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Design and Access Statement

Installation of a 150kW Ground Mounted Photovoltaic Array at

**Garn Farm
St Hilary
Cowbridge
Bridgend
CF71 7DP**

Applicants

**Andrew Davies and Jonathan Davies
T/a T J Davies & Sons
Tudor Barn
Garn Farm
St Hilary
Cowbridge
Bridgend
CF71 7DP**

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Supporting Documents

- (1) Site Plan
- (2) Block Plan
- (3) Location Plan
- (4) Profile View

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1. The Applicants

The Applicants are Andrew Davies and Jonathan Davies of Tudor Barn, Garn Farm, St Hilary, Cowbridge, Bridgend, CF71 7DP.

The site address is Garn Farm, St Hilary, Cowbridge, Bridgend, CF71 7DP

The Applicants own approximately 800 acres which is used for Barley and Wheat production.

2. Proposed Development

The development proposed is the installation of a 150kW Ground Mounted Photovoltaic Array at Garn Farm.

The array would consist of 600 photovoltaic panels (PV's) which convert daylight into electricity, direct sunlight is not required.

The electricity generated from the PV's would be utilised on site helping to reduce energy costs, CO₂ emissions and the Applicants dependency on the National Grid.

Electricity not used on site would be exported to the National Grid, providing a wider community benefit.

Each PV panel is 1640mm x 994mm

The PV's would be laid in a 7 rows, fixed at angle of 30 degrees, facing a south.

The PV's are arranged in portrait format:-

Row 1

2 PV's high by 14 PV's (a total of 28 PV's), with an overall area of 39.53m²

Row 2



2 PV's high by 26 PV's (a total of 52 PV's), with an overall area of 73.38m²

Row 3

2 PV's high by 38 PV's (a total of 76 PV's), with an overall area of 107.26m²

Row 4

2 PV's high by 51 PV's (a total of 102 PV's), with an overall area of 143.95m²

Row 5

2 PV's high by 63 PV's (a total of 126 PV's), with an overall area of 177.84m²

Row 6

2 PV's high by 72 PV's (a total of 144 PV's), with an overall area of 203.25m²

Row 7

2 PV's high by 36 PV's (a total of 72 PV's), with an overall area of 101.61m²

The total area covered by the PV's would be 846.82m².

The front edge of the PV's would be fixed 1m from ground level, allowing the Applicant the option to graze sheep. Installing the PV's 1m from ground level enables sheep access to graze under the PV's.

Taking into account the 30 degree angle at which the PV's are laid, and the 1m from ground level, the top edge of the PV's would be 2.64m above ground level.

3. Site Location

The PV's are to be ground mounted in the position shown on the plans with this Application.

The 'Google Earth' image below shows the proposed location for the PV's on the Applicant's land. The Application site is circled red.



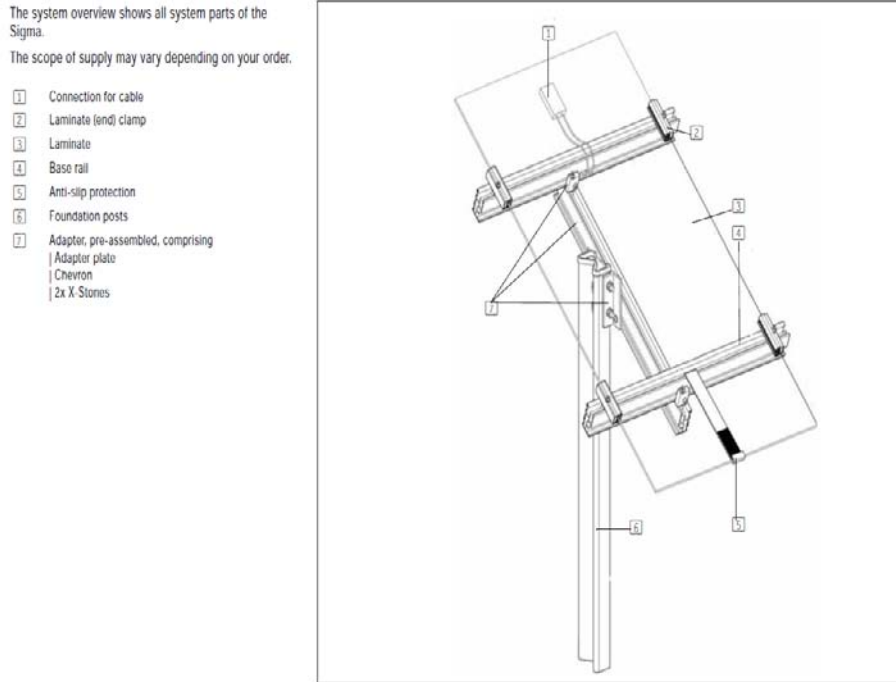
The photograph below is taken from the south-west looking north-east towards the proposed PV site.



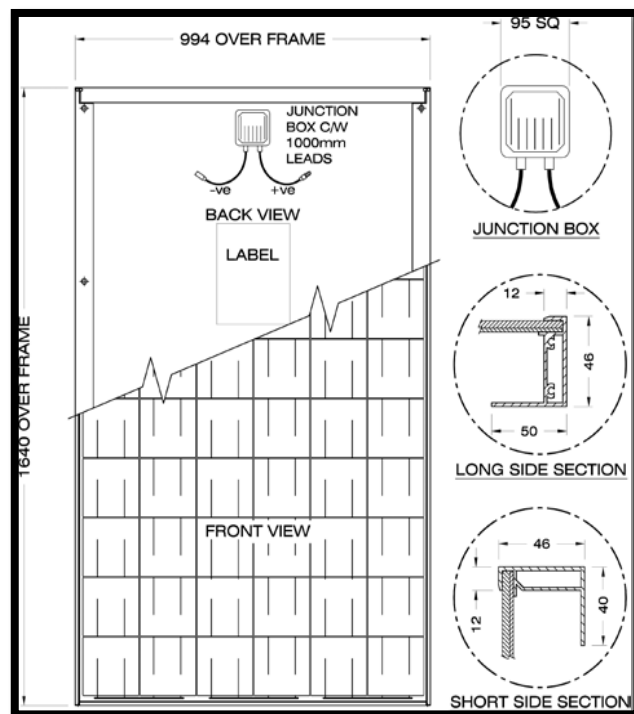
4. Panel Design Illustrations

There is below an extract from the installation manual for the PV's.

The foundation post is driven into the ground. No concrete hard standing is required.



This is a diagram showing a front, back, short side and long side view of a panel.



The photograph below shows PV's of the type being proposed.

The surface of the PV's is non-reflective. The aim of the PV's is to absorb light rather than to reflect it.

The PV's shown in this photograph are for illustration purposes only.



5. Access

The installation of the PV's would not require the creation of any new access from the highway or site roads. The route to the site would be along the public highway.

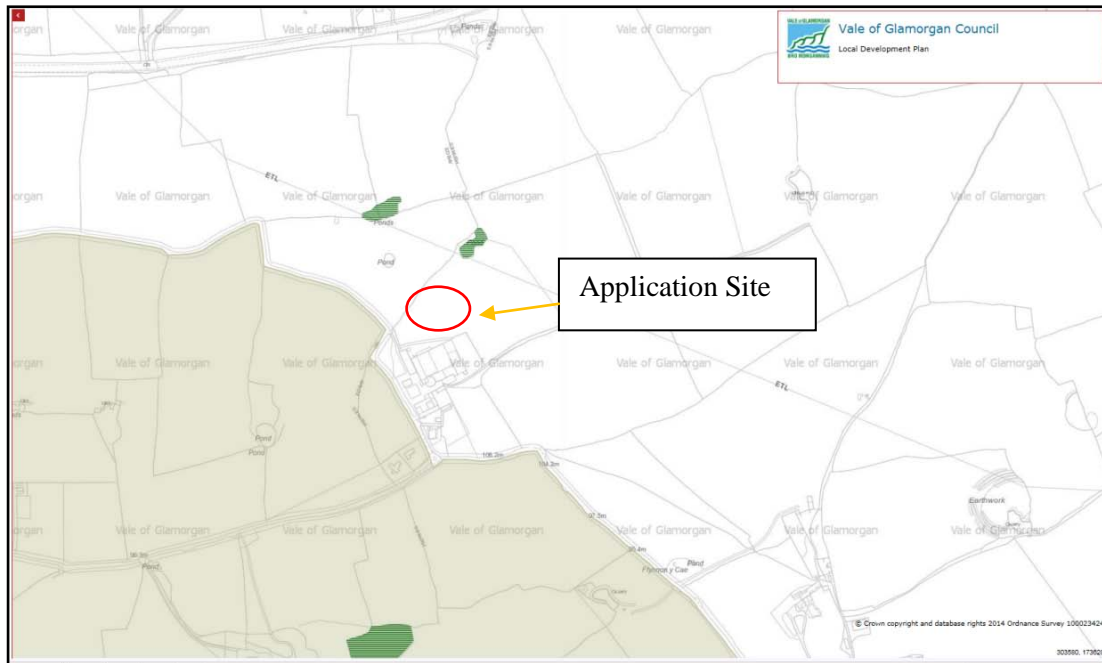
A single delivery of PV's would be made to site. The PV's are off loaded by a fork lift truck.

There would be approximately 2 transit vans to and from site every day to transport the installation workers.

The installation of the PV's would take approximately 5-10 working days.

6. Landscape Impact

The Application site sits just outside the boundary of the Vale of Glamorgan Special Landscape area, and is as shown on the image below.



The development proposed is the installation of a 150kW Ground Mounted Photovoltaic Array at Garn Farm.

The array would consist of 600 photovoltaic panels installed in 7 rows. The layout of the PV's has been designed to cause minimal impact within the landscape.

The total area covered by the PV's would be 846.82m², with top edge of the PV's no higher than 2.64m above the ground.

Connection to the grid would be via underground cabling. The total length of the proposed cable would be approximately 144m². The trenching for the cable would be approximately 0.3m in width, giving an area of trenching of 43.2m²

The nearest property, outside of the Applicants land ownership, is 'Coed Hills' which is approximately 500m south east of the Application site.

The application site is circled red.



The PV's would not be in the direct line of site of 'Coed Hills and the hedgerow aligning the public highway, to the south of the Application site, would help screen views of the PV's.

There is public highway, through road, which runs from the junction of Llantrithyd Road, to the south of the Application site, through the Applicants land to the A48 Cowbridge by Pass.

This road is mainly used for access to Garn Farm and East Down Farm, to the north west of the Application site.

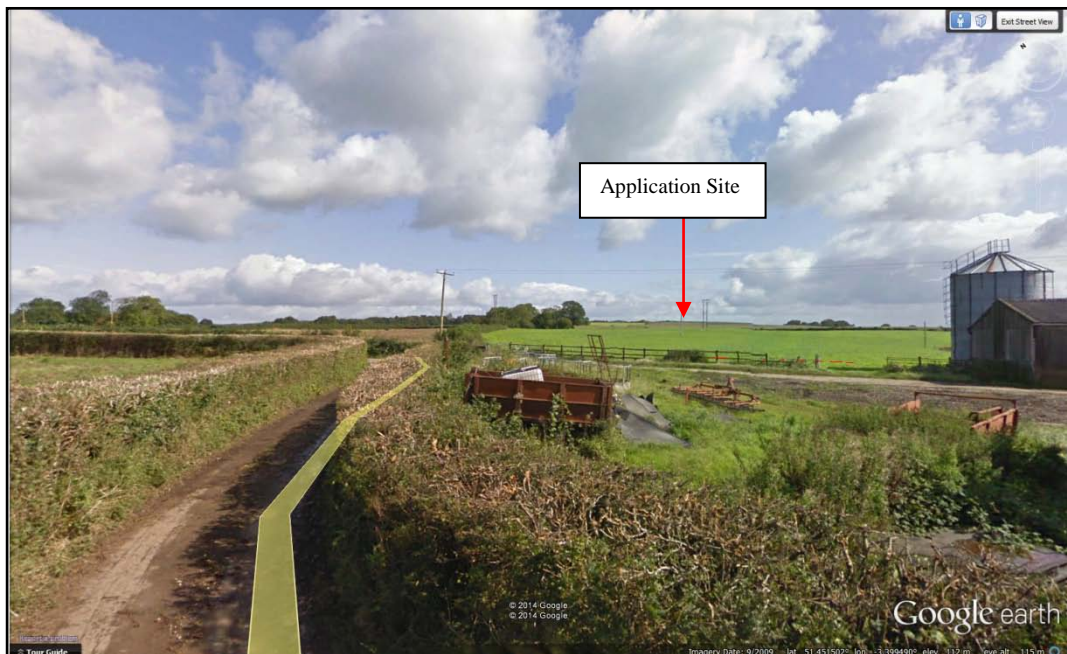
Views of the PV's from users of the through road, when travelling north to south, would be of the rear of the PV's, with intermittent views due to the existing farm buildings.

The image below is taken looking south from the through road looking back towards to the site proposed for the PV's.



Any views of the PV's from users of the through road, when travelling south to north, would be of the profile of the PV's.

The image below is taken looking north from the through road back towards to the site proposed for the PV's.



7. Site Photographs

The photographs below are taken from Application site looking north, east, south and west.



View South



View West



8. Environmental Benefits

The 150kW Array proposed would produce in the region of 150,000kW of electricity per annum.

Garn Farm uses approximately 20,000kW of electricity per annum.

The electricity generated from the PV's would be utilised on site for corn drying and general use such as lighting and where possible, to supply the domestic properties.

By generating their own electricity, the PV's would help the Applicant to reduce energy costs, CO₂ emissions and their dependency on the National Grid.

Electricity not used on site would be exported to the National Grid, providing a wider community benefit.

The consumption and production of electricity expressed as kilo watt hours (kWh).

As a combined figure for the various types of power station in the UK using fossil fuels (coal, gas and oil), each kWh (kilo Watt hour) of electricity produces 430g CO₂.

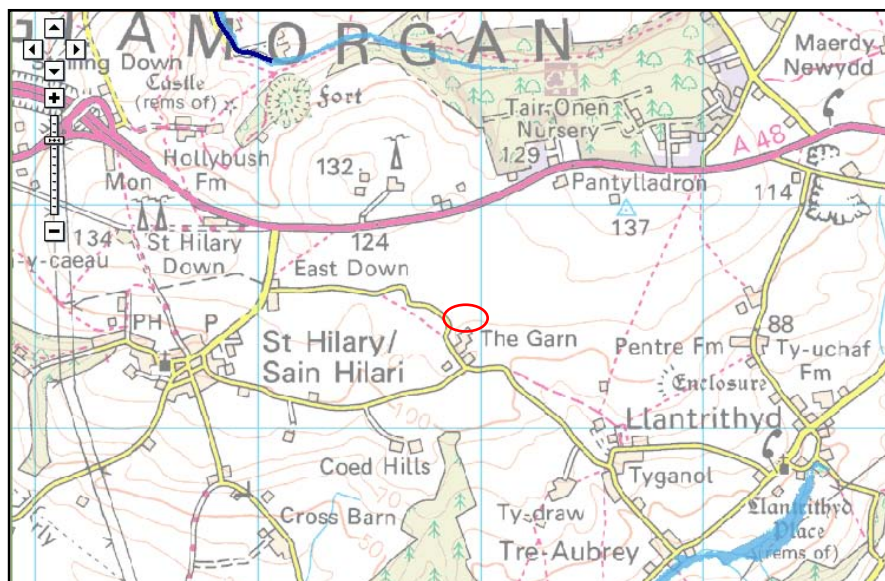
If the electricity to be generated by the PV's were produced using fossil fuels, a total of 64,500kg of CO₂ would be produced.

The generation of electricity using the PV's does not produce any CO₂, consequently the PV's would reduce CO₂ emissions by 64,500kg.

9. Risk of Flooding

The map below is taken from the Environment Agency web site. The Application site is circled red.

The Application site is not within an area at risk of flooding.



10. Ecology

A desk top survey of the area within a 500m radius of the Application site has been carried out. The survey results reveal no Sites of Special Scientific Interest, Important Bird Areas or National Nature Reserves within the search area.

11. Great Crested Newts

Proximity of ponds to the site proposed for the PV's.

Ponds within 100m:	1
Ponds within 100-250m:	2
Ponds within 250-500m:	0

The development proposed consists of the installation of a 150kW Ground Mounted Photovoltaic Array, consisting of 600 PV's, installed in as 7 rows.

The installation of the PV's does not require the construction of a concrete pad.

The PV's are mounted on frames. The frames are fixed on to steel supports which are pile driven into the ground. There would be a single support every 4.5m along the length of the row.

In total there would be 69 individual steel supports.

Each support is 7.6cm² and would, upon installation, disturb the same area of ground. With 69 supports being installed, the total area of earth disturbed would be 0.05m².

Connection to the grid would be via underground cabling. The total length of the proposed cable would be approximately 144m. The trenching for the cable would be approximately 0.3m in width, with a total area of 43.2m²

There would however, be no habitat loss as the cable is covered back over once laid; therefore there would be no permanent impact.

The total area of disturbance of the supports and cabling would be 43.25m²

The total area of land being lost is less than 0.01 of a hectare.

Natural England have prepared a 'Rapid Risk Assessment Tool' which is a tool used to assess the impact and likelihood of an offence being committed by comparing the area of land to be disturbed against its distance from a pond.

Based upon the area of land to be disturbed being less than 0.01 of a hectare and distance from the nearest pond, the Rapid Risk Assessment result was 'Green: Offence Highly Unlikely.

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great Crested Newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	0.001 - 0.01 ha lost or damaged	0.05
Land 100-250m from any breeding pond(s)	0.001 - 0.01 ha lost or damaged	0.005
Land >250m from any breeding pond(s)	0.001 - 0.01 ha lost or damaged	0.0005
Individual Great Crested Newts	No effect	0
Maximum:		0.05
Rapid risk assessment result:	GREEN: OFFENCE HIGHLY UNLIKELY	

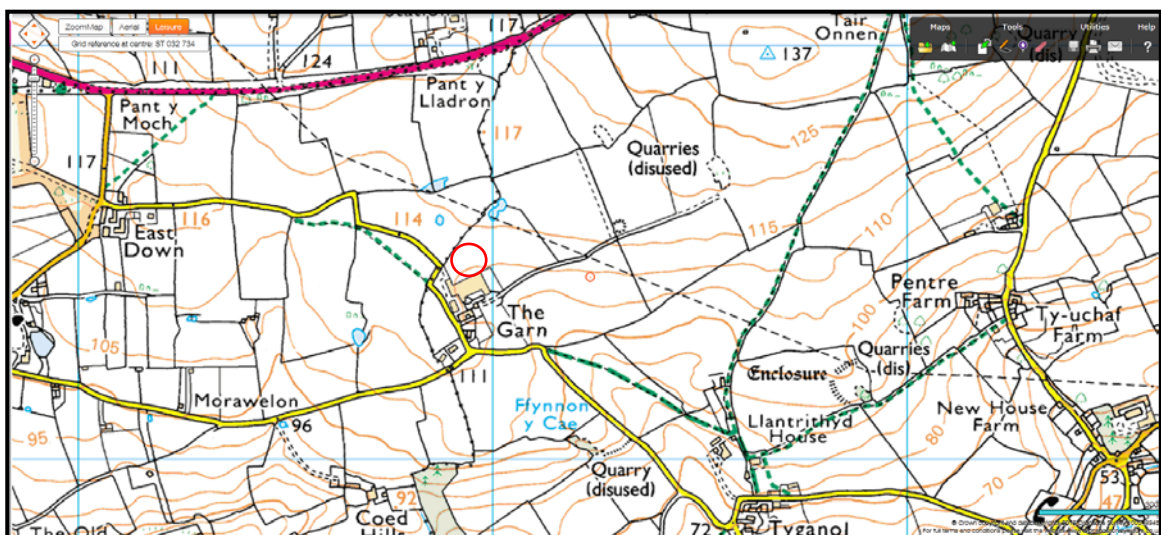
It is considered that, based on the size of the working area and distance from the nearest pond, the development of the type proposed would not have any adverse impacts on any protected species, and if present, Great Crested Newts.

12. Public Rights of Way

There is a bridleway approximately 280m to the south east of the Applicants land boundary which is shown as the green dashed line on the map below.

There is also a footpath which runs approximately 800m east of the Applicants land boundary, which is shown as green dashed line on the map below.

The application site is circled red.



Due to the existing hedgerows/ trees to the south east of the Application site the PV's would be partially screened from users of the bridleway.

Any views to the Application site from the public footpath would be distant views with the only side elevation of the PV's being visible.

The installation of the PV's would not interfere with users of the bridleway or the public footpath whilst the PV's were being installed, or subsequent to installation.

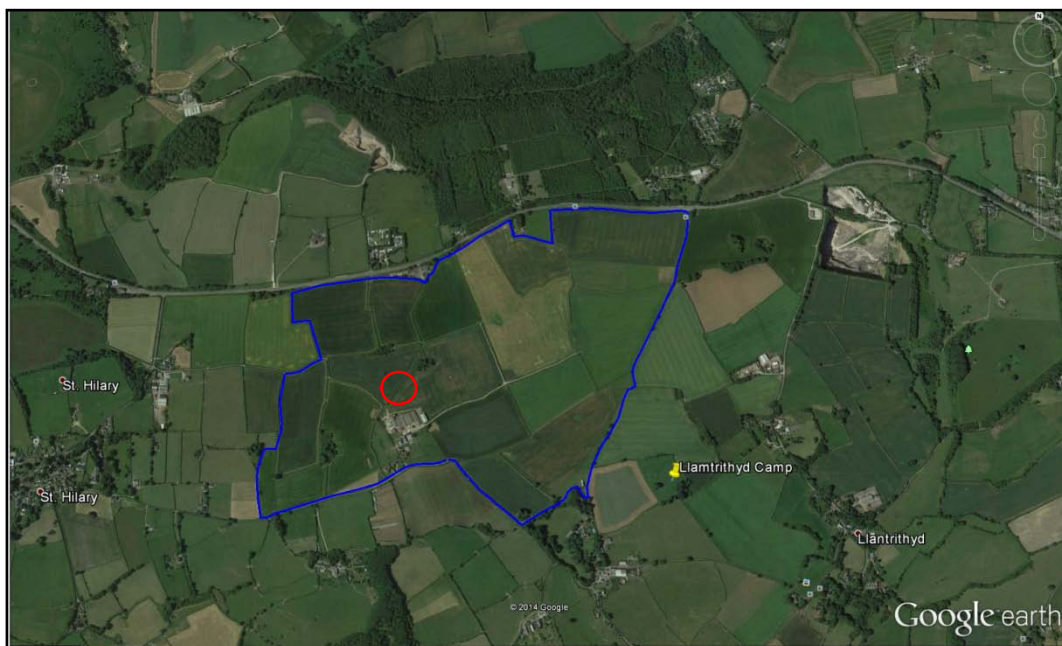
13. Historic Environment

A desk top search of the area, within a 250m radius of the site proposed, has been carried out using the Listed Buildings for Wales Website and Ancient Monuments for Wales Website.

The search has revealed no listed buildings or scheduled monuments within the search area.

The closest Ancient Monument is 'Llamtrithyd Camp', which is approximately 980m to the South West of Application and is indicated on the map below.

The Application site is circled red.



Views of the PV's from Llamtrithyd Camp would be screened by the existing hedgerows aligning surrounding the Application Site.

The installation of the PV's would not have any physical impact nor would the PV's affect the setting of the scheduled monument.

14. Environmental Impact Assessment

This Application is not a project listed in Schedule 2.3(i) The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (SI 293 No. 1999) and an Environmental Impact Assessment is not required.

15. Conclusion

The PV's would not have a significant impact in the landscape and, it is submitted, this application satisfies the requirements of Local Policies and is appropriate in the location proposed.

September 2014