

LAND AT KNOLTON FARMHOUSE CHEESE OWESTON ROAD, OVERTON

DESIGN AND ACCESS STATEMENT

PREPARED BY PEGASUS GROUP ON BEHALF OF ACTIVE RENEWABLES
YOR.2447 | MARCH 2015



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SITE LOCATION PHOTOGRAPH

01 INTRODUCTION

- 1.1 This Design and Access Statement has been prepared by Pegasus Planning on behalf of Active Renewables ("the applicant") in support of the accompanying planning application for a ground mounted solar scheme ("the development proposal") on land at Knolton Farm, Oswestry Road, Knolton, Wrexham, LL3 0LG.
- 1.2 The proposal involves the installation of photovoltaic solar arrays capable of generating circa 1 Megawatts (MW) of renewable electricity.
- 1.3 This document has been prepared in line with Section 4 (3) of the Town and Country Planning (Development Management Procedure) (England) (Amendments) Order 2013 which sets out the requirements regarding the contents of a Design and Access Statement.
- 1.4 This Design and Access statement should be read in conjunction with the accompanying Planning Statement which sets out the planning policy context relating to the design and access issues of the application proposal. Notwithstanding the above, this design and access statement is designed to be read as a standalone document if required.



SITE LOCATION PLAN



02 SITE ASSESSMENT

- 2.1

Centrally located at National Grid Reference SJ 36367 40675, the application site forms part of a single field enclosure located to the west of Knolton Farm. In term of context, the site lies 1.3km to the south of the village of Overton and 2.44km to the west of Lightwood Green.
- 2.2

Access to the site for construction traffic is proposed from the existing access leading to Knolton Farmhouse Cheese factory. The access is currently used by heavy goods vehicles (HGVs) which similar those which will be used during construction of the solar park.
- 2.3

The agricultural land classification for the application site is 3b and as such the site does not contain best and most versatile agricultural land and at best is considered to be poor quality agricultural land.

THE PROPOSED DEVELOPMENT AND DESIGN PRINCIPLES

- 2.4

The design of the application proposal has been developed primarily from four sources; the physical opportunities and constraints the site provides; the physical needs of the development itself; the policy context which surrounds the development; and; input from the wider consultant team.

DESIGN CONSTRAINTS AND OPPORTUNITIES

- 2.5

The constraints and opportunities are outlined below:-

DEVELOPMENT CONSTRAINTS

- Appropriate design required to take account of established field boundaries;
- Appropriate design and positioning required to respect and respond to the wider landscape and need to take account nearby physical constraints; such as the easements for the adjacent public rights of way;
- The need to ensure visual amenity is not detrimentally affected along the adjoining rights of way.

DEVELOPMENT OPPORTUNITIES

- The delivery of renewable energy at a local level;
- Contribute to the viability of the estate through diversification of income;
- Use of underutilised land within the estate;
- Sunlight intensity levels – the site is well located geographically for solar gain and is relatively flat and is free of any buildings or landscape features that could cause overshadowing;
- Grid connection – proximity of a nearby point of connection which has capacity is essential;
- Good road access;
- Minimal environmental constraints – Whilst the site is located within the New Forest National Park; the application site relates to a parcel of land with the least environmental and amenity value in comparison to the environmental land designations within the immediate locality;
- Land take requirements – The site is of an appropriate size that can accommodate a 1MW solar park; and
- The site is available for the lifetime of the proposed scheme (designed operational lifespan of the solar park is 25 years).

DESIGN SOLUTION

2.6 The remainder of this section explains how the proposed development addresses the site context and local characteristics in respect of its use; amount; layout; scale; location; materials and appearance; landscaping; and, access.

USE

2.7 As stated elsewhere in this statement, the proposed development constitutes the installation of a photovoltaic ground mounted solar park to generate circa 1MW of renewable energy. This is sufficient to provide the annual power needs of approximately 1,000 households and would save in the region of 1,500 tonnes of carbon annually that may be otherwise be generated through the burning of traditional fossil fuels.

2.8 The site is currently use for agricultural purposes and the proposed Solar Park will introduce an additional temporary use to the land; due to the benign nature of the proposed development the areas between the arrays can be used for sheep grazing and as such the development site would therefore provide an alternative source of farm income, whilst continuing to retain it’s agricultural use.

2.9 The ground mounted solar park would have an operational lifespan of approximately 25 years.

LAYOUT

2.10 The photovoltaic panels would be mounted on a supporting metal framework laid out in parallel arrays (rows) running east to west across the field enclosures. The front edge of the panels would be approximately 0.8m above ground to allow for retained grazing underneath the panels, with the trailing top edge set at approximately 2.5m above the ground.

2.11 The metal framework that houses the modules will be supported at intervals by double mounted posts. The posts will be driven into the ground at a depth of between 1m to 1.5m.

2.12 Transformers and associated switch gear are required to ensure that the DC energy produced by the PV arrays is converted into AC energy, as required by the national grid and ensure it is transferred from low to medium voltage. A Sub-Station is also necessary to house the equipment that connects the PV plant to the local energy distribution network (via the DNO substation).

2.13 In developing the array’s layout, particular attention was given to the retention and protection of the established field boundaries and ditches. This ensures the development sits comfortably within the site, and is well contained both physically and visually.

SCALE

2.14 The application proposal would generate circa 1 MW of power and as such would deliver a valuable renewable energy contribution at the local level. The site will generate 60% of the electricity requirements of the cheese business allowing it to cut costs and become increasingly grid neutral.

2.15 The application site covers circa 1.7 hectares of agricultural land and is contained within a single field enclosure. Within this area the solar panels themselves have a surface area of approximately 2.59 hectares. This equates to only around 3% of the field enclosures being used for solar panels.

2.16 The proposed scheme is relatively low to the ground, and the top edge of the arrays would be no more than 2.2m high from the ground.

2.17 The low profile of the scheme allows for effective visual screening to be achieved by the existing and proposed vegetation surrounding the application site.

LANDSCAPE PROPOSALS

Species mixes are based on recommendations in the accompanying site Ecological Survey and consultation of the Wrexham County Borough Council Woodland Habitat Action Plan.

Native Hedgerow

Hedging plants are to be 60-80 cm high, 1+1, bareroot, healthy and vigorous transplants to be planted in a prepared trench in a double staggered row, 450mm apart, with 5 plants per linear metre. All stock shall be planted to the root collar, well firmed in place and thoroughly watered in.

All transplants shall be protected with a 400mm high plastic spiral rabbit guard supported by a 750mm stake or cane. Stock proof fencing should be erected to protect hedging from grazing as required. After planting a 50mm layer of approved composed fine bark nom size 1-10mm shall be spread along the whole hedge line (min width 500mm).

The hedge is to be maintained for a period of 5 years following planting, ensuring adequate watering and fertilising is carried out to ensure good establishment and that all dead, diseased or damaged plants are replaced annually where required, mulch is also to be maintained at 50mm depth over full length and width.

Established height to be maintained at 2m plus.

Species mix

Species	Specification	%	H1
Acer campestre	600-800mm 1+1 bare root	20	118
Corylus avelana	600-800mm 1+1 bare root	8	47
Crataegus monogyna	600-800mm 1+1 bare root	40	236
Fagus sylvatica	600-800mm 1+1 bare root	8	47
Ilex aquifolium	3L 600-800mm	8	47
Prunus spinosa	600-800mm 1+1 bare root	8	47
Quercus robur	600-800mm 1+1 bare root	8	47

(Planted at 5 plans per linear m)

Standard trees

Planted at 15m centres in pits 1m x 1m back filled with one part tree planting compost to two parts topsoil. Secured with two untreated softwood stakes 1.4m in length and suitable ties. A spiral rabbit guard is to be fitted to the base of each tree.

Species	Specification	H1
Quercus robur	12-14 Heavy standard 350- 425cm height	2
Prunus avium	12-14 Heavy standard 350- 425cm height	3
Sorbus aucuparia	12-14 Heavy standard 350- 425cm height	3

Woodland Copse/Scrub

Woodland copse/scrub plants are to be as specified below, bareroot, healthy and vigorous transplants to be planted in 450mm x450mm pits back filled with one part tree planting compost to two parts topsoil 2m centres apart, (0.25 plants per m2). All stock shall be planted to the root collar, well firmed in place and thoroughly watered in.

All stock shall be protected with plastic tubes supported by a 750mm stake. Stock proof fencing should be erected to protect planting from grazing as required. After planting a 50mm layer of approved composed fine bark nom size 1-10mm shall be spread 1m diameter over each station.

The planting is to be maintained for a period of 5 years following planting, ensuring adequate watering and fertilising is carried out to ensure good establishment and that all dead, diseased or damaged plants are replaced annually where required, mulch is also to be maintained at 50mm depth over full 1m diameter circle.

Species	Specification	%	WC1
Alnus glutinosa	600-800mm 1+1 bare root	10	192
Corylus avelana	600-800mm 1+1 bare root	14	276
Crataegus monogyna	600-800mm 1+1 bare root	14	276
Fagus sylvatica	600-800mm 1+1 bare root	10	192
Ilex aquifolium	3L 600-800mm	10	192
Prunus avium	600-800mm 1+1 bare root	7	138
Quercus robur	600-800mm 1+1 bare root	20	394
Sorbus aucuparia	600-800mm 1+1 bare root	15	296

(Planted at 2m centres/ 0.25plants per m2

Existing Grassland

Any existing bare areas or those resulting from the installation works are to be sown with DLF Trifolium Pro Flora 2 Acid Soils Mix or similar and approved at a sowing rate of 5g/m2.

Grass areas are to be managed with a single autumn cut in September after the wildflowers have dropped their seed, all arisings to be collected and removed from site.



KEY

-  Existing Hedgerows
-  Existing Trees
-  Proposed Hedgerows
-  Proposed Trees
-  Proposed Deer Fence (2m high)
-  Solar Panels
-  Grassland (Grazing Seed Mix)
-  Access Track
-  Security Camera
-  DNO Substation
-  Switchgear
-  Inverter
-  Grid Connection Cable
-  Grid Connection Point

SITE LAYOUT PLAN

LOCATION

- 2.18

The location of the proposed solar park has been influenced by a number of factors. Foremost of these is the need to find a suitable location to support maximum irradiation potential of the sun. Accordingly, a clear view south, south facing or flat site with minimal overshadowing are usually considered ideal locations. The application site at Knolton Farm meets these initial requirements.
- 2.19

An available point of connection to the local electricity grid is also of prime importance and is available within the factory site.
- 2.20

The positioning of the site in relation to its surrounds is also a factor, together with a need to ensure the scheme would not have an adverse impact on local views or nearby properties which could not be mitigated by screening and landscaping.

MATERIALS AND APPEARANCE

- 2.21

The modules will be mounted on aluminium framework driven into the soil. The modules themselves have a blue / black appearance in order to absorb the sunlight. There is no discernible reflection or glare produced, ensuring they have a limited impact upon the surrounding landscape.
- 2.22

Each of the solar panels is approximately 0.99 metres wide by 1.64 metres long (at its maximum), and will be double mounted on frames at a circa 25° angle. Each of these frames, will be a maximum of 2.5 metres at the highest point from the ground.

- 2.23

Panels are constructed with a protective aluminium frame, which provides structural rigidity. The front face of the panel is made from a sheet of glass covered with a non-reflective coating. This ensures that the maximum amount of light is absorbed by the photovoltaic cells, improving efficiency and reducing glint and glare to a minimum.
- 2.24

Each table of panels is arranged in rows running across the field, forming a regular pattern. However this will be largely hidden from view by the surrounding landscaping and natural screening and beneficial topography afforded to the site.
- 2.25

Compared to other forms of renewable energy generation, notably wind turbine generation, the proposed solar farm is considered to have a limited impact on the appearance of the wider countryside and landscape in the area.

LANDSCAPING

- 2.26

The impact upon the local landscape has been given careful consideration in putting forward the proposed scheme. There are only two public places where the site would be visible (without mitigation measures). The clearest view would be from the PRoW which runs parallel to the site at approximately 20m from the eastern boundary. The less prominent view is from the PRoW to the north-west. The introduction of new native hedgerow along site perimeter would screen the site when viewed from these PRoW.
- 2.27

Due to the benign nature of the development proposals, the Solar Park will have a minimal visual impact on the wider surroundings. The site would be visually contained due to favourable topography and the layering effect of existing and proposed trees and hedgerows.

ACCESS

- 2.28
- From the M27 motorway, vehicles will travel southbound on the A326 before turning south-west on the B3054 at Dibden Purlieu. These roads and junctions are of a good standard and sufficiently wide to accommodate HGV movements, indeed the A326 is the signed freight route to Fawley Refinery and Power Station.
- 2.29
- From the B3054, vehicles turn onto Exbury Road at Hill Top and continue in a southern direction. The B3054 Beaulieu Road is sufficiently wide to allow two HGVs to pass and there are narrow hard-standing areas along the length from the A326 to the Royal Oak PH should over-run be required.
- 2.30
- Exbury Road continues in a south-east direction and changes to Summer Lane, a narrower and more rural form of road. The movement through this pinch point has been confirmed against the turning movement requirements of a 15.4 metre articulated HGV. It is noted that HGVs will need to over-run the centre line of the road to undertake the turn, as do existing buses and other large vehicles, however, the road is lightly trafficked and has good forward visibility.
- 2.31
- Finally, vehicles will turn off the local road network at Lepe Farm. Full analysis if the traffic route is provided in the supporting Construction Traffic Management Plan prepared by JMP Consultants Limited.

PEDESTRIAN ACCESS

- 2.32
- Access to the solar park will be restricted for security reasons to prevent theft and vandalism. The application proposal will not impact or divert any existing right of way.

CONSTRUCTION ACCESS REQUIREMENTS

- 2.33
- During construction / installation of the solar farm there would be trips associated with the delivery of materials to site and arrivals and departures of construction staff. Construction material deliveries will mainly consist of small to medium HGVs while staff trips will mainly consist of vans.
- 2.34
- During construction/ installation of the solar farm the proposals would generate an insignificant number of traffic movements along the local highway. This is discussed at Section 4 of this Statement.



03 CRIME IMPACT ASSESSMENT

DESIGNING OUT CRIME

- 3.1

This section of the DAS deals with the issue of crime. The Crime Impact Assessment process involves identifying, evaluating and mitigating the crime and disorder effects of a development proposal early in the design process. The goal is to reduce the developments vulnerability to crime by taking into account the analysis of the development context and the crime issues in the area.
- 3.2

The www.Police.uk website provides data on street-level crime and anti-social behaviour. A summary of the crime within a 1mile radius of the application site, between May 2013 and July 2014, is shown in the table below. All incidents are located by Langley.
- 3.3

As can be seen, the majority of crimes appear to be located in open spaces and as such this warrants careful consideration for the solar park scheme.

Month	Location	Category
2014-02	On or near Millwood Rise	Vehicle Crime
	On or near Grange Road	Vehicle Crime
2014-03	On or near Sports/ Recreation arear	Violence and sexual offences
	On or near Spingfield Park	Burglary
	On or near Bryn-y-pys Cwrt	Burglary
2014-05	On or near Church Road	Criminal damage and arson
	On or near St Marys Avenue	Antisocial behaviour
2014-06	On or near Turning Street	Violence and sexual offences
	On or near Church Road	Violence and sexual offences
2014-07	On or near Petrol Station	Other theft
	On or near Grange Road	Other theft
2014-08	On or near A528	Other theft
	On or near School Lane	Vehicle crime
2014-09	On or near Willow Street	Vehicle crime
	On or near Springfield Park	Antisocial behaviour
2014-10	On or near School Lane	Drugs
	On or near Turning Street	Violence and sexual offences
2014-11	On or near High Street	Shoplifting
	On or near Bryn-y-pys Crwt	Vehicle crime
2014-12	On or near petrol station	Other theft
	On or near Bryn-y-pys Crwt	Antisocial behaviour
2014-12	On or near High Street	Antisocial Behaviour
	On or near High Street	Antisocial Behaviour
2014-12	On or near Station Road	Other theft
	On or near Millwood Road	Burglary
2014-12	On or near St Mary's Avenue	Antisocial Behaviour
	On or near Turning Street	Antisocial Behaviour

GENERAL RISK ASSESSMENT

- 3.4

The typical security issues for a development of this nature are:-

1) Acts of criminal damage during the construction period;

2) Theft of components during the construction phase;

3) Criminal damage during operational phase;

4) Theft of components during the operational phase; and

5) Theft of components during site restoration.

CONSTRUCTION SITE RISK ASSESSMENT

- 3.5

A secure temporary compound will be used to store materials and ancillary welfare facilities during the construction period. The build out is quick thus reducing the risk for acts of criminal damage during the construction period. A night watchman may also be detailed to the construction compound.

DESIGN, LAYOUT AND SECURITY REQUIREMENTS

- 3.6

Taking into account the low level of recorded crime for the locality, the following security measures are considered to be appropriate to combat potential criminal activity and unauthorised access into the arrays:-

1) A 2.0 m high stock fence will encompass the entire gated development site.

2) Cameras with external perimeter intruder detection (PID) may be fitted on top of extended poles along the development's permitted perimeter fencing. A total of 10 pole mounted cameras will be positioned at intervals along the stock fence;

3) Introduction of new native hedgerow along site perimeter to increase the site's privacy and security.



04 CONSTRUCTION PHASE

- 4.1 It is anticipated that the construction phase of the scheme could take up to 8 weeks, with mounting structures, fencing and modules being delivered first followed by inverters, substations, cabling and CCTV. The estimates number of HGV deliveries is 10 and this equates to an average of 1-2 deliveries per day for a six day working week.
- 4.2 Construction workers and ongoing maintenance of the site will be carried out using standard cars or light vans unless it is otherwise deemed necessary, for example if a problem occurs with a larger piece of equipment. Traffic to the site following the completion of the construction will be very low and on an intermittent basis, and will not impact on the character and tranquillity of the local byways.







05 CONCLUSIONS

- 5.1 The Design and Access issues of the proposed Solar Park have been assessed. It is considered that due to the benign appearance of the scheme together with the proposed and existing natural screening afforded to the site, that the development proposals will not have an unacceptable adverse effect on the visual or amenity value of the wider countryside.
- 5.2 The Solar Park proposal is compliant with planning policy and would not have an adverse effect on the landscape character or residential amenity. The site has been carefully selected and is afforded with natural screening, which coupled with its low profile physical height of the solar panels, results in only limited, distant views of the site being possible.
- 5.3 Overall, the development proposal therefore meets the requirements of the NPPF's presumption in favour of sustainable development and is compliant with all relevant policies of the adopted Development Plan. On that basis it is considered that planning permission should be granted, subject to the imposition of any necessary planning conditions.

