



### **3. THE PROPOSED DEVELOPMENT**

### 3.1 OUTLINE OF THE PROPOSAL

3.1.1 The proposed development comprises the construction, operation, maintenance and decommissioning of a ground-mounted solar park plus ancillary infrastructure including the following:

- Photovoltaic (PV) panels to a maximum height of circa 3m;
- Mounting frames - matt finished small section metal structure;
- Scheme of landscaping and biodiversity enhancement;
- Central Inverters (inverters and transformers will be housed together in prefabricated containers to a maximum height of circa 3m), substations (DNO and Customer to a maximum height of circa 3m) and associated cabling (below ground);
- Point of connection;
- Stock fencing up to a height of circa 2m to secure the development areas;
- Infra-red CCTV (CCTV cameras would operate using motion sensors and would be positioned inward only to ensure privacy to neighbouring land and property);
- Temporary set down areas;
- Internal service roads; and
- Site access for the construction, operational and decommissioning phases.

3.1.2 Parc Solar Traffwll will have an export capacity of circa 35MW of electricity, enough to power approximately 11,600 homes per year and offset over 7,840 tonnes of CO<sub>2</sub> every year, the equivalent of taking around 3,620 cars off the road.

3.1.3 The panels will be arranged in rows in an east-west alignment across the development areas and orientated south. The scheme will be operational for 40 years after which all equipment can be removed from site.

### 3.2 SITE DESIGN AND LAYOUT

3.2.1 The proposed layout is shown on **Drawing LOC1001/1/04 and 05**. Due to commercial constraints, potential changes in solar panel, inverter, transformer and substation manufacturer during the determination process an element of flexibility is required in relation to their dimensions, appearance and their arrangement. The submitted layout is therefore indicative as the detailed layout and phasing of construction will be agreed with the Local Planning Authority (LPA) by way of planning condition following grant of planning permission. This approach is commonplace in solar farm planning permissions and has been agreed with IACC during pre-application dialogue.

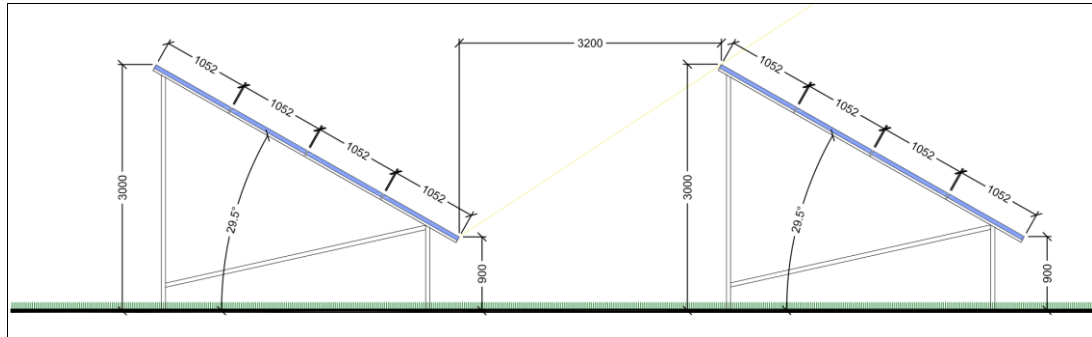
3.2.2 The panels will be arranged in rows in an east-west alignment across the development areas and will be angled at up to 29.5° from the horizontal and orientated south. The height of the panels will be up to 3m above ground level; the lowest part of the panel will measure approximately 0.9m above ground level. The rows of panels will be set a minimum of 3.2m apart to avoid shadowing and allow for scheduled maintenance, this will be dependent on local topography.

3.2.3 During construction, operation and decommissioning 4m setbacks will be established from the hedgerows, ditches and field drains, with the exception of DA6 where the set back from ditches will be 6m. A 15m buffer from open water is also provided in line with National Resources Wales (NRW) requirements.

3.2.4 The mounting frames will be matt finished galvanised steel that will be fixed to the

ground employing a pile mounting system, depending on ground conditions. **Drawing LOC1001/01/06** and **Figure 3.1** below provide a specification of the panel and frames. The piles will be pushed into the ground via a mobile piling rig.

Figure 3.1: Panel and Frames Specification



3.2.5 The solar panels will be connected to central inverter units. The inverters convert the electricity from Direct Current (DC) to Alternating Current (AC). The inverters then feed the transformers which step up the voltage ready to export into the local distribution network via the substation buildings and connecting cables. Details of the proposed ancillary equipment within the site are provided on:

- **Drawing LOC1001/01/07 and 08** - substation specifications;
- **Drawing LOC1001/01/04 to 05** - equipment locations across the development areas; and
- **Drawing LOC1001/01/09 and 10** - outline details of the containers housing the inverters and transformers.

3.2.6 Cabling from the inverters to the substation for each development area will be below ground. An earth cable will be required around the perimeter of each development area. Trench depths will vary from 0.4m to 1.3m depending on whether they are for earthing or AC cabling.

### 3.3 POINT OF CONNECTION AND CABLE ROUTE

3.3.1 The proposed point of connection is located at an existing SP Energy Networks substation to the south of Caergeiliog on the eastern side of Cymyran Road. A customer substation will be located on DA6 and from here a cable will connect directly into the existing substation on Cymyran Road. DA4 and DA5 will be connected to the main customer substation at DA6 by underground cabling which will be located within the adopted highway or within land where agreement is in place with the landowner.

3.3.2 The indicative cable routes are presented in **drawings LOC1001/01/23 and 24**. The drawings show a 'corridor' largely within the highway in which the cable will be laid. The exact alignment of the route is to be confirmed at detailed design stage via separate authorisation from the Local Highway Authority.

3.3.3 No upgrade works to the existing SP Energy Networks substation are required as these have already been implemented by SP Energy Networks as the Distribution Network Operator (DNO). It is proposed that a cable will be laid to the existing substation compound boundary, the Distribution Network Operator will then connect the cable in the compound.

### 3.4 SITE SECURITY

- 3.4.1 The development areas will be secured by a circa 2m stock fence or similar. Infra-red (non-visible at night), inward facing pole mounted CCTV cameras (c. 2.5m – 3m in height) will also be provided at between 50m and 100m intervals along the boundary fence. These will enable remote surveillance of the site. Fencing and CCTV camera details are presented on **drawings LOC1001/01/11 to 13**. The CCTV cameras will be positioned to avoid views of any private property.

### 3.5 CONSTRUCTION PROGRAMME

- 3.5.1 The construction of the solar farm is expected to last approximately 4-5 months and employ up to 190 staff over the construction period. An outline Construction Traffic Method Statement (CTMS) accompanies the application as an Appendix to Transport Statement. The CTMS and provides details of proposed access arrangements, the anticipated build programme, construction vehicle numbers and type, construction worker numbers and the proposed construction hours. The CTMS will be subject to final approval by the LPA post-consent under the terms of an appropriately worded planning condition.

### 3.6 SITE ACCESS

- 3.6.1 Access to the DAs is proposed to be achieved from junction 4 (Caergeiliog and Bodedern) of the A55 Expressway and through the local highway network. The principal set down area is proposed within DA4 close to its northern boundary and will be accessed from junction 4, then the A5 to Bryngwran, then south, under the A55 and turning west at Hebron crossroads.
- 3.6.2 From the principal set down area, smaller vehicles (typically 10m rigid vehicles) will transfer equipment and materials to DA5 and DA6. There will also be some instances where direct deliveries to the development areas will be made.
- 3.6.3 A series of vehicle swept-path analyses presented in Appendix B to the CTMS demonstrate that:
- a 10m long rigid body vehicle can access all development areas; and
  - an articulated 16.5m HGV can access Area 4.
- 3.6.4 Vehicles egressing from DA6 will be via a private road that also serves local farms, whereas access to DA4 and DA5 are via existing field gates onto the adopted highway. No improvements to the existing access points are required for DA6. To facilitate egress for DA4 an existing low wall will require setting back on the eastern bell mouth by approximately 3m.
- 3.6.5 In all cases, egress will be onto a single-track highway and whilst they are subject to a 60mph national speed limit, they typically experience low vehicle speeds due to the limited width of the carriageway. Given the limited visibility of the access points, the CTMS proposes that a banksman and temporary signage will be employed to ensure vehicles can safely enter and leave the public highway to minimise the impact on the local highway network.
- 3.6.6 Details of the proposed access arrangements during construction are presented in the Outline CTMS. Once operational, the proposal will generate minimal traffic from monthly inspections and maintenance. The CTMS will be subject to final approval by

the LPA post-consent under the terms of an appropriately worded planning condition.

### 3.7 PUBLIC RIGHTS OF WAY

- 3.7.1 Three public rights of way (PRoW) cross DA6 in a north south alignment close to Glan-y-gors. The PRoWs are referenced as 32/017/1, 32/014/1 and 32/014/2. Only PRoW 32/017/1 will pass through a proposed development area, the other two PRoWs are located within areas of the site that will not be subject to development.
- 3.7.2 From the outset of the construction phase, the area of DA6 subject to development will be protected using temporary fencing (Heras or similar) until the perimeter security fence is erected. The fencing will ensure that users of the PRoW do not gain access to the development area and will also stop construction activity occurring beyond the development area.
- 3.7.3 Public access along the PRoWs will not be affected by the Parc Solar Traffwll proposal during the construction phase.

### 3.8 BIODIVERSITY ENHANCEMENTS AND LANDSCAPING

- 3.8.1 Biodiversity and landscape enhancements are at the fore of the Parc Solar Traffwll proposals. In addition to land between and beneath the panels, there will be a significant area of non-development land located in DA6 that will be brought under formal management for the life of the scheme.
- 3.8.2 The landscape and visual impact assessment and ecology and nature conservation chapters (ES Chapters 7 and 11 respectively) provide full details of the enhancement proposals, but in summary these include:
- To manage grassland to create a diverse sward beneath and between the solar arrays;
  - To manage wet grassland margins for wildlife;
  - To reinforce (and plant new) hedgerows to improve visual containment of development areas and provide habitat for a range of species;
  - Minimise sediment runoff to improve water quality of surrounding water bodies;
  - To manage marshland and wet grassland habitat within the site boundary that is associated with Llyn Dinam SAC/Llynau y Fali SSSI; and
  - To monitor the site and assess the success of biodiversity management.
- 3.8.3 A Landscape and Biodiversity Enhancement and Management Plan is shown in **Drawings LOC1001/01/14 to 16**.

### 3.9 SITE WASTE MANAGEMENT PLAN

- 3.9.1 A Construction Environmental Management Plan (CEMP) will be prepared prior to development works commencing on site. This will be secured by means of an appropriately worded planning condition – an approach agreed with IACC.
- 3.9.2 A Site Waste Management Plan (SWMP) will be prepared as part of the CEMP. The SWMP will detail:
- Actions to meet the waste hierarchy;
  - Identify the person with responsibility for the SWMP;
  - Details of the types and quantities of waste that will be produced by the Contractor as part of the construction phase; and
  - Details of all consignments made for example a WRAP waste recording and reporting spreadsheet.

### 3.10 SURFACE WATER MANAGEMENT

3.10.1 Although the solar panels will divert the downward path of falling rain, being raised off the ground on frames, they will not reduce the permeable area where they are sited. Rainfall that does fall onto the site will, as now, infiltrate into the soil substrate. Therefore, the surface water runoff from the developed site will be no different pre and post-development. There will be no increase in surface water run-off or exacerbation of off-site risk as a result of the proposals.

3.10.2 Whilst no formal scheme of surface water management is proposed, works are required to improve an existing drainage ditch that runs through DA6 from a neighbouring housing estate. Chapter 10 of this ES provides full details. A separate application for SAB approval will be submitted and a draft is provided in **Appendix 10.3**, together with the pre-application SAB advice from IACC.

### 3.11 DECOMMISSIONING

3.11.1 After 40 years of operation the panels and associated infrastructure can be removed from site. The CTMS presented in the Transport Statement details the programme and anticipated vehicle movements associated with this phase of proposal.