transport the wind turbines. An analysis of the route was undertaken from a site visit and desktop survey to determine the characteristics of the roads. Traffic data was obtained from traffic surveys in order to establish the existing number of vehicles using the route.

10.1.4 Growth factors were applied to the traffic flows in order to increase the traffic flows to represent the year of construction of the Development (2016). The number and type of vehicles generated by the Development was established across the nine month construction period. The peak month has been used to reflect a 'worst case scenario' for the assessment.

10.1.5 During the peak month, it is estimated that a total of 2,283 cars, vans and light goods vehicles would travel to the Development. During the peak month, there is estimated to be 150 movements on an average weekday and 79 on an average Saturday. For an average weekday, this will consist of 51 heavy goods vehicles (HGVs) and 99 cars, vans and light goods vehicles (LGVs). For an average Saturday, there will be 27 HGVs and 52 cars, vans and LGVs. The highest number of HGVs is expected to occur during the third and fourth month where 60 HGVs are expected to travel to the site and 60 HGVs from the site daily. In month 7, the turbines would be delivered as 'abnormal indivisible loads' (AILs). There would be a total of 54 AILs delivered to the site.

10.1.6 In order to reflect a 'worst case scenario', it has been assumed that all vehicles entering and leaving the site would use the agreed route. The percentage increase in traffic has been calculated by combining estimated number of vehicles generated by the Development and the 2016 estimated traffic flows. The effects on each route section has been assessed based on the change in traffic flows and are set out below:

- A4061: the effect is assessed to be minor and the effects not significant;
- A465: the effect is assessed to be negligible and the effects not significant;
- M4: the effect is assessed to be negligible and the effects not significant; and

- A483/Fabian Way: the effect is assessed to be minor and the effects not significant.

10.1.7 There are not anticipated to be any significant effects during the operation of the Development due to the low volumes of maintenance traffic required.

10.1.8 The effect on traffic on the surrounding routes from the decommissioning phase is assessed as being minor and not significant.

11 Human Environment and Land Use

11.1.1 The site is Grade 5 Agricultural Land under the Agricultural Land Classification (ALC) System, the classification of lowest agricultural value.

11.1.2 The loss of agricultural land as a result of the Development (2.45 ha, with an additional 0.5 ha being required for temporary works during the construction phase) would be minor in the scale of the wider land use.

11.1.3 The closest residential properties near the Development are approximately 1.5 km from the nearest proposed turbines.

11.1.4 The capital cost of the Development is expected to be approximately £18 million. This investment would create a number of economic opportunities for local businesses, with the potential to have a beneficial effect on the local economy in terms of employment, particularly during the construction phase. Local sourcing of equipment is preferred by the Applicant wherever possible, and the Applicant encourages the use of local contractors wherever possible, to ensure maximum benefit to local communities.

11.1.5 Based on past experience, the Applicant estimates that for a Development of this size there would be typically 30 construction jobs created, with a minimum of 8 and a maximum of 50, depending on programme activities.

11.1.6 During operation, there are not anticipated to be any permanent, on-site staff required however there may be opportunities for local businesses to supply services and materials for maintenance of the Development, and potential employment opportunities for site operatives.

11.1.7 The Development is located 2km to the north west of the Afan Forest Park, a popular mountain biking and walking area. St Illtyds Walk and the Coed Morgannwg Way Long Distance Paths run close to the Development, and there is a network of PRoW in the adjacent forestry. The Melin Court Waterfall, to the west of the site is also identified as being of note as a tourist attraction. Further afield, the Vale of Neath is a focus for tourism for NPTCBC.

11.1.8 The effects on tourism are not expected to be significant, due to the distance from tourist facilities.

11.1.9 Bridleway 32 runs through the Development from east to west, within 145m of three of the turbines. This Bridleway would be used for the short section of new access track to be constructed from the Pen y Cymoedd wind farm access tracks to the site boundary. The site access route from the A4061 to the site boundary also crosses and runs along a number of Public Rights of Way (PRoW). The network of PRoW would be affected

during construction and decommissioning with the presence of construction traffic, however this would only be temporary, and during operation public access would not be restricted along any of the PRoW. An alternative permissive route for Bridleway 32 would be provided as part of the Development.

12 Hydrology and Surface Water

12.1.1 The Development is located in the drainage catchments of the Melin Court Brook and a small unnamed stream, both of which flow into the River Neath. There are also a number of ditches and drainage channels within the Development. The Development receives a high annual average rainfall of 2036 mm and has a steeply sloping topography. In combination with the underlying soils, which are generally impermeable and in places peaty, these conditions encourage rainfall to run off the land into a network of ditches and drains.

12.1.2 The water quality of the Melin Court Brook and other watercourses that flow through the application site is not routinely monitored so surveys were carried out to test a number of indicators of water quality. The data collected indicate that these watercourses support moderate to good water quality.

12.1.3 Floodplain mapping produced by the Environment Agency and the Welsh Government indicates that the Development is at low risk of flooding from rivers or the sea. Downstream of the Development, the Melin Court Brook has a very narrow floodplain and the River Neath, as it flows through Resolven, has a wider floodplain, which is bounded by the B4434 road to the south and the B4242 road to the north. Information of flood risk from local sources was provided by NPTCBC, and no significant local flood risk issues were identified.

12.1.4 The watercourses in the study area receive consented discharges of, for example, treated sewage effluents, and support licenced abstractions for industrial uses. These are located on the River Neath, Melin Court Brook and Clydach Brook and are therefore some distance from the Development.

12.1.5 In the future, legislative drivers such as the Water Framework Directive, are likely to yield improvements in future surface water quality and climate change is anticipated to increase peak fluvial flows and rainstorm intensities, which has the potential to increase future baseline flood risk within the study area.

12.1.6 On the basis of their current quality and the services/functions that they provide, such as land drainage and transport and dilution of effluents, the water features in the study area were assigned the following values: River Neath (Very High), Melin Court Brook, unnamed stream draining to the River Neath and the drains and ditches within the application site (Medium).

12.1.7 The Development has been designed to include a range of measures to safeguard existing land drainage and the quality of surface water features. A Construction Environmental Management Plan (CEMP) would be put in place before the start of any works and would include method statements and protocols to ensure that activities with the potential to result in pollution, for example, excavation, or the storage of fuels, chemicals and oils, are carried out in accordance with best practice pollution control techniques.

12.1.8 Pipes would be laid beneath access tracks, where required, to maintain existing drainage pathways and prevent tracks from blocking or altering existing runoff routes. Also, access tracks would be drained using appropriate sustainable drainage techniques to ensure that rates and volumes of rainfall runoff from the site are not increased by the Development.

12.1.9 These measures are considered to significantly reduce the potential for effects linked to the receipt of polluted surface water runoff on surface water features, with an overall significance during the construction phase of the Development that is classified, in accordance to the adopted assessment methodology, of Slight. Also, effects on existing land drainage pathways and surface water runoff rates and volumes would be mitigated, such that there is assessed to be a Neutral impact on fluvial and surface water flood risk.

12.1.10 In summary, the residual impacts of the Development during the construction, operational and decommissioning phases have been assessed as Neutral. No effects that are significant have been identified during the operational or decommissioning phases of the Development.

13 Ground Conditions, Hydrogeology and Mining

13.1.1 An assessment of the ground conditions and hydrogeology has been undertaken for the Development. This included the application site as a whole and a 1 km radius from the site boundary. The assessment concentrated on the effects of geology, mining and hydrogeology upon the Development, as well as any effects on peat and soils.

13.1.2 The underlying geology comprises Pennant sandstone and extensively mined coal measures. The Development is in an area at risk from landslides and compressible ground to the south and natural cavities to the north, and as such the Development has been sited to avoid these areas.

13.1.3 The Development lies within a coal mining area influenced by historic underground mine workings. Whilst the Development is not located within the likely zone of influence of any underground coal workings currently being mined, the Development is located within a likely zone of influence from known and unknown past underground workings. The Development will also be located within the zone of influence from potential future underground coal mining. However Unity Coal Ltd (who have planning permission and a Coal Authority Licence to work the seams beneath the Development) entered into administration in 2013. It is understood that, as of March 2014, Unity Mine remains under care and maintenance and that no new mine operator is in place.

13.1.4 Likewise, the measures will address reasonably foreseeable risks from historic underground mine workings.

13.1.5 Although the Development is situated above an area where it is possible that future deep coal mining operations may take place, a large proportion of the future mining area at Unity Mine is already restricted by the Ffynnon Oer wind farm, or will be by the Pen y Cymoedd wind farm. The presence of these wind farms would affect the type of operations that could be carried out for mining. These methods would not be affected further by the Development.

13.1.6 The groundwater flow is likely to be towards the Melin Court Brook and north west to the River Neath, in line with the regional topography. The Development includes a range of mitigation measures to minimise the potential effects on groundwater flow and chemistry including the clean down of vehicles and equipment, vehicles to use existing internal access tracks and dewatering prior to concrete pouring. These measures are considered to significantly reduce the potential for effects on the groundwater.

13.1.7 A detailed survey of peat across the application site has been undertaken. The soils present are typical of upland areas in Wales and are generally thin, developed on sandstone, mudstone and shale with organic-rich surface layers. Over much of the application site this surface layer is thin, but in areas where drainage has been restricted deeper organic layers have built up, forming peat.

13.1.8 The most extensive areas of peat occur in the valley floor and in association with stream channels or small depressions. There is also an area of peat on which blanket bog has developed on the northern edge of the Development site. The soils are considered to be of low value whilst the areas of peat are considered to be of medium value.

13.1.9 The Development has included a range of measures to minimise the potential effects on the peat resource. This includes a design which has been informed by the peat study, ensuring that there are no direct effects of the Development on the peat resource. In addition, excavated soils and turfs would be re-used on site, track drainage would incorporate measures to allow water to return to the ground locally and good practice methods would be used for all soil handling and storage operations.

13.1.10 These measures are considered to significantly reduce the potential for effects on the soil and peat resource. However, additional measures are proposed to ensure in particular that the Development does not result in changes to drainage routes or lowering of water table levels, which could affect the peat (i.e. cause drying out). With these measure implemented the residual effects of the Development on the soil and peat resource are not considered to be significant.

13.1.11 The residual effects of the Development during the construction, operational and decommissioning phases have been assessed for geology, mining, hydrogeology and peat. None of the effects have been identified as significant.

14 Cultural Heritage and Archaeology

14.1.1 An assessment of the cultural heritage resource within the Development and the surrounding study area has been undertaken. The assessment has demonstrated that the study area contains known archaeological assets dating from the Prehistoric to the Modern periods. Some of these assets are nationally significant Scheduled Monuments and Listed Buildings and others are of more local importance. Taken as a whole the archaeological resource within the study area demonstrates a variety of human activity covering Prehistoric funerary and ritual practices, Roman military expansion, monastic settlement and agricultural activity and the Post-medieval industrial development that characterises much of this part of Wales. This co-exists with the on-going agricultural activity that remains to the present day.

14.1.2 The known archaeological resource indicated that there is also a small potential for as yet unknown archaeological remains to be present within the site boundary. If such

remains are present they are most likely to be associated with Medieval and Post-medieval agricultural activity and be of low value. If any such remains are present they may be affected by the Development. These effects would be mitigated through an archaeological watching brief during construction which would identify and record any archaeological remains that are present. The findings of the watching brief would add to the archaeological record for this part of Wales.

14.1.3 There is some potential for the setting of some of the Scheduled Monuments within the study area to experience slight effects to their setting. Any effects would, however, be reversed upon decommissioning.

14.1.4 The built heritage resources within the study area comprises both Listed Buildings and non-listed buildings with some historic interest. The Listed Buildings are of national importance and the non-listed buildings are of local importance. A small number of built heritage assets would experience effects to their setting as a result of the Development. In no case would the effect be greater than Slight and in all cases the effect would be reversed following decommissioning.

14.1.5 The Historic Landscape within the study area is a dynamic and evolving landscape containing features that demonstrate the changing human activity in this area over time. It is not, however, a designated landscape. The Development would represent the next phase in the evolution of this landscape but would not prevent the evidence of previous use to be appreciated. It is accepted that the Development would still impact the Historic Landscape to a certain extent leading to Slight Adverse effects, however this would be reversed following decommissioning.

14.1.6 Overall it is considered that the impacts to the cultural heritage resource as a result of the Development are not significant.

15 Other Topics

15.1.1 An assessment has been undertaken, following accepted guidance and methodology, of the effects of the Development on the carbon balance. The assessment takes into consideration the carbon cost of the construction, operation and decommissioning of the Development, the carbon savings compared to other fuel sources and the potential effect (or benefits) the Development would have on the peat resource.

15.1.2 The assessment has shown that, based on the data available and when compared to a fossil fuel mix of electricity generation the Development would result in a carbon payback in 2.0 years. The data also shows the potential for a considerable carbon savings of around 378,000 tonnes over the 25 year operational period.

15.1.3 Overall, no residual effects have been highlighted by this assessment, and the Development would result in a net positive outcome in terms of carbon balance.

15.1.4 An assessment has also been undertaken, on the effects of the Development on telecommunication networks. No telecommunications links have been identified through consultation with their operators, so it is considered that the Development would not have an effect on any links.

15.1.5 Whilst it is recognised that there is the potential for the Development to cause interference to television reception, the scale of thy effect is considered to be very

limited and the Applicant would make a commitment to restore any properties shown to be affected by the Development to normal service.

15.1.6 It is considered that there would be no effect on military or civil aviation, based on an analysis of the radar systems of the nearest airfields (Cardiff Airport) and the physical proximity to the consented Pen y Cymoedd wind farm and the operational Ffynnon Oer wind farm.

15.1.7 There are not anticipated to be any significant effects on air quality during the construction or operation of the Development as the nearest residential property is over 1.5 km from the Development and best practice construction methods would be employed to reduce releases of dust or other emissions.

15.1.8 Under certain meteorological conditions, it is possible for ice to form on the rotor blades of a wind turbine, which could lead to 'ice throw' occurrence when the blades turn. *Wind Energy Production in Cold Climates (WECO)* (Ref NTS 12) identifies that suitable weather conditions for wind turbine icing can be expected between 2-7 days per year (light icing) in this part of Wales. The risk to public safety is considered to be very low due to the few likely occurrences of these conditions along with the particular circumstances that can cause ice throw.

16 Conclusion

16.1.1 In undertaking an Environmental Impact Assessment under the *Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999* (Ref NTS 1), all assessments were conducted in accordance with a range of robust and published methodologies, agreed with a range of statutory and non-statutory bodies. These assessments have concluded that any potential significant effects on the environment can be mitigated for. The assessment also identified some potential benefits to the wider area.

REFERENCES

Ref NTS 1 United Kingdom Government (1999) *Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (SI 1999 No. 293).*

Ref NTS 2 Based on MWh produced in CP 11 (1 April 2012 to 31 March 2013); sources: Ofgem Renewables and CHP register (as at 11 July 2013), Infinis.

Ref NTS 3 UK Government (2010) *The Coalition: Our Programme for Government.*

Ref NTS 4 Welsh Government (2010) *Climate Change Strategy for Wales.*

Ref NTS 5 Welsh Government (2005) *Technical Advice Note (TAN) 8: Renewable Energy*

Ref NTS 6 Neath Port Talbot County Borough Council (Adopted March 2008). *The Neath Port Talbot Unitary Development Plan.*

Ref NTS 7 Neath Port Talbot County Borough Council (2008) *Interim Planning Guidance: Wind Turbine Development.*

Ref NTS 8 Neath Port Talbot County Borough Council (2008) *Supplementary Planning Guidance: Landscape.*

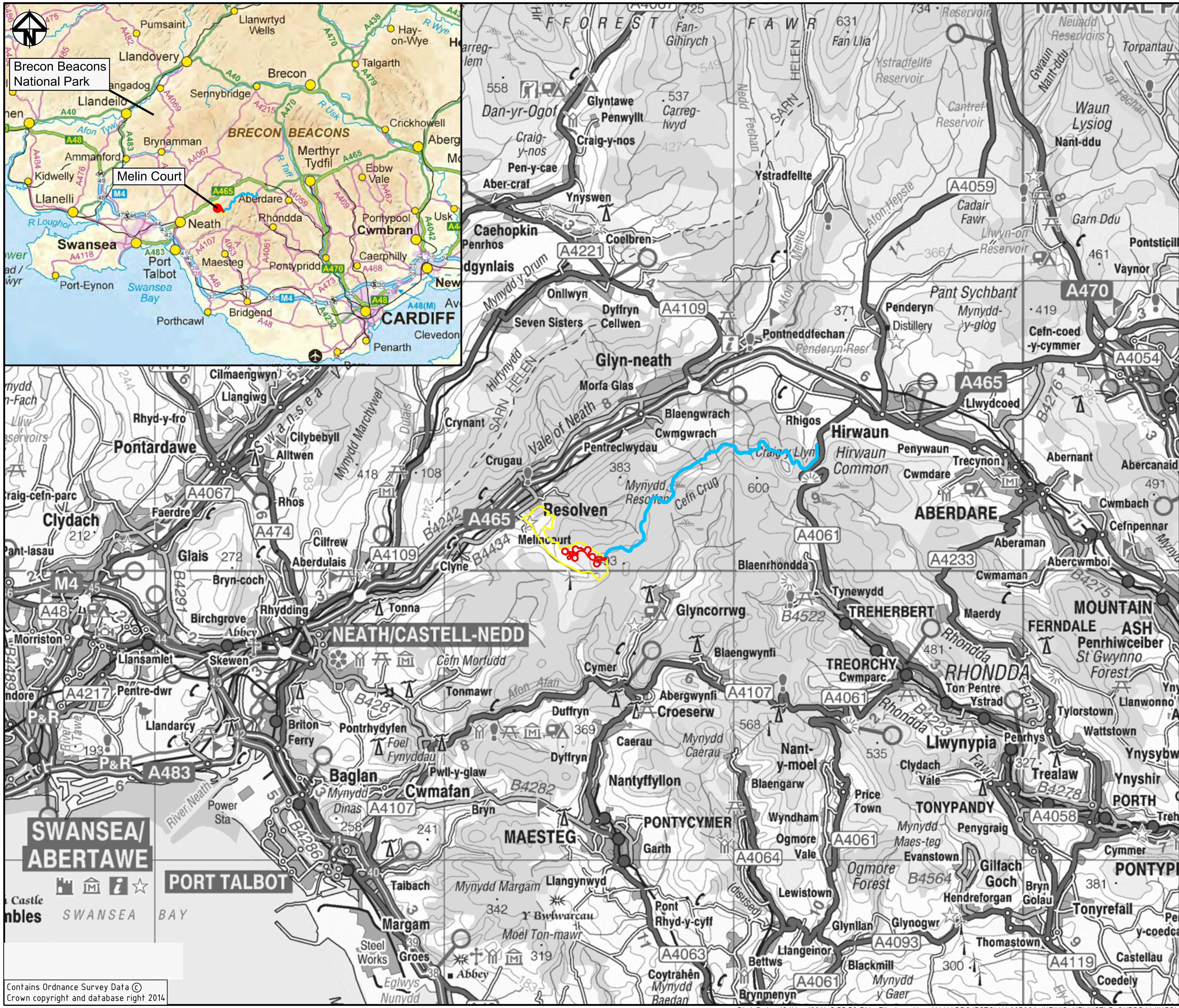
Ref NTS 9 Neath Port Talbot County Borough Council (2008) *Supplementary Planning Guidance: Biodiversity.*

Ref NTS 10 Welsh Government (2005) *Technical Advice Note (TAN) 8: Renewable Energy*.

Ref NTS 11 Institute of Ecology and Environmental Management (IEEM), (2006) *Guidelines for ecological impact assessment in the United Kingdom. IEEM.*

Ref NTS 12 Finnish Meteorological Institute (1998) *Wind Energy Production in Cold Climates (WECO).*

Appendix A: Figures



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KEY:

- PLANNING APPLICATION BOUNDARY (red)
- SITE BOUNDARY (yellow)
- OTHER INVOLVED LAND - ACCESS ROUTE (blue)

Issue	Description	Date
01	FIRST ISSUE	24 MAR 14

Status

PRELIMINARY
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		Current Issue Signatures
Scales	1:125 000	Author P.SHEPHARD
Original Size	A3	Checker A.SCOREY
Height Datum	NEWLYN	Approver S.SCONE
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Filename: 1001-UA005026-WXD-00_LOCPLAN.DWG

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Project

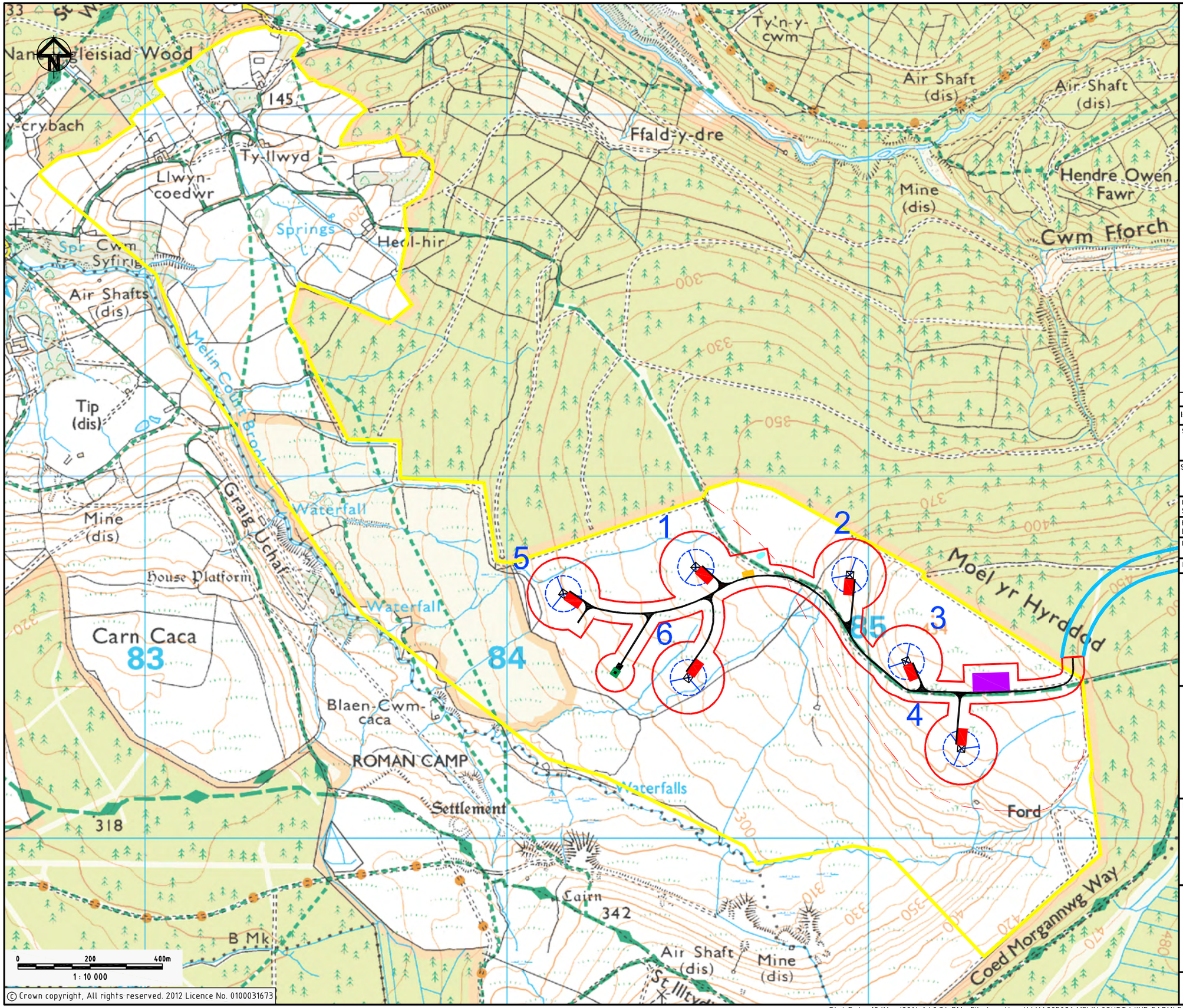
MELIN COURT
WIND FARM

Title

SITE LOCATION
PLAN

Drawing No.	Project No.	Issue
FIG NTS1 –	UA005026 –	01

Plot Date: 18/Mar/2014 3:55:52 PM File Location: K:\UAPROJECTS\UA005026-INFINIS-MELINCT\E-OURDRAWINGS\CURRENT\1001-UA005026-WXD-00_LOCPLAN.DWG V1



KEY:

- WIND TURBINE
- PLANNING APPLICATION BOUNDARY
- SITE BOUNDARY
- OTHER INVOLVED LAND - ACCESS ROUTE
- SITE LAYOUT
- PERMISSIVE ALTERNATIVE PROW
- MET MAST
- HARDSTANDING
- CONSTRUCTION COMPOUND
- SUBSTATION
- POND

TURBINE No.	EASTING	NORTHING
1	284521	200748
2	284947	200727
3	285103	200488
4	285255	200247
5	284155	200675
6	284500	200443
MET MAST	284298	200457

Issue	Description	Date
01	FIRST ISSUE	19-03-14

Status: DRAFT
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Project: MELIN COURT WIND FARM

Title: DEVELOPMENT SITE LAYOUT

Drawing No.	Project No.	Issue
FIG NTS2	UA005026	01

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Plot Date: 18/Mar/2014 1:40:34 PM File Location: K:\UA005026 MELIN COURT WIND FARM\E-DRAWINGS\1004-UA005026-WXD-01 FIG 4.1.DWG V1