Newton Down Windpower Project
Preliminary Information Memorandum

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1. Disclaimer

The information contained herein has been prepared to assist the recipient in making a preliminary evaluation of the Newton Down windfarm project (the “Project”) and does not purport to contain all of the information than an interested party may desire. Renewable Energy Partnerships Ltd (“REP”) does not make any representation or warranty as to the accuracy or completeness of the information contained in this report.

The information and windfarm layout contained within this report is indicative and the final proposals will change to reflect environmental, technical and planning constraints.

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2. Introduction

Newton Down Windfarm is a windfarm development taken forward by Renewable Energy Partnerships Ltd (REP). It is intended to submit a planning application for Newton Down windfarm sometime in late 2007 / early 2008.

This report has been prepared to enable recipients make a preliminary assessment of Newton Down Windfarm Project ("The Project" / "Newton Down Windfarm").

3. Background

3.1 South Wales Consultation (2003,2004)

During 2003 and 2004 a 12 month long, major consultation was undertaken by REP to identify the most appropriate sites for windpower projects in South Wales. The purpose of this exercise was to identify project sites with lower environmental risk.

In excess of twenty sites were consulted on and over twenty different consultees were contacted covering the key subjects that concern a windfarm project; aviation & telecommunication interference, ecology and ornithology, etc.. Consultees included:

Countryside Council for Wales (CCW); RSPB; Environment Agency
MOD, CAA Directorate, NATS (NSRL), NATS (NERL)
T Mobile, Orange, Channel 5, Vodafone, O2, BT, Cable and Wireless
BBC, ITC (Offcom); NTL (Aquiva), Crown Castle (National Grid Wireless)
CADW, Local Archaeological Trusts: Glamorgan Gwent, Dyfed, Clwyd Powys.
National Grid Transco, Western Power Distribution[1]

From this extensive exercise a handful of sites were identified that were viable and had sufficiently low environmental risk. Newton Down was the second lowest environmental risk site in the study after Maerdy Windfarm, Rhondda, for which REP has submitted a planning application. (www.maerdywindfarm.co.uk)

4. Location

The Project site is located 1.5km south of the M4 motorway, between Porthcawl and Bridgend.

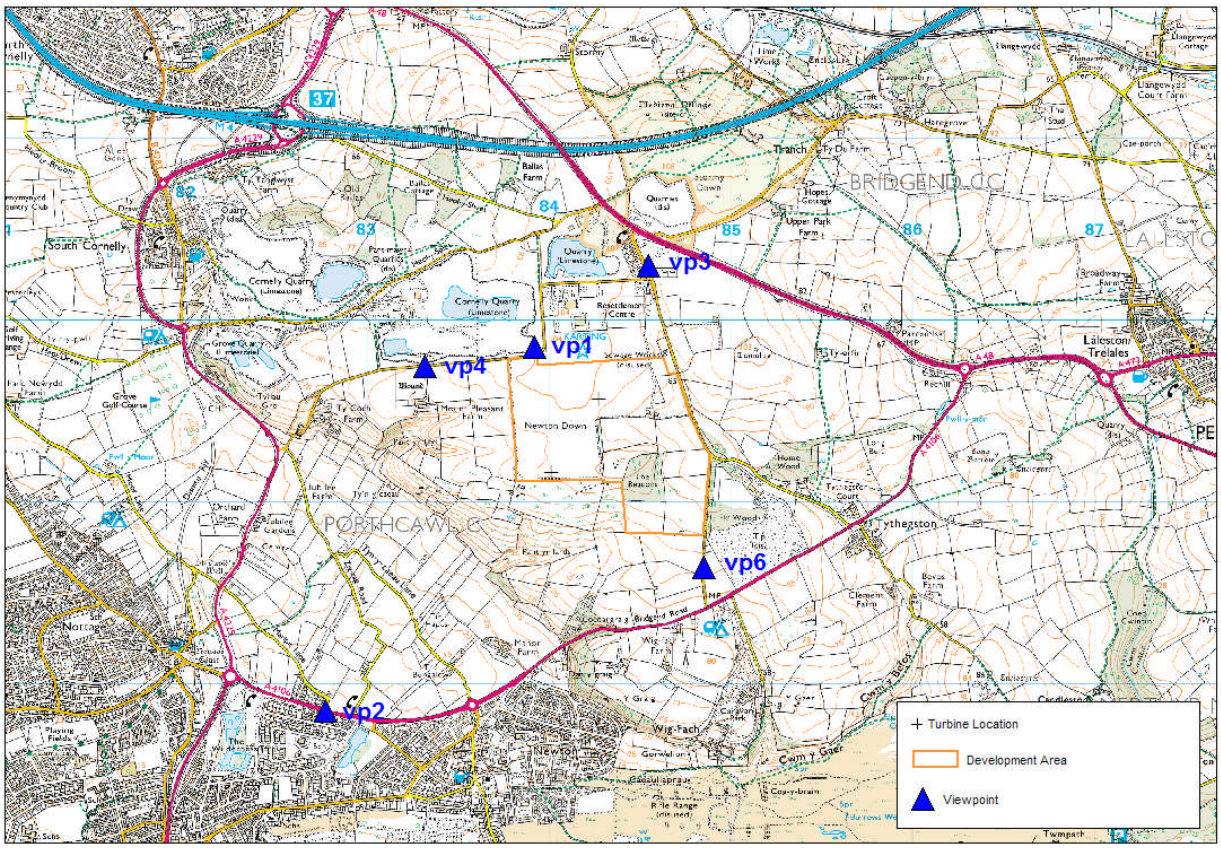
Figure 1 – Wide Area Location Map

Figure 2: Local Area Location Map

5. Description of Proposed Development

The indicative windfarm layout comprises 2 * 2.5MW wind turbines producing an installed capacity of 5MW. The following photomontages of the indicative layout are referenced in figure 3 below.

Figure 3: Location of photomontages



VP1

VP6

VP4

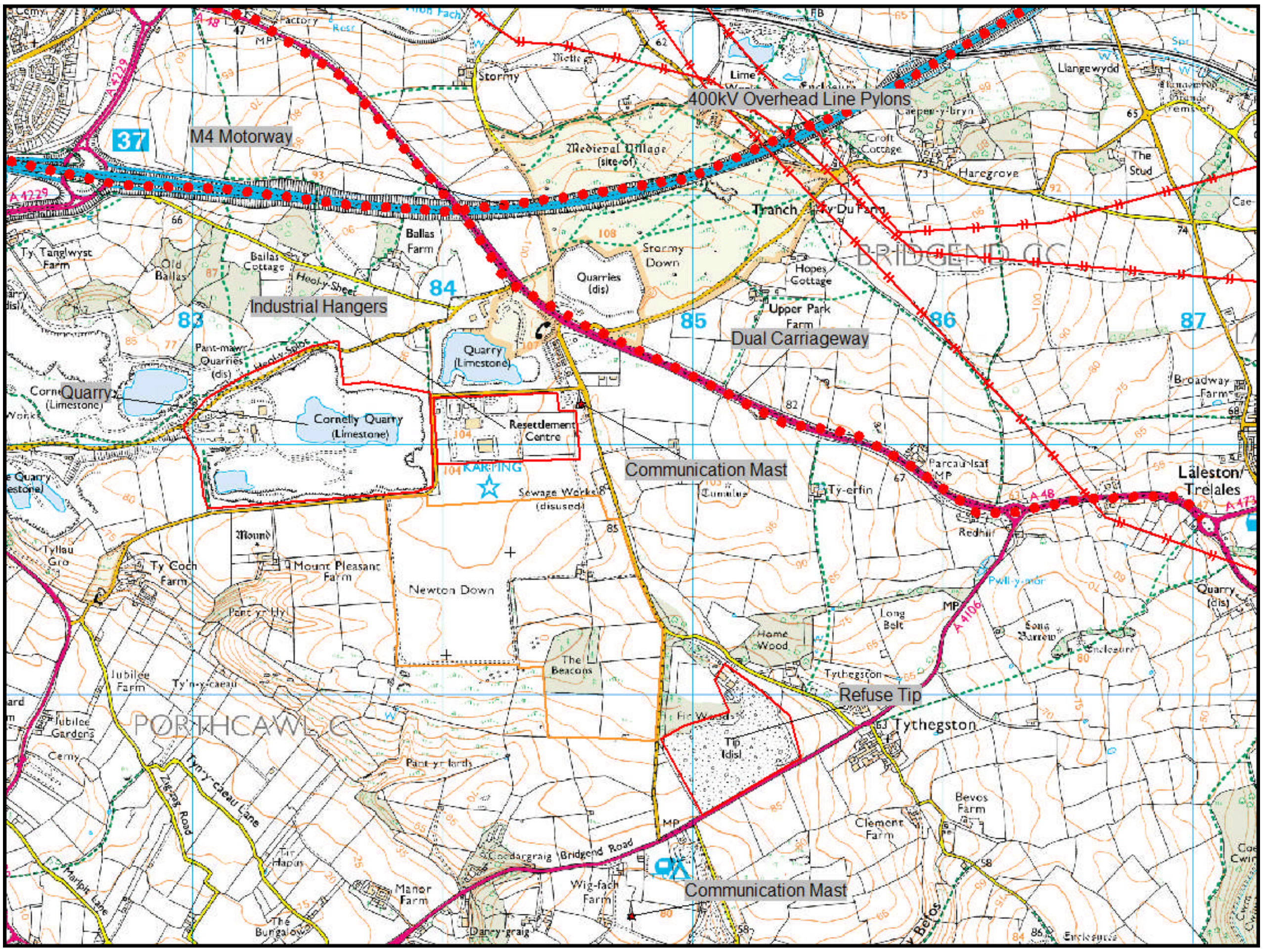
6. Site Description

The site is now farmland, nearly all arable. The site was previously a wartime airfield. Aircraft hangers, standing areas and a metalled perimeter track remain. The site is set back from a small ridge overlooking Porthcawl to the south. The site contains a copse and there is woodland to the east of the site.

The site is surrounded by the following developed environment:

- Cornelly Quarry (North)
- Industrial buildings converted from hangers (North)
- Communications tower (Northeast)
- A48 dual carriageway and the M4 (North).
- High voltage grid transmission line and pylons (West).
- Household refuse dump (Southeast).

Figure 4: Local Development



VP3 – Obscured view of turbines behind communication mast

7. Access

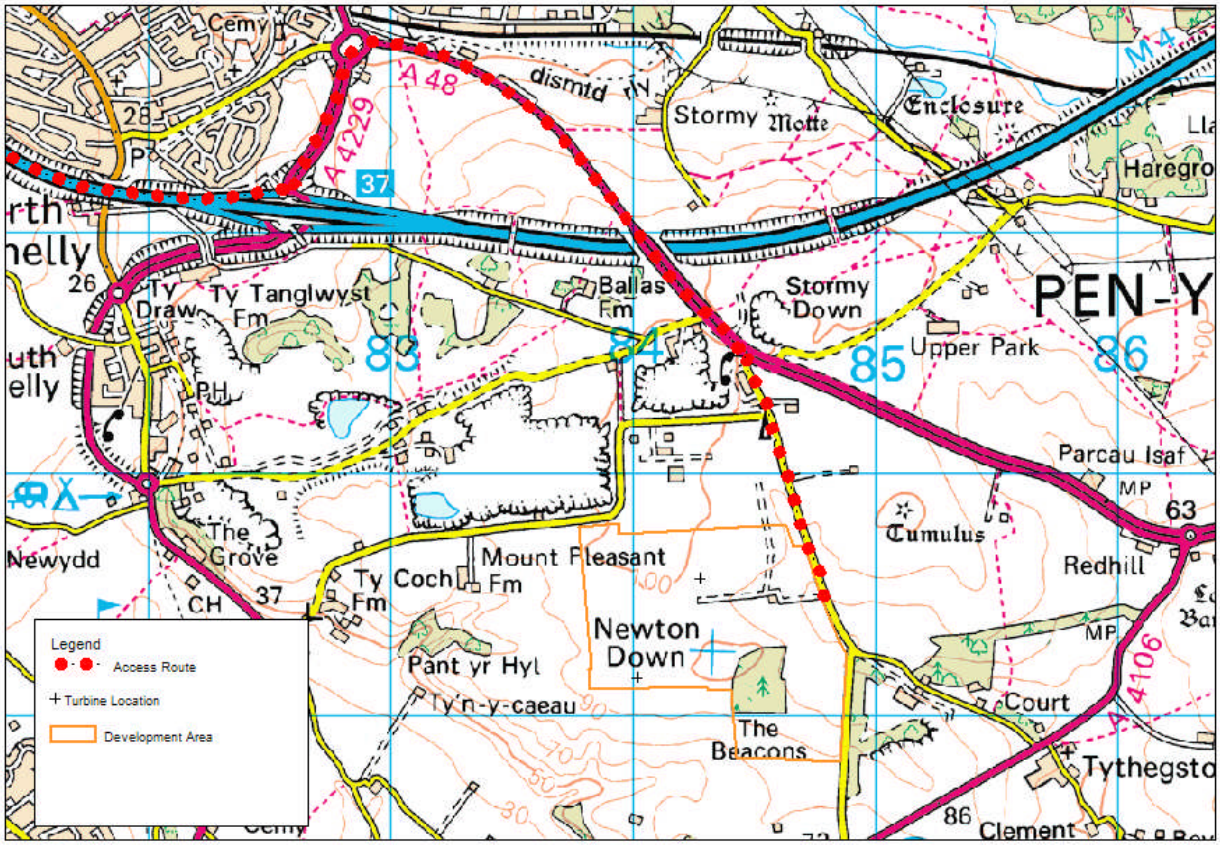
Good access to the site is required for the delivery of the wind turbines and the construction materials. The site benefits from excellent access being only 1.5km from the M4 motorway. The route is:

1. Motorway (M4), nominally from Swansea Port
2. Dual Carriageway (A48) (3km)
3. Large B Road (two lane) (1km)

The route avoids passing through any built up areas and uses major roads for the majority of the route minimising disturbance to other to road users. Access to the site is direct from public highway avoiding any access payments.

All roads are large enough to take the largest delivery loads. The route benefits from good quality roads with wide junctions requiring very little upgrading or alteration.

Figure 5: Access Route from Motorway



Access on the site from the road to the turbine sites is excellent. Extensive use can be made of the existing metalled airfield perimeter road (See Figure 7). This reduces the amount of stone required to be imported lowering any resultant traffic disturbance.

Further, the existing tracks reduce the new footprint of the windfarm on the ground with obvious ecological benefits.

The site is also adjacent to the existing Cornelly quarry. The use if the quarry is subject to commercial and technical satisfaction, however it provides the excellent opportunity if adopted to make lorry journeys delivering stone for tracks extremely short and localised.

8. Electricity Grid Connection

Meetings have been held with the local distribution network operator where they have advised of the current capacity within their network to accommodate the project.

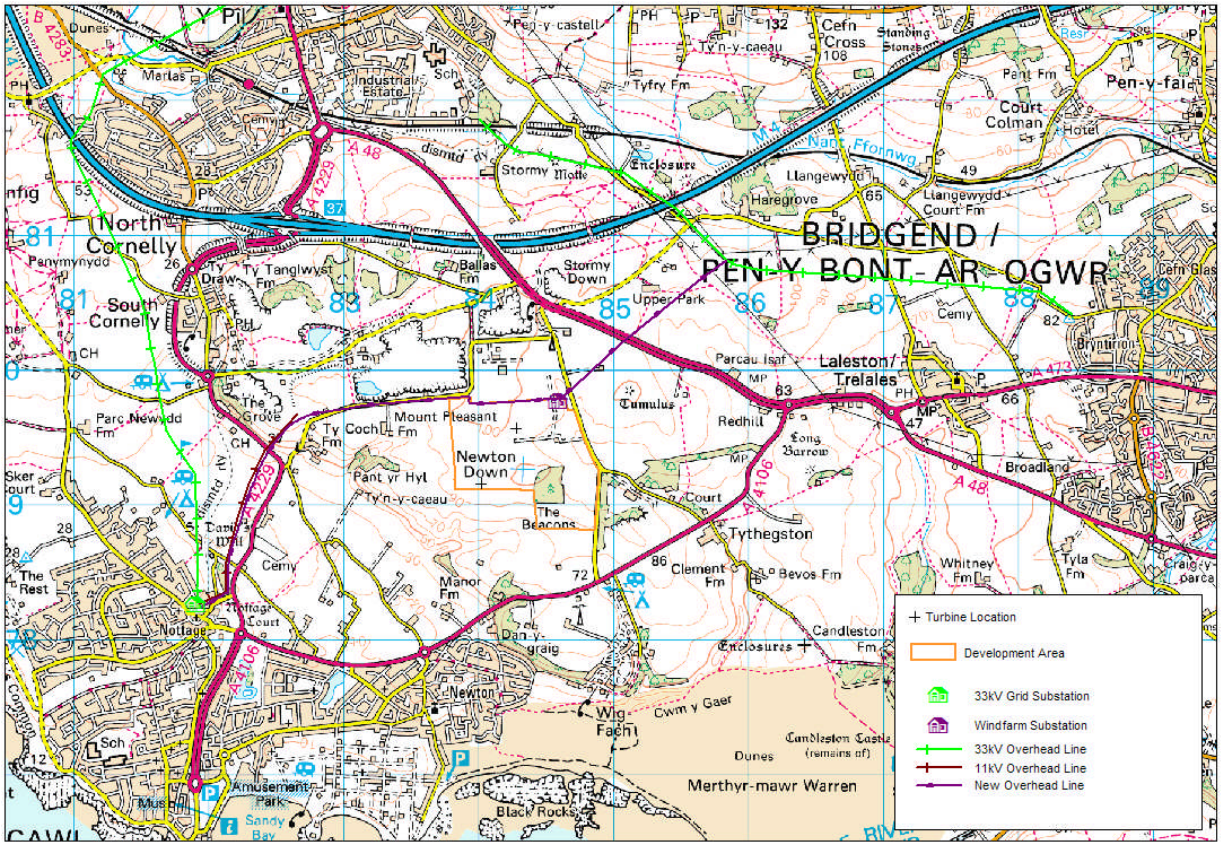
The Newton Down site is fortunate in being surrounded by existing electrical line and nearby grid substations. Two potential connection options exist at present:

(i) Connect the windfarm to Nottage 33/11kV substation in the southwest via 3.6km of new 33kV overhead line and short stretch of underground line near the grid substation.

(ii) Connect the windfarm by a "T" connection to an existing 33kV line 1.6km to the northeast.

It should be noted that the grid connection is not included in the windfarm planning application as this will be undertaken independently and at a later date by the local distribution network operator, WPD.

Figure 6: Indicative Grid Connection Routes



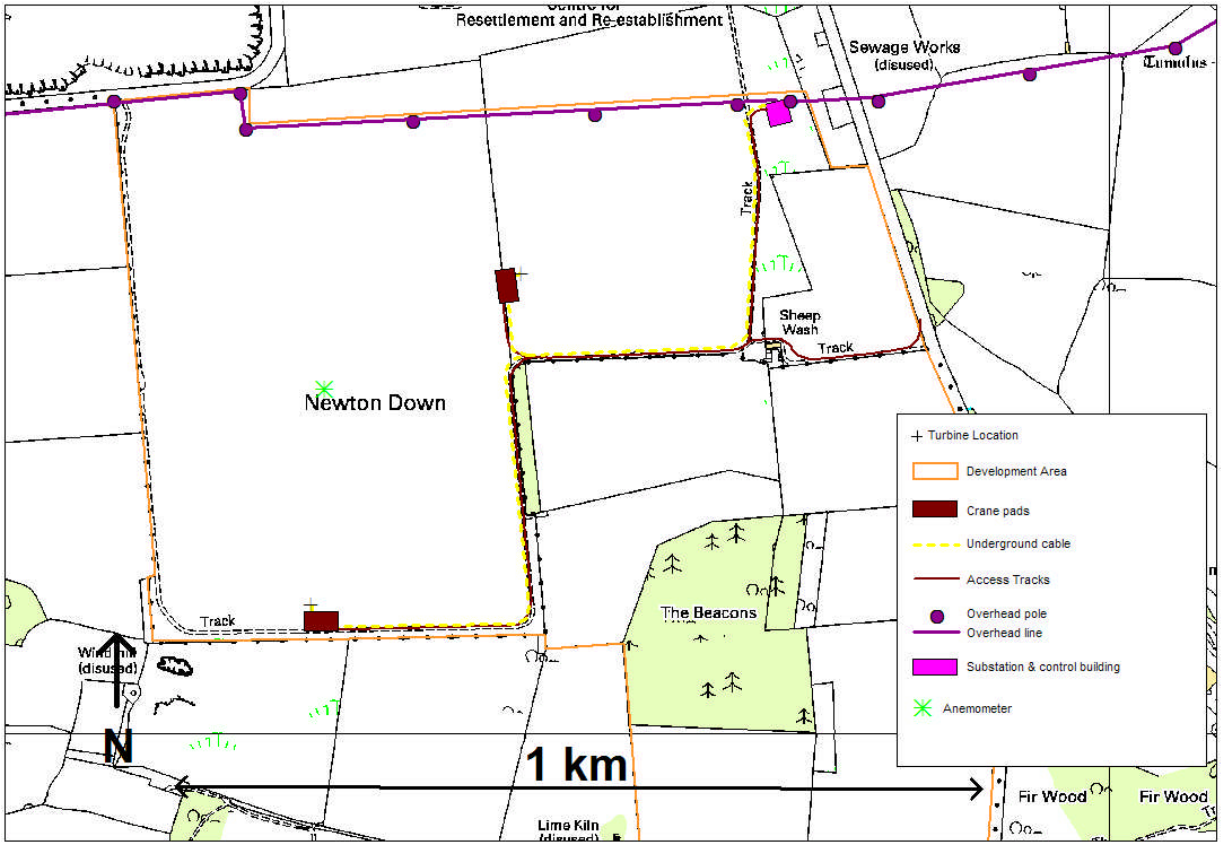
9. Project Infrastructure

The nominal turbine choice for design is a 2.5MW wind turbine, the specific turbine model will be selected post planning. The tower height is 80m and blade length 45m. The turbines will be sited using a concrete foundation approximately 2m deep and 18m in diameter.

As well as the turbines the project incorporates the following as shown in Figure 7:

1. A single story electrical control building approximately 20m by 10m. The building would be sited to minimise visual impact and constructed from appropriate materials.
2. An outdoor electrical sub station: transformers, switchgear, etc, occupying an area approximately 30m by 15m.
3. Underground electrical cables connecting the wind turbines to the sub station.
4. Overground electrical line of wooden pole construction similar to the existing distribution network connecting the substation to the local grid.
5. 1 permanent anemometer mast.
6. Stone track connecting the turbines, sub station and the site entrance circa 5m in width
7. Crane pads made of stone approximately 20m by 40m adjacent to turbines.

Figure 7: Indicative Site Layout



The site benefits from significant existing access track in the correct location to be used by the windfarm access tracks. Access tracks will be mostly just widened. The substation is located near water/sewerage works in a corner of the site benefiting from extensive trees and bushes, that will mask its view from the road.

The grid reference of the indicative turbine locations is:

Turbine 1: 284011,179159

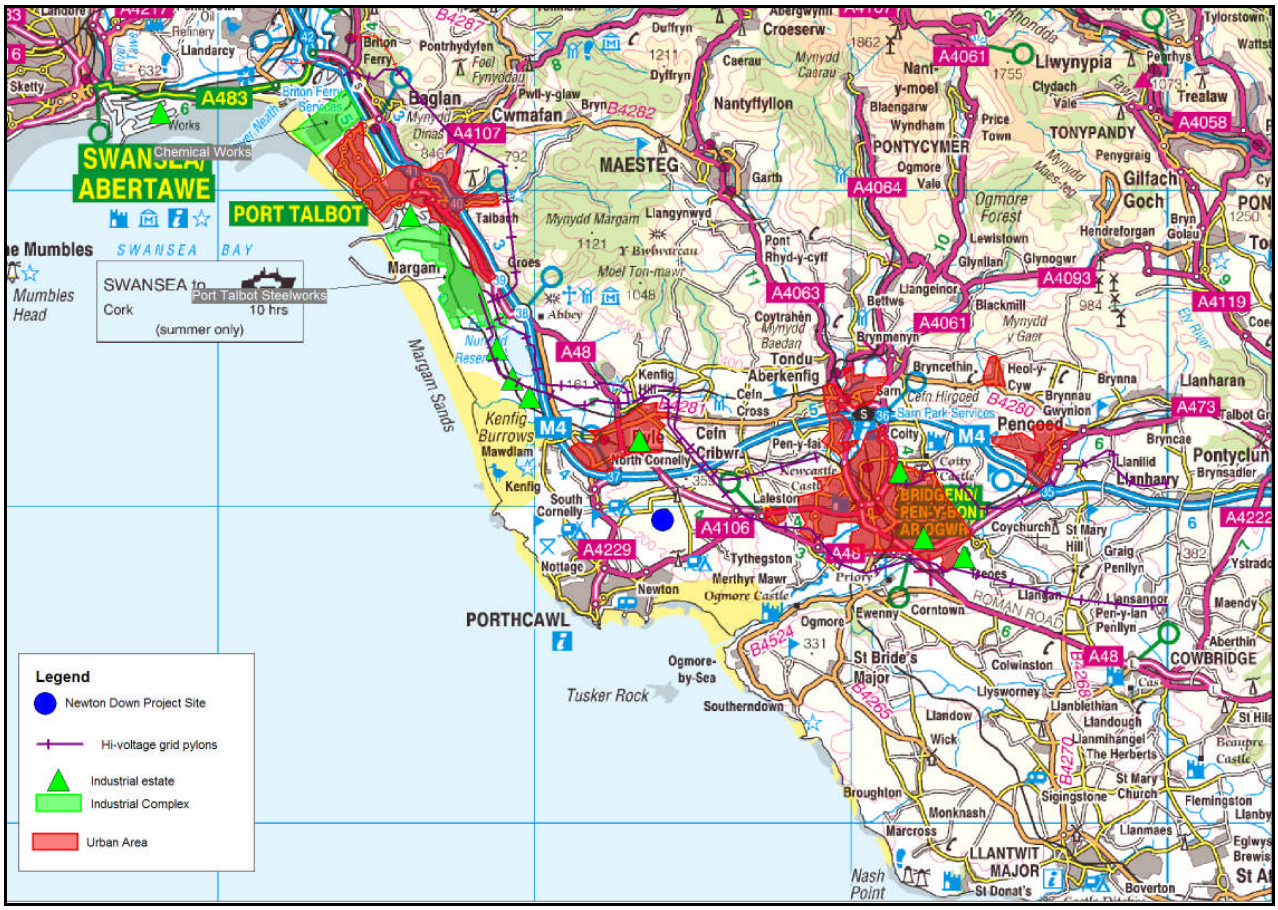
Turbine 2: 284270,179568

10. Landscape & Visibility

10.1 Wider Landscape Context

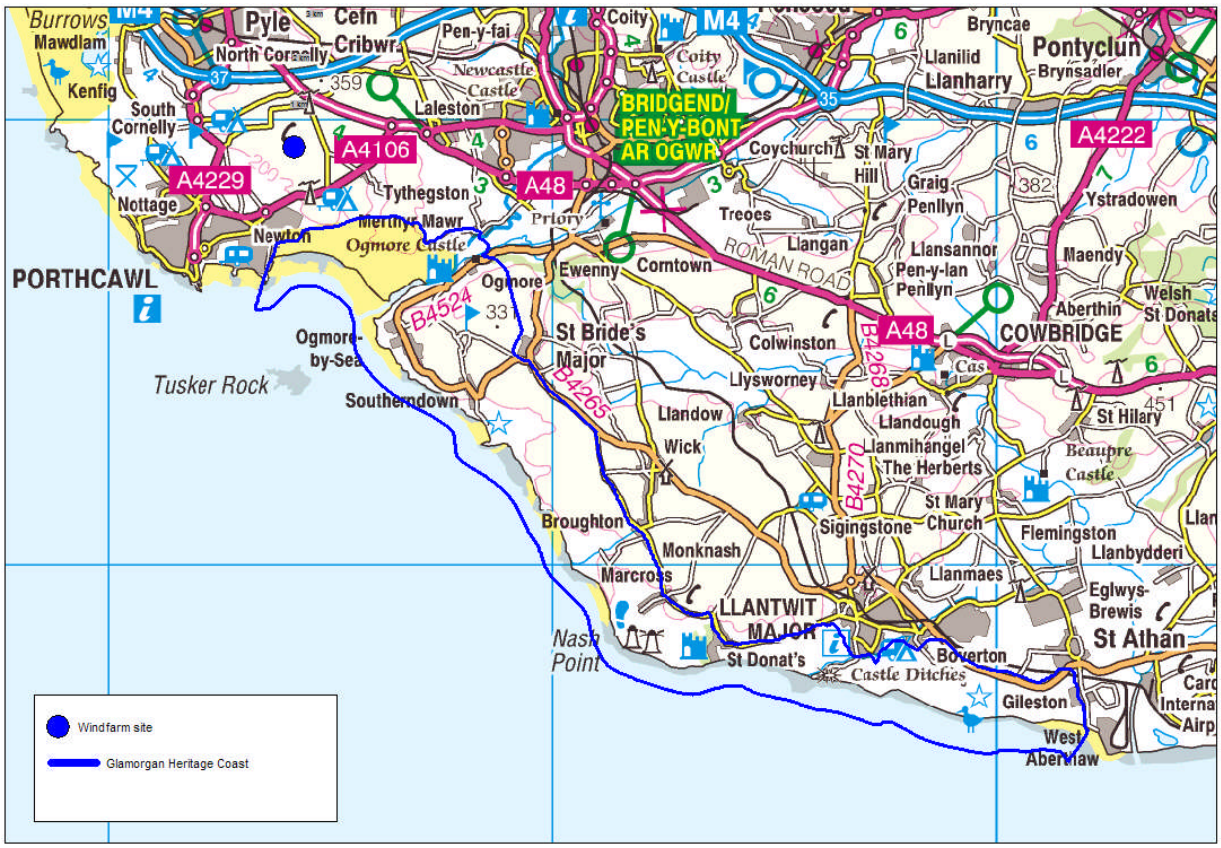
The site is situated close to the industrial corridor that extends around the M4 motorway from Bridgend in the south to Swansea in the north. To the northwest is the Port Talbot chemical works, steel works, railway yard and the Kenfig industrial estate. To the southeast is Bridgend with various industrial parks and manufacturing plant. The corridor is linked with the M4 motorway, the mainline railway and two Hi-voltage grid pylon lines.

Figure 8: Built Environment



To the south of the site is a more natural landscape with agriculture, and leisure use. To the south of the site is the town of Porthcawl. Porthcawl is a seaside town with beaches, amusements, golf courses, caravan parks, etc. To the southeast is the northwest extreme of the Glamorgan Heritage coast which extends 20km down the coastline.

Figure 9: Glamorgan Heritage Coast



The site at Newton Down has several characteristics that will impact the visibility of any windfarm on the site.

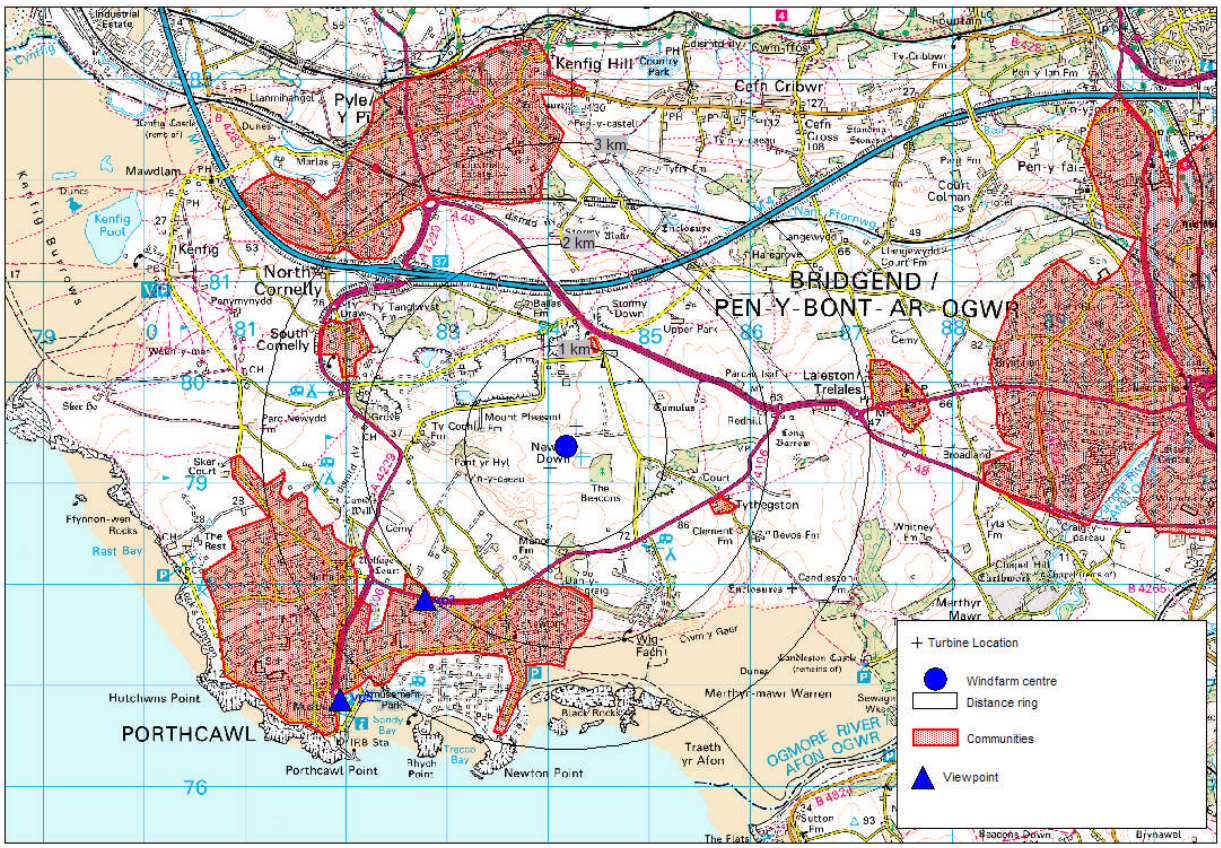
10.2 Visibility

The project would be largely obscured to the north by buildings, trees, etc. To the south the project will be more visible.

Figure 10: Zone of Theoretical Visibility (ZTV) (Turbine tips)

The community with the largest view would be Porthcawl to the south. Indicative photomontages from around Porthcawl are shown below.

Figure 11: Photomontage Location



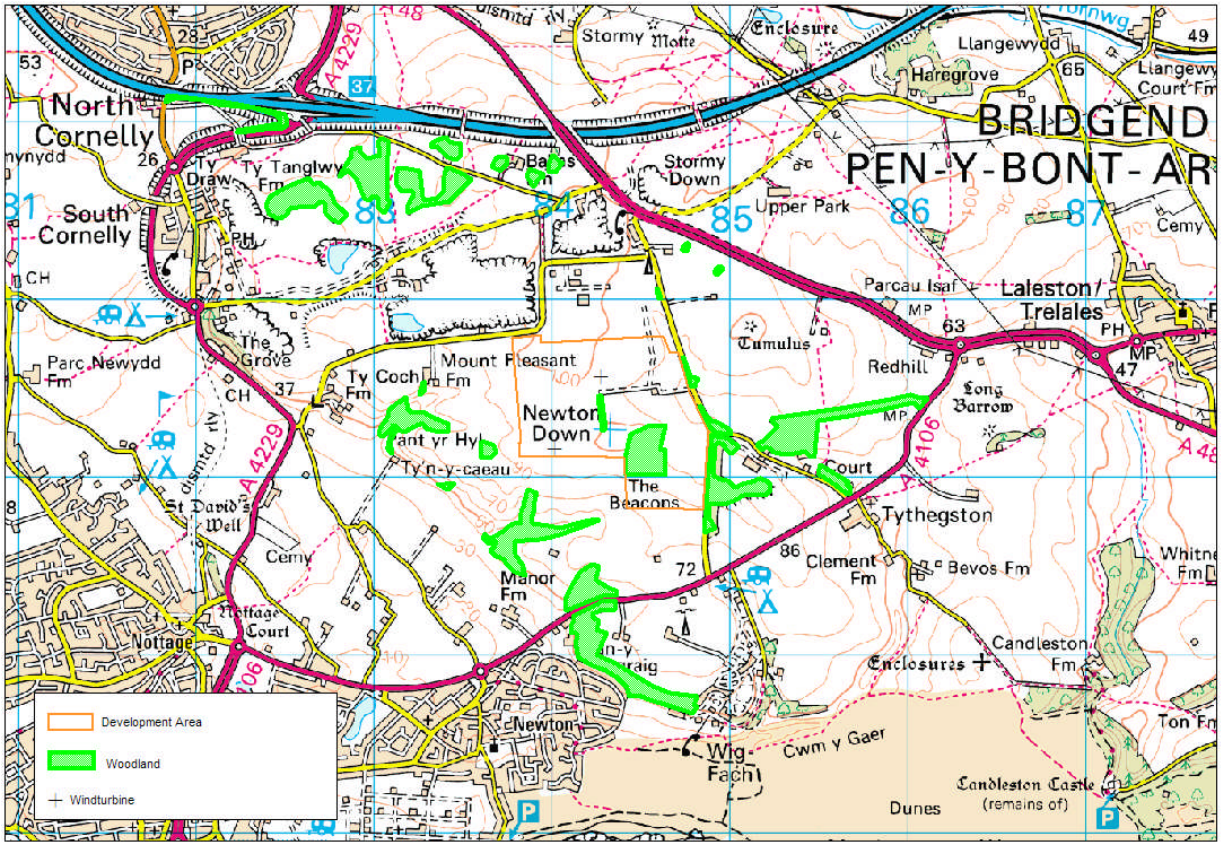
VP2 – View from road to south – edge of Porthcawl

VP5 – View from Porthcawl amusement area

The visual impact of the windfarm is minimised by the following factors

- Project Size – the project is only two turbines with a maximum array size (total size of windfarm) of 500m
- Woodland – the site is obscured by woodland from around the site
- Location – the project is set well back from the coastline, not interfering with coastal views up and down the coast and out to sea.
- Distance – the project is 1-2 km from the nearest communities

Figure 12: Woodland



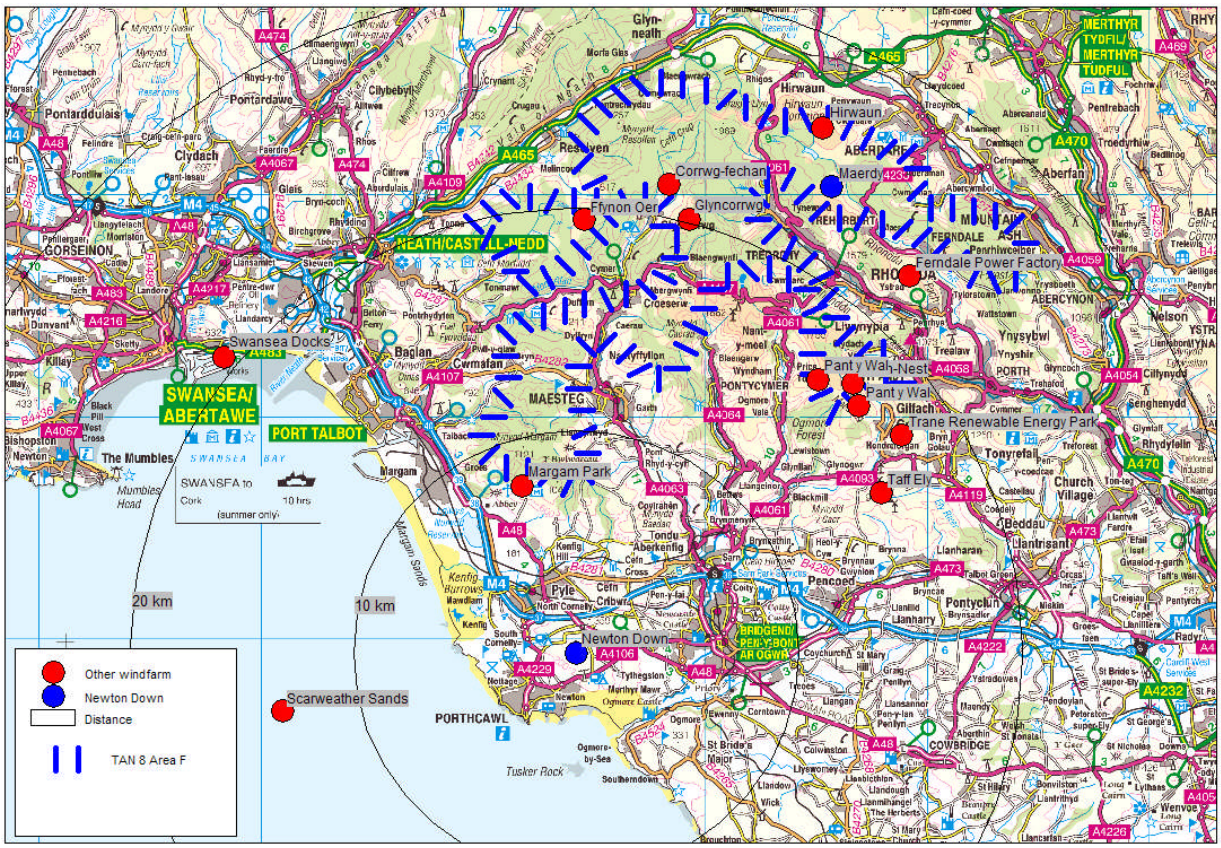
10.3 Cumulative Visual Impact

There are no other onshore windfarms in the close environs, but TAN8 strategic search area F is only 10km away and there are hence several further airfield, either built, permitted, or in the planning system.

Margam Park is the nearest proposal – 9km away. The windfarm was refused planning permission, however other proposals in this area are to be expected as it is on the border of the TAN8 area.

Scarweather sands is a thirty turbine offshore project developed by United Utilities. The project has planning permission, but construction has not commenced. There would be little cumulative impact as the windfarms are not within the same zone of visual influence – the offshore windfarm is visible from the coast, but Newton Down is in the opposite direction, inland and the projects are of totally different geographical context, nature and scale.

Figure 13: TAN 8 Local Area and other windfarm developments



11. Public Access and Safety

The site itself is rarely visited by the public. The site is private agricultural land without any footpaths or public rights of way. The project would not restrict any future right of way. To the north of the site in one of the industrial hangers is an indoor carting track. This will not be affected by the project.

Further away are a number of tourism features associated with the coastline. Around Porthcawl are the beaches, amusements, fairground, golf courses, etc. Most views from houses, hotels, promenades, beaches etc will naturally be focussed towards the sea. With the project site 2 or 3 km inland there is not expected to be any significant impact on the coastal fringe.

Further to the southeast is the start of the Glamorgan Heritage coast. The projects size, its set back location and orientation away from the coastal views should minimise any impact on enjoyment of this coastline.

The nearest nature reserves; Kenfig Pool and Merthyr Mawr Warren are 4km and 2.5km away. The nearest Country Park is Margam Park, 7km to the northwest.

Figure 14: Recreational Areas

12. Cultural Heritage & Archaeology

CADW and the Glamorgan Gwent Archaeological Trust (GGAT) have been consulted on the site.

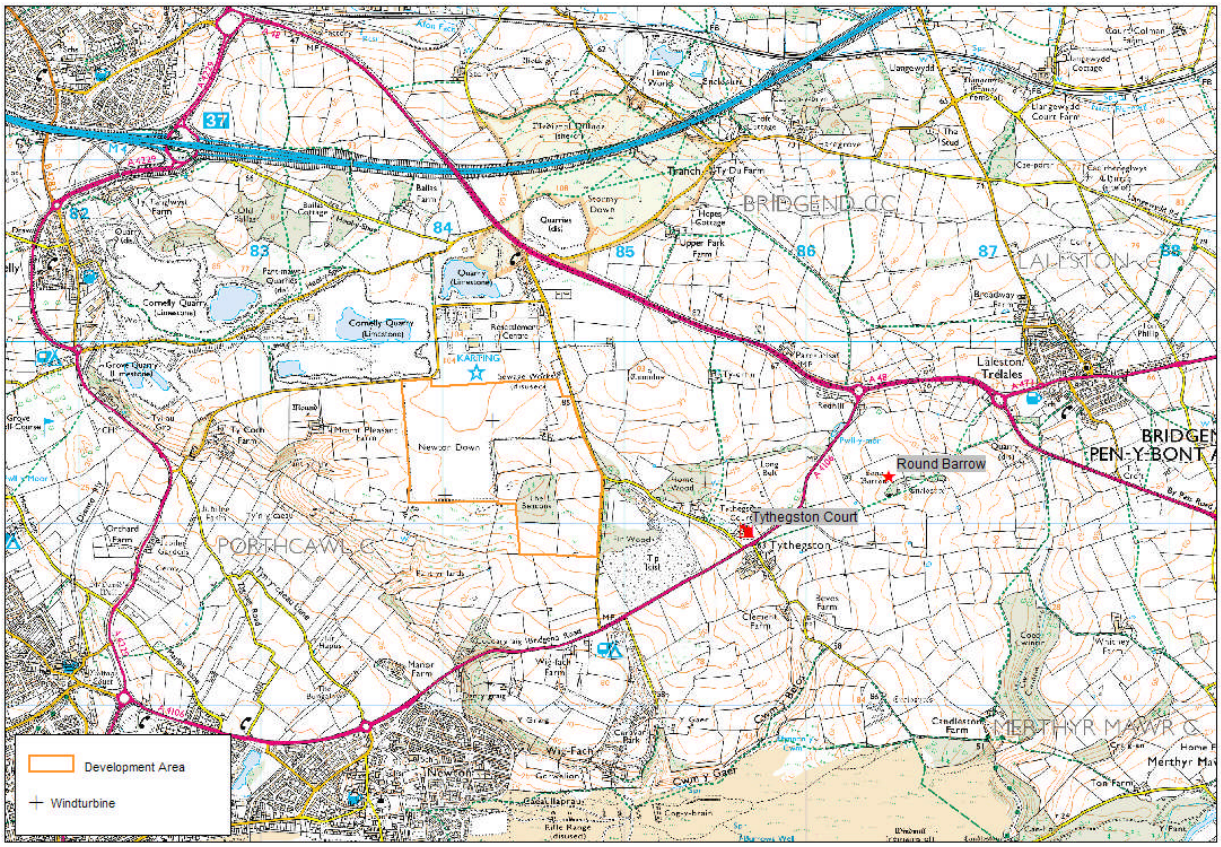
CADW commented

> *"a scheduled round barrow and the registered historic park and garden of Tythegston Court lie outside the eastern boundary of the development area and at some distance from the nearest turbine. However some consideration of the impact of the setting of these two sites will need to be given."*

Tythegston Court is a private house, not open to the public. Tythegston Court is owned by the landowner of the windfarm, who supports the project. Between Tythegston Court and the project site is a shield of woodland. This together with Tythegston Court being located in lower ground shield views between the two.

GGAT commented that only a desk based assessment would be required and there is no requirement for an ASIDOHL assessment.

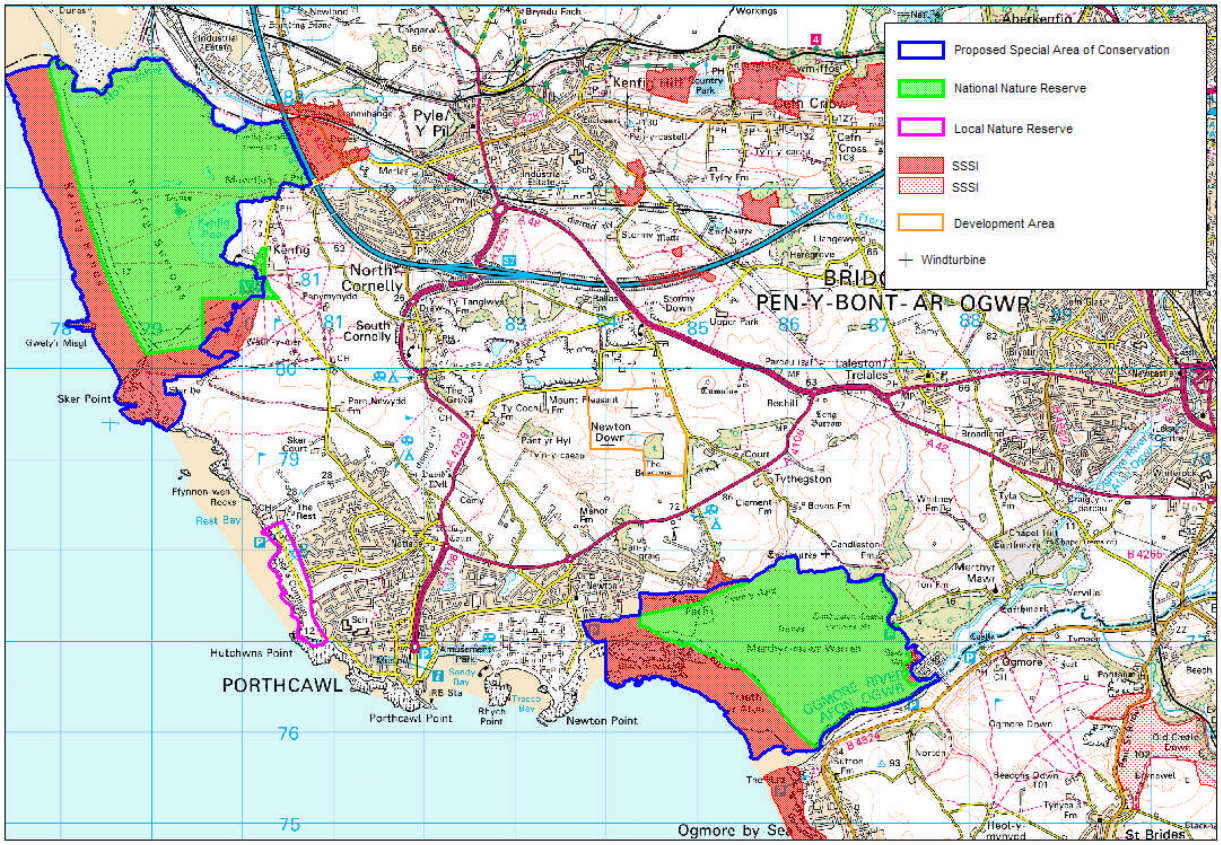
Figure 15: Cultural Heritage Features



13. Ecology including Ornithology

There are no national ecological designations on the site. See plan below.

Figure 16: Ecological Designations



The small copse within the site is a SINC (Site of Importance for Nature Conservation). This is a local county borough level designation. The copse is a broad leaved semi natural woodland. No significant impact on the copse from the windfarm is anticipated.

The Countryside Council for Wales (CCW), RSPB and The Environment Agency have been consulted on the site as well as the local planning authority.

Preliminary ecology studies including breeding bird surveys, bat surveys and general flora and fauna review were conducted in 2005.

The land is arable farmland with low habitat diversity.

No significant bird risks were identified during 2005 studies. Some repeated breeding bird studies may be undertaken in 2007 to update the data already gathered, REP are discussing with RSPB requirements.

A bat study was also carried out in 2005, this indicated some potential bat risks, further investigations concluded there was no significant risks. However, new guidance from

CCW was then published and this requires a fuller more exhaustive study to be undertaken; this was commenced in Autumn 2006 and is on going.

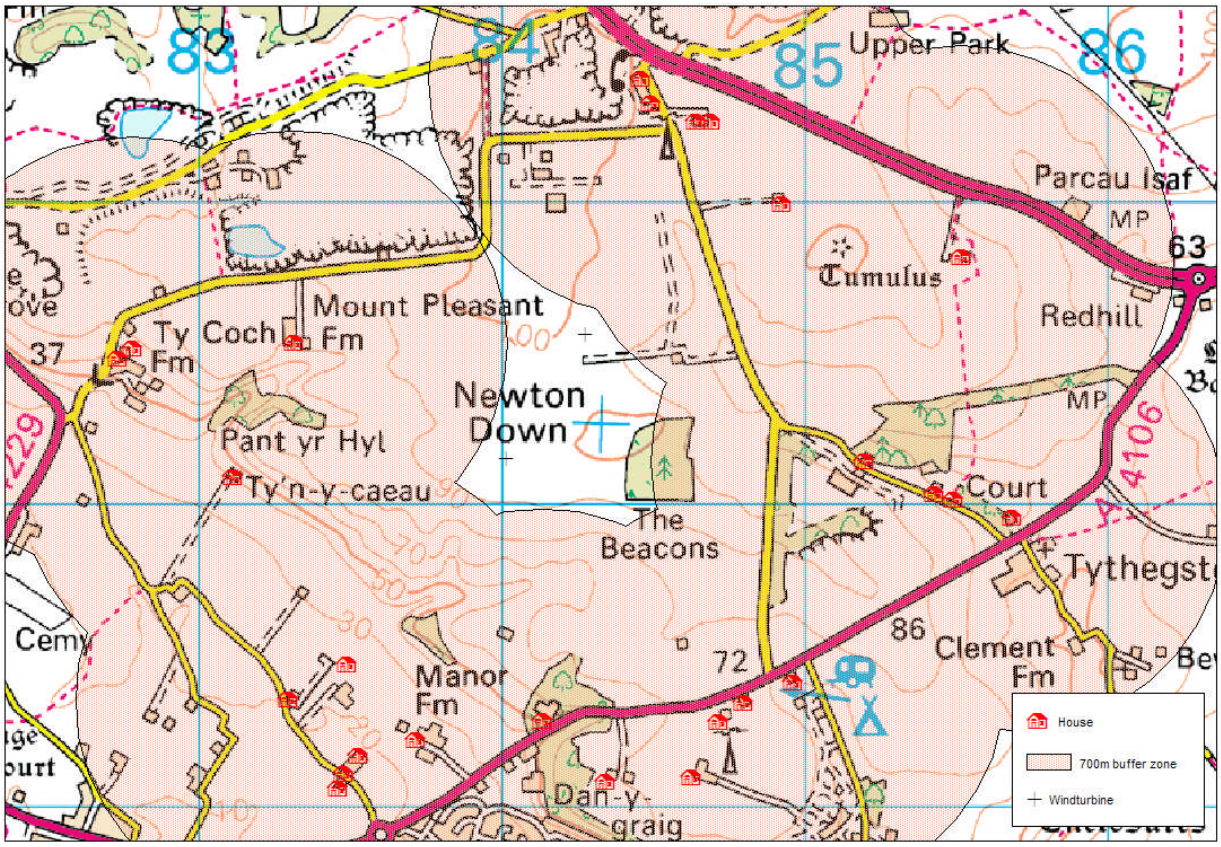
14. Noise

Separation from housing is a key criteria in site selection to avoid any noise issues. The Newton Down site allows satisfactory separation distances from the small amount of surrounding isolated housing. The plan below shows a 700m buffer zone around local housing, which the windfarm is well within. The site was originally planned for three plus turbines. With this buffer all turbine choices considered for the site should be accommodated.

With only two turbines the combined windfarm noise profile will be lower than most typical size windfarms. The site benefits from woodland shielding several properties, particularly those to the east and south. Properties to the north are close to the dual carriageway and will have a higher background noise reducing the relative noise profile from the windfarm. Properties to the southwest are exposed to the prevailing wind with a higher background noise and are upwind also.

The EIA will include a noise analysis at nearby properties. This will be used to design the project appropriately: turbine selection, separation distance, etc and provide any planning controls.

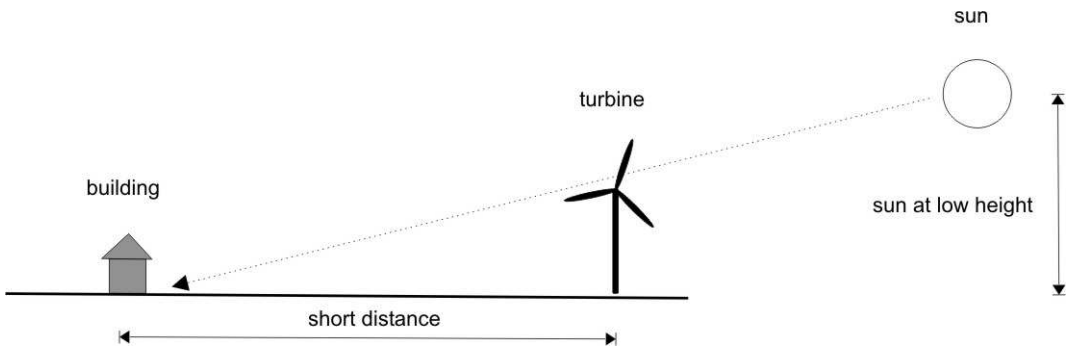
Figure 17: Separation distance from Isolated local housing



15. Shadow Flicker

Under particular circumstances the rotation of turbine blades between the sun and a dwelling or office can cause a disturbing affect. For this to be an impact it is necessary for the sun, turbine and building to be in line. This necessitates a particularly low sun in the sky and building close enough to the turbine to receive a shadow (See below).

Figure 18: Shadow Flicker



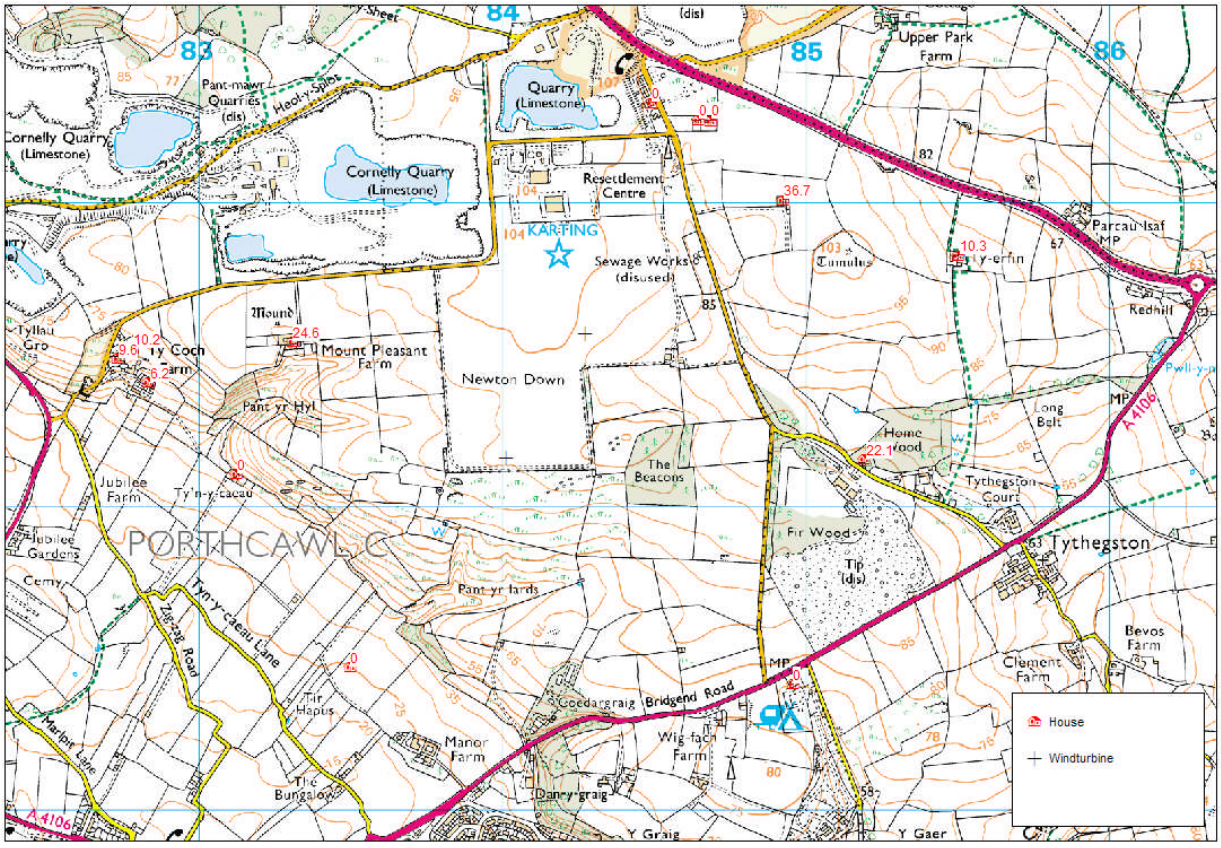
With some houses to the north of the site, it is technically feasible for a flicker effect to occur at Newton Down. The amount of flicker is dependent on:

- The location of the house relative to the windfarm - extreme east or west to pick up low morning and evening sun
- The geometry of the houses, windows, etc – such that windows are pointing toward the windfarm.
- The weather patterns for the area and likelihood of clear sunny conditions at the same time of year and day that the flicker is technically possible.

Figure 19 shows the worst case scenario prior to detailed analysis of house geometry and before the effects of weather (cloud) are incorporated. The plan shows the maximum number of hours per year that a house could experience shadow flicker.

Three properties are potentially exposed to shadow flicker. (Note the property in Home Wood is shielded by the wood). The number of hours per year of potential exposure is between 10 and 36 before reduction for weather and inadequate geometry. The number of properties is therefore small and the potential impact minimal.

Figure 19: Shadow Flicker



16. Geology

The site is located adjacent to Cornelly limestone quarry. The quarry is protected in the Unitary Development Plan by a number of policies, covering expansion, mineral search and safeguarding zones.

Policy M4 provides for the expansion of the quarry. Area M4(1) on the proposal map (see below) is safeguarded for future extraction. The area is outside the development area and not necessary for the project. However, the area is owned by the landowner and land agreements provide for using the area as construction compound should it not have been developed as a quarry at the time of the windfarms construction.

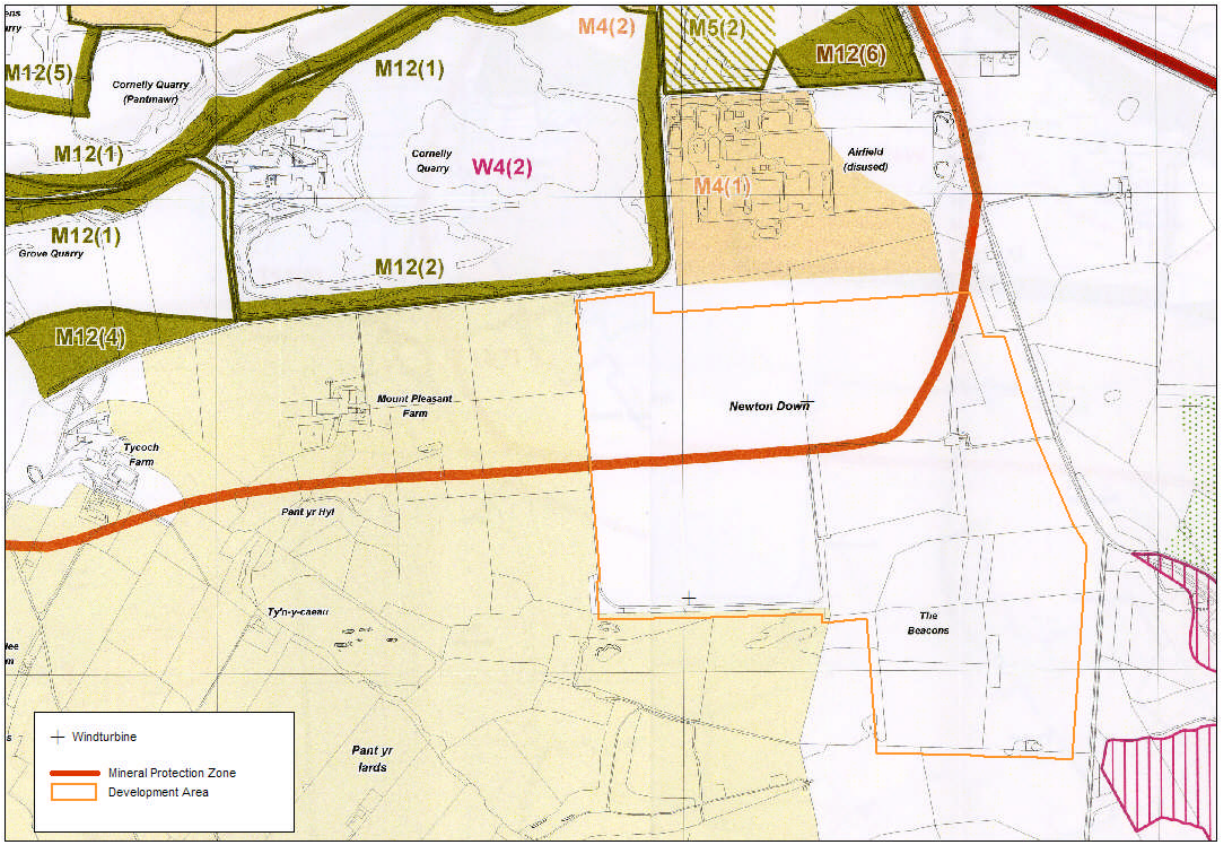
Policy M5 provides for search areas for expansion of the quarry. Area M5(1) on the proposals map. These are all outside the development area and do not impact the project.

Policy M11, Protection of Amenity, provides a mineral protection zone around the quarry so that mineral development will not be inhibited by its potential impact on any new development.

> *"**Policy M11**: Mineral protection zones are identified around existing quarries together with consented reserves and land allocated for future working as shown on the proposals map. Within these zones, new development including mineral development will be restricted in order to ensure that current and future mineral development will not be inhibited by its impact on new development. Proposals for development other than minerals within the zone will take account of the potential impact of quarrying on the development proposed and a minimum buffer of at least 200 metres will be secured between quarrying operations and sensitive land uses, unless site characteristics lead the council to determine otherwise.*
>
> ***Explanatory text:** . Mineral working can have an adverse impact on the amenity of sensitive land uses, such as, residential development, hospitals, hostels and schools. Mineral Protection Zones have been identified around existing quarries and their future working areas to prevent conflict between mineral working and other land uses by providing a buffer around active and future quarrying areas. In some instances, there is existing residential development already located within the Mineral Protection Zones. It would be unreasonable and difficult to resist infilling development within built up areas even though there may be some effect from quarrying operations. The Council will, however, judge each case on its merits. In all other cases, the Council will seek to secure a buffer of at least 200 metres between new development and mineral operations"*

The mineral protection zone covers some of the development area, including one turbine. The windfarm will not conflict with this policy because there is no conflict of amenity between the windfarm and the quarry such as there is with housing for which the policy is designed.

Figure 20: Mineral Protection Zones



17. Hydrology

There is no hydrological features on the site of any significance.

18. Telecommunication Interference

Windfarms can interfere with telecommunication links such as mobile phone transmitters and TV reception. A wide consultation was conducted in 2004.

18.1 Fixed link Communications

BT, Crown Castle, NTL, Channel 5, Orange, T Mobile, Vodafone, and O2 were consulted. T Mobile operate the telecommunication mast toward the northeast corner of the site. They have placed an exclusion zone that the current layout is well beyond. No objections were raised from the other consultees.

18.2 TV

Crown Castle, NTL, and Channel 5 were consulted, none have any objection. The site is within the BBC area of responsibility for domestic TV reception. Reception is provided from Wenvoe transmitter to the east and Kilvey Hill transmitter to the west. The BBC noted that

> *"Wenvoe viewers to the west and north west of the site may suffer interference. Reception from other transmitters should not be affected by the development".*

Pyle and Cornelly are to the west and northwest of the project site. Some viewers at Pyle and Cornelly have their aerials pointed towards Wenvoe and some towards Kilvey Hill. The EIA will include an expert assessment and report of any possible TV interference and proposed remedy. If there is any anticipated interference rectification could be achieved by:

- Alteration of aerials to the alternative transmitter (The area is serviced by both Kilvey Hill and Wenvoe)
- Erection of a relay to provide a new source
- Provision of digital or satellite equipment

Figure 21: TV Reception

18.3 Emergency Services

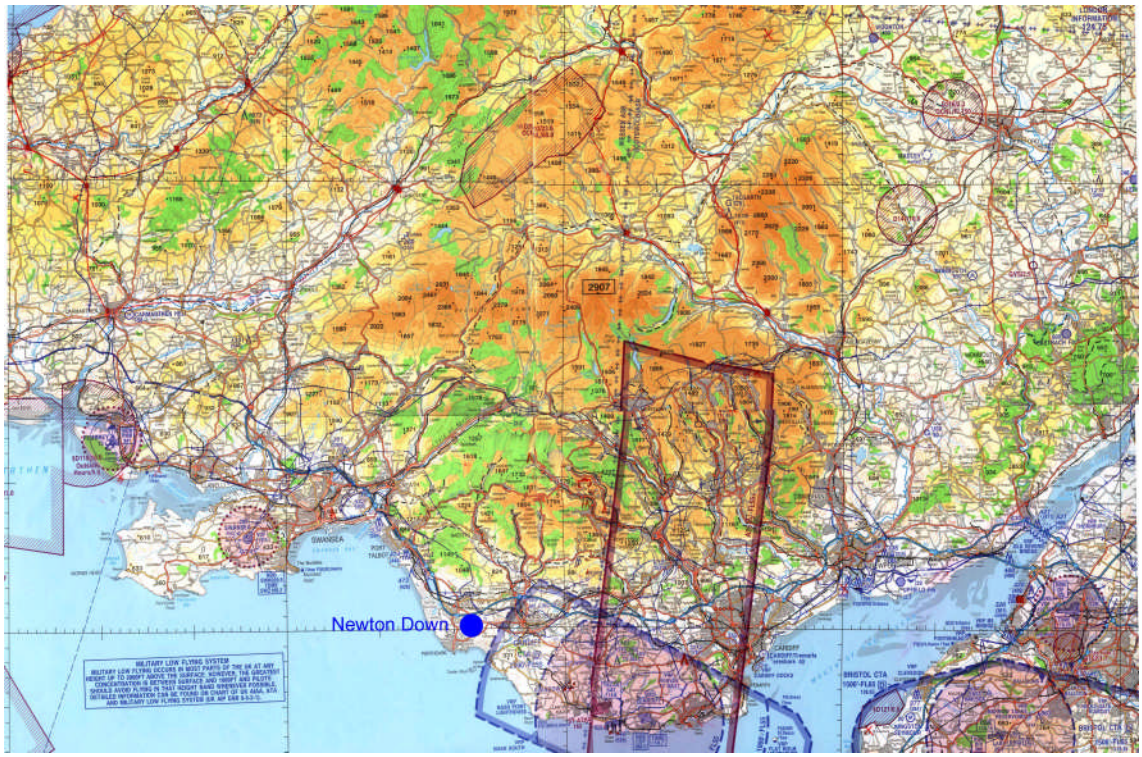
The Radio Communications Authority were consulted and confirmed the site presented no problems for emergency services communications.

19. Aviation Interference

Windfarms can cause serious problems for aviation, interfering with radar, military low flying, etc.

The CAA (CAA Directorate, NERL and NSL) and MOD have both been consulted on the windfarm proposals and do not have any objections. The windfarm is beyond the area of influence for Cardiff Airport.

Figure 22: Aviation Control Areas



20. Project Site Summary

There are no perfect windfarm sites, however, some are preferable to others and through detailed investigation and consultation it has been established that the Newton Down site has very favourable low environmental risk characteristics and these have lead to its adoption for development. In summary these include:

- Excellent access, avoiding disruption to towns and villages, with major capacity roads avoiding disruption to other road users. Also potential local sources of quarry materials further reducing lorry journeys.
- Extensive existing access tracks on the site, reducing the need for new onsite tracks, lowering habitat footprint and construction materials.
- Local grid connection, reducing need for long new electrical line.
- The local contextual landscape includes significant existing local development: adjacent Cornelly quarry, adjacent aircraft hangers and the local refuse dump.
- The landscape and visual impact of the development is limited by:
    - the small number of turbines;
    - the extensive separation of the turbines from local towns; the location of the site set back well in-land from the coastal fringe, thereby not interrupting along coast views;
    - the existence of significant shielding for local properties from topography, woodland, obstacles, etc.
    - Low cumulative impact risk due to geographical separation of other windfarms in area, and small size of Newton Down development
- Low risk for public amenity interference – no public footpaths, private land, etc.
- Low ecological risk –improved mostly arable farmland, low ornithology risk.
- Low local archaeological / cultural heritage interest and hence potential impact.
- Sufficient distance from housing to comfortably avoid any noise issues coupled with low noise of just 2 turbines.
- Few local houses and their geographical situation not expected to lead to any significant impact from shadow flicker.
- Lack of conflict with mining or other geological constraints.
- No significant hydrological interests on the site – rivers, ponds, etc..
- No objections received in communication interference consultation
- No objections in aviation consultation.

21. Planning Application

Planning application is sought for 25 years. Towards the end of this period the project would be either decommissioned or application made to retain or replace the turbines. If decommissioned the turbines would be removed and foundations landscaped to below ground level; the substation and control building would be removed with foundations landscaped to below ground level; overground cables would be removed and underground cables would be left in-situ to minimise disturbance; access tracks and crane pads would either be removed or reduced in size depending on an assessment at the time of the minimal environmental impact.

22. Planning Policy

22.1 Welsh Assembly Planning Policy: TAN8

In July 2005 the Welsh Assembly Government (WAG) issued their new planning policy for renewable energy: Technical Advise Note 8 (TAN8). The policy focuses on meeting the targets for renewable energy in Wales through the provision of large windfarms in seven strategic search areas (SSA). Outside these areas the policy concludes most areas should remain free of large (>25MW) windpower schemes. The policy goes on to require that local authorities encourage smaller community schemes described as less than 5MW outside the SSA's. (Para 2.12).

> *"The Assembly Government expects local planning authorities to encourage, via their development plan policies and when considering individual planning applications, smaller community based wind farm schemes (generally less than 5 MW)."*

Newton Down is outside a SSA. A two turbine circa 5MW project is proposed under this specific category for smaller schemes encouraged by TAN8.

22.2 "Smaller" "Community Based" Windfarms

TAN8 encourages local planning authorities to determine locally what constitutes smaller and community based. TAN8 Para 2.12 says:

> *"The Assembly Government expects local planning authorities to encourage, via their development plan policies and when considering individual planning applications, smaller community based wind farm schemes (generally less than 5 MW). This could be done through a set of local criteria that would determine the acceptability of such schemes and define in more detail what is meant by "smaller" and "community based". Local planning authorities should give careful consideration to these issues and provide criteria that are appropriate to local circumstances."*

We are unaware of any policy regarding definition of "community based" or "smaller windfarm" in relation to TAN8 at this stage from the local authority.

As the overriding objective in TAN8 is for local authorities to encourage these smaller schemes we would urge the local authority that any policy it develops is consistent with this project.

We understand that Newton Down is one of very few, if not the only, project being developed within this category. If the policy definitions were inconsistent with this project they could have the effect of discouraging one of the very few viable

opportunities in this category and be hence be contrary to TAN8 obligations to encourage this class of project.

The size of the project is established at, 2 to 3 turbines, with an indicative layout of two turbines, with 80m towers and 45m blades. The community aspects of the project are yet to be developed. REP is committed to delivering desirable and appropriate local benefits. An example of the work undertaken by REP in this regard is the package of detailed and varied community benefits developed for the nearby Maerdy Windfarm (see www.maerdywindfarm.co.uk) and the associated consultation on those.

22.3 Local Planning Policy

The site is wholly within Bridgend County Borough Council. The dominant local planning policy is the Unitary Development Plan (UDP) issued in May 2005. The principle policy is below:

> ***Policy U2***
>
> *Proposals for wind turbines and wind farms will be encouraged in the interests of protecting valuable energy sources and limiting emissions of greenhouse gases. Development will be permitted if:*
>
> *1. The site does not lie within the Glamorgan heritage coast;*
> *2. By virtue of its size, design and siting, the development would not be visually intrusive in a designated special landscape area, or a designated historic landscape, park or garden;*
> *3. By virtue of its size, design and siting, the development would not be harmful to the setting of a listed building or the character and appearance of a conservation area;*
> *4. The development would not be demonstrably harmful to the nature conservation interest of the kenfig csac or a sssi;*
>
> *The cumulative, as well as individual, impact of development proposals on sensitive environments will be assessed*

The policy in relation to windfarms does not address TAN8 as it was issued before the final TAN8 in July 2005.

23. Public Opinion

The project is not in the public domain at the moment. It is planned that public consultation would take place involving public exhibitions, websites, leaflets, etc.

24. Conclusion

This report is intended to provide background to the local planning authority for the proposed Newton Down Windfarm.

It is hoped that the report properly explains the reasoning why the windfarm is being proposed and provides a sound basis for planning the necessary work and steps involved through the planning application process.

The developer would welcome any comments that steered the project development at this stage.