Galileo 03 Ltd

Mynydd Ty-talwyn Energy Park – Environmental Statement Volume I

Non-Technical Summary

Project no. 663870

APRIL 2026

RSK GENERAL NOTES

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Title: Non-Technical Summary of the Environmental Statement

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02 – DNS Submission	November 2025	KS	SP	JN
03 - Additional Information Submission	April 2026	SP	SP	JN

CONTENTS

1 INTRODUCTION

1.1.1 This is a Non-Technical Summary for the Environment Statement (ES) that has been prepared for the Mynydd Ty-talwyn Energy Park (referred to as the 'Proposed Development'). The Proposed Development comprises the construction and operation of six wind turbines, ground mounted solar photovoltaic modules, one project substation (required to connect to the wider electricity grid), and ancillary supporting infrastructure works including new drainage, access tracks and landscape planting.

1.1.2 The Proposed Development would be operational for 50 years, after which it would be decommissioned.

1.1.3 Mynydd Ty-talwyn Energy Park encompasses approximately 578 hectares of land (the 'Site'), located north of Bridgend, south Wales. The location of the Site is shown in **Figure 1-1.**

1.1.4 The Proposed Development is deemed to be a Development of National Significance as it would be an energy generating project with an installed generating capacity above 10 megawatts, in accordance with The Developments of National Significance (Specified Criteria and Prescribed Secondary Consents) (Wales) Regulations 2016, and associated regulations and orders. The application will be submitted to Planning and Environment Decisions Wales and will be determined by Welsh Ministers.

1.1.5 The Proposed Development has secured a grid connection to the Pyle sub-station. The connection of the substation to the grid would be subject to a separate planning application.

1.1.6 Environmental Impact Assessment is a process that identifies the likely significant effects of a development on the surrounding environment. Where significant effects are identified, proposals, including design changes and mitigation measures, are put forward so these effects can be avoided, reduced or managed. The findings of this process are reported within an Environmental Statement, which in this case is submitted to Planning and Environment Decisions Wales. The Environmental Statement is available online on the Planning and Environment Decisions Wales's Planning Portal https://planningcasework.service.gov.wales/ for anyone to view using reference: DNS CAS-03018-G7G6H7.

1.1.7 The findings of the Environmental Impact Assessment (including methodologies of assessment, existing information about the area and environment and the outputs of the environmental assessments) are presented in the Environmental Statement. The Environmental Statement consists of four volumes:

- **Volume I**: Non-Technical Summary;
- **Volume II**: Main Written Statement;
- **Volume III:** Supporting Technical Appendices; and
- **Volume IV:** Supporting Figures and Plans.

1.1.8 This document is Volume I, the Non-Technical Summary. This Non-Technical Summary provides a summary of the environmental assessments presented in **ES Volumes II** to **IV,** that is written in plain English. It includes a summary of the outcomes of the assessments undertaken, together with an explanation of how the environmental issues identified will be addressed by Galileo 03 Ltd as 'the Applicant'.

1.1.9 The Environmental Statement is one of a series of documents that forms part of the Development of National Significance application. Other documents include a Planning, Design and Access Statement, a Green Infrastructure Statement and Pre-Application Consultation Report. Where appropriate, these documents are referred to within the Environmental Statement. A full list of all documents which have been submitted have been included within the Planning, Design and Access Statement. All documents should be read in conjunction with the Environmental Statement.

1.1.10 A Welsh language version of this Non-Technical Summary is available separately.

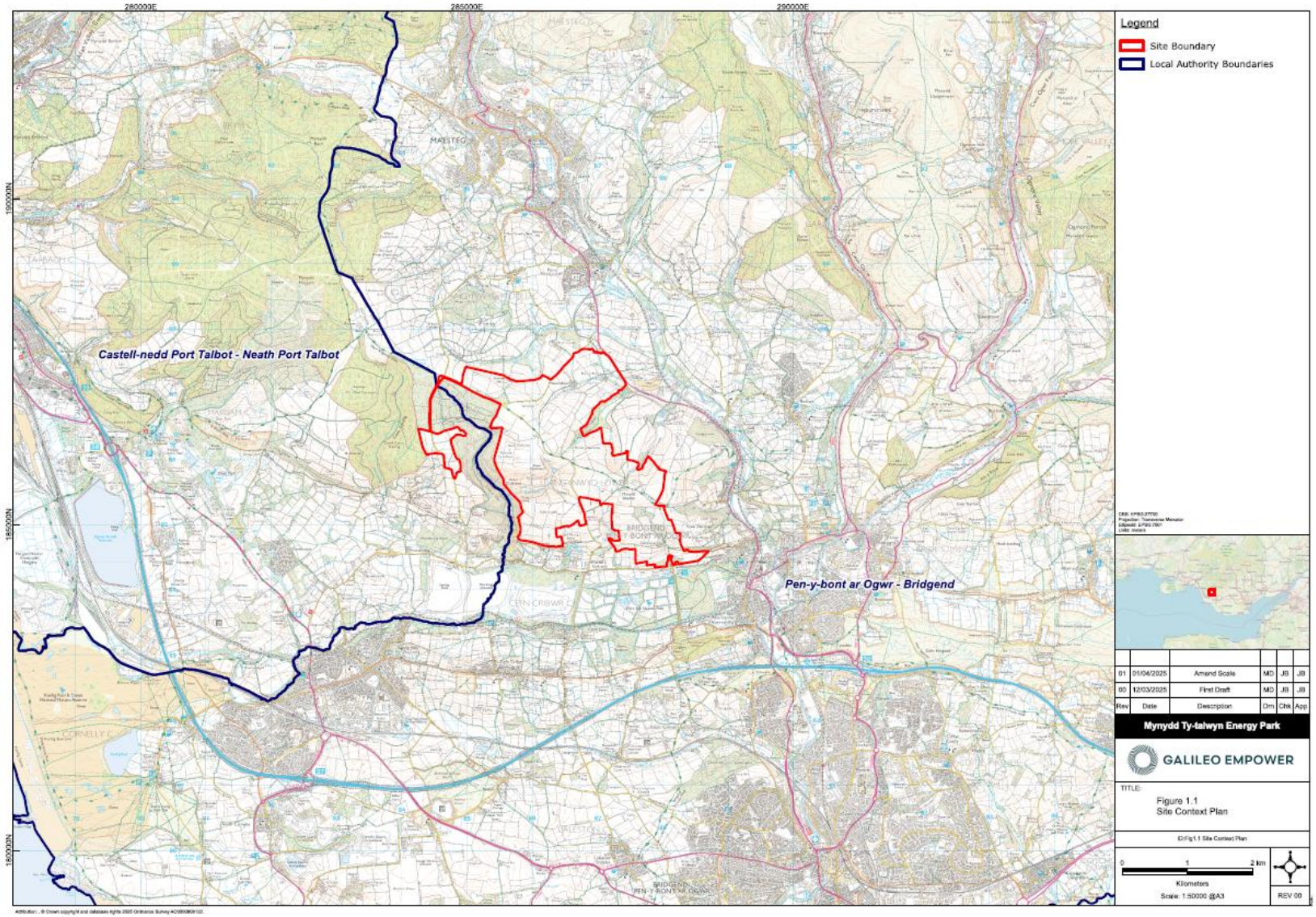

Figure 1-1 Location of the Site boundary of the Proposed Development

2 PROPOSED DEVELOPMENT DESCRIPTIONNEED FOR THE PROPOSED DEVELOPMENT

2.1.1 The need for the Proposed Development relates to the generation of electricity from renewable energy sources. This would support the Welsh Government's targets on reducing greenhouse gas emissions as well as international efforts to combat climate change.

2.1.2 A major cause of climate change is a rise in the quantity of greenhouse gases (gases that trap heat in the atmosphere) in the atmosphere. Electricity production, through the burning of irreplaceable fossil fuels (coal, oil and gas), has historically been a significant contributor to the release of greenhouse gases. The purpose of the Proposed Development is to generate electricity from renewable sources of energy (from the wind and the sun), therefore avoiding the need for electrical generation from the burning of fossil fuels and the release of greenhouse gases.

2.1.3 The electricity that would be produced by the Proposed Development would result in a saving in the emissions of greenhouse gases (such as carbon dioxide) providing long term benefits for the atmosphere.

PLANNING POLICY CONTEXT

2.1.4 The need for the Proposed Development, and renewable energy projects in general, is set out in international and national planning policy and law.

2.1.5 The Paris Agreement is a legal agreement or pact where countries work together to tackle climate change by keeping global temperature rises as low as possible. Specifically, it aims to maintain global temperatures to 'well below' 2 degrees Celsius (°C) and seeks to limit temperature increase further to 1.5 °C. The UK, as part of this agreement, must set out plans and report on how it is reducing its greenhouse gas emissions. To support this the Climate Change Act was passed in the UK. This commits the country to reaching 'net zero' emissions by 2050.

2.1.6 The Welsh Government has declared a climate emergency (April 2019) and in March 2021 the Senedd Cymru approved a net zero carbon emissions target for 2050. At a more local scale, Bridgend County Borough Council and Neath Port Talbot Council have also declared a climate emergency in June 2020 and September 2022 respectively.

2.1.7 Both the UK and Welsh governments have also set ambitious goals to generate more clean energy. In 2017, the Welsh Government announced a target of meeting 70% of Wales's electricity consumption from renewable electricity sources by 2030. An increase in renewable energy, especially wind and solar power, is seen as essential for achieving these climate goals.

2.1.8 Planning Policy Wales (Edition 12) details the land use planning policies of the Welsh Government, with the objective to ensure the delivery of sustainable development. Planning Policy Wales identifies that low carbon electricity must become the main source of energy in Wales, and recognises that wind energy forms a key part of meeting renewable energy production due to Wales's considerable wind resource.

2.1.9 The Proposed Development would contribute to delivering these aforementioned targets.

2.2 Overview of the Proposed Development

2.2.1 The design of Mynydd Ty-talwyn Energy Park has evolved throughout the Environmental Impact Assessment process to avoid, reduce, mitigate and manage environmental effects identified from survey and assessment works. Design changes have also been made in response to consultation feedback, where appropriate.

2.2.2 The Proposed Development would consist of:

- Up to six wind turbines (anticipated generating capacity of approximately 43 megawatts alternating current, subject to final turbine selection), each up to 200 metres in height;
- Solar panels or solar photovoltaic modules (anticipated generating capacity of approximately 50.5 megawatts alternating current subject to final solar photovoltaic selection);
- An on-site electrical 33 kilovolt/132 kilovolt substation (to connect the solar photovoltaic modules and wind turbines to the electricity network);
- On-site underground electrical cables;
- Site access from the northeast (A4063) and south (New Road);
- Two permanent watercourse crossings and associated infrastructure to enable the construction of a new access track;
- Landscape planting and biodiversity enhancements;
- Drainage infrastructure; and
- Temporary construction compounds (storage areas) and access tracks.

2.2.3 The Proposed Development is expected to have a total capacity of approximately 93.5 megawatts. This is the equivalent 57,656 homes powered per year by the Proposed Development.

2.2.4 The Proposed Development layout is illustrated in **Figure 2.1**. The Proposed Development is expected to be operational for 50 years from the date of opening (commissioning). At the end of this period the Proposed Development would be decommissioned. Alternatively, a decision could be made to refurbish or replace the Energy Park. If refurbishment or replacement were to be chosen, appropriate planning applications would be prepared and submitted to the relevant authorities.

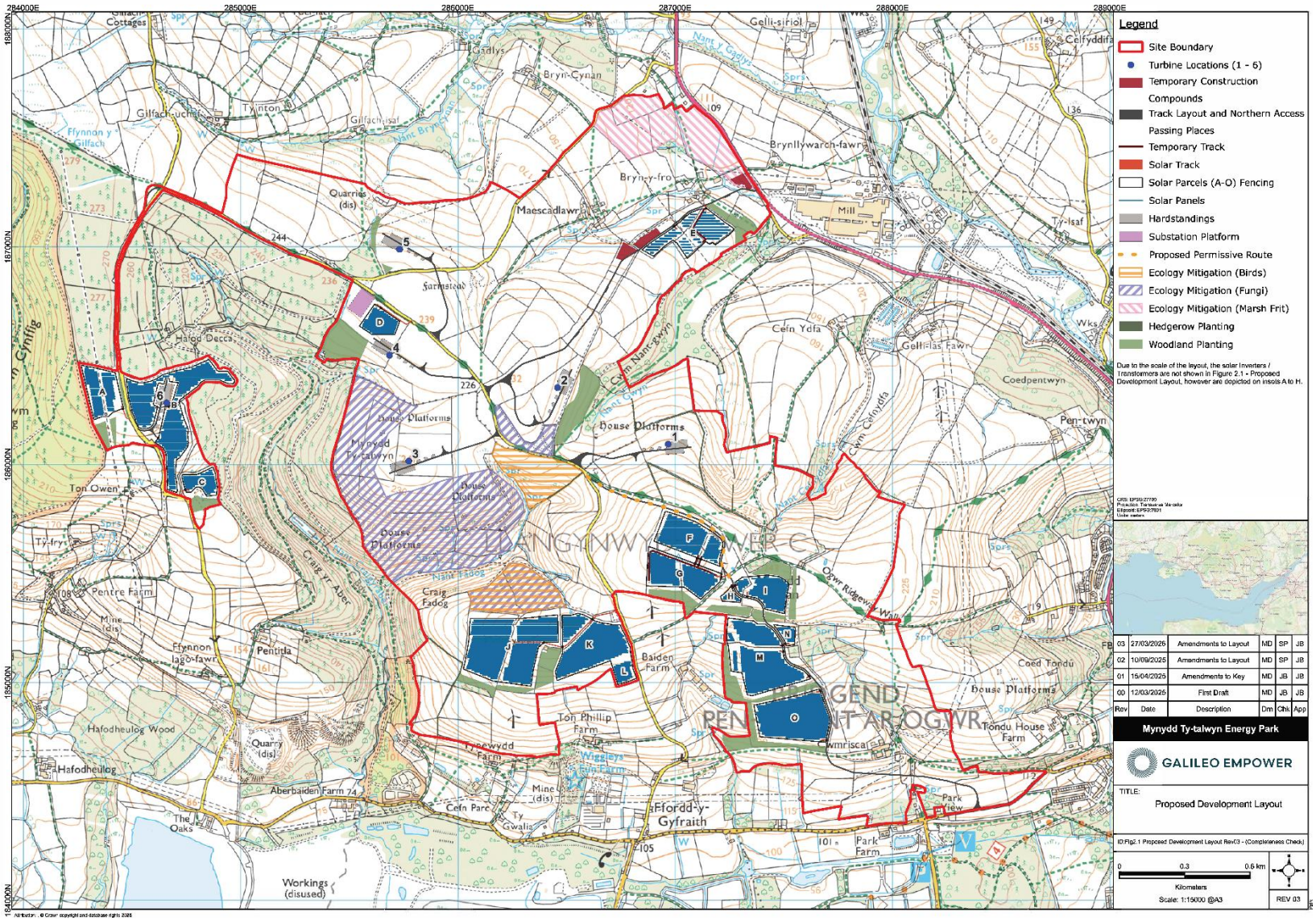

Figure 2-1 Proposed Development

DESCRIPTION OF COMPONENTS

Wind Turbines

2.2.5 A typical wind turbine and its parts are illustrated in **Figure 2-2.**

2.2.6 The turbines would be three bladed, horizontal axis turbines with solid tubular towers. The blades would be attached to a rotor hub, which connects to the nacelle that would house a turbine generator and other operating equipment including a transformer, as shown in **Figure 2-2**. It is expected that each wind turbine would have a rated capacity of up to 7.2 megawatts, giving a total installed capacity of up to 43 megawatts.

2.2.7 The final choice of turbine will be subject to a selection process before the Proposed Development is constructed. The turbines will be selected considering technical, environmental and commercial aspects.

2.2.8 The turbines would also require supporting infrastructure, including access tracks/roads, flat areas for cranes (crane pad hardstandings), solid bases for the turbines (foundations), and space for the storage of materials and equipment (laydown/storage areas). There would also be some flexibility (up to 50 metres) in where exactly the turbine and supporting infrastructure would be located, to account for the conditions of the underlying ground.

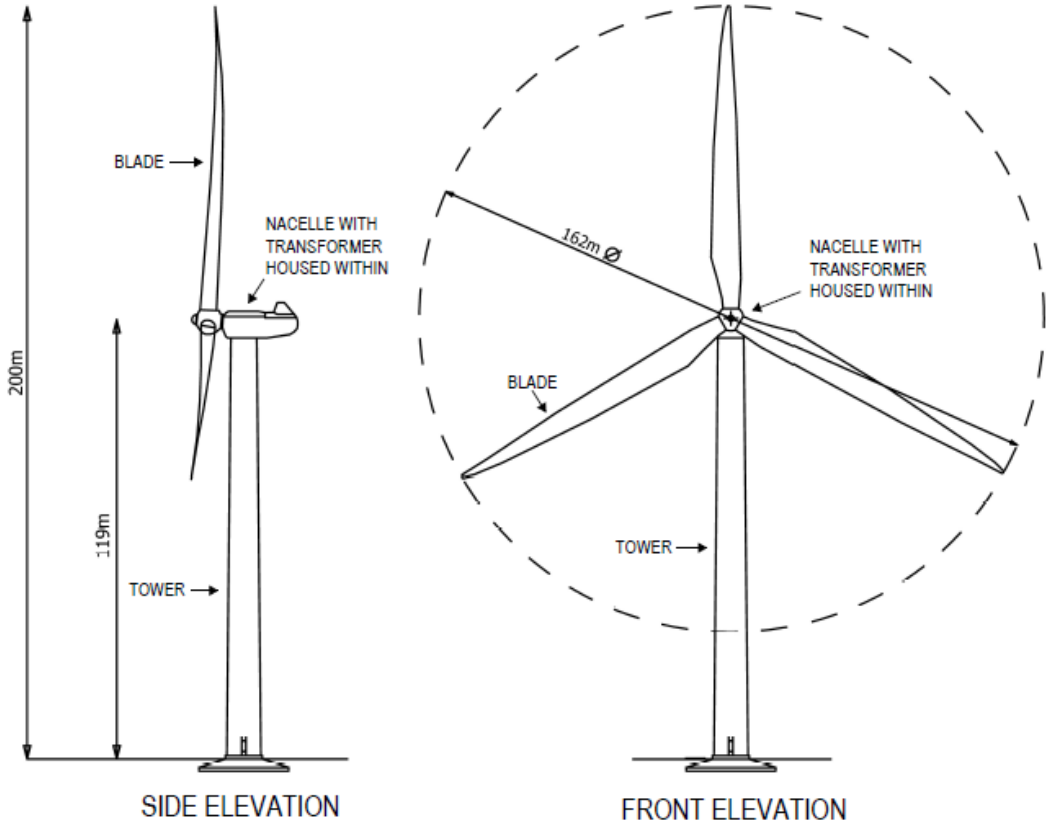

Figure 2-2 Drawing Illustrating an Indicative Wind Turbine

SOLAR PHOTOVOLTAIC MODULES

2.2.9 Individual solar photovoltaic modules, more commonly known as solar panels, would generate electrical power by converting sunlight into electricity. The solar panels are set up in rows (known as 'strings'), connected to each other by cables to transfer the electricity generated by the solar panels to inverters.

2.2.10 Inverters are needed to convert the direct current electricity generated by the wind and solar panels into alternating current electricity, which is suitable for use in homes and businesses. Inverters would be located underneath the solar panels or in areas sometimes referred to as the 'balance of solar plant'. The 'balance of solar plant' also includes switchgears (which control the electrical equipment), and transformers (which 'step up' the voltage to the required level for sending to the on-site substation).

2.2.11 Solar modules would be fenced, with access tracks leading to the fenced areas. They would also be equipped with CCTV infrared cameras. CCTV would be mounted on poles, with a maximum height of 3.6 metres, interspersed throughout the Site.

SUBSTATION

2.2.12 The on-site substation would receive the electricity from the wind turbines and solar photovoltaic modules, step up the voltage and send it to the National Grid Pyle Substation, located approximately 3 kilometres southwest of the Site. This connection would form part of a separate planning application.

CABLING

2.2.13 On-site underground electrical cables would connect the wind turbines, solar photovoltaic modules and the on-site substation. These cables would generally be laid in trenches alongside the access tracks where possible.

ACCESS AND WATERCOURSE CROSSINGS

2.2.14 Access to the Proposed Development is proposed at two locations; a northern access from the Maesteg Road for all construction materials and a southern access from the New Road for additional access for the delivery of wind turbines/abnormal indivisible loads. Abnormal indivisible loads are large loads of plant transported in oversized vehicles. Both the northern access and southern access would use existing or previously used access points into the Site.

2.2.15 The access tracks would need to crossing watercourses (rivers and streams) within the Site. Where this is the case, measures would be put in place to ensure that the watercourses would not be polluted or damaged. The most suitable crossings will be agreed with Natural Resources Wales.

LANDSCAPING AND BIODIVERSITY ENHANCEMENTS

2.2.16 New landscape and biodiversity areas would be created to increase biodiversity across the Site, including the creation and enhancement of approximately 93.1 hectares of woodland and grassland habitats and 3.26 kilometres of hedgerow.

DRAINAGE

2.2.17 Sustainable Drainage Systems (SuDS) have been recommended to provide drainage for large areas of hardstanding including the substation. These drainage systems ensure the quality of water being discharged to either watercourses or into the ground would be acceptable and would not result in pollution.

TEMPORARY CONSTRUCTION COMPONENTS

2.2.18 In addition to the above, a number of temporary components which are integral to the Proposed Development, are proposed during the construction phase.

2.2.19 Construction compounds would be needed during the works. These are defined areas on a construction site which include space for:

- Temporary building(s) to be used as a Site office;
- Welfare facilities such as a canteen and toilets;
- Parking for construction staff and visitors;
- Reception area;
- Fuelling point or mobile fuel bowser;
- Secure storage areas for tools, materials and plant;
- Waste storage facilities; and
- Laydown area to securely store equipment when not in use.

2.2.20 An initial construction compound is proposed to be located at the northern Site entrance. This would be the first construction and storage compound within the Site and would be used while the watercourse crossing (required for the access track) is being built.

2.2.21 Once the watercourse crossing is built, this compound would no longer be needed. The subsequent construction and storage compound and laydown area would be located further into the Site and would be used throughout the remainder of the construction works.

2.2.22 Temporary tracks would also be needed to facilitate construction access into some solar land parcels.

2.2.23 When no longer needed (i.e., the construction works are complete) the land used temporarily for the compounds and the temporary access tracks would be reinstated as grassland.

2.3 Construction of Mynydd Ty-talwyn Energy Park

Programme

2.3.1 The construction of the Proposed Development is anticipated to be undertaken over a 24-month period, which is expected to start in 2029.

Working Hours and Construction Staff

2.3.2 Working hours for construction would be from 07:00 to 19:00 Monday to Friday and 07:00 to 13:00 on Saturday. No work is proposed on Sundays and public holidays, unless otherwise agreed with Bridgend County Borough Council/Neath Port Talbot Council, or in case of emergency. Exceptions to the proposed working hours would be made for foundation pours and turbine erection.

2.3.3 It is anticipated that a maximum of 45 workers would be on-site during the peak of the construction period.

Preliminary Works

2.3.4 Initial works likely to take place to prepare the Site for construction would include enabling works, including, but not limited to; installation of any internal access tracks, installation of temporary construction compounds and installation of security measures such as fencing.

Construction Works

2.3.5 Artificial lighting would be required during the construction phase to ensure safe working conditions, during periods of limited natural light. It is intended that the type of lighting would be non-intrusive (e.g. directed down and towards works activity and away from the Site), to minimise impact on local properties and any other environmental considerations.

2.3.6 Fencing would be kept to a minimum during the construction phase, and used for health and safety purposes, security and animal welfare, as and when required.

2.3.7 The environmental management of the construction works for the Proposed Development would be delivered through the development of a detailed Construction Environmental Management Plan. The Construction Environmental Management Plan will set out how the construction will be managed to ensure any effects to the environment are reduced, minimised or avoided. It will also set out relevant laws and policy that need to be followed on Site. An outline version of this document has been produced and submitted as part of the application. This can be found in **Volume III of the Environmental Statement, Appendix 2.1: Outline Construction Environmental Management Plan.**

2.3.8 A Site Waste Management Plan and Materials Management Plan would also be developed for use during construction. These would outline details of the materials requirements and anticipated waste generation during construction, and how the Contractor intends to manage these aspects.

2.3.9 During the construction period, the following traffic would require access to the Site:

- Staff transport; in either cars or minibuses;
- Vehicles including heavy goods vehicles delivering construction equipment and materials, machinery and supplies such as concrete and crushed rock; and
- Oversized vehicles delivering abnormal indivisible loads comprising wind turbine sections and also heavy lift crane(s).

2.3.10 A detailed Construction Traffic Management Plan would be prepared and agreed with Bridgend County Borough Council and Neath Port Talbot Council in advance of the construction phase. An outline version of this document has been produced and submitted as part of the application. This can be found in **Volume III of the Environmental Statement, Appendix 12.1: Outline Construction Traffic Management Plan**.

Construction Access

2.3.11 The northern access point would provide access for all construction material, abnormal loads and ongoing operational traffic. The southern access point to the Site would provide an additional access for just abnormal loads associated with the turbine equipment; this would be used as an entrance only, as any abnormal load deliveries would contract and reduce in size to a normal heavy goods vehicle size (a lorry with a weight of over 3,500 kilograms) once the load had been delivered, and exit the Site through the northern entrance.

2.3.12 The Site entrances would be well maintained and monitored during the operational life of the Proposed Development.

Public Footpaths

2.3.13 All public footpaths, or public rights of way, would be kept open during construction as far as is practicable and safe. Where it would not be safe to keep these open, there may be a requirement for some public rights of way to be temporarily diverted or temporarily closed.

2.4 Operation

2.4.1 The expected operational life of the Proposed Development is 50 years from the date of commissioning. During the operation of the Proposed Development, maintenance work would involve visits to the Site regularly to undertake scheduled maintenance and operational checks. Maintenance work would include the following:

- Scheduled routine maintenance and servicing, usually conducted at least bi-annually, which would involve the undertaking of non-essential repairs on gearboxes and generators;
- High voltage and other electrical maintenance;
- Blade inspections;
- Any necessary routine civil maintenance of tracks, drainage and buildings; and
- Any replacement of infrastructure.

2.5 Decommissioning

2.5.1 At the end of the operational period, the Proposed Development would either be decommissioned or repowered. Decommissioning would involve the removal of the energy infrastructure (turbines, solar and substation) from the Site, although it is expected that the tracks would remain as they would be used by the landowners/farmers.

2.5.2 A Decommissioning Strategy would be submitted by the Applicant for agreement with the Local Planning Authority's prior to the decommissioning works taking place, and this is likely to be secured by a suitably worded condition on any planning permission granted. A Decommissioning Environmental Management Plan would be produced for this phase. This would set out mitigation measures to be implemented throughout the decommissioning works and would also be secured via a planning condition

2.5.3 Repowering would extend the life of the Proposed Development by replacing the renewable energy generation/storage infrastructure. This would be subject to a new planning application.

3 THE SITE LOCATION

3.1.1 Mynydd Ty-talwyn Energy Park is predominantly located within the administrative boundary of Bridgend County Borough Council, with the north western portion of the Site (approximately 25 hectares) situated within Neath Port Talbot County Borough Council. It is located 4 kilometres north of Bridgend, 8 kilometres east of Port Talbot and 3 kilometres south of Maesteg.

3.1.2 The Site extends northwards from New Road towards Llangynwyd, west of the A4063, and across an area of elevated land approximately 7 kilometres north of the Welsh coast.

3.2 Existing Land Use

3.2.1 The Site is predominantly undeveloped and in agricultural use, specifically for pastural farming. Four residential properties and their associated farmsteads are located within the Site. There is one farm-scale wind turbine operating within the Site, which is less than 30 metres in height, and would remain in place.

3.2.2 The Site comprises predominately grassland that is actively grazed by sheep and cows, with areas mown for silage. Across the Site there are areas of woodland (broadleaved, coniferous and mixed), scrub, marsh and swamp.

3.2.3 The main access to the Site is from Maesteg Road, located northeast of the Site and New Road to the south. The C-Class Road known as Ffordd-y-Gyfraith roughly dissects the Site in a south-east to north-west direction.

3.2.4 There are 22 public rights of way within the Site; 21 Public Footpaths and one Bridleway.

3.3 Designated, Historic and Natural Assets

3.3.1 The Site is not located within any nationally or locally designated landscapes. The Site is located within the Western Uplands Special Landscape Area as set out in the Bridgend County Borough Local Development Plan (2018 – 2033) and Margam Special Landscape Area, as set out within the Neath Port Talbot Local Plan (2011-2026).

3.3.2 There is one nationally statutory designated site for ecology within 2 kilometres of the Site; Cwm Risca Meadow Site of Special Scientific Interest. This is located to the south of the Site and has been a key consideration of the design.

3.3.3 There are three statutory international designated sites for ecology within a 10 kilometres radius of the Site:

- Glaswelltiroedd Cefn Cribwr/Cefn Cribwr Grasslands Special Area of Conservation, located approximately 1 kilometres to the south of the Site;
- Blackmill Woodlands Special Area of Conservation, located approximately 3.5 kilometres to the east of the Site; and
- Kenfig/Cynffig Special Area of Conservation, located approximately 5.2 kilometres to the southwest of the Site.

3.3.4 There are 27 non-statutory designated sites within 2 kilometres of the Site, and the following four are located within the Site:

- Neath Port Talbot Watercourses Site of Importance for Nature Conservation: All Neath Port Talbot watercourses are designated as Sites of Importance for Nature Conservation;
- Cwm Nant Gwyn Site of Importance for Nature Conservation: Broad-leaved semi-natural woodland.
- Nant Cwm-bach Site of Importance for Nature Conservation: Broad-leaved semi-natural woodland, coniferous plantation, marsh/marshy grassland; and
- Gilfach Uchaf Site of Importance for Nature Conservation: Marsh/marshy grassland, semi-improved acid grassland, acid dry dwarf shrub heath, natural acid/neutral rock exposure.

3.3.5 Towards the north of the Site, there is a watercourse known as Nant y Gadlys, which flows north and is a tributary of Afon Llynfi. There are two small watercourses in the southern extent of the Site: Nant-y-gedd and an unnamed watercourse which both flow south. Nant raigyraber runs through Craig-Y-Aber woodland (outside the Site), with the Proposed Development to the west and east.

3.3.6 There are four Scheduled Monuments located within the Site. Scheduled Monuments are heritage and archaeology features which have been recognised as nationally important. Those within the Site are:

- Earthwork & Platform Houses N of Nant Fadog;
- Mynydd Ty Talwyn Ancient Farms (West);
- Mynydd Ty Talwyn Ancient Farms (East); and
- British Fortified Residence.

3.3.7 There are also a number of recorded Prehistoric and Roman, Medieval, Post-Medieval and Modern assets within the Site.

3.3.8 Environmental features are shown on **Figure 3.1**.

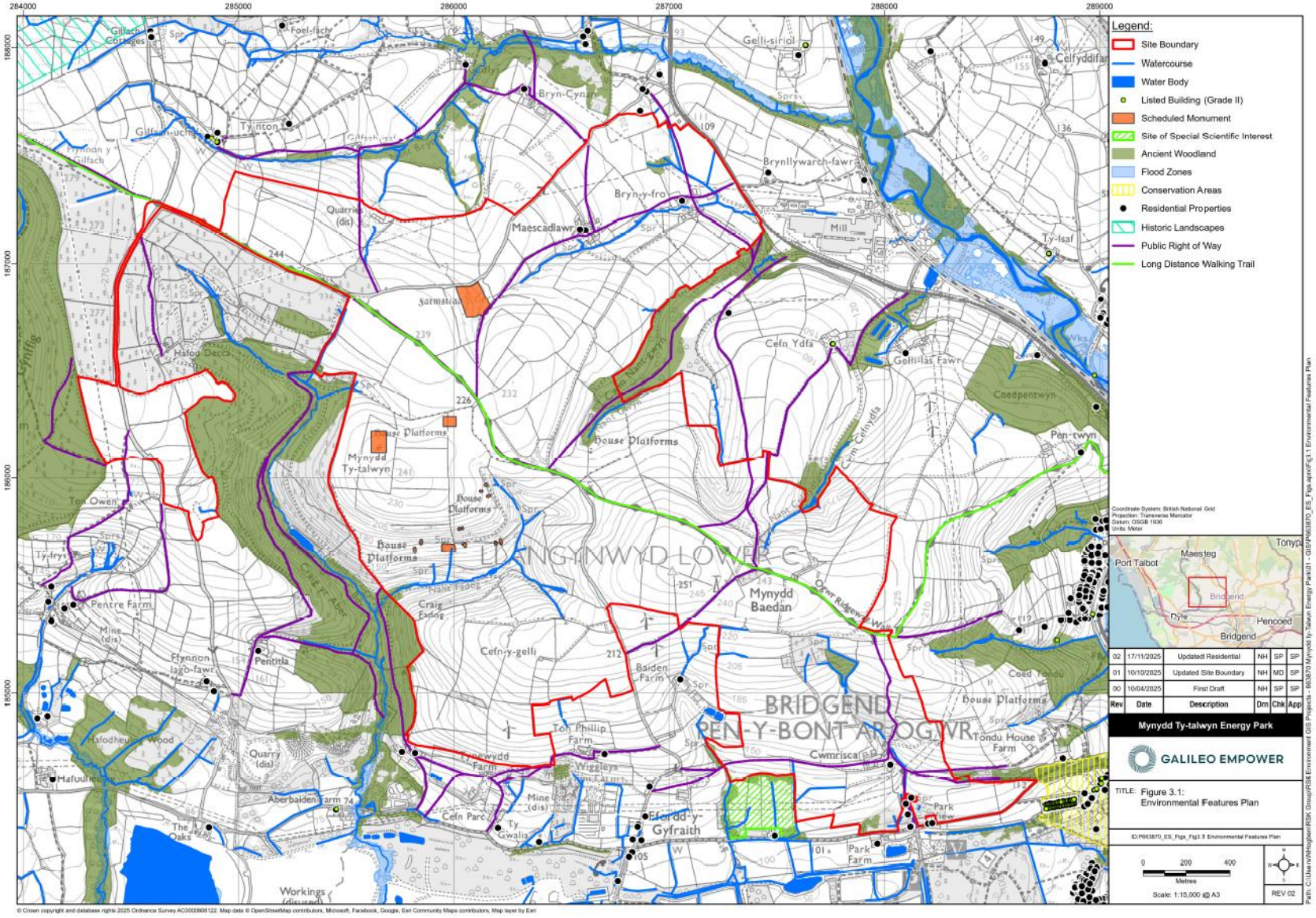

Figure 3-1 Environmental Features

4 CONSIDERATION OF ALTERNATIVES

4.1 Introduction

4.1.1 The assessment of alternatives has been framed within the context of the clear and pressing need for Mynydd Ty-talwyn Energy Park to meet climate change targets. The consideration of alternatives has followed the guidelines set out in relevant national planning policies.

4.1.2 Alternatives have been considered as part of the process of designing the Proposed Development, in accordance with the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017. The Site was selected to ensure minimal environmental impact, with no technical or engineering constraints, while ensuring the maximum potential for energy generation.

4.1.3 The consideration of alternatives and design evolution has been undertaken with the aim of avoiding, preventing, reducing, or, if possible, offsetting likely significant adverse environmental effects, while ensuring operational efficiency of the renewable energy park, cost effectiveness, and other relevant matters such as existing land use and planning policy. The design of the Proposed Development has evolved through engineering design work, in response to consultation feedback, and environmental survey work.

4.2 Site Selection Process

4.2.1 The Applicant undertook a process for site selection which considered technical, environmental, and economic factors to identify a suitable location for the wind turbines, solar photovoltaic modules and battery energy storage system (the last of which has now been removed from the Proposed Development).

4.2.2 The Applicant sought to develop a project which:

- Maximises the potential energy yield (the maximum potential energy that could be produced) throughout the Site, through the use of wind, solar photovoltaic modules technology, in optimal locations;
- Uses the latest wind turbine technology, consisting of more efficient and larger turbines, where these can be reasonably accommodated within the landscape;
- Ensures that turbines respond to the scale of the underlying landscape and accommodate operational, consented and proposed turbines in the surrounding context;
- Develops a turbine layout which minimises adverse effects upon cultural heritage assets and their settings, including non-designated but locally important heritage assets;
- Makes use of natural and topographical screening of turbines and other infrastructure in key views, where possible;
- Ensures that no turbine is overbearing in views from any individual residential property;
- Develops a turbine and solar photovoltaic layout that responds to the landscape context and minimises effects on cultural heritage assets and landscape views whilst avoiding areas of ecological importance;

- Develops a battery energy storage system layout that lies outside areas of flood risk and away from settlements, that utilises an area of fairly flat ground and minimises and avoids environmental and technical constraints as far as possible, including heritage assets, ecological habitats and landscape views. (Note: This element has now been removed from the design);
- Explores opportunities within the Site to restore and enhance biodiversity and provide greater access and recreational opportunities; and
- Develops a layout that fulfils the above objectives, whilst minimising or avoiding other environmental and technical constraints as far as possible, including (but not limited to) noise, hydrology (watercourses), priority habitats, steep slopes, telecommunications links, and other technical constraints identified during the Environmental Impact Assessment process.

4.2.3 A number of environmental constraints have been considered in the design process as follows:

- **Heritage Assets**: Designated, and where possible, non-designated cultural heritage assets within the Site have been avoided by incorporating a 50 metre buffer to offset new infrastructure from the assets;
- **Landscape Character and Visual Amenity**: On-site considerations have included the landform of the Site, in terms of its scale, elevation, and complexity and the topography of the Site, including the patterns of the landscape such as watercourses, field boundaries and woodland;
- **Biodiversity**: Avoidance of sensitive habitats, and placing infrastructure at suitable offset distances with respect to protected species and associated habitat features in order to avoid causing disturbance;
- **Telecommunications:** Avoiding all telecommunications infrastructure present within and in close proximity to the Site;
- **Residential properties:** Maintaining a 800 metre buffer around residential properties to avoid or limit the potential for significant effects to amenity (the visual quality and character of an area);
- **Hydrology:** Maintaining a 15 metre buffer where possible from watercourses/flood zones, and designing Site infrastructure to minimise the number and extent of new watercourse crossings;
- **Peat:** Avoiding the small area of peat soil within the Site;
- **Topography:** Avoiding steep slopes, to ensure constructability and reducing the need for significant cut and fill engineering works; and
- **Public rights of way:** Avoiding public rights of way.

4.3 Alternative Designs

4.3.1 Over the course of the design process, the design and layout of the Proposed Development has been adapted and altered in response to environmental constraints and consultation feedback.

4.3.2 The Proposed Development has undergone three principal iterations of the layout which have been developed at different stages in the project design process, as summarised:

- **Layout A** – Scoping stage layout. A ten turbine layout with maximum height to blade tip of 230 metres, and solar photovoltaic modules, informed by preliminary results of on-site surveys, desk-based assessments and consultant inputs. At this stage the site was approximately 814 hectares. This layout was used for scoping consultation;
- **Layout B** – A five turbine layout with maximum height 200 metres informed by landscape appraisal, telecommunication links and topography. Access options from the north and south were included. The solar, substation and battery energy storage system areas were refined by heritage, landscape and ecology constraints identified during field surveys; and
- **Layout C** – Pre-application Consultation Site layout. A six turbine layout with maximum height of 200 metres informed by field surveys, consultation, further landscape assessment, and further engineering design of the internal access tracks, battery energy storage system, substation and construction compound areas. The Site decreased in size to approximately 580 hectares to remove Craig- yr-Aber woodland, and areas to the north and south of the Site where no infrastructure would be located. A small parcel of solar to the south was dropped to avoid potential impact on great crested newts.
- **Layout D** – Final Proposed Development layout. A six turbine layout with maximum height of 200 m. Removal of the battery energy storage system, removal and/or relocation of some solar PV fields, and relocated substation, based on Pre-Application Consultation feedback and further landscape assessment and liaison. The Site decreased in size to approximately 578 ha.

5 APPROACH TO ENVIRONMENTAL IMPACT ASSESSMENT

5.1 Environmental Impact Assessment Process

5.1.1 Environmental Impact Assessment is a process of evolving and influencing the design of the Proposed Development. There are several key stages to this process as described below and illustrated in **Figure 5-1.**

1. **Identify baseline conditions** – a number of environmental surveys and desk-based studies have been undertaken. These have informed the design process (as detailed in the alternative design section above).
2. **Environmental Impact Assessment Screening** – due to the scale and nature of the proposed development, an Environmental Impact Assessment has been determined or 'screened' as a requirement.
3. **Environmental Impact Assessment Scoping** – an Environmental Impact Assessment Scoping Report was prepared to define and agree an appropriate scope of the Environmental Impact Assessment so that it focused only on impacts likely to give rise to significant effects on the environment. Scoping was submitted to Planning and Environment Decisions Wales in November 2023. A response was received in April 2024 (termed a Scoping Direction) and has been taken into consideration in the production of the Environmental Statement.
4. **Assess effects** – a detailed assessment of the environmental effects of the Proposed Development has been undertaken in accordance with established methodologies and good practice guidance. Technical consultation have been undertaken with relevant authorities and the feedback received was taken into consideration. Any effects arising from the Proposed Development and other developments in the surrounding area have also been assessed (cumulative effects).
5. **Develop mitigation** – where likely significant effects on the environment have been identified, formal mitigation measures have been developed to minimise the effects.
6. **Assess residual effects** – an assessment has been undertaken of the likely environmental effects that would remain after the proposed mitigation is applied.
7. **Environmental Statement report production**– the Environmental Statement reports the outcomes of the Environmental Impact Assessment process. This is prepared by experts with sufficient expertise and is submitted with the planning application for the proposed development. This non-technical summary summarises the Environmental Statement report.

5.1.2 The process is shown on **Figure 5.1**, where the Environmental Statement is the last stage in this process.

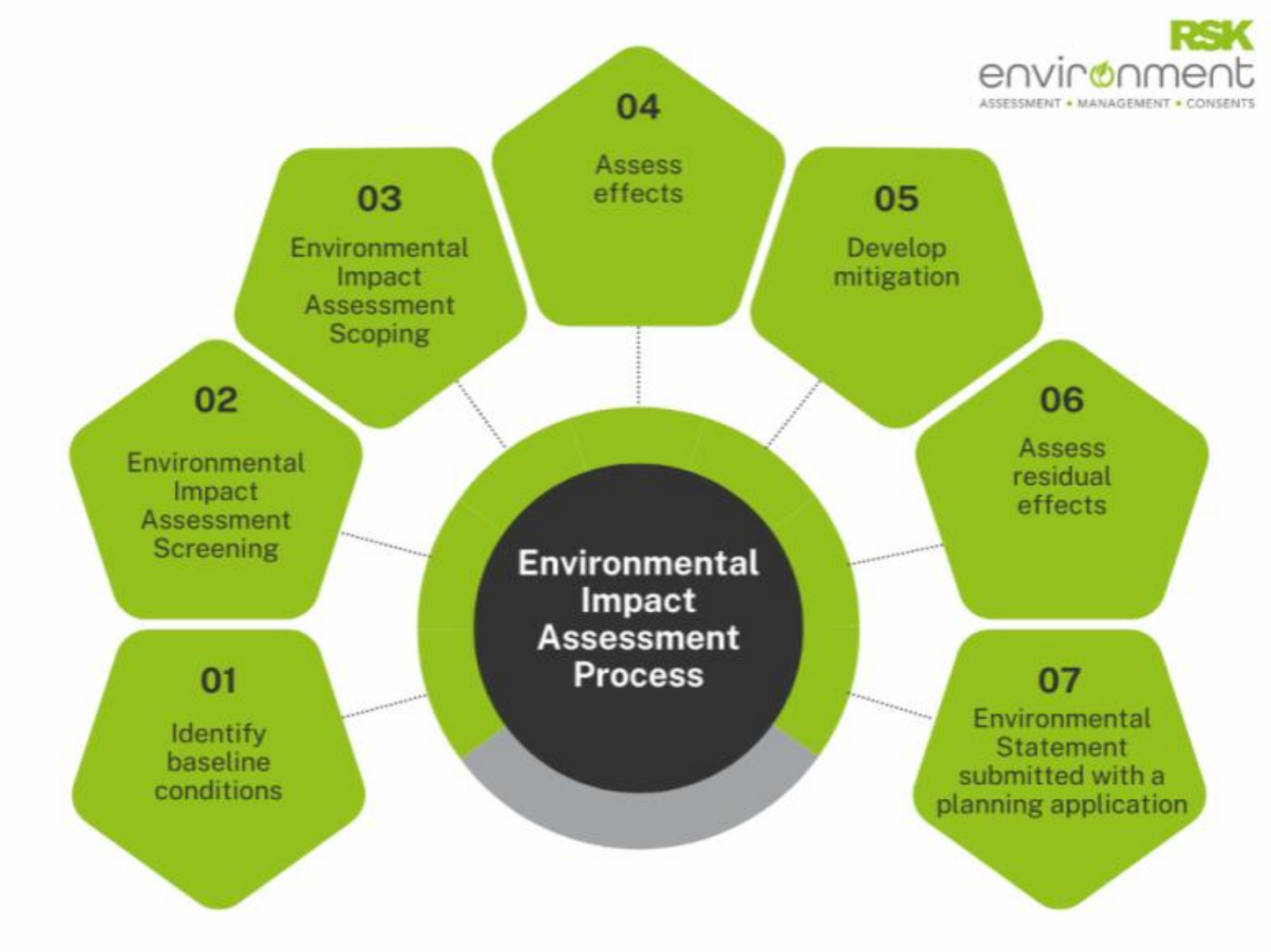

Figure 5-1 Illustration of the Environmental Impact Assessment process

5.1.3 The following list presents the environmental factors that have been assessed in Volume II of the Environmental Statement, as outlined by the Scoping Direction:

- Land, Soils and Groundwater
- Water
- Cultural Heritage
- Landscape and Visual
- Noise and Vibration
- Ornithology
- Terrestrial Ecology
- Traffic and Movement
- Population
- Climate
- Intra-Project Combined Effects.

5.1.4 The following environmental factors have not been included in Volume II of the Environmental Statement as it is considered that the Proposed Development would not result in significant effects in relation to these assessments:

- Air Quality;
- Aviation;
- Glint and Glare;
- Shadow Flicker; and
- Telecommunications.

5.1.5 Assessments relating to these environmental factors have been undertaken and are provided in Volume III of the Environmental Statement. However, where appropriate, relevant information from these assessments has been included within the assessments listed in paragraph 5.1.3.

5.2 Consultation and Engagement

5.2.1 The consultation and engagement process during the Environmental Impact Assessment is essential for developing a comprehensive and proportionate Environmental Statement. It ensures that views from statutory and non-statutory consultees are considered, helping to prioritise issues with potential significant environmental effects and identify areas requiring further investigation.

5.2.2 Consultation and engagement throughout the Environmental Impact Assessment process also allows for information and data sharing that supports the accuracy and reliability of the Environmental Statement.

5.2.3 Early and targeted engagement with stakeholders such as Bridgend County Borough Council, Cadw and Heneb, among others has influenced the design of Mynydd Ty-talwyn Energy Park and the Environmental Impact Assessment.

5.2.4 Once the application for Mynydd Ty-talwyn Energy Park has been accepted, a ‘representation period’ will carried out by Planning and Environment Decisions Wales (PEDW), where specialist consultees, relevant authorities and stakeholders may provide comments on the application, prior to a decision by Welsh Ministers.

6 FINDINGS OF THE ENVIRONMENTAL STATEMENT

6.1.1 An assessment of the environmental effects of the Proposed Development has been completed for each of the factors identified by the scoping stage, outlined in **Section 5** above.

6.1.2 The conclusions on the likely significant environmental effects of the Proposed Development are described within the Environmental Statement. This section provides a brief summary of the overall assessment findings.

6.2 Land, Soil and Groundwater

Overview of Methodology

6.2.1 The assessment considers the potential effects of the Proposed Development on land, soil and groundwater, and has been completed in accordance with standard industry guidance. For sensitive receptors linked to land, soil or groundwater (which is defined as water present below the ground's surface, within pores in soil or rock) the study area included land within the Site and a study area of up to 1 kilometre outside the Site boundary.

Overview of Baseline Conditions

6.2.2 Baseline conditions were identified from a range of sources, to allow the assessment to consider the known Site conditions. The criteria used for assessing the receptors were taken from Institute of Environmental Management and Assessment guidance and Design Manual for Roads and Bridges guidance.

6.2.3 Baseline conditions are summarised below:

- There are a number of consents for discharging sewage or trade effluent; two of which are onsite, with 22 within 1 kilometre of the Site boundary;
- Historical site usage has been mainly agricultural, but there is also evidence of pits and quarries, coal mining infrastructure (including mine entrances and tramways);
- Off-site historical use within 1 kilometre includes a refuse tip, woollen mill, paper mill, power station (with settling ponds) and collieries;
- Historical landfill sites are present within the Site boundary, and in a number of locations within 1 kilometre of the boundary;
- Coal mining infrastructure includes a number of mine entries, areas of surface coal extraction and possible areas where coal could have been removed from shallow below-ground coal seams;
- There are locations known as 'mineral safeguarding areas' present across the Site. These are areas of land that have been identified by the local council as potentially being suitable for extracting soil or rock from the ground in the future. In this case, the material to be removed would be either sandstone or igneous rock taken from the bedrock layers beneath the Site;
- Due to the hilly nature of the Site, some locations have been identified where steep slopes may pose a risk during construction, operation or decommissioning

of the Proposed Development. This could be as a result of erosion, landslides, or instability affecting the Proposed Development infrastructure. The assessment included consideration of how to prevent these hazards from resulting in damage to the environment or the Proposed Development;

- The groundwater in the geological units under the Site is classified as a 'Secondary A aquifer'. This means that the groundwater is of moderate sensitivity (with 'Principal aquifers' being of highest sensitivity). At this stage, there is no information to determine at what depth beneath the surface the groundwater is present; and
- A peat survey has shown that peat is largely absent across the Site. There is one isolated location where an area of peat was present (a circle roughly 100 metres in diameter), to a thickness of around 30 centimetres at the outside to greater than 1 metre at the centre; however, no development is proposed in this area.

Overview of Proposed Mitigation

6.2.4 Consideration was given to the possible effects that could result due to the Proposed Development going ahead, and whether any of these effects could be reduced by mitigation measures.

6.2.5 The following mitigation measures are proposed:

- Groundwater would be protected by measures within **ES Volume III, Appendix 2.1: Outline Construction Environmental Management Plan**, including emergency procedures to ensure any spillages or leaks of harmful materials (such as fuel or chemicals) used during the works would be cleaned up immediately and safely. Measures will also include good housekeeping, reducing pollution, and undertaking inspections and keeping records.
- Possible impacts on land or groundwater due to contamination would be minimised by measures within **ES Volume III, Appendix 2.1: Outline Construction Environmental Management Plan,** that includes mitigating against erosion and managing contamination (either unexpected contamination encountered during the works or contamination accidentally introduced during the works). In addition, a specific risk assessment will be required for any piling works that may be needed to construct foundations, to ensure all potential impacts to groundwater are considered and addressed;
- Further testing of the land within the Site will be undertaken before construction starts. Where required, any existing contamination within the Site would be removed/remediated before construction begins;
- Damage to soil would be managed by **ES Volume III, Appendix 5.4: Outline Soil Management Plan**, which includes measures such as identifying areas of the Site where soils might be more susceptible to physical damage to the soil structure or chemical status, defining when soils can be handled or driven over and use of designated routes for vehicles; and
- The drainage strategy (See **ES Volume III, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Statement**) will ensure that elements of the Proposed Development are designed to minimise any risks to sensitive receptors.

Overview of Effects

6.2.6 Based on the assessment that has been undertaken, the residual effects that may occur on land, soil and groundwater receptors are listed below:

- Potential impacts on land due to contamination from existing sources, or accidentally released as a result of the construction, operation or decommissioning of the Proposed Development (assessed to be **adverse** and **not significant**);
- Impacts on accessibility of mineral resources due to the construction, operation or decommissioning of the Proposed Development (assessed to be **adverse** and **not significant**);
- Impacts on the physical or chemical composition of soil due to vehicle movements, accidental release of fuel or chemicals or other construction, operation or decommissioning activities (assessed to be **adverse** and **not significant**);
- Impacts on the physical or chemical composition of soil due to vehicle movements, accidental release of fuel or chemicals or other construction, operation or decommissioning activities (assessed to be **adverse** and **not significant**); and
- Impacts on the quality or quantity of groundwater due to accidental releases of fuel or chemicals, damage to drainage or changes to the existing groundwater regime during construction, operation or decommissioning (assessed to be **adverse** and **not significant**).

6.2.7 In summary, no significant residual effects have been identified for land, soils and groundwater receptors during any phase of the Proposed Development.

Geological Hazards

6.2.8 Geological hazards have been considered within this Land, Soils and Groundwater chapter of Volume II of the Environmental Statement. The specific geological hazards to be considered are:

- Potential risks due to coal mining issues; and
- Potential risks due to instability of precipitous or strongly inclined slopes.

6.2.9 Further work, secured via planning condition and carried out to inform the engineering design phase, will minimise risks to the Proposed Development from coal mining hazards. This is expected to include an assessment to determine the potential for instability or collapse due to below ground voids, as well as an assessment of the potential for hazardous mine gases being present. This work would be discussed and agreed with Mining Remediation Authority (formerly the Coal Authority) to ensure that this is done safely and appropriately.

6.2.10 If risks are identified associated with mine entries or shallow mine workings, these can be mitigated by standard treatment options, which could include solutions such as filling and closing voids (constructing caps over mine entries). If required, an assessment of mine gas would be undertaken to identify any locations where mine gas might pose a hazard, and depending on the extent of the issue, appropriate mitigation measures would be proposed and agreed with the Mining Remediation Authority.

6.2.11 Issues relating to slope instability will be further considered by suitably qualified geo-technical engineers during the engineering design phase, to initially determine the areas that require further assessment, and then to undertake the necessary steps to allow the Proposed Development to proceed safely.

6.3 Water

Overview of Methodology

6.3.1 The assessment of issues relating to water was completed for areas up to 300 metres outside the Site boundary and was undertaken in accordance with standard industry guidance.

6.3.2 A Watercourse Features Survey has been undertaken to record features and the locations of proposed crossing points. A desk-based assessment of surface water management for the Site was also completed in accordance with Planning Policy Wales, Technical Advice Note 15 (Technical Advice Notes (TANs) provide detailed planning advice) and relevant technical guidance.

Overview of Baseline Conditions

6.3.3 Baseline conditions were identified from a range of sources, to allow the assessment to consider the known Site conditions. The criteria used for assessing the receptors were taken from the Institute of Environmental Management and Assessment guidance and Design Manual for Roads and Bridges guidance.

6.3.4 There are numerous Ordinary Watercourses located within the Site, as shown in **Figure 3.1 Environmental Features**. An Ordinary Watercourse is a stream, ditch or any other passage that water flows through and is not recognised as a 'Main River' by the Environment Agency. The Site is split into four main catchments; one draining to Craigyraber to the south-west; the second draining to Nant y Gadlys and Afon Llynfi to the north/east/south-east; and the smaller western parcel of the Site drains to Nant Craigyraber to the south-east and to Afon Cynffig to the south-west.

6.3.5 The Site is wholly located within an area of low-risk of flooding (Flood Zone 1). There are smaller areas of Flood Zones 2 (medium risk) and 3 (high risk) associated with surface water and small watercourses. These higher risk areas are associated with watercourse corridors and do not extend into the agricultural fields comprising the Site.

6.3.6 Cwm Risca Meadow Site of Special Scientific Interest is located directly adjacent to the southern boundary of the Site. Due to the way the land falls within the Site, rainwater falling in a southern area of the Site could flow into Cwm Risca Meadow Site of Special Scientific Interest.

Overview of Proposed Mitigation

6.3.7 Consideration was given to the possible effects that could result due to the Proposed Development going ahead, and whether any of these effects could be reduced by mitigation measures.

6.3.8 The following mitigation measures are proposed:

- Water required for the construction and decommissioning works would be met by bringing in raw water using a bowser, rainwater harvesting or private water

supply, or a mixture of these. Dwr Cymru Welsh Water mains water supply or groundwater abstraction will not be used for construction or decommissioning works; and

- Watercourses would be protected from contamination or release of sediment by measures as stated within **ES Volume III, Appendix 2.1: Outline Construction Environmental Management Plan** (or a Decommissioning Environmental Management Plan) that will include managing contamination (either unexpected contamination encountered during the works or contamination accidentally introduced during the works).

Overview of Effects

6.3.9 Once the measures within the Construction Environmental Management Plan or Decommissioning Environmental Management Plan are followed, the potential risk of spillage, excessive or silt laden runoff impacting the surrounding rivers and watercourses and the Cwm Risca Meadow Site of Special Scientific Interest would be minimised. The residual effects on all receptors during construction and decommissioning are considered to be **not significant**. No significant effects are anticipated during the operational phase.

6.3.10 In summary, no significant residual effects have been identified for water receptors during any phase of the Proposed Development.

6.4 Cultural Heritage

Overview of Methodology

6.4.1 The cultural heritage assessment considered the potential physical (i.e., direct damage to) and non-physical effects (i.e., effects which alter the surroundings of a receptor) on the historic environment during construction, operation and decommissioning of the Proposed Development.

6.4.2 The historic environment is defined as comprising all surviving physical elements of previous human activity. It is made up of individual historic features known as historic assets. The assessment is based on an archaeological desk-based assessment, geophysical surveys of the wind turbine, solar land parcels and substation locations and targeted trial trenching which largely focussed on important areas from the geophysical survey.

6.4.3 A geophysical survey is a survey undertaken using a magnetometer system which measures variations in the below ground magnetic field caused by material in the ground to capture and identify likely archaeological features. Trial trenching is an intrusive method of site evaluation which requires the opening of multiple pits ‘trenches’ within the Site to identify any archaeology present.

6.4.4 An assessment of how a heritage asset could be affected by changes to the surroundings in which it is experienced, known as a setting assessment, was undertaken for designated historic assets within a 10 kilometre study area. This assessment was informed by zones of theoretical visibility (a computer-generated tool to identify the likely extent that the development will be visible), wirelines (a computer-generated figure that illustrates how the Proposed Development would be visible using a simplified line drawing overlaid onto a base photograph) and photomontages (a computer-generated figure that illustrates how the Proposed

Development would be visible by modelling the development and overlaying it onto a base photograph).

6.4.5 The assessment has been guided, in particular, by Cadw's Conservation Principles for the sustainable management of the historic environment in Wales, Setting of Historic Assets in Wales, and the Welsh Government's Future Wales 2040, Planning Policy Wales 12 and Technical Advice Note 24.

Overview of Baseline Conditions

6.4.6 Four designated historic assets (Scheduled Monuments GM086, GM092, GM093, GM340) are located within the Site.

6.4.7 A large number of non-designated historic assets are also recorded within the Site within Cadw's Historic Environment Records. However, only a small number are visible above ground. The road through the Site, Ffordd-y-Gyfraith, was identified as being in the same location as a recorded Roman road.

6.4.8 The geophysical surveys identified possible prehistoric or historic findings (identified in the Cultural Heritage Chapter of Volume II of the Environmental Statement as enclosures (hillforts) E1, E2, E3, E?4, E?5 and E6), as well as anomalies of uncertain origin that represent possible evidence of human activity elsewhere on Site. Anomalies are reported as it is sometimes difficult to determine the origin of any findings identified through the geophysical surveys.

6.4.9 The intrusive trial trench evaluation identified ditches corresponding to three of the enclosures. One of these contained Bronze Age and Roman pottery, the other two had no finds.

6.4.10 The geophysical surveys also identified a series of ring ditches, many of which contain a single internal feature. Four of these were targeted by the intrusive trial trenching. None of these found any ring ditches but one trench did identify a cremation urn thought to be from the Bronze Age.

6.4.11 The trial trench evaluation recorded ditches corresponding to linear anomalies however no dating was recovered from any of the ditch fills. Several of the ditches were presumed to relate to post-medieval agricultural activity, some perhaps representing former field boundaries pre-dating 1839.

6.4.12 Four large, sub-oval pits which match anomalies identified in geophysical survey were also identified. None of the pits relate to features shown on available historic maps, and it is estimated that they may be former quarry pits.

6.4.13 Three small, sub-oval pits were identified. One near Turbine T03, and two near or within Solar Parcel J. Those around Solar Parcel J were not predicted by the geophysical survey. The pit near T03 was predicted by the geophysical survey and is likely post-medieval in date. None of the pits contained any dating evidence, although the pit around Solar Parcel J contained abundant charcoal.

6.4.14 There are also designated historic assets located within the 10 kilometre study area. These notably include Grade I Listed Church of St Cynwyd at Llangynwyd, Llangynwyd Conservation Area and Scheduled Monuments GM059 Y Bwlwarcau and GM058 Roman Camp.

Overview of Proposed Mitigation

6.4.15 The Proposed Development has been designed to avoid all designated historic assets within the Site, and all non-designated historic assets within the Site, where possible. Woodland planting is proposed around the solar photovoltaic modules and substation to provide some long-term screening in views from the wider landscape.

6.4.16 Additional mitigation would include undertaking further archaeological evaluation for the higher value findings. This would include monitoring and recording of any findings. This additional investigation will be secured via a planning condition.

6.4.17 As part of the planning condition, it is expected that specific mitigation will be agreed for individual finds. This will include follow-on archaeological excavation/watching briefs and/or exclusion zones to remove development infrastructure or relocate where micro siting allows and/or implementing no-dig zones using above ground foundations to install development infrastructure.

Overview of Effects

6.4.18 No significant residual effects have been identified for cultural heritage receptors during the construction or decommissioning phases.

6.4.19 There is the potential for adverse physical effects on the undesignated possible and known Bronze Age burial mounds in Solar Parcel K and H, the post-medieval and undated pits identified within the Site and the medieval Ffordd-y-Gyfraith road and its branches during the construction and decommissioning phases. The residual effects on these assets are anticipated to be **adverse** and **not significant**.

6.4.20 There are also the potential for physical effects on the archaeological enclosures within the Site during the construction and decommissioning phases. The residual physical effects on these assets are anticipated to be **adverse** and **not significant**.

6.4.21 The Proposed Development would have no physical effects on any of the Scheduled Monuments within the Site, but would have non-physical effects by bringing about changes to their setting during the operational phase. The residual effects on these assets would be **adverse** and **significant** for three of the assets (GM092, GM093 and GM340) and **adverse** and **not significant** for the remaining one (GM086). These effects would be reversed upon decommissioning, due to a restoration of baseline conditions.

6.4.22 The Proposed Development would have non-physical effects on the Grade I Listed Church of St Cynwyd at Llangynwyd and Llangynwyd Conservation Area by bringing about changes to their setting during the operation phase. The residual effects on these assets are considered to be **adverse** and **not significant**. The effects would be reversed upon decommissioning, due to a restoration of baseline conditions.

6.5 Landscape and Visual

Overview of Methodology

6.5.1 The landscape and visual assessment considers the effects of the Proposed Development during all phases on: individual landscape features (such as on-site hedgerows); landscape character (consisting of the characteristics of an area with regards to its geology, landscape vegetation, visual and sensory perception, and

historic and cultural landscapes characteristics); specific views; and people who view the landscape.

6.5.2 The assessment has been undertaken in accordance with relevant professional guidance, specifically 'The Guidelines for Landscape and Visual Impact Assessment, 3rd Edition'[1], which is the primary source of best practice guidance for landscape and visual assessments in the UK.

6.5.3 The study area comprises the Site itself and a 20 kilometre radius from the Site boundary. On some occasions, where it is anticipated that there would be visibility of the Proposed Development beyond the 20 kilometre radius, additional receptors have been included within a wider 35 kilometre study area.

6.5.4 A review of available online data has been undertaken to inform the baseline conditions of the Site. This has been further supplemented by site visits and consultation with the local authority.

6.5.5 To assess the likely effects of the Proposed Development, the assessment has made use of Zones of Theoretical Visibility which illustrate where the Proposed Development would be visible from in the wider area, and wirelines and photomontages which illustrate how the Proposed Development would appear in a particular view. The locations of the views assessed, have been selected in consultation with the local authority and represent a range of views towards the Site.

Overview of Baseline Conditions

6.5.6 The existing Site comprises fields which are in agricultural use, hedgerows, pockets of woodland and residential properties (farms). Within the Site there are also a number of public footpaths, including Ogwr Ridgeway which is a long distance walking route. The Cistercian Way is another long-distance walking trail that is located within the study area and has potential views of the Site.

6.5.7 Several national cycle routes fall within the study area and have visibility of the Site. These are: Route 4, a long- distance route located to the south of the Site; Route 884, which runs to the east of the Site; Route 885 which runs to the south of the Site and connects with Route 4; and Route 887 which is a new route in the villages in the northwest of the study area.

6.5.8 Within the study area, there are a number of towns, villages and settlements which have views of the Site. These include: Llangynwydd (Pont Rhyd-y-cyff); Lletty Brongu; Bettws; Cefn Cribwr; Kenfig Hill and Pyle; Coedhirwaun; and Pen-y-fai. There are also individual homes, within 2 kilometres of the Site boundary, which are separated from these settlements which have views of the Site.

6.5.9 The following roads and railways have been identified within the study area as having potential views of the Site: M4 (located 1.7 kilometres south), A4063 (adjacent to north east of the Site), A48 (located 3.5 kilometres southwest), A4107 (located 7.7 kilometres northeast), A4229 (located 5.2 kilometres southwest), A473 (located 4.4 kilometres south), A4061 (located 2.5 kilometres southeast), A4106 (located 4.9 kilometres south), B4281 (located 920 metres south), B4265 (located >5 kilometres south), B4524 (located 4 kilometres south), South Wales Main Line Railway (located 1.8 kilometres south), and Maesteg Line Railway (located ~500 metres east).

[1] The Guidelines for Landscape and Visual Impact Assessment, 3rd Edition

6.5.10 The Bannau Brycheiniog National Park is located just over 20 kilometres to the north east of the Site and the Gower National Landscape/Tirwedd Cenedlaethol Gŵyr is located around 21 kilometres to the west.

Overview of Proposed Mitigation

6.5.11 Landscape and visual considerations have been a critical driver for design of the Proposed Development. The locations of the turbines, solar photovoltaic modules and substation have been considered carefully to seek to minimise the potential effects of the Proposed Development.

6.5.12 For screening the more ground level elements of the Proposed Development (e.g., solar photovoltaic modules and the substation), additional vegetation in the form of woodland and hedgerows is proposed to be planted to reduce the visibility of this infrastructure from surrounding locations. This planting would also increase the landscape features within the Site and enhance the existing features.

Overview of Effects

6.5.13 The Proposed Development would result in changes to the landscape character of the Site through the removal of landscape features during construction and decommissioning, and the presence of new infrastructure during operation. These changes would result in adverse effects. The Site forms part of a wider 'Landscape Character Area' and as such, the Proposed Development would also result in **adverse** effects which are considered to be **significant** on the landscape character area.

6.5.14 The changes to the landscape within the Site would also affect the Landscape Character Areas which are located within 5 kilometres of the Site. Depending on how visible the Site is from these different Landscape Character Areas, the effects range from **adverse** and **significant,** in those Landscape Character Areas generally located to the east of the Site, to **adverse** and **not significant**, in those Landscape Character Areas generally located to the north, south and west of the Site.

6.5.15 During construction and decommissioning, while some individual homes within 2 kilometres of the Site may experience a change from their existing view (e.g. partially constructed turbines and cranes may be present), the effects are anticipated to be **adverse** and **not significant**. Once the Proposed Development is operational, some residents would experience an **adverse** and **significant** visual effect. In all cases, the properties would all continue to have other views available that are not affected by the Proposed Development. It is not the case that any of the effects would be of such a scale so as to become dominant or overbearing.

6.5.16 The Proposed Development would also change views in the wider settlements. Specifically, the western hamlet of Llangynwyd, the edge of Maesteg, Lletty Brongu, and Cefn Cribwr would experience **significant adverse** visual effects during the operation of the Proposed Development. While there may be changes to some of the views from the other settlements surrounding the Site, these are anticipated to be **not significant** during the construction, operation and subsequent decommissioning of the Proposed Development.

6.5.17 The construction and decommissioning phase of the Proposed Development would result in **adverse** and **significant** effects for users of the Ogwr Ridgeway Walk, particularly where the route passes through the Site and direct views of construction activities would be visible. Similarly, once operational the Proposed Development

would introduce new features (e.g. turbines and solar panels) into the close-range views along the Ogwr Ridgeway Walk. The effect during operation would also be **adverse** and **significant**.

6.5.18 The sections of the Ogwr Ridgeway Walk which are further from the Site, and the Wales Coastal Path and Cistercian Way, would experience the Proposed Development as a much less prominent element of the view during all phases. These effects are considered to be **adverse** and **not significant.** Users of the cycle routes within the study area would experience effects which are considered to be **not significant** within all phases of the Proposed Development.

6.5.19 Road and railway users would also experience a change in views during all phases of the Proposed Development. Users of the majority of the road and railways within the study area, would experience effects which are **not significant** in all phases of the Proposed Development. This is largely due to buildings and vegetation which lines a lot of the roads and the railway which would block the views of the Proposed Development. Only the users of the A4063 to the east of the Site are anticipated to result in **adverse** and **significant** effects as a result of changes to existing views, and this effect would be limited to areas where there are gaps in the vegetation along the road.

6.5.20 Given the distance between the Site and the Bannau Brycheiniog National Park and the Gower National Landscape, and the limited visibility of the Proposed Development, no significant effects are anticipated.

6.6 Noise and Vibration

Overview of Methodology

6.6.1 The noise and vibration assessment considered noise from equipment and vehicles used during construction of the Proposed Development and from the energy park equipment (e.g., turbines, solarvoltaic modules and substation) during operation at nearby residential properties.

6.6.2 The study area for the construction phase assessment has considered residential properties located within and up to 300 metres beyond the Site boundary. The study area for the operational phase considers those residential properties that are the nearest to the Proposed Development and would therefore experience the biggest change in noise. The operational phase study area also includes those properties within an area where the Proposed Development has the potential to contribute to significant effect (a 35 decibel cumulative noise level)with other existing and proposed wind turbines.

6.6.3 A baseline noise survey was undertaken in line appropriate technical guidance to quantify the baseline conditions at the nearby sensitive receptors. Details of the proposed monitoring locations, equipment and methodology were agreed with the local authority.

Construction

6.6.4 Noise and vibration from the construction work have been assessed using recognised British Standards that set out how to measure and manage these impacts (BS 5228-1 and BS 5228-2).

6.6.5 To understand how loud the construction work might be for nearby residents, predictions of the construction noise have been made at the nearest residential properties. These predictions have been compared with noise limits or thresholds determined in line with British Standards Guidance using the existing noise levels at that property (as informed by the baseline survey).

6.6.6 Predictions of the level of vibration from common construction methods, such as vibratory roller activities, have also been calculated.

Operation

6.6.7 The data collected in the baseline survey has also been used to determine appropriate operational thresholds in line with ETSU-R-97 – The Assessment and Rating of Noise From Wind Farms guidance.

Overview of Baseline Conditions

6.6.8 The existing noise conditions within the Site, as determined though on-site monitoring and available data, are characterised by typical rural sources of noise including nearby agricultural activity, birdsong and vegetation moving in the wind. Noise from distant traffic on the nearby roads and operational turbines on land adjacent to the Site also contribute to the existing noise conditions within and surrounding the Site.

Overview of Proposed Mitigation

6.6.9 Each wind turbine includes blades with a serrated trailing edge to reduce the potential noise. The selection of the solar inverters would consider the noise generated, with a preference to quieter inverters.

6.6.10 Temporary noise barriers would be erected during construction works associated with the access tracks, when within approximately 120 metres of noise sensitive receptors.

Overview of Effects

Construction

6.6.11 Activities associated with the construction and decommissioning phases have been considered to have an **adverse** and **not significant** noise and vibration residual effects.

6.6.12 Construction and decommissioning traffic noise has been assessed both off-site and on-site and are considered to have the potential to cause **adverse** and **not significant** residual effects**.**

Wind Turbine Operation

6.6.13 Predicted cumulative wind turbine noise levels (noise predictions from all committed wind farms and the Proposed Development) indicate that cumulative wind turbine noise would meet the operational ETSU-R-97 threshold/noise limit, following the implementation of mitigation measures. As the ETSU limits are achieved, **no residual significant effects** are expected when turbines operate.

6.6.14 The mitigation proposed in order to meet the operational ETSU-R-97 noise limits, is management of certain turbines (T01, T02 and T05) during the day at certain wind

speeds and directions. This would involve operating these turbines on a reduced mode. This mitigation has been proposed based on the turbine modelled as part of the assessment reported in the Noise and Vibration Chapter in Volume II of the Environmental Statement.

Solar and Substation Operation

6.6.15 Assessment of the noise emissions generated by the solar and substation infrastructure have been compared with the existing background sound level at all noise sensitive receptors. The background sound level is predicted to increase by up to + 5 decibels. Following a review of the British Standards guidance (provided within BS4142:2014+A1:2019) and the context of the noise, the residual effect of the predicted noise levels are considered to be **adverse** and **not significant.**

6.7 Terrestrial Ecology

Overview of Methodology

6.7.1 An ecology desk study (on-line research and data request of available data) and a suite of baseline ecological surveys was completed between May 2023 and March 2025. The following ecological surveys were undertaken:

- UK Habitats, JNCC Phase 1 and National Vegetation Classification (NVC) habitat surveys;
- Fungi survey;
- Bat surveys (bat activity survey – static detector survey and walked transects, preliminary roost assessment (trees) and aerial tree assessment);
- Great crested newt surveys (habitat suitability index survey, great crested newt eDNA survey and population estimate (bottle trapping and torching) survey);
- Water vole survey; and
- Otter survey.

6.7.2 All surveys were undertaken following the most relevant industry guidelines and incorporated relevant scoping responses. The baseline information focussed on the 'study area', based on the Site boundary and Zone of Influence (defined as the area over which ecological receptors may be affected by a development).

6.7.3 The assessment undertaken and reported in the Terrestrial Ecology Chapter in Volume II of the Environmental Statement has been undertaken in accordance with the Chartered Institute of Ecology and Environmental Management guidance, 2018[2].

Overview of Baseline Conditions

6.7.4 The Site is not located within any statutory site designated for ecological interests. Six Sites of Special Scientific Interest are located within 2 kilometres of the Site; the closest of which is Cwm Risca Meadows (adjacent to the southern boundary). There are four Sites of Importance for Nature Conservation of relevance to terrestrial ecology that that lie within the Site (Neath Port Talbot Watercourses, Cwm Nant Gwyn, Nant Cwm-bach and Gilfach Uchaf).

[2] Chartered Institute of Ecology and Environmental Management, 2018. Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3, Winchester: Chartered Institute of Ecology and Environmental Management.

6.7.5 Cwm Risca Meadows Site of Special Scientific Interest and the four Sites of Importance for Nature Conservation listed were scoped into the assessment, due to either direct or the potential for indirect impacts from pollution run off.

6.7.6 Cwm Risca Meadow Site of Special Scientific Interest is an old wet acidic meadow on coal measure rocks which supports over 80 species of herbaceous plants and a colony of marsh fritillary butterfly.

6.7.7 The Site comprises predominantly improved or poor semi-improved grassland, together with woodland, semi-improved neutral and acid grassland, scrub, bracken, ponds and watercourses. There are 66 intact and two defunct species-poor hedgerows present within the Site.

6.7.8 Grassland fungi surveys identified that some parts of the Site support a good range of species. The survey was limited to areas likely to support grassland fungi and did not include the whole Site.

6.7.9 Surveys have identified that 14 bat species/species groups use the Site for foraging and roosting, with activity highest during the spring period. The most frequently recorded species was common pipistrelle followed by noctule. Two potential bat roosts have been identified within the Site. One potential roost was identified within a tree located in the north adjacent to an existing access road. The second potential bat roost is within a tree in the footprint of the southern access track.

6.7.10 Favourable/suitable habitat for water vole and otter was largely absent from the Site and no signs were found during surveys. Great Crested Newt are presumed absent from the Site as environmental deoxyribonucleic surveys (also known as eDNA surveys) came back negative for waterbodies within the Site, however presence was detected in one offsite waterbody.

6.7.11 No surveys were undertaken for hazel dormouse, however, due to the presence of suitable habitat, it is assumed they are present within the Site.

Overview of Proposed Mitigation

6.7.12 The following mitigation is proposed relating to terrestrial ecology receptors:

- Controls will be put in place during construction as detailed in **ES Volume III, Appendix 2.1: Outline Construction Environmental Management Plan,** and will be implemented through creation of a site-specific Construction Environment Management Plan, Invasive Non-native Species Management Plan and appointing an Environmental Clerk of Works to monitor works and adherence to such plans;
- In addition, a Habitat Management Plan (included within the Net Benefit for Biodiversity Report) and a Green Infrastructure Statement forms part of the Development of National Significance application, in alignment with the principle of Net Biodiversity Benefit and enhancements required within the Environment (Wales) Act;
- Areas of county importance for fungi that are in close proximity to construction areas would be fenced off to prevent accidental encroachment;
- Grassland areas within the west of the Site would be enhanced to benefit fungi;
- Any areas of local importance for fungi that would be directly impacted by the works would be subject to turf stripping;

- Woodland planting would mitigate for the loss of woodland on site. It would also provide additional foraging/nesting habitat for a range of protected species such as Hazel dormouse and bats;
- Hedgerow creation would mitigate for the loss of hedgerow on Site, enhance defunct hedgerows and provide connectivity between habitats within and adjacent to the Site. It would also provide additional foraging/nesting habitat for a range of protected species such as Hazel dormouse and bats;
- The two potential bat roosts lost due to the Proposed Development would be mitigated for through the erection of bat boxes;
- Grassland in the north of the Site will be enhanced to provide better quality habitat for marsh fritillary (while suitable habitat for this butterfly was not identified within the Site, the Cwm Risca Meadows Site of Special Scientific Interest to the south of the Site is designated for this species); and
- Invasive non-native species management plan would be implemented prior to the start of enabling works. Operation phase monitoring would be required to ensure that biosecurity measures and the management plan are effective.

Overview of Effects

6.7.13 The construction and decommissioning of the Proposed Development has been assessed as having significant residual effects on the following:

- Nant Cwm-bach Site of Importance for Nature Conservation - Construction of an access track across a small area of the Site of Importance for Nature Conservation - **Significant Adverse** at the **Local level;**
- Foraging and commuting bats - Removal of potential bat roosting trees and fragmentation of habitats due to removal of hedgerows. - **Significant Adverse** at the **Local level;**
- Woodland – The removal of woodland within the Site would result in an adverse and not significant effect until the newly planted woodland has fully grown. The creation of 19.05 hectares of woodland is proposed within the Site would be a benefit - **Significant Beneficial** at the **Local level**;
- Hedgerows – The removal of woodland within the Site would result in an adverse and not significant effect until the newly planted hedgerows have fully grown. The creation of 3.26 kilometres of hedgerow within the Site would be a benefit- **Significant Beneficial** at the **Local level**;
- Fungi – Enhancement of grassland habitats - **Significant Beneficial** at the **Local level**;
- Invasive non-native species – Removal of and avoidance of further spreading of invasive non-native species (through an Invasive Non-Native Species Management Plan) - **Significant Beneficial** at the **Local level**;
- Bats (roosting and foraging/commuting) – Creation/planting of woodland and hedgerows - **Significant Beneficial** at the **Local level**; and
- Hazel dormouse – Creation/planting woodland and hedgerow - **Significant Beneficial** at the **Local level**.

6.7.14 The operation of the Proposed Development has been assessed as having **significant residual effects** on the following:

- Foraging and commuting bats – Operational lighting could cause disturbance to foraging and commuting bats, unknown impact of solar farms displacing bats, noise from substation and collision risk (bats colliding with turbines) - **Significant Adverse** at the **Local level**; and
- Invasive non-native species – Operational phase monitoring to ensure removal of invasive species and management plan are effective - **Significant Beneficial** at the **Local level.**

6.7.15 All other residual effects would be **not significant.**

6.8 Ornithology

Overview of Methodology

6.8.1 The ornithological assessment considered the baseline ornithological conditions recorded within and around the Site and presents an assessment of the potential for significant effects on ornithological features associated with the construction, operation and demolition of the Proposed Development.

6.8.2 An ornithological desk study and suite of baseline ornithology surveys were completed between 2021-2023, December 2024 to January 2025 and November 2025 to February 2026. The following ecological surveys were undertaken:

- Surveys designed specifically to assess bird flight activity and distribution over a survey area from one place, known as Vantage Point Flight Activity Surveys, undertaken in November 2021 to October 2023;
- Surveys to identify breeding moorland birds, known as breeding bird surveys, undertaken in April to July 2022 and 2023;
- Surveys to identify any bird species listed in Annex 1 of the Birds Directive and Schedule 1 of the Wildlife Countryside Act 1981 (as amended), known as breeding raptor (bird of prey) and owl searches, undertaken in April to June 2022 and March to July 2023;
- Surveys to identify nightjar, undertaken in June 2023; and
- Surveys undertaken in the winter months, designed to identify birds while walking pre-determined routes or 'transects', known as Winter transect surveys, undertaken in December 2024, January 2025 and November 2025 to February 2026 inclusive.

6.8.3 All surveys were undertaken in accordance with the most relevant industry guidelines and incorporated relevant consultation and scoping responses.

6.8.4 Detailed collision risk modelling has been undertaken in order to identify the potential effects of the Proposed Development on target bird species (species that are the primary focus of the study) through collisions with wind turbines.

Overview of Baseline Conditions

6.8.5 The Site is not located within any statutory site designations for ornithological interests (i.e., Special Protection Area/Ramsar site), nor are there any such sites within 10 kilometres.

6.8.6 There is one statutory designated site within 5 kilometres of the Site and three non-statutory designated sites of potential ornithological interest within 2 kilometres of the Site identified during the desk study, namely:

- Eglwys Nunydd Reservoir SSSI (National importance);
- Aberbaiden Farm Meadows SINC (County importance);
- Lletty Brongu SINC (County importance); and
- Tylacoch South SINC (County importance).

6.8.7 A summary of the ornithological species identified within the Site is provided below:

- Red kite (County importance): Suitable foraging and nesting habitat for red kite with one potential nest and a confirmed nest present within the Site and 500 metres from the Site boundary;
- Goshawk (County importance): Active nest identified during the breeding raptor searches. However, there is limited activity within the Site, likely due to the preference of goshawk to forage within woodland rather than flying out in the open, making them more difficult to observe;
- Other raptors (Local importance): Infrequent records of kestrel, merlin and peregrine foraging and commuting within the Site. No evidence of breeding;
- Barn owl (Local importance): Single observation of individual bird perching on a fence within the Site during vantage point surveys in 2021. Two potential nest/roost sites, one situated adjacent to the Site boundary;
- Lapwing (County importance): Observations of four pairs within the Site with two confirmed nesting territories within the Site during the moorland breeding bird surveys. Individual birds were seen within the grassland in the Site during winter surveys;
- Other waders and waterfowl (Local importance): Golden plover, snipe and teal identified within the Site. Infrequent records of snipe with observations during Year 1 moorland breeding bird surveys and presence during winter transect surveys. Golden plover observed on one occasion with a small flock commuting over the Site. Small flocks infrequently flew over the Site. No breeding activity recorded for golden plover; snipe or teal;
- Nightjar (County importance): Notable population of nightjar identified within Craig yr Aber Woodland adjacent to the Site, consisting of six potential territories from six singing males and two females recorded during the targeted surveys;
- Non-target breeding bird assemblage (species of birds that were not the primary focus of field surveys) (County importance): 40 non-target species identified with 23 considered to be notable species (species considered to be of importance), including notable breeding territories for cuckoo, skylark, willow warbler, mistle thrush, spotted flycatcher, meadow pipit and tree pipit; and
- Non-target wintering bird assemblage (County importance): 51 non-target species identified with 26 considered to be notable species. Notable peak counts included typical farmland, woodland and grassland species (e.g. meadow pipit, starling, gulls and winter thrushes).

Overview of Proposed Mitigation

6.8.8 The following mitigation is proposed relating to birds:

- Controls to be put in place during construction are detailed in **ES Volume III, Appendix 2.1: Outline Construction Environmental Management Plan,** and will be implemented through creation of a site-specific Construction Environment Management Plan, appointing an Ecological Clerk of Works to monitor works on Site and adherence to such plans;
- In addition, a Habitat Management Plan (included within the Net Benefit for Biodiversity Report) and a Green Infrastructure Statement form part of the Development of National Significance application, in alignment with the principle of Net Biodiversity Benefit and enhancements required within the Environment (Wales) Act;
- During design, development buffers were incorporated around habitats suitable for nesting and foraging birds including hedgerows (10 metre buffer), woodland (15 metre buffer) and watercourses (10 metre buffer);
- Mitigation has been included within the turbine design to reduce potential effects on birds. This includes aviation lighting, which would improve visibility for birds flying at night to reduce likelihood of collision and a serrated trailing edge to the turbine blade, which provides a quieter blade design;
- Grassland areas within the west of the Site would be enhanced and managed to benefit ground nesting birds (12.22 hectares). Additional grassland enhancement proposed as part of wider ecological mitigation including the creation of dry meadow and wet grassland for the benefit of wax cap fungi and marsh fritillary butterfly (approximately 61.83 hectares) would also provide additional benefits for birds including ground nesting species such as lapwing and skylark;
- Woodland planting and enhancement (19.05 hectares) would mitigate for the loss of woodland on Site (0.08 hectares). It would also provide additional foraging/nesting habitat for a range of protected species such as red kite or goshawk; and
- Hedgerow creation and enhancement (3.26 kilometres) will mitigate for the loss of hedgerow habitat on Site (169 metres), enhance species poor defunct hedgerows and provide connectivity between habitats within and adjacent to the Site. It will also provide additional foraging/nesting habitat for a range of protected passerine bird species (sometimes known as perching birds).

Overview of Effects

6.8.9 During construction and decommissioning there is the potential for adverse effects to birds as a result of habitat loss associated with reduction of woodland and hedgerow. This residual effect is of County/Local importance and **not significant**. During construction there is the potential for Lapwing, breeding and wintering birds to be disturbed. The residual effect on Lapwings is considered of County/Local importance and **not significant**. The residual effect on breeding and wintering birds is considered of county importance and **not significant**.

6.8.10 During the operational phase there is the potential for adverse effects through reduction in foraging availability for passerine and raptor species alongside reduction

in suitable nesting habitat for key ornithological species associated with grassland habitats. In addition, there is the potential for collision risk with turbine blades during operation, note this is not considered likely to be significant for passerine species but other bird species were subject to collision risk modelling. The residual effect is considered of County/Local importance and **not significant**.

6.8.11 The presence of proposed wind turbines and solar panels during operation phase have the potential for adverse effects as a result of disturbance and displacement to red kite and Lapwing through presence of unfamiliar infrastructure in suitable habitat and increased human presence during the operation phase. In addition, there is the potential for collision risk with turbine blades during operation. The residual effect is considered of County importance and **not significant**.

6.8.12 Likely significant effects to key bird species identified during the construction and operational phases such as direct habitat loss, disturbance, displacement, habitat degradation and collision risk will be offset by the additional mitigation measures proposed. **No significant** residual effects are anticipated for any key bird species.

6.8.13 In summary, no significant residual effects have been identified for bird species during any phase of the Proposed Development.

6.9 Traffic and Movement

Overview of Methodology

6.9.1 The assessment considered the access proposals and potential traffic and movement effects of the Proposed Development on the road network and its users during construction, operation and decommissioning of the Proposed Development.

6.9.2 The assessment approach follows industry good practice and has focused upon the changes in traffic flows along specific sections of roads along which general (staff) and Heavy Goods Vehicle construction traffic would pass.

6.9.3 The method adopted includes desk-based assessments to review relevant transport planning policy and identify sensitive locations, traffic sensitive receptors and potential origin locations of construction materials and staff as well as an abnormal indivisible load route assessment. As described earlier, an abnormal indivisible load is an oversized vehicle which would carry very large or ‘abnormal’ loads comprising wind turbine sections and heavy lift cranes to the Site. Given the large nature of the vehicles an assessment has been undertaken to determine the suitability of the route to Site.

6.9.4 Field surveys were conducted in January to February 2025 to capture existing traffic volumes and speed. Additional speed surveys were undertaken in June 2024 within the Site boundary.

Overview of Access

6.9.5 There are two external access points proposed into the Site; one located to the northeast from the Maesteg Road, and one to the south from New Road.

6.9.6 The northern access point is proposed to provide access for all construction material, abnormal loads and then operational traffic once the Proposed Development is complete. It would operate as a left-in, left-out only for all vehicles using the access.

6.9.7 The southern access point to the Site would provide an additional access for abnormal loads only associated with the delivery of turbine equipment. This would be an access only, with all retracted (to near standard articulated Heavy Goods Vehicle dimensions) abnormal load delivery vehicles leaving the Site through the northern access on Maesteg Road.

6.9.8 The main construction traffic routes would be predominantly from the south, via Junction 36 of the M4 and A4063, entering the Site via the northeastern access. Traffic (abnormal loads) for the southern access would also exit the M4 at Junction 36 and travel via the A4063, B4281, Fountain Road and New Road.

Overview of Proposed Mitigation

6.9.9 To minimise adverse traffic and movement effects during construction, a Construction Traffic Management Plan, Abnormal Load Transport Management Plan and Outline Access Management Plan would be agreed in advance with Bridgend County Borough Council, Neath Port Talbot Council and South Wales Trunk Road Agent.

6.9.10 The Applicant would establish a Community Liaison Forum, in collaboration with the Council and local Community Councils. The forum would allow the community to be kept up to date with project progress and allow communication on the provision of transport-related mitigation and publicise the timings of turbine component deliveries. The Community Liaison Forum would be maintained until construction is complete and the Proposed Development is operational.

Overview of Effects

6.9.11 The main impact upon traffic from the Proposed Development is predicted to be during the construction phase as a result of the increased number of Heavy Goods Vehicle movements.

6.9.12 After the construction of the Proposed Development, there would be very little change in baseline traffic volumes. Only occasional access for maintenance would be required.

6.9.13 The proposed mitigation would reduce the effects from abnormal loads and general construction traffic on the study network, with residual effects **not significant**, temporary and reversible.

6.9.14 No significant residual effects have been identified for traffic and movement receptors during any phase of the Proposed Development.

6.10 Population

Overview of Methodology

6.10.1 The Proposed Development has been assessed in relation to social and economic impacts during construction, operation and decommissioning. Both beneficial and adverse impacts have been considered locally and across Wales.

6.10.2 Whilst a detailed economic impact assessment has not been undertaken for the Proposed Development, professional judgment and reference to recent research has been used. The population assessment considers economic impacts through the number of jobs created and the contribution to the economy (measured through

Gross Value Added which is an economic unit of measurement, which looks at the value generated by activities involved in the production of goods and services). . The assessment also considers potential impacts to nearby businesses and tourism receptors which may negatively affect the local economy, as it may deter people from visiting and spending money in the local area.

6.10.3 The assessment also considers effects to recreational users including walkers, cyclists and horse riders as a result of any potential impacts to public rights of way and promoted walks that cross through the Site. This is limited to the location where users are likely to experience any disruption in terms of travel time and/or routing. The study area is confined to land within the Site and a radius extending 500 metres beyond.

6.10.4 The potential impacts of the Proposed Development have been assessed at varying spatial scales to reflect the nature of the potential effects considered and the geographical reach of any impacts.

6.10.5 A radius extending 20 kilometres is considered to represent the limit within which any potential significant effects might occur for tourism. Direct recreational effects have only been assessed for receptors within the Site, while recreational impacts occurring outside the Site are deemed indirect and are considered within a 5 kilometre study area from the Site boundary. The assessment uses available data, including a labour market profile (datasets on population, employment unemployment, earnings from local authorities), to show the conditions of the local area and Wales.

Overview of Baseline Conditions

6.10.6 The concentration of construction jobs is higher within the local area when compared to Wales. Economic activity rates are slightly lower within the local area when compared to Wales but are noted to be broadly similar.

6.10.7 There are 22 public rights of way within the Site as well as the Ogwr Ridgeway Walk, a locally promoted walk, which links two other trails in south Wales. A number of other public rights of way are also located within the study area.

6.10.8 There are a number of businesses within 500 metres of the Site, including a number of holiday homes and camping sites.

6.10.9 The tourism industry across Bridgend County Borough Council and Neath Port Talbot County Council is a growing industry, that is currently being promoted locally and regionally.

Overview of Proposed Mitigation

6.10.10 An Outline Access Management Plan has been developed to manage the public rights of way within the Site so that users can continue to enjoy and use the public rights of way during the construction and operation phase of the Proposed Development. By enhancing and managing the public rights of way, local residents and tourists from the area are more likely to utilise these links as they are more accessible. This plan would be agreed in advance of construction and operation with Bridgend County Borough Council and Neath Port Talbot Council.

Overview of Effects

6.10.11 The Proposed Development would increase Gross Value Added which would result in a residual **beneficial** and **not significant** effect. It has been estimated that an Energy Park of this size will create approximately 215 Full Time Equivalent (FTE) jobs in Wales and 145 jobs (direct and indirect) in the local area during its operational lifetime. The construction of the Proposed Development would create short term, **beneficial,** and **not significant** residual effects through employment in the local area and Wales.

6.10.12 The construction phase would lead to temporary disruption to users of the Ogwr Ridgeway Walk that runs through the Site and users of the public rights of way in the study area. These residual effects would be temporary, **adverse** and **not significant**.

6.10.13 Potential impacts on small scale tourisms facilities within the study area and main tourist attraction within 20 kilometres during the construction phase would result in **not significant** residual effects. There is a potential for **adverse** and **not significant**, temporary residual effects to businesses associated with adverse traffic, noise and visual effects during construction.

6.10.14 During the operational phase there is a potential for permanent disruption to users of recreational routes in the study area and to the recreational amenity of users of the Ogwr Ridgeway Walk. This will be mitigated through the Outline Access Management Plan, resulting in a **beneficial** and **not significant** residual effect.

6.10.15 Potential residual effects on business (visual impacts), small scale tourisms facilities within the study area and main tourist attraction within 20 kilometres during the operational phase would be **not significant**. The operational phase of the Proposed Development would create short term, **beneficial** and **not significant** residual effects through employment in the local area and Wales.

6.10.16 Any potential negative social and economic residual effects generated by the Mynydd Ty-talwyn Energy Park are mostly associated with the construction phase and are considered to be **not significant.**

6.11 Climate

Overview of Methodology

6.11.1 A Greenhouse Gas assessment was carried out utilising the industry-standard Scottish Government's Carbon Calculator Tool in order to assess the Greenhouse Gas emissions and savings associated with the Proposed Development.

Overview of Baseline Conditions

6.11.2 Existing agricultural operations within the Site are anticipated to contribute minimal greenhouse gas emissions.

Overview of Effects

6.11.3 No adverse effects related to climate change are predicted as a result of the Proposed Development. Therefore, no additional mitigation measures are proposed.

6.11.4 Emissions associated with the construction, operation, and decommissioning of the Proposed Development are projected to be offset 2.2 years after the Proposed Development becomes operational against a fossil fuel mix of electricity (electricity that is sourced through the combustion of fossil fuels alone), or 4.5 years against a grid-mix of electricity (electricity of which the main sources of energy are identical to those used for the National Grid; this could include fossil fuels, renewable energy, etc.).

6.11.5 The Proposed Development is predicted to deliver total emissions savings of 1,695,193 tCO_2e over its 50-year operational lifetime, against grid mix electricity generation, and 3,647,115 tCO_2e against fossil fuel mix electricity generation.

6.11.6 The overall effect is considered to represent a **significant** and **beneficial** residual effect.

6.12 Cumulative Effects

6.12.1 A cumulative assessment was undertaken to assess whether the combination of multiple effects would result in an effect of greater significance than the individual effects alone. The combination of multiple effects across different factors of the environment has been assessed. This is known as an intra-project combined effect assessment.

6.12.2 An assessment of the effect of other committed development projects together with the Proposed Development has also been assessed. The assessment considered committed developments identified in consultation with Bridgend County Borough Council. This is known as an inter-project cumulative effect assessment.

Intra-project combined effects

6.12.3 Intra-project cumulative effects consider the combined effects of the Proposed Development on a common sensitive receptor across different environmental factors. For example, how residents may be impacted by both noise and landscape effects, or how changes to lighting and noise during construction may together impact on ecological receptors.

6.12.4 The assessment of the intra-project cumulative effects has concluded that the following receptors may have more than one effect upon them during the construction and decommissioning phases:

- Users of Public Rights of Way;
- Users of A4063; and
- Users of B4281 (Fountain Road).

6.12.5 Mitigation measures to manage the individual impacts during construction and decommissioning are detailed in and will be secured by the following:

- Construction Environmental Management Plan (CEMP);
- Decommissioning Environmental Management Plan (DEMP);
- Access Management Plan (AMP); and
- Construction Traffic Management Plan (CTMP).

6.12.6 The assessment of the intra-project cumulative effects has concluded that some residential properties within 2 kilometres of the Site may have more than one effect upon them during the operational phase as a result of changes in noise and views.

Inter-project cumulative effects

6.12.7 Inter-project cumulative effects are the combined effects of the Proposed Development and other existing development and/or approved developments on a single receptor/resource. For example, residents may be impacted by noise during the construction of the Proposed Development and also another development with overlapping construction programmes. Inter-project cumulative effects also relate to the operation (including maintenance) phase; for example, where the visual amenity of a receptor is impacted by both the Proposed Development and other existing and/or approved developments, and the cumulative effect could become significant where it was not previously.

6.12.8 When considering the inter-project cumulative effects with other existing developments and/or approved developments, it has been assumed that standard and good practice mitigation measures would be applied to the developments (for example, use of Construction Environmental Management Plans) and that such mitigation would be secured as part of any planning permission granted.

6.12.9 The assessment of inter-project cumulative effects is reported in each factor chapter of the Environmental Statement (**ES Volume II, Chapters 5 to 14**). Any likely **significant** residual effects noted in those chapters have been set out below.

6.12.10 It was found that the introduction of the Proposed Development and the Eirlys Solar farm (located 0.92 kilometres west of the Site) could affect easterly-views from Roman Camp and possibly also Y Bwlwarcau. However, while there is potential for inter-development effects on these Cultural Heritage receptors, there is currently insufficient information on the effects of the Eirlys Solar farm to establish whether these may be significant.

6.12.11 The Proposed Development alongside existing developments and/or approved developments has the potential to result in significant landscape and visual inter-project cumulative effects.

6.12.12 The key cumulative effects relating to landscape would be concentrated in the landscape character area in which the Proposed Development is located (the 'host' landscape) and its immediate surroundings. It is considered that introduction of the Proposed Development with combined visibility across portions of the host landscape character area of Pant y Wal Extension, Mynydd Y Glyn and Eirlys Solar Farm would result in a significant adverse effect as a result of increased perception of energy development, in particular wind, in the landscape.

6.12.13 There would also be substantial areas of combined visibility between Y Bryn Wind Farm and the Proposed Development across the host landscape character area. The increased presence of turbines in the landscape would result in significant effects to the settlements of Maesteg, Llangynwyd, Bettws and Cefn Cribwr.

6.12.14 Similar increased perception of energy development would be experienced for the adjacent landscape character areas as well, albeit to a lesser scale than the host landscape character area. These residual effects would range from **not significant** to **significant.**

6.12.15 The turbines of the Proposed Development and Y Bryn wind farm would be clearly visible and in close proximity to the Ogwr Ridgeway walk and other recreational routes. The sequential, residual cumulative effects along key routes such as the Ogwr Ridgeway Walk and the minor road through the Site would be **significant**. These routes would provide an experience of passing through a landscape increasingly defined by renewable energy development.

6.12.16 The Proposed Development and Y Bryn wind farm would increase the presence of wind turbines in views from surrounding settlements, resulting in **significant residual effects** at Maesteg, Llangynwyd, Lletty Brongu, Bettws and Cefn Cribwr. Similarly, road users would also experience a change in views with the introduction of the Proposed Development and Y Bryn, with **significant residual effects** anticipated for users of the minor road though the Site, and local roads around Llangynwyd.

6.12.17 In the operational phase, noise emissions from the Y Bryn Wind Farm are considered to have the potential to result in significant cumulative effects with the Proposed Development. However, mitigation has been proposed in the form of alternative operating modes for the Proposed Development's turbines which reduces these effects to be **not significant**.

6.12.18 There is potential for inter-development cumulative effects on traffic and movement receptors with Foel Trawsnant and Y Bryn Wind Farms as routes for construction vehicles overlap on the A4063. However, any overlapping construction phases would be managed by a Construction Traffic Management Plan (CTMP) and a phased delivery plan agreed by all parties.

7 NEXT STEPS

7.1.1 This Environmental Statement alongside other application documents has been submitted to Planning and Environment Decisions Wales and is available to view online on the Planning and Environment Decisions Wales's Planning Portal:

https://planningcasework.service.gov.wales/

7.1.2 Members of the general public now have the opportunity to make comments on the planning application during the determination period. The feedback from these discussions will be taken into consideration by Planning and Environment Decisions Wales appointed Inspector in reaching their decision.