

Pell Frischmann

Waun Maenllwyd Wind Farm

Access Optioneering Review

Technical Note

Introduction

Pell Frischmann (PF) has been commissioned by Belltown Power UK Wind Limited (Belltown) to undertake a route access review of potential delivery routes for wind turbine Abnormal Indivisible Loads (AIL) associated with the construction and development of Waun Maenllwyd Wind Farm, located to the northeast of Pumsaint, in Ceredigion.

A Route Survey Report (RSR) was prepared to help inform Belltown on the likely issues associated with the development of the site with regards to off-site transport and access for AIL traffic. The report identifies the key issues associated with AIL deliveries and notes that remedial works, either in the form of physical works or as traffic management interventions which will be required to accommodate the predicted loads.

Following a request from Cadw, PF have produced this Technical Note summarising how the route to the site, including consideration of the Port of Entry (PoE), was identified.

1.1 Candidate Turbine

Belltown have indicated that they wish to consider the worst case components from a Siemens Gamesa SGRE155 turbine at a maximum tip height of 230m.

The details of the components have been provided by Siemens and are detailed in Table 1-1. [Table 1-1: Turbine Components Summary](#)

Component	Length (m)	Width (m)	Height / Min Diameter (m)	Weight (t)
Blade	76.571	4.424	3.000	25.600
Base Tower	14.034	4.800	4.800	84.400
Mid Tower 1	19.880	4.800	4.800	84.300
Mid Tower 2	22.400	4.800	4.794	73.900
Mid Tower 3	28.560	4.794	4.102	72.000
Top Tower	35.040	4.102	3.574	70.300

2 Strategic Access Route Review

2.1 Port Selection

Based on the UK Government's 'Water Preferred Policy' where it is stated that AIL movements should be taken from the nearest suitable port to minimise the impact on the road networks, all suitable ports located in Wales and England within the vicinity of the project have been considered. Table 2-1 below shows a matrix of ports considered and the constraints associated with each.

Table 2-1: Port Constraints

Port	Length	Draught	Road Access
Newport	244m	10.4m	76 miles along the M4, A470 and A40 to the vicinity of the site.
Cardiff	198m	10m	67 miles along the A470, A40 and A482 to the vicinity of the site.
Port Talbot	300m	16.5m (Tidal)	62 miles along the M4, A40 and A482 to the vicinity of the site.
Swansea	200m	9.9m	54 miles along the M4, A40 and A482 to the vicinity of the site.

Avonmouth Docks	380m and 660m	11m	94 miles along the M4, A40 and A482 to the vicinity of the site.
Birkenhead	292m	12.8m	128 miles along the A55, A483 and A482 to the vicinity of the site.

Based on the above, it was considered that Swansea offered the most direct access and complied with the 'Water Preferred Policy' reducing impact on the local road network. Port Talbot Harbour is the second closest port but is tidal, which would limit the times which shipping deliveries could be proposed and in any case, would result in approaching the site from the same direction.

Access from the north via Birkenhead has been used for sites in the North and Mid Wales but becomes very constrained once deliveries get as far south as Newtown (the bypass is inadequate for loads of this size), the A483 then becomes very sinuous before getting to Llandrindod Wells where a series of right turns to join the A4081 make the route very constrained. It is not believed a viable route because A) of the 'Water Preferred Policy', B) the geometry of the southern section of the route from Newtown onwards and C) there would be considerable impact within a number of settlements particularly Llandrindod Wells, Builth Wells and Llandovery.

The routes from the south offer more legislative compliance and also have less impact on towns and villages as the strategic road network typically bypasses these features.

There are no recognised ports permitting access from the west to the site. Fishguard is a ferry port with very restricted quayside access for AILs and access by road is limited by the town of Fishguard. Aberystwyth Harbour is typically a marina and fishing port.

Road access from Fishguard would need to use the A40 down to Carmarthen and then join the proposed route offered from Swansea. The Aberystwyth route would be served at Rhayader due to the alignment of the A470 at the clocktower in the town centre which would in turn push vehicles north towards Newtown and then have similar restrictions as coming from Birkenhead.

It is therefore proposed that Swansea is the closest suitable port, and as such is the proposed PoE. Swansea was also used recently for the import of turbines used at both Pen y Cmoedd (Siemens Gamesa SWT 113) and Maerdy (Siemens Gamesa SWT 101) and has also been used for a number of other sites in the south Wales area, including Brechfa (Senvion MM92) and Mynydd y Gwair (Senvion MM92) Wind Farms.

The PoE has suitable marine access and storage areas and is accommodating of AIL requirements.

2.2 Road Network within the vicinity of Waun Maenllwyd

Given the findings from the Port Selection process above, it is apparent that AIL access to the site would need to be from the south east. From this review of the road network within the vicinity of the proposed site there was limited opportunity for abnormal loads to access the site. This is shown in Figure 2-1 below.

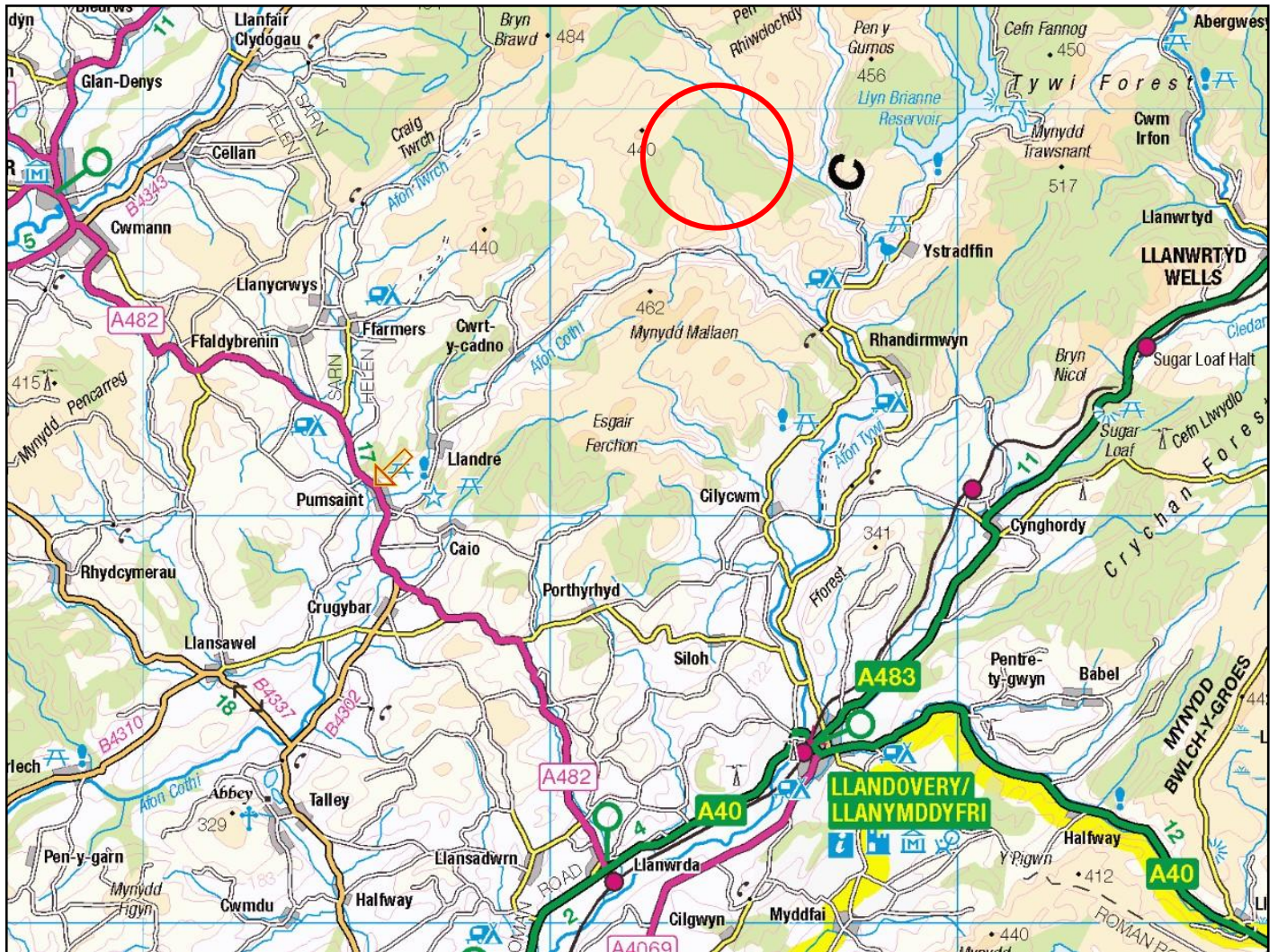


Figure 2-1: Streetmap of area surrounding the site

There are a network of small rural single track roads to the west of the Afon Cothi River which would be unsuitable without substantial upgrade works which were considered to be environmentally far worse than the current proposed route. Any of the other minor road routes would need to be upgraded to a far greater extent and would also require longer sections of new access track to be constructed.

The proposed route represents the best option for AIL access to the site as the majority of the road network is suitable, albeit with modifications to the point where the route would join the forest haul route at Pumsaint. The timber haul route will need minor upgrade works to provide access to the site with only the final section requiring a new access track to be constructed.

It is suggested the route provided within the RSR offers the best chance of delivering AILs to site with the least environmental and ecological impact to the local environment, whilst keeping the project commercially viable.

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