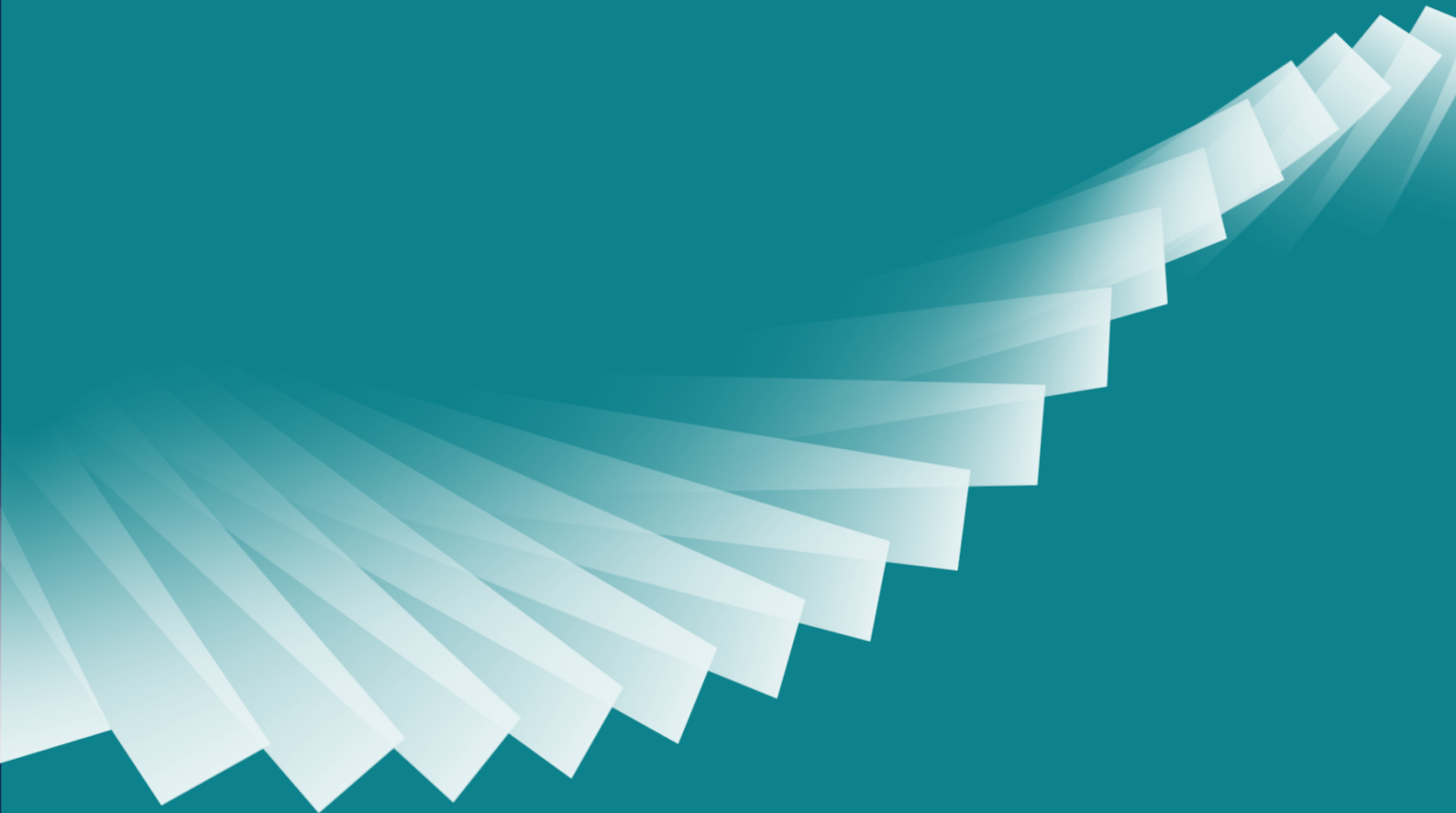




Bute Energy
Aberedw Energy Park

Design and Access Statement



Contents

Chapter 1		Chapter 5	
Introduction	1	Summary	38
Purpose of the Design and Access Statement	2		
The Proposed Development	3	Appendix A	
The Applicant	4	Figures	A-1
Chapter 2			
Policy and Site Context	5		
Introduction	5		
National Planning Policy	5		
Local Planning Policy	10		
Other Guidance	10		
Chapter 3			
The Design Statement	12		
Vision	12		
The Site and its Surroundings	12		
Site Selection	14		
The Design Strategy	15		
Design Evolution	18		
Turbine Layout	18		
Site Access	22		
Substation	23		
Temporary Construction Compound	23		
Borrow Pits	24		
Cable route	24		
Design Consultation	25		
Design Solution	25		
Environmental Sustainability	29		
Community Safety	31		
Design Conclusions	32		
Chapter 4			
Access Statement	33		
Access to the Site	33		
Public Access	34		
Recreation	36		
Access for All	36		

Chapter 1 Introduction

1.1 This Design and Access Statement (DAS) has been prepared by Land Use Consultants (LUC) on behalf of Aberedw Energy Park Ltd. (hereafter referred to as the Applicant), to accompany an application for planning permission to construct and operate up to 18 wind turbines with an indicative output capacity of approximately 120 megawatts (MW), with associated ancillary infrastructure, known as Aberedw Energy Park (hereafter referred to as the Proposed Development).

1.2 The Proposed Development will be a Development of National Significance (DNS) as the turbines will have a combined installed capacity of greater than 10 MW. As such, this DAS accompanies a planning application submitted to the Welsh Ministers via Planning and Environment Decisions Wales (PEDW).

1.3 The Proposed Development is located approximately 3 km east of Builth Wells, within the local planning authority area of Powys County Council (PCC) as shown on **Figure 1: Site Location**.

1.4 The DAS comprises three main parts, namely:

- Policy and Site Context (**Chapter 2**) which provides an overview of national and local planning policy relevant to the Proposed Development, and an overview of the context of the Site and its surrounding;
- The Design Statement (**Chapter 3**) which describes the Proposed Development and how it has evolved through the design process; and
- The Access Statement (**Chapter 4**) detailing how the Site will be accessed during construction and operation of the Proposed Development and how issues in relation to ease of access for all have been addressed.

1.5 This DAS should be read in conjunction with the Environmental Statement ('ES') submitted to accompany the DNS application.

Purpose of the Design and Access Statement

1.6 The statutory requirement for a DAS to accompany an application for a DNS is set out in Article 14 of The Developments of National Significance (Procedure) (Wales) Order 2016.

1.7 As set out in Planning Policy Wales Edition 12 (PPW12), a DAS “*communicates what development is proposed, demonstrates the design process that has been undertaken and explains how the objectives of good design and placemaking have been considered from the outset of the development process*” (page 28).

1.8 The design evolution and development proposals explained within this DAS have had due regard to the following national and local policy and guidance:

- Future Wales: The National Plan 2040 (the National Development Plan for Wales)¹;
- Planning Policy Wales, Edition 12 (PPW12) (Welsh Government, 2024)²;
- Powys County Council (‘PCC’) Local Development Plan (LDP) 2011-2026 (adopted 2018).
- Technical Advice Note 12: Design (TAN12) (Welsh Government, 2016)³;
- Design and Access Statements in Wales: Why, What and How (Welsh Government, 2017)⁴; and
- Designing for Renewable Energy in Wales (Design Commission for Wales, adopted 2023)⁵;

1.9 Future Wales: The National Plan 2040 is the highest tier of the development plan in Wales. It has primacy in the planning policy hierarchy and sets the policy context against which DNS applications are determined.

1.10 Policy 17 of Future Wales is directly relevant to the Proposed Development. In determining planning applications for renewable and low carbon energy development, decision-makers must give significant weight to the need to meet Wales’ international commitments and the target to generate 70% of consumed electricity by renewable means by 2030 and 100% by 2035 in order to combat the climate emergency.

¹ [Welsh Government \(2021\) Future Wales: The National Plan 2040](#)

² [Welsh Government \(2024\) Planning Policy Wales \(Edition 12\) \(PPW12\)](#)

³ [Welsh Government \(2016\) Technical Advice Note 12: Design \(TAN12\)](#)

⁴ [Welsh Government \(2017\) Design and Access Statements in Wales: Why, What and How](#)

⁵ [Design Commission for Wales \(2023\) Designing for Renewable Energy in Wales](#)

1.11 Policy 18 is also directly relevant, requiring that renewable energy proposals do not give rise to unacceptable effects on landscape, amenity, heritage assets, ecology, aviation and radar operations or the transport network. It requires consideration to be given to the sustainable use of resources and decommissioning, and the proposals must incorporate measures that provide net benefits for biodiversity. This DAS identifies the design evolution of the proposals, demonstrating how these policy considerations have informed the Proposed Development. An assessment of the Proposed Development against the policies of Future Wales is provided in the Planning Statement submitted with the DNS application.

The Proposed Development

1.12 As illustrated in **Figure 2: Site Layout**, the main components of the Proposed Development comprise:

- Up to 18 turbines, each with a three-blade rotor, including reinforced concrete foundations and associated earthworks;
- Crane hardstanding and laydown areas for each turbine location;
- 13.35 km of access tracks (of which 11.66 km will be new track and 1.69 km will be upgraded existing track) including turning heads, passing places and associated ancillary engineering works;
- An electrical substation and control building, consisting of a switching station, transformer area control/SCADA facilities and welfare/storage facilities, and an operations building;
- Onsite underground electrical cables connecting the turbines to the substation. These are predominantly laid in trenches alongside access tracks but divert off the access tracks towards the substation off the hill;
- New site access track off the C1336 (from the A481 near Bevan House, Hundred House, Llandrindod Wells) and an additional entrance off the A481 to facilitate substation access and AIL delivery;
- Watercourse crossings;
- Site signage and,
- Biodiversity Enhancement Proposals / Habitat Management Areas.

1.13 In addition to the above components of the operational Proposed Development, construction of the Proposed Development will also require the following temporary components:

- Two temporary construction and storage compounds (including a security cabin);
- The creation of up to two borrow pit(s) for the extraction of stone (subject to detailed site investigation) which will be utilised for habitat management measures at the end of the construction phase of the Proposed Development;
- The temporary diversion or temporary closure of a number of Public Rights of Way (PRoW) that cross through the Site, as well as a diversion for the unsurfaced, unclassified road (UUCR) that crosses the Site.

The Applicant

1.14 Aberedw Energy Park is being developed by Aberedw Energy Park Limited, a subsidiary of Bute Energy Ltd ('Bute Energy'). Bute Energy is a developer of onshore wind, using the latest technology to deliver low-cost renewable energy.

Chapter 2

Policy and Site Context

Introduction

2.1 The design of the Proposed Development has been influenced by a range of planning policy considerations, alongside good practice guidance. Full assessment of the compliance of the Proposed Development against the relevant planning policy framework is provided within the Planning Statement that accompanies the DNS application.

2.2 This section provides an overview and assessment of the design policy framework at both national and local level that is relevant to the evolution of the design of the Proposed Development.

National Planning Policy

Future Wales: The National Plan 2040

2.3 Future Wales is the highest tier of development plan framework in Wales and sets out a strategy for addressing key national priorities through the planning system. These include sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being of communities. As a spatial plan it sets the direction for investment in infrastructure and development.

2.4 The key policies of Future Wales in relation to large scale wind energy proposals such as Aberedw are Policies 17 and Policy 18.

Policy 17: Renewable and Low Carbon Energy and Associated Infrastructure

2.5 This policy states that:

“The Welsh Government strongly supports the principle of developing renewable and low carbon energy from all technologies and at all scales to meet our future energy needs.

In determining planning applications for renewable and low carbon energy development, decision makers must give significant weight to the need to meet Wales’

international commitments and our target to generate 70% of consumed electricity by renewable means by 2030 in order to combat the climate emergency.

In Pre-Assessed Areas for Wind Energy the Welsh Government has already modelled the likely impact on the landscape and has found them to be capable of accommodating development in an acceptable way. There is a presumption in favour of large-scale wind energy development (including repowering) in these areas, subject to the criteria in policy 18.

Applications for large scale wind and solar will not be permitted in National Parks and Areas of Outstanding Natural Beauty and all proposals should demonstrate that they will not have an unacceptable adverse impact on the environment.

Proposals should describe the net benefits the scheme will bring in terms of social, economic, environmental and cultural improvements to local communities.

New strategic grid infrastructure for the transmission and distribution of energy should be designed to minimise visual impact on nearby communities. The Welsh Government will work with stakeholders, including National Grid and Distribution Network Operators, to transition to a multi vector grid network and reduce the barriers to the implementation of new grid infrastructure.”

Policy 18: Renewable and Low Carbon Energy Developments of National Significance

2.6 This policy states that:

“Proposals for renewable and low carbon energy projects (including repowering) qualifying as Developments of National Significance will be permitted subject to policy 17 and the following criteria:

- outside of the Pre-Assessed Areas for wind developments and everywhere for all other technologies, the proposal does not have an unacceptable adverse impact on the surrounding landscape (particularly on the setting of National Parks and Areas of Outstanding Natural Beauty);*
- there are no unacceptable adverse visual impacts on nearby communities and individual dwellings;*
- there are no adverse effects on the integrity of Internationally designated sites (including National Site Network sites and Ramsar sites) and the features for which*

they have been designated (unless there are no alternative solutions, Imperative Reasons of Overriding Public Interest (IROPI) and appropriate compensatory measures have been secured);

- there are no unacceptable adverse impacts on national statutory designated sites for nature conservation (and the features for which they have been designated), protected habitats and species;*
- the proposal includes biodiversity enhancement measures to provide a net benefit for biodiversity;*
- there are no unacceptable adverse impacts on statutorily protected built heritage assets;*
- there are no unacceptable adverse impacts by way of shadow flicker, noise, reflected light, air quality or electromagnetic disturbance;*
- there are no unacceptable impacts on the operations of defence facilities and operations (including aviation and radar) or the Mid Wales Low Flying Tactical Training Area (TTA-7T);*
- there are no unacceptable adverse impacts on the transport network through the transportation of components or source fuels during its construction and/or ongoing operation;*
- the proposal includes consideration of the materials needed or generated by the development to ensure the sustainable use and management of resources;*
- there are acceptable provisions relating to the decommissioning of the development at the end of its lifetime, including the removal of infrastructure and effective restoration.*

The cumulative impacts of existing and consented renewable energy schemes should also be considered.”

Planning Policy Wales (Edition 12) (February 2024)

2.7 PPW12 states that “*Good design is fundamental to creating sustainable places where people want to live, work and socialise. Design is not just about the architecture of a building but the relationship between all elements of the natural and built environment and between people and places. To achieve sustainable development, design must go beyond*

aesthetics and include the social, economic, environmental, cultural aspects of the development... Design is an inclusive process, which can raise public aspirations, reinforce civic pride and create a sense of place and help shape its future... Meeting the objectives of good design should be the aim of all those involved in the development process and applied to all development proposals, at all scales” (page 24).

2.8 These objectives are categorised into five key aspects of good design, as set out below:

- Movement;
- Access;
- Character;
- Community Safety; and
- Environmental Sustainability.

2.9 These objectives and their associated explanations are presented below in **Inset 2.1**.

Inset 2.1: PPW objectives of good design



Source: PPW12 (2024)

2.10 These design principles and concepts are reflected in this DAS, through the discussion of the design process and evolution, and the final Proposed Development layout that was reached. Character, Community Safety and Environmental Sustainability are discussed in **Chapter 3: The Design Statement**. Access, Inclusivity and Movement are addressed in **Chapter 4: The Access Statement**.

Technical Advice Note 12: Design (March 2016)

2.11 TAN12 provides further guidance on the principles of good design. Whilst the document focuses largely on elements of design in relation to buildings and neighbourhoods, its recommendations for a successful design process that achieves

sustainable development are relevant to the Proposed Development. These recommendations include early and continued design iterations, and collaboration in the design process, using expert advice and stakeholder engagement, including the local community.

Local Planning Policy

Powys County Council Local Development Plan (LDP) 2011-2026

2.12 There are several policies in the LDP that relate to the Proposed Development, including policies relating to landscape, biodiversity, noise and lighting, for example. The policy relating to design is Policy DM13 – Design and Resources of the LDP states that *“Development proposals must be able to demonstrate a good quality design and shall have regard to the qualities and amenity of the surrounding area, local infrastructure and resources”* (page 65).

2.13 The policy states that proposals will only be permitted where all criteria, where relevant, are satisfied.

2.14 Criteria 13 states development proposals will only be permitted if the development *“demonstrates a sustainable and efficient use of resources by including measures to achieve:*

- i. Energy conservation and efficiency.*
- ii. The supply of electricity and heat from renewable sources.*
- iii. Water conservation and efficiency.*
- iv. Waste reduction.*
- v. The protection, where possible, of soils, especially important carbon sinks such as thick peat deposits.”*

Other Guidance

Designing for Renewable Energy in Wales (Design Commission for Wales, adopted 2023)²

2.15 This document sets out the design objectives and considerations for the sensitive development of large-scale wind farms and ancillary development in Wales. It aims to

assist in achieving developments which respond well to their context and contribute to Welsh Government ambitions for renewable energy generation.

2.16 It is a non-statutory document; however, it is compliant with, and builds upon, the requirements outlined in the national plan (Future Wales), PPW 12 and TAN12. It outlines design principles for wind farm development, as well as key environmental considerations which need to be assessed through the EIA process. The environmental considerations identified in the guidance have been assessed and are reported in the ES for the Proposed Development.

Design and Access Statements in Wales: Why, What and How (Welsh Government, 2017)

2.17 This document provides guidance on how good design can be reflected in the DAS. It has been consulted throughout the design process and preparation of this DAS.

2.18 In particular, the good practice section of the guidance was reviewed and the suggested structure followed where possible and tailored to be relevant to the nature of the Proposed Development.

Chapter 3

The Design Statement

Vision

3.1 A global Climate Emergency has been declared, reflecting the significance of climate change, its likely impacts, and the urgent need to cut greenhouse gas emissions. There are legally binding national targets that commit the UK Government to the delivery of a reduction in emissions to 'net zero' by 2050. The Welsh Government shares this legally binding target.

3.2 Both energy and planning policy support the development of renewable energy in the UK and in Wales. The full context of international, national, and local policy relating to the Proposed Development is set out in the **Planning Statement** that accompanies this application.

3.3 The vision for the Proposed Development is that it will leave legacy benefits to local communities whilst making an important contribution towards the Welsh Government's onshore wind energy targets and consequently, the reduction of greenhouse gas emissions that contribute to climate change.

The Site and its Surroundings

3.4 The Site is located entirely within the local authority area of PCC, in mid Wales, and is located approximately 3 km east of Builth Wells, 1.5 km north of Aberedw, and 1 km south of Hundred House. The Site covers an area of approximately 1,323 hectares (ha) and consists of largely of undulating upland, which is open moor common land, with small areas of scrub woodland within the lower elevations of the Site and a small number of access tracks. Areas of ancient woodland are located within and around the Site, with the majority being classed as ancient semi-natural woodland. These again are present at lower elevations within the Site. There are small discrete patches of peat at the margins of Cwmblaenerw Brook and British Geological Survey (BGS) mapped peat at the centre of the Site, however in all instances these are less than 30cm in depth and therefore in

accordance with the Soil Survey of England and Wales definition of peat, no peat is present on Site⁶.

3.5 The Site is generally defined by Aberedw Hill, with a high terrain (451 m AOD) with steep escarpments and valleys on all sides. The River Wye Valley is located to the west of the Site. The Site is located between the A481 (to the north of the Site) and the B4567 (to the west of the Site, adjacent to the River Wye).

3.6 The River Wye (Upper Wye) Site of Special Scientific Interest (SSSI) and the River Wye Special Area of Conservation (SAC) are located approximately 50 m west of the Site at their closest point to the Site and approximately 750 m to the nearest proposed infrastructure. The River Wye (Tributaries) SSSI is located 230 m east of the Site at its closest point. This flows into the River Wye (Upper Wye) SSSI. Various watercourses within the Site drain into the River Wye SAC. The River Wye SAC and both SSSIs are designated for the presence of Annex I habitats (watercourses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation) and Annex II species; including White-clawed crayfish, Fish and Otters. The Upper Wye SSSI is also designated for the presence of Daubenton and Lesser Horseshoe Bats. Additionally, the Llandeilo, Rhulen and Llanbedr Hills SSSI is located approximately 1.5 km south of the Site. This is designated for ecological purposes mainly due to the presence of a range of moorland vegetation but also is an area of high ornithological interest.

3.7 Bannau Brycheiniog National Park (BBNP) is located approximately 15 km south-east of the Site. The Shropshire Hills National Landscape is approximately 26 km to the north-east of the Site. The Middle Wye Valley Registered Historic Landscape (RHL) is located approximately 10.5 km south-east of the Site, the Middle Usk Valley: Brecon and Llangorse RHL is located approximately 17 km south of the Site and the Elan Valley RHL is approximately 17 km north-west of the Site. There are no Nationally Designated Landscapes, Registered Historic Landscapes, or Local Landscape Designations within the Site.

3.8 Scheduled Monuments are present within the Site itself and within 5 km. These include but are not limited to Colwyn Castle, a medieval castle located to the north of the Site, which was built over the remains of a Roman Fort, and the Aberedw Hill Deserted Rural Settlement, located within the Site, which is from the medieval/post-medieval period.

⁶ Peatlands are defined by Natural Resources Wales as waterlogged, carbon storing landscapes made up of peat.

Around the vicinity of the Site there are isolated Grade II Listed Buildings (the majority are located to the north, south and west of the Site).

3.9 The majority of the Site lies on an area of Open Access Registered Common Land (Aberedw Hill), providing public access and over which there are registered rights of common. In addition, there are several PRoW that cross the Site and an unsurfaced unclassified road (UUCR). These PRoW and UUCR provide recreational opportunities across the Site in addition to the common land access rights. Many of the PRoW and the UUCR connect the Site to the surrounding area, this is shown on **Figure 2**. There are no long-distance, National Trails or National Cycle Network (NCN) routes within the Site. The closest Long-Distance Trail (the Wye Valley Walk) is approximately 1 km west of the Site.

Site Selection

3.10 The Applicant's process and approach to selecting and approving sites for renewable energy development involves ensuring early assessment of potential capacity for energy generation in balance with environmental and technical constraints, relevant policy and project deliverability in line with the urgency of reaching 2030 and 2035 renewable energy and 2050 net zero targets for Wales, as well as the UK Government's Clean Power by 2030 target. Early selection of the Site for wind energy was primarily driven by the following criteria:

- A desk-based assessment to identify land suitable for development using Geographical Information System (GIS) by mapping technical and environmental constraints. These constraints included but were not limited to:
 - Nationally designated landscapes such as National Parks and National Landscapes;
 - Cultural heritage designations such as World Heritage Sites, Scheduled Monuments, Listed Buildings, Conservation Areas and Registered Battlefields;
 - Application of the mitigation hierarchy, seeking firstly to avoid effects on ecological designations such as SSSI, Special Protection Areas (SPA), SAC, Historic Gardens, Ancient Woodland, Peatland and Local Nature Reserves (LNR);
 - Terrain was reviewed to ensure that gradients supported the placement of a wind turbine and laydown areas;

- Wind resource of the area was considered using publicly available wind data sources to assess wind speed and commercial viability;
 - Proximity to nearby residential properties; and,
 - Aviation constraints including licenced aerodromes and visibility to military and civilian RADARs.
- Alignment with planning and renewable energy policy that forms part of the Development Plan. This included avoiding areas designated as unsuitable for large-scale wind energy development such as National Parks and National Landscapes.
 - Access to the Site from the Port of Entry of turbine components to each of the turbine locations.
 - Ground conditions for building of turbine foundations, access track and cable installation.
 - Ability for extant land use to be maintained as much as possible alongside the simultaneous operation of wind turbines, such as upland grazing land.

3.11 The Proposed Development will connect to the national electricity network. Aberedw Energy Park Ltd holds a grid connection agreement with Green GEN Cymru (GGC), an Independent Distribution Network Operator (IDNO), for capacity on their proposed Green GEN Towy Usk project⁷. The connection point to GGC's network will be located at the Proposed Development's substation. It is important to note that this grid connection infrastructure does not form part of the Proposed Development and will be addressed through a separate planning application.

The Design Strategy

3.12 The design strategy for the Proposed Development has aimed to provide the best balance between energy yield and minimising effects on the local and wider environment. It has sought to create a layout that relates sympathetically to the landform and scale of the Site and surrounding area, and that is well-composed from key views.

3.13 Energy yield is an important consideration for wind farm design in environmental terms, because the chief environmental benefit of the development – mitigation of climate change via low carbon, renewable energy generation – can only be maximised by realising

⁷ Green Gen Towy-Usk: <https://www.greengentowyusk.com/index.php?contentid=27>

the energy generation potential of the Site to the greatest feasible extent while taking all other design considerations into account. Where a site is generally suitable for development, it is therefore important to avoid, to the extent commensurate with other constraints and effects, the 'opportunity cost' of failing to deliver the site's fullest renewable energy generation potential.

3.14 PPW12 makes detailed reference to the step wise approach as the means of demonstrating the steps which have been taken towards securing a net benefit for biodiversity. This includes addressing all the attributes identified under the diversity, extent, condition, connectivity and adaptability (DECCA) framework. Whilst PPW12 came into effect after the Site had been selected, the design process has followed the mitigation hierarchy approach and therefore it is considered that the approach to the site selection and design of the Proposed Development has included application of the step wise approach.

3.15 Further information on how the design of the Proposed Development has complied with the step wise approach is provided in the **Green Infrastructure Statement** which has been submitted to accompany the DNS application.

Design Objectives

3.16 While balancing the need to maximise the energy generation potential of the Site, the following environmental objectives were considered:

- To use the latest wind turbine technology, consisting of more efficient and larger turbines whilst demonstrating the Proposed Development will not result in unacceptable adverse effects, as described in Policy 18 of Future Wales: the National Plan to 2040.
- To ensure that turbines respond to the scale of the underlying landscape and operational, consented and proposed turbines in the surrounding context.
- To develop a turbine layout that minimises adverse effects upon historic assets and their settings, including scheduled monuments, listed buildings and non-designated but locally important historic assets.
- To develop a layout that avoids isolated outlying turbines and minimises stacking (as far as onsite constraints allow) and achieves a well-composed design overall.

- To explore and identify an aviation lighting scheme, which both satisfies the requirements of aviation policy and minimises the visual effects of such lighting as far as possible.
- Limiting noise at nearby properties to acceptable levels in accordance with established guidance.
- Minimising interactions with ecologically sensitive habitats to the greatest feasible extent: in particular, 'Section 7' habitats and Groundwater Dependent Terrestrial Ecosystems (GWDTEs).
- Protecting the Site's hydrological regime, and the Site's surroundings, with particular focus on the site setting, within the catchment of the River Wye/Afon Gwy SAC.
- Taking account for the potential for effects on all bird species of conservation concern at and around the Site.
- Taking account of the potential for effects upon bats.
- Taking account of historic assets and their settings, including Scheduled Monuments, listed buildings and non-designated but locally important historic assets.
- To make use of existing access tracks as far as possible, minimising the necessity for new excavations.
- To keep overall new track length to a minimum, reducing stone requirements and associated potential environmental effects.
- To build health and safety aspects into track design from as early a stage as possible, including avoiding slopes that are too steep for turbine deliveries, access and creating clear definitions between turbine working areas and access tracks.
- Avoiding fixed telecoms links where possible.
- To explore opportunities within and in the vicinity of the Site to restore and enhance biodiversity, ultimately securing net benefits for biodiversity.
- Limiting infrastructure on common land and minimising land take overall as far as possible across the Site.
- Minimising effects on the existing access and recreation opportunities provided by the PRoW and UUCR within the Site.

- Exploring opportunities within the Site to provide greater access and recreational opportunities.
- To develop a layout that fulfils the above objectives whilst minimising or avoiding other environmental, social and technical constraints as far as possible.

Design Evolution

3.17 The design strategy and objectives outlined above have been taken into account as the design of the Proposed Development has evolved. This design process involved multiple workshops with technical team members to address potential constraints associated with one or more of the turbines or elements of the associated infrastructure. Feedback from the relevant technical stakeholders as appropriate to the design process and comments received through consultation were given due regard during the evolution of the project design.

3.18 The infrastructure required was designed and arranged in such a way as to avoid the identified onsite constraints to the greatest feasible extent. The design process for infrastructure commenced post-Scoping and has evolved as part of the iterative EIA process, and in accordance with changes to turbine locations. Project components including the locations of crane hardstandings, borrow pits, the substation, cable routes, tracks and temporary construction compounds were assessed for their potential effects and compliance with the above objectives throughout this process.

3.19 Several layout iterations were identified and appraised before the turbine layout was finalised. These are described in four 'key groups' below. Figures are provided in **Chapter 3: Site Selection and Design Strategy** of the ES.

Turbine Layout

Layout 1: Scoping

3.20 A range of technical and environmental studies were commissioned by the Applicant to inform the identification of potential constraints and opportunities for development of an energy park at the Site. These studies / surveys included:

- Extended Phase 1 habitat and National Vegetation Classification (NVC) survey, bat activity surveys and great crested newts (GCN) (eDNA);
- A full 24 months of ornithology surveys;

- A desk-based noise contour map;
- An initial abnormal load survey and access review;
- A heritage desk-based assessment;
- An initial aviation risk assessment; and
- A desktop landscape and visual impact review.

3.21 The resultant layout for the Proposed Development comprised 18 turbines with a maximum blade tip height of 200 m. This layout was included in the EIA Scoping Report. Layout 1 was intended as a scenario which would allow a maximum potential EIA scope to be defined and for consultee comments to be received on the maximum potential effects from a wind farm development at the Site. This layout was based largely on technical and operational efficiency criteria (wind yield) but also considered other known high-level constraints, including those relating to landscape and visual, ecology, ornithology, noise and historic environment.

Layout 2

3.22 This stage of the design took place following the submission of the EIA Scoping Report and non-statutory public consultation in 2023. A full project team design workshop was held in February 2024, which refined the initial Scoping layout (Layout 1) using a combination of desk-based data and data collected from on-going field surveys. This workshop focused on the turbines and provided initial recommendations for access tracks. The design took account of a number of environmental constraints, including those relating to residential visual amenity, ornithology, topography, cultural heritage, peat, hydrology and ecology (see **Chapter 3** of the ES for further detail).

3.23 Amendments to the Scoping layout (Layout 1) to create Layout 2 included the following:

- T2 moved 110 m north-east away from the edge of a plateau on the western flanks of Aberedw Hill from a landscape and visual perspective. This aimed to address concerns raised by non-statutory consultees regarding views from the surrounding area. The track from T2 to T3 also moved further north-east to accommodate this turbine relocation.
- T3 moved 70 m east, away from the break of edge of the slope on the western flanks of Aberedw Hill from a landscape and visual perspective. This aimed to address

concerns raised by non-statutory consultees regarding views from the surrounding area. The Track at T3 also moved further east.

- T6 moved 50 m east outside of the Section 7 Upland Heathland Priority Habitat. The track from T5 to T6 also moved east away from the Priority Habitat.
- T11 moved 30 m north, 16 m outside of a watercourse buffer.
- T12 moved 195 m south, to increase the distance of this turbine from a residential property. This aimed to address concerns raised during the non-statutory consultation regarding effects on views from the surrounding area
- T15 moved 38 m north-east, along with the access track.
- T16 moved 140 m north-west. The access track between T14 and T16 was reoriented to reduce impingement on the watercourse buffer and GCN pond to the south.
- T17 moved 135 m north-west from Penarth, off common land.
- T18 moved 60 m north behind the hill to the east.

3.24 No changes were made to T1, T4, T5, T7, T8, T9, T10, T13 and T14, as no issues were raised by the technical specialists or any comments made during the non-statutory consultation.

3.25 An alternative layout involving the removal of T17 was considered at this stage. The movements of T15 approximately 210 m north-east, and T18 approximately 175 m south were also considered to reduce the number of turbines within common Land. However, this layout was not progressed due to the potential effect on the Cwmblaenern Enclosed Long Hut Scheduled Monument.

Layout 3

3.26 A further design workshop was held in April 2024 to review Layout 2. This workshop identified that further field surveys and analysis were required prior to the turbine layout being finalised. This included ecology, historic environment surveys and noise monitoring. All relevant surveys and assessments were completed in April and May 2024 (for detail see **Chapter 3** of the ES). Following the completion of the above surveys and assessments, a further design workshop was held in June 2024 to discuss how the layout should be amended.

3.27 Modifications to the turbine layout to respond to constraints at this stage included:

- No changes were made to T1, T2, T3, T4, T5, T9, T10, T11, T16, T17 and T18.
- T6 moved 80 m north to avoid the hardstanding being constructed over a pond.
- T7 was moved 80 m south-east to increase the distance from residential property.
- T8 was moved 120 m east to increase the distance from residential property.
- The access track linking T16 with T13 and T14 was adjusted to remove any intersection with a watercourse buffer and to increase the distance between any tracks and a pond with known GCN presence, following GCN surveys carried out in April 2023.
- T12 was moved 120 m north to avoid being positioned on a minor watercourse and steep slope.
- T15 and its hardstanding moved 40 m north-west.
- The T17 hardstanding was reorientated clockwise and the track connecting to T16 was realigned to avoid a potential GCN pond.
- The track between T11 and T10 was realigned to avoid a pond.
- The track between T4 and T1 was moved 30 m south-west to avoid impacting a pond.
- The track between T5 and T6 has been moved up to 120 m west to avoid impacting a pond.

Layout 4

3.28 A meeting was held in December 2024 to discuss the deregistering of common land within the Site boundary and the subsequent replacement land required. Based on Layout 3, a significant amount of common land would be impacted and subsequently more replacement land required. In order to minimise effects, the design team tested moving T7 and T8 off the common and adjusting the tracks between T1 and T2 and their hardstandings.

3.29 A subsequent meeting was held in January 2025, where it was decided that, due to the amount of earthworks required, T7 should remain in its previous position but the track and hardstanding should be reorientated. T8 however was moved 178 m north-east off the common. T9 was also moved 105 m east to allow for a straighter track between T10 and T9.

3.30 A final design meeting was held in February 2025 to confirm the final turbine proposals and review the infrastructure layout in order to reduce the common land requirement. Whilst the X and Y co-ordinates of the turbines remained the same, all turbine platforms were revised to reduce the amount of earthworks required, the most significant of which was T17, which was raised by 5 m. This resulted in changes to the elevation of all turbines, which has been accounted for within the Zone of Theoretical Visibility (ZTV) mapping in the ES.

3.31 Modifications to the turbine layout to respond to constraints at this stage included:

- T8 was moved 170 m east, off common land.
- The tracks between T7 and T8 was realigned to reflect the new position of T8.
- The orientation of the tracks between T1 and T2 were revised to reduce the amount of earthworks required.
- T9 was moved 105 m east and its hardstanding reorientated northwards.
- The track between T8 and T9 was realigned to reflect the new position of both T8 and T9.
- The T10 hardstanding was orientated southwards in order to reduce the track length to T9, whilst still avoiding ponds located to the north.
- The T11 hardstandings was straightened to align with T10 and rotated north-west. The track between T11 and T10 was also realigned to avoid a watercourse buffer and priority habitat.
- The turbine elevations all increased (but no change in X and Y co-ordinates) to reduce the amount of cut and fill required for the turbine hardstandings, thereby reducing the land take required.

3.32 No changes were made to T2, T3, T4, T5, T6, T7, T10, T11, T16, T17 and T18. The Site boundary was updated to incorporate the final Site infrastructure.

Site Access

3.33 The primary access to the Site was designed in January 2025, once the final turbine layout was finalised. The design objectives of the access track were to provide a connection to the public highway whilst limiting the amount of track required on common land and to utilise any existing access tracks where possible, in order to minimise the need

for new excavations. As such, the proposed access track was designed to follow the existing track that leads off the C1336, in the north-eastern part of the Site, near Hundred House. The existing access point and existing access track will need upgrading in order to safely accommodate the delivery of turbine components and all construction materials. Once the location of the substation was determined (see Substation section below), it was determined that a separate access will be required for the onsite substation, in the north of the Site. This will be a widened access and new track directly off the A481, utilising an existing agricultural access/egress point.

Substation

3.34 Aberedw Energy Park Ltd holds a grid connection agreement with GGC for capacity on their proposed Green GEN Towy-Usk project. In accordance with the public consultation to date, the route of this lies to the north of Aberedw Hill, meaning that the Proposed Development will need to connect to this project at a location on the northern side of Aberedw Hill. The Proposed Development requires an onsite substation, a connection from which is then made to the GGC substation. Accordingly, four options which were considered for the onsite substation location focused on areas to the north of the Site (for detail see **Chapter 3** of the ES). Upon review the chosen substation location performed best when considering all environmental constraints, including access from the A481, sufficient land for the platform whilst minimising earthworks requirements, proximity to noise receptors, lower elevation reducing visibility in wider views, proximity to the proposed grid connection location, and located outside the limited areas of peat onsite and on lower sensitivity habitats. The visual and noise effects of the substation design were also considered. Due to concerns about the effects arising from an open-to-the air design, it has been designed so that the infrastructure is enclosed within a series of buildings. These will be designed to be similar in appearance to agricultural buildings. The enclosed design also provides noise attenuation.

Temporary Construction Compound

3.35 In consideration of the construction methodology, a temporary construction compound near the Site entrance was required. Three potential locations for the temporary construction compound were identified within the eastern part of the Site. The most westerly, construction compound (compound 3) was discounted due to its location on common land. Construction compounds 1 and 2 have both been assessed within the ES, however, only one will be required for the construction of the Proposed Development.

These are temporary compounds that will be in place for the duration of the construction phase and be reinstated for operation of the Proposed Development.

Borrow Pits

3.36 Based on the same key design and environmental considerations for the turbines, three initial borrow pit locations were identified and assessed by the technical specialists. Two locations were discounted due to environmental constraints. Further considerations were applied to additional locations to ensure the materials required could be derived onsite. The process resulted in two final borrow pits taken forward to assessment (further details are provided in **Chapter 3** of the ES).

Cable route

3.37 Alongside the substation location identification, the design of the electrical cable connection between the turbines and the substation was also considered. The engineering requirements of the cable routes were defined in collaboration with the Applicant's electrical engineers.

3.38 As is typically the case with energy parks, cables will be laid alongside the access tracks. The tracks have already been designed to minimise effects on the environment as set out earlier in this Statement, therefore the cable routes benefit from the design considerations applied to the tracks.

3.39 Given the location of the substation, it is necessary for the cables to depart the tracks and travel down the northern side of Aberedw Hill. Following installation feasibility assessment, which considered gradient and surface cover, potential cable routes leading down from the energy park tracks to the substation were identified. The cable route has been designed to:

- Avoid the loss of priority habitats;
- Avoid loss of trees, or incursion into root protection areas if possible – this focussed on safeguarding trees identified as category A by arboricultural assessment in line with BS 5837:2012, as a priority over trees categorised as B, C or U;
- Avoid designated historic assets or those which are non-designated and included in the relevant Historic Environment Record (HER); and
- Reduce disruption to watercourses.

Design Consultation

3.40 Public consultation is a key component of the EIA process.

3.41 Early engagement public consultation was held from Wednesday 8th November 2023 to Wednesday 20th December 2023. Prior to the launch of the early engagement public consultation, a series of key stakeholder meetings were held with local elected representatives to introduce the proposals.

3.42 Three public exhibitions were held in this period in November 2023. The consultation events were promoted in the local press, posters, on social media and a bilingual consultation brochure was distributed to key stakeholders and residents and businesses near to the Site.

3.43 This approach was taken to ensure there was extensive publicity of the Proposed Development and a range of opportunities for anyone interested in the Proposed Development to view and comment at an early stage. The breadth and depth of the consultation was important to make it widely accessible.

3.44 The Proposed Development website was updated to provide progress updates relating to the Proposed Development. This ES and other application documents are also subject to the statutory requirements for Pre-application Consultation (PAC) that apply to all DNS applications.

Design Solution

3.45 The final layout of the Proposed Development is shown in **Figure 2: Site Layout**.

Turbines

3.46 The proposed turbines will be three bladed horizontal axis turbines and shown on **Figure 3: Indicative Turbine Elevation**. The turbines will consist of a tapered tubular steel tower, typically fiberglass infusion and carbon pultruded-moulded blades and a nodular cast iron rotor hub.

3.47 The turbine towers will be finished in a light grey semi-matt colour, as per the industry standard approach throughout the UK.

Turbine Scale

3.48 At the time of EIA Scoping, the Proposed Development included an 18-turbine layout with a maximum tip height of up to 200 m. Following a series of design workshops

and additional iterative design activities, the layout of the Proposed Development has been revised, but remains an 18-turbine layout with a maximum tip height of up to 200 m.

3.49 It is recognised by the Welsh Government that there is a need to produce considerably more energy from renewables. Wind turbine technology continues to make significant advances in efficiency and in the amount of energy each turbine generates. A typical single modern 200 m turbine can generate in the region of over 6 megawatts (MW), which is enough to power 5,000-6,000 homes based on the annual average domestic electricity consumption⁸. Larger, more efficient turbines require more spacing between them which also generally means that fewer are proposed on any given site, thereby reducing overall land-take and associated environmental effects per MW of capacity.

Aviation Lighting

3.50 As the Proposed Development's turbine tip height will exceed 150 m, the turbines will need to be lit in accordance with the requirements of the Civil Aviation Authority's (CAA) Air Navigation Order (ANO), in addition to meeting the lighting requirements of the Ministry of Defence (MOD). It is proposed that six turbines (T2, T6, T7, T10, T16, and T18) within the Site are provided with 2000/200 candela (cd) lights at hub height, in line with ANO lighting proposals accepted by the CAA.

3.51 Additional infra-red (IR) lighting is also proposed on all turbines to satisfy MOD requirements. The details of which are provided in **Appendix 2.8: Aviation Lighting and Mitigation Report** of the ES.

3.52 Based on meteorological data obtained for the last 30 years at the closest meteorological stations (Birmingham Airport and Cardiff Airport), it is expected that the lights will operate at 200 cd for approximately 88% of the time when not obscured by cloud cover. Full details of the proposed lighting scheme and its rationale is provided in **Appendix 2.8**, alongside an assessment of its effects in **Appendix 5.8: Aviation Lighting Impact Assessment** of the ES.

Turbine Foundations and Crane Hardstanding

3.53 The turbines will be installed on foundations comprising both of stone and steel-reinforced concrete. The assessment has assumed that the maximum footprint will

⁸ [Department for Business, Energy and Industrial Strategy \(2020\) Subnational Electricity and Gas Consumption Statistics](#)

measure 25 m in diameter with a concrete depth of 3.5 m and an overlay depth of 0.5 m (**Figure 4: Indicative Turbine Foundation**). Each turbine will require approximately 1,440 cubic metres (m³) of concrete. The detailed design, sizing and specification for each foundation will depend on the final turbine type and the specific ground conditions encountered at each turbine location.

3.54 Adjacent to each turbine, a maximum permanent⁹ area of hardstanding (2,015 m²), and a temporary area of 6,038m² will be constructed for use as a crane hardstanding. These hardstandings will be used during the erection process as a platform for the cranes to lift the turbine components into position. During operation, the hardstanding provides safe access for maintenance or repairs which may also require the use of a crane.

3.55 The exact geometry and alignment of the crane hardstanding will depend on the final turbine model selected and the specific crane selected for erection. These areas will be levelled using cut and fill operations and surfaced in crushed stone to provide a durable surface. A typical crane hardstanding arrangement is shown in **Figure 5: Typical Crane Hardstanding and Laydown Areas Arrangement**.

3.56 Following construction, working areas will be capped with soil material, which may form a raised mound above the existing ground level. Any raised mounds will be blended into the surroundings through top-soil reuse and/or turf replacement. Where vegetation is sparse or unlikely to regenerate, re-seeding with locally occurring species will be completed. The conditions of turfs will be monitored regularly during the first few months following reinstatement. If necessary, water will be imported to the Site to ensure the re-establishment of this vegetation.

Substation and Control Building

3.57 The Proposed Development will connect to the national electricity network. Electricity generated by the energy park will be exported following stepping-up from 33 kV to 132 kV at the onsite substation.

3.58 The overall onsite substation platform will be 110 m x 80 m. The substation grid transformer and AIS switchgear will be contained within an enclosed building approximately 12 m in height. This will be designed to look like an agricultural building and painted in a colour that assimilates into the surrounding landscape to help visual

⁹ 'Permanent' being for the lifetime of the Proposed Development

coherency. It will contain a Control and Operations Building and electrical equipment, including switchgear, reactive compensation units, transformers, communications equipment, protection equipment, vehicular access and parking. The Control and Operations building will also contain toilets, office, welfare and a storeroom. A temporary compound will also adjoin the operational substation as shown in **Figure 6: Substation Layout**.

3.59 The operations/welfare facilities will allow safe control of the substation and Proposed Development either remotely or in person.

3.60 The location of the substation compound in relation to the Site is shown in **Figure 2**.

Borrow Pits

3.61 To reduce the volume of stone brought onto the Site using the public highway for the construction of the Proposed Development, suitable stone will be sourced from borrow pits, to provide the material necessary for new or upgraded tracks and hardstanding construction. The general arrangement of the borrow pits are shown in greater detail in **Figure 7a: Borrow Pit A Layout** and **Figure 7b: Borrow Pit B Layout**.

3.62 & Cross Sections

3.63 At this stage, prior to ground investigations, two borrow pits have been identified. These have been selected on the basis of desktop assessments, and onsite surveys of any environmental constraints that are present. They have also been selected and influenced by the likely availability of stone, proximity to access tracks and by environmental characteristics, including topography, soil depth/stability, surface hydrology and potential visibility from surrounding areas, and the extent to which restoration measures can be put in place as appropriate. The final size of the borrow pits will be confirmed following detailed ground investigation, but it is not expected that these areas will be utilised fully.

3.64 Once construction is complete, the borrow pits will be utilised for proposed habitat enhancement measures. The general approach to the restoration of borrow pits is outlined in **Appendix 4.1: Outline Borrow Pit Restoration Plan** of the ES.

Temporary Construction Compounds

3.65 There are two proposed temporary construction compounds. However, it is anticipated that only one will be required during the construction of the Proposed

Development. The temporary construction compound is proposed to accommodate facilities including site offices and meeting rooms, staff welfare, storage for construction vehicles, plant, equipment, infrastructure components and other materials. They proposed construction compound measures 100 m x 50 m and their location within the Site is shown on **Figure 2**. An indicative plan of the temporary construction compound is shown in **Figure 8: Temporary Construction Compound Layout**.

Environmental Sustainability

3.66 As set out in PPW12 *“Good design promotes environmental sustainability and contributes to the achievement of the well-being goals. Developments should seek to maximise energy efficiency and the efficient use of other resources (including land), maximise sustainable movement, minimise the use of non-renewable resources, encourage decarbonisation and prevent the generation of waste and pollution”* (paragraph 3.7, page 26).

3.67 The inherent purpose of the Proposed Development is to ‘minimise the use of non-renewable resources, encourage decarbonisation and prevent the generation of waste and pollution’.

3.68 A Staff Travel Plan will be deployed where necessary, to manage the arrival and departure profile of staff and to encourage sustainable modes of transport, especially car-sharing. This is discussed further in **Chapter 4: Access Statement** below.

Materials and Waste

3.69 All materials will be identified, classified, quantified and, where practicable, appropriately segregated. Any materials that cannot be reused will be disposed of according to relevant waste management legislation which will serve to address several possible environmental effects. This includes:

- The Duty of Care imposed by Section 34 of the Environmental Protection Act 1990; and
- The Waste Management Licensing Regulations 1994, particularly provisions relating to registered exemptions from waste management licensing.

3.70 All materials removed from Site will be handled in accordance with relevant waste and environmental regulations. Waste will be transferred using a registered waste carrier to a licensed waste disposal site or recycling centre.

3.71 During construction and decommissioning, wherever possible excavated soils and stones will be reused onsite, primarily for the restoration of disturbed ground.

3.72 Further good practice measures to enhance the environmental sustainability of the Proposed Development are outlined in the relevant technical chapters and appendices of the ES, including **Appendix 4.2: Outline Construction Environmental Management Plan**.

Ecological Management

3.73 To minimise effects, the construction of turbines and tracks will follow an agreed detailed CEMP (see **Appendix 4.2** of the ES for an Outline CEMP). This will include arrangements for various aspects of the works such as turf and soil removal, storage and replacement, and stream crossings. The CEMP will also set out the process for the restoration of landscape earthworks and soils and surface vegetation, for example along tracks, around turbine bases, around borrow pits, and along cable routes, once the construction phase is complete.

3.74 The Outline Habitat Management Plan (HMP) and Net Benefit for Biodiversity Assessment can be found in **Appendix 7.5: Outline Habitat Management Plan** of the ES and provide a high-level approach to implement positive land management for the benefit of nature conservation, both to mitigate and/or compensate for the effects of the Proposed Development and to deliver wider enhancement to the nature conservation value of the Site and its surroundings.

3.75 The main aim of the HMP is to identify positive land management measures that will be implemented for the benefit of nature conservation, not merely to compensate for adverse effects that the Proposed Development may have on habitats and species of conservation interest. The HMP will deliver a net benefit in biodiversity as part of the Proposed Development. Measures to protect existing habitats during construction are presented in the Outline CEMP (**Appendix 4.2** of the ES) which will be finalised prior to construction, and in the **Appendix 9.6: Outline Soils Management Plan** of the ES.

Drainage

3.76 Drainage measures throughout the Site will be subject to approval from the SuDS Approving Body ('SAB'). **Appendix 9.4: Outline Drainage Strategy** of the ES has been prepared that ensures the Proposed Development does not increase flood risk to other

receptors including local communities and does not cause deterioration of the water environment. A number of sustainable measures are integrated into the design of the Proposed Development.

3.77 Adjacent to the track will be an assumed verge to accommodate an appropriate drainage verge on the other which is subject to approval from the SAB. Clean water cut-off drains are proposed at the upslope edge of the site access tracks. Intermittent cross drainage will allow runoff to flow from upslope to the downslope locations, maintaining the existing hydrological regime. Across areas of longitudinal fall, drainage channels will be stopped off intermittently to maintain the existing hydrological regime and limit stream power within each channel.

Community Safety

3.78 The nature of the Proposed Development raises no issues in terms of community safety criteria. Properly designed, erected, maintained, and decommissioned wind turbines, and the implementation of good practice guidance during all phases of the Proposed Development, ensures that wind farms are safe developments.

3.79 Modern turbines are fitted with sensors which detect if wind speeds are too high to operate safely, resulting in their shut down. This prevents excessive wear and damage to the gearbox and reduces the already very limited risk of turbines catching fire, the occurrence of blade failure or even a failure of the structural integrity of the turbine itself. Turbines and associated equipment will be procured and constructed to comply with both strict United Kingdom (UK) and internationally recognised health and safety standards and the high design standards specified by the manufacturer and will be maintained on a regular basis in accordance with the high bar for operational maintenance set by BS EN IEC 61400-1:2019 Wind energy generation systems. Design requirements (Incorporating corrigendum September 2019), Original Equipment Manufacturers' (OEM) specification and SafetyOn's UK Wind Turbine Safety Rules.¹⁰

3.80 Signs will be positioned at the entrance to the Site to provide information about the Proposed Development, along with contact and safety information.

3.81 Considerations in relation to public access are considered in **Chapter 4: Access Statement**.

¹⁰ [SafetyOn \(in partnership with Energy Institute\) \(2021\) Wind Turbine Safety Rules \(WTSR\) \(4th Edition\)](#)

Design Conclusions

3.82 This chapter sets out the process undertaken to identify the Site and the design strategy, objectives and evolution of alternative layouts to design the Proposed Development.

3.83 The inherent nature of wind turbines as tall, modern structures means that the form of the Proposed Development as a whole is important, and a clear design strategy is necessary. The overall aim of the design strategy was to create an energy park with a cohesive design that is sympathetic in form and scale to the surrounding landscape context, whilst achieving an appropriate balance between maximising renewable energy yield and minimising other environmental and technical effects. Many modifications were made to the turbine layout in response to the design strategy, to ensure a robust design. Further detail is provided in **Chapter 3** of the ES.

3.84 The careful design of the layout of the proposed turbines and associated infrastructure has resulted in the avoidance or reduction of a number of potentially significant effects from the Proposed Development. Overall, as a result of the iterative design approach, the adverse effects of the Proposed Development have been minimised as far as is reasonably possible. It is considered that the Proposed Development as presented in the ES is the optimal layout for the Site, which takes cognisance of the environmental constraints as far as reasonably possible.

Chapter 4 Access Statement

Access to the Site

4.1 The Proposed Development will need to be accessed during its construction, operation and decommissioning phases.

4.2 At this stage, abnormal loads for the Proposed Development are expected to be delivered to the Site from the north-east, accessing it via the C1336 off the A481, which will serve as the primary access point. It should be noted that the AIL route to Site will form part of a separate planning application.

4.3 Additionally, a secondary access point is proposed directly off the A481, north of the Site, to facilitate access to the substation (including delivery of AIL components). The proposed access routes are shown on **Figure 2**.

4.4 The primary access junction will provide the sole access to the Site for abnormal loads associated with the turbine equipment, as well as access for construction materials and ongoing operational traffic.

4.5 Details of the proposed vehicle movements during construction and operation of the Proposed Development is provided in **Chapter 11: Transport and Access** of the ES.

4.6 Information on abnormal load movements will be provided to local media outlets to help assist the public. These could include:

- Local newspapers;
- Community Councils; and,
- Local Authority websites.

4.7 Information will relate to expected vehicle movements from the Port of Entry through to the site access junction. This will assist residents becoming aware of the convoy movements and should help reduce any potential conflicts. Any street furniture that is removed on a temporary basis to accommodate abnormal load movements will be fully reinstated following the delivery period.

4.8 A Construction Traffic Management Plan (CTMP), secured via planning condition, will be implemented to minimise disturbance on the local road network. The CTMP will also contain details of temporary measures, such as signage, to be put in place on the approach to the Site to ensure the safe access and egress of construction vehicles from and onto the major road network.

Onsite Access Tracks

4.9 Approximately 13 km of track will be required for the Proposed Development, of which approximately 12 km of new track will be constructed, and approximately 1 km of existing track will be upgraded.. The construction working width will be approximately 16 m and the operational working width for onsite access tracks will be 6 m. Track widths may be wider in some sections to accommodate bends in the road alignment. The proposed access track arrangement is shown in **Figure 9: Access Track Arrangement**.

4.10 The location and size of passing places located throughout the Site, if required, will be in accordance with the turbine manufacturer guidelines to ensure safe vehicular access and egress.

4.11 Site tracks are required throughout the operational phase of the Proposed Development to enable access for maintenance and repair operations. They will also enable access during the decommissioning stage.

4.12 The sloping verges of access tracks will be reinstated through top-soil reuse and/or turf replacement to blend in with the surroundings. Measures such as grass-reinforcement may be applied where the track widens on steeper bends and in passing places if suitable material is generated during the construction of the track. The adjacent grassland will be allowed to extend across the edges and middle, reducing the extent of the visibility of tracks in the landscape. The engineered appearance of any embankments will be smoothed out to ensure any landforms blend in with topography.

Public Access

4.13 There is a network of PRow that cross the Site, comprising footpaths, and bridleways that provide recreational opportunities across the Site.

4.14 PRow are recognised as being important and have been taken into account during design of the Proposed Development. As set out in **Chapter 3** of the ES, there are many constraints that need to be considered in designing an energy park and therefore it has not

been possible to avoid all interactions with PROW. Some temporary and permanent infrastructure will cross PROW and there will be some oversail of turbine blades over PROW.

4.15 It is recognised that it will be necessary to divert PROW for both the construction and operational phases of the Proposed Development. Diversion routes will be determined following detailed site investigation and any minor modifications made to the layout within the micro-siting allowance. Diversion routes will be secured via separate consents, after the permission for the Proposed Development is secured. The Applicant is currently in discussion with PCC's PROW Officer regarding the suitable wording of a planning condition that will maintain the safety of PROW users. In addition, as minor modifications may be made to the layout within the micro-siting allowance, proposed diversion routes may change. Any changes will be agreed with PCC through separate consents, after the permission for the Proposed Development is secured.

4.16 During construction, consideration will be given to pedestrians, equestrians, cyclists and 4x4 drivers due to potential interactions between construction traffic and users of the PROW network.

4.17 Access will be managed and may be restricted on a temporary basis while construction works are ongoing. The timings of this will be determined by the appointed Principal Contractor with responsibility for health and safety during construction under the Construction (Design and Management) Regulations 2015. Details of the restrictions and the mechanisms under which they will be secured will be provided in the detailed Construction Traffic Management Plan (CTMP) and Path Management Plan (PaMP) which will be secured by a suitably worded planning condition.

4.18 Advance notice of any temporary closures or diversions of PROW will be publicised as required, applied for and subject to a Temporary Traffic Regulation Order made by the local highway authority.

4.19 Within areas of common and replacement common land, the construction works will only require temporary rolling fencing along the access tracks when they are being constructed and upgraded, respectively, for animal welfare and the public's health and safety. Save for where these measures are required, access will remain available on the remainder of the common and replacement land throughout the construction phase.

During the operational phase of the development, access will be available across the common land.

4.20 These measures will be formulated into a Path Management Plan (PaMP). A detailed assessment of effects on PRow is included in ES **Chapter 11: Transport and Access** of the ES.

Recreation

4.21 A Strategic Recreation Framework, which is submitted alongside the DNS application, sets out how access may be improved on the Site during operation of the Proposed Development.

4.22 The Strategic Recreation Framework identifies where there is potential to:

- Increase access to quality recreational opportunities;
- Conserve and enhance the environment;
- Balance and integrate recreational users with environmental and cultural sensitivities;
- Balance the requirements of various uses and user groups and address potential unauthorised use; and,
- Identify sufficient and appropriate infrastructure and resources to support recreational use.

4.23 Identified design components include boundary treatments, access control, street furniture, art work, signage and wayfinding, interactive trails and soft landscaping.

4.24 Any subsequent recreational access plans will be developed in consultation with relevant stakeholders and landowners after planning permission has been granted.

Access for All

4.25 Wind farm developments are not required to be accessed by members of the public, regardless of mobility levels, other than maintenance staff. However, as the Site is mainly located within common land, applications under Section 16 and Section 38 of the Commons Act 2006 will be submitted alongside the DNS application for the Proposed Development. The Section 16 application will deregister common land and provide replacement land. The Section 38 application will grant consent to undertake restricted works on the common land.

4.26 Several separate parcels of land adjacent to the common will be included to ensure that there is no overall reduction in the level of common land, no detriment to the level of grazing available to the common land occupiers and no loss of public access to those utilising the common land area as a result of the Proposed Development. It is considered that the areas of land proposed to be incorporated into the common are suitable as replacement land.

4.27 Incorporation of the land into the common will provide for increased public access to areas of land previously inaccessible under the CROW Act 2000.

4.28 Resurfacing and upgrading of existing tracks will facilitate access for wider groups of users.

Chapter 5 Summary

5.1 This DAS has been prepared by LUC to accompany a DNS application for consent to construct and operate the Aberedw Energy Park. The Proposed Development comprises the construction and operation of up to 18 wind turbines with a maximum blade tip height of 200 m, with associated infrastructure.

5.2 Energy yield is an important consideration for wind farm design in environmental terms, because the chief environmental benefit of the development – mitigation of climate change via low carbon, renewable energy generation – can only be maximised by realising the energy generation potential of the Site to the greatest feasible extent while taking all other design considerations into account. Where a site is generally suitable for development, it is therefore important to avoid, to the extent commensurate with other constraints and effects, the ‘opportunity cost’ of failing to deliver the site’s fullest renewable energy generation potential.

5.3 This DAS demonstrates that the siting and design of the Proposed Development has been carefully considered, and the final design reached as a result of several stages of design iteration. The environmental effects associated with the Proposed Development have been avoided or mitigated to the greatest feasible extent through the EIA process, and this has informed the design process. The layout evolved by responding to environmental and technical investigations and consultations carried out and the final design was reached by balancing and responding to the constraints and considerations outlined in this DAS.

5.4 The ‘access’ component of this DAS outlines the access routes and internal access tracks of the Proposed Development. It provides a summary of the accessibility of the Site to the public, outlines recreational management opportunities and addresses key design considerations relating to access of the Site for those with limited mobility.

5.5 The inherent nature of wind turbines as tall, modern structures means that the form of the Proposed Development as a whole is important. The overall aim of the design strategy was to create a wind farm with a cohesive design that relates to its landscape context,

whilst achieving an appropriate balance between maximising renewable energy yield and minimising other environmental effects.

5.6 As a result of the iterative design approach detailed in this DAS, the adverse effects of the Proposed Development have been minimised as far as is reasonably possible. Further beneficial measures will be incorporated into the construction and operation of the Proposed Development such as recreational opportunities. Overall, the Applicant is of the view that the Proposed Development as presented is the optimal design for the Site and takes cognisance of the environmental constraints as far as reasonably possible.

Appendix A

Figures

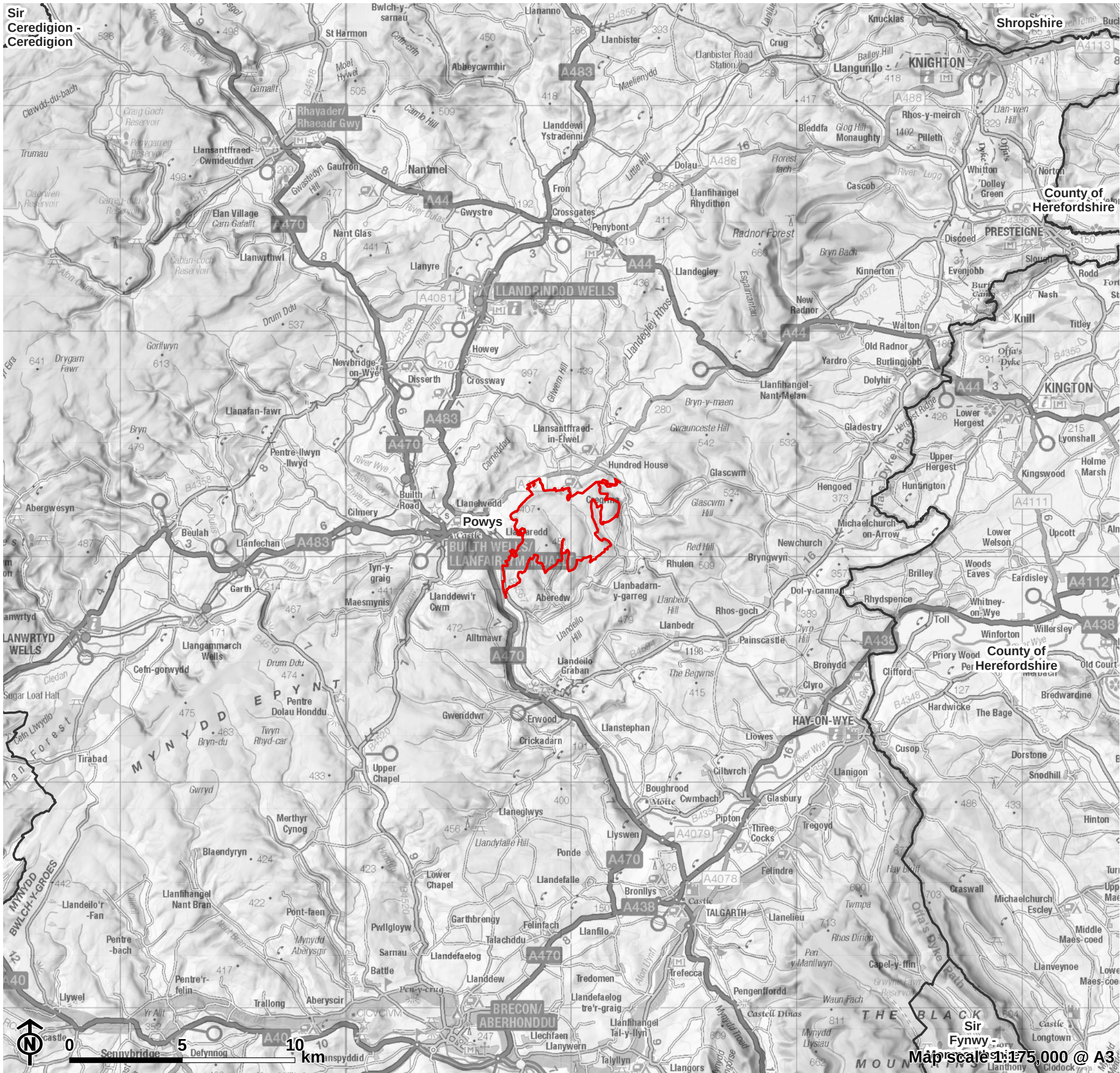
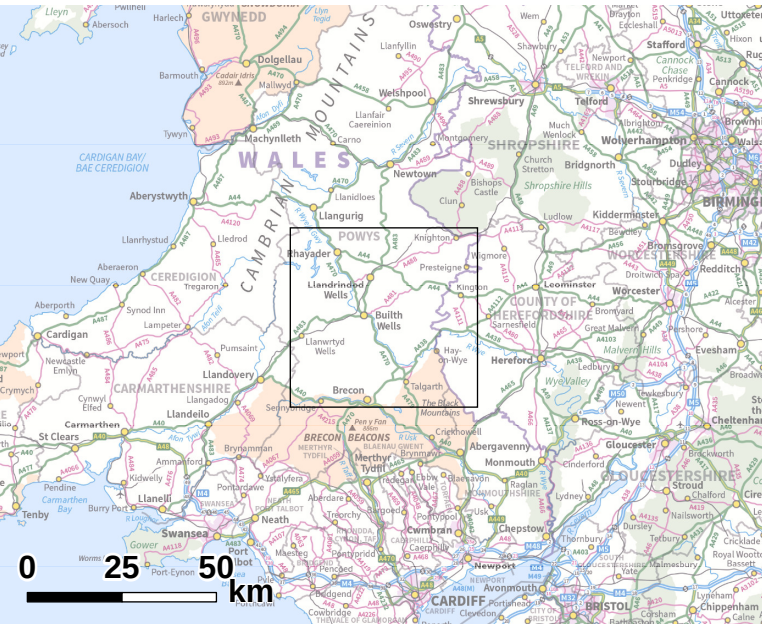


Figure 1: Site Location

Application boundary



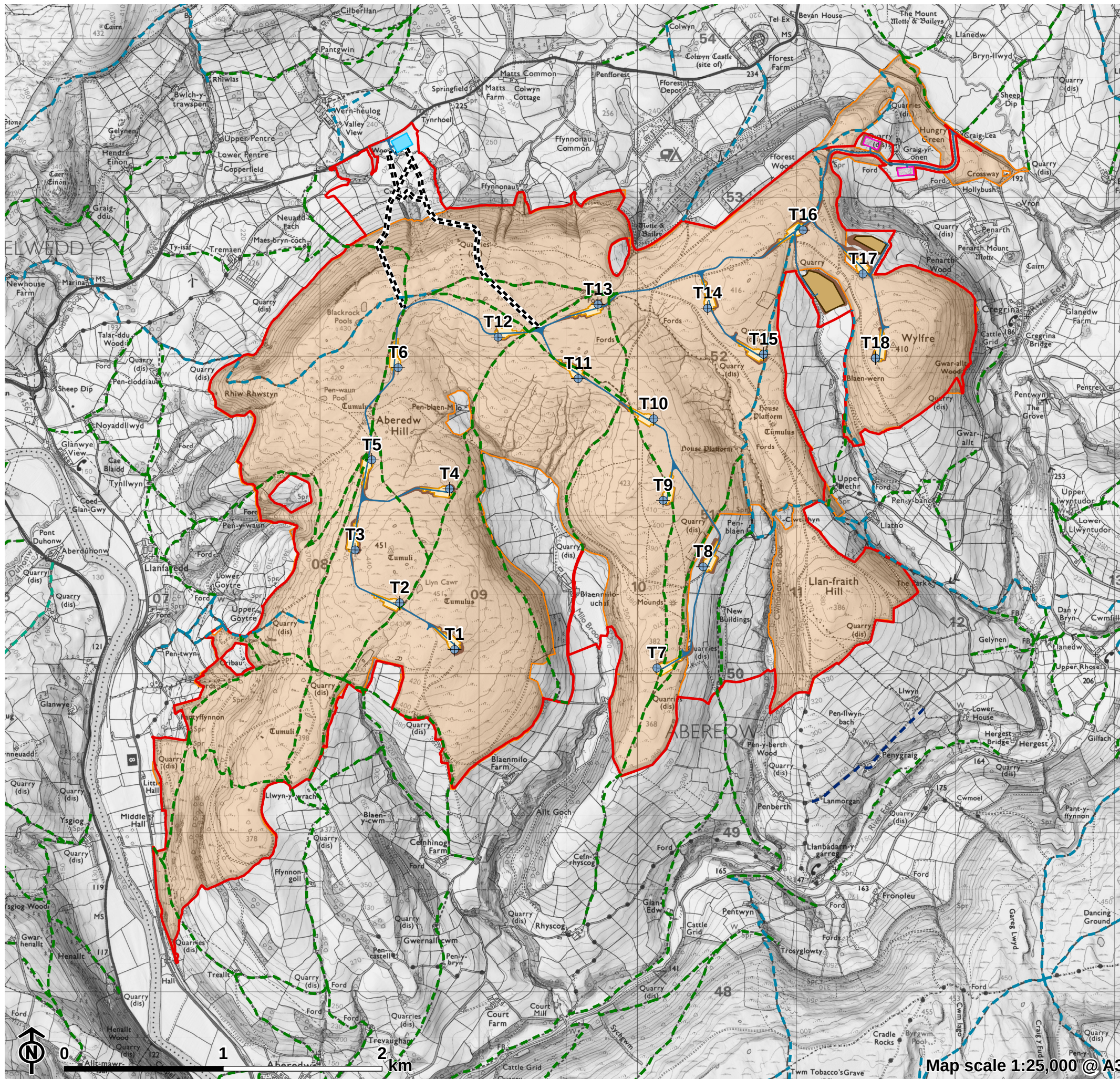


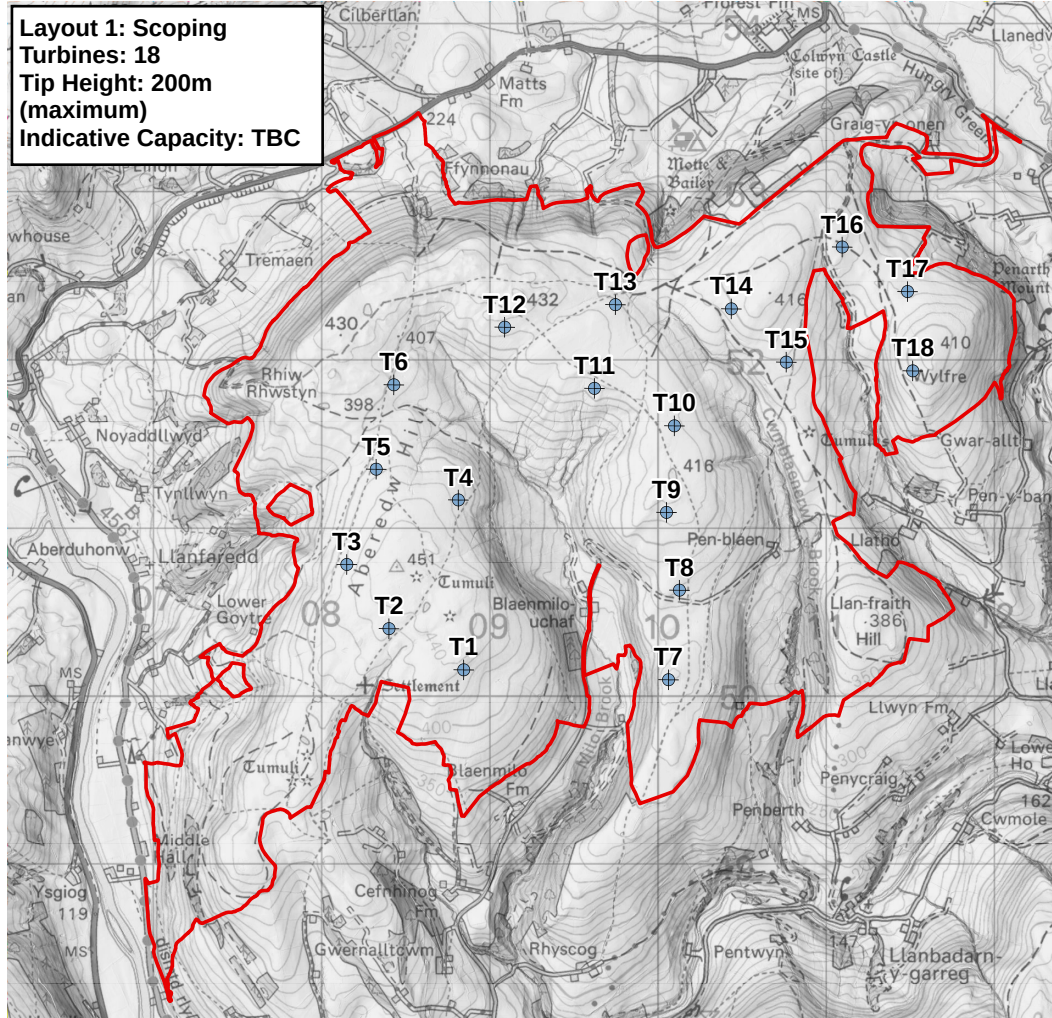
Figure 2: Site Layout

- Application boundary
- Turbine
- Track
- Hardstanding
- Construction Compound
- Substation
- Borrow Pit Search Area
- Earthworks
- Cable Route Installation Zone
- Open Access Land within Site**
- Common Land
- Public Right of Way**
- Byway Open to All Traffic
- Bridleway
- Footpath
- Restricted Byway

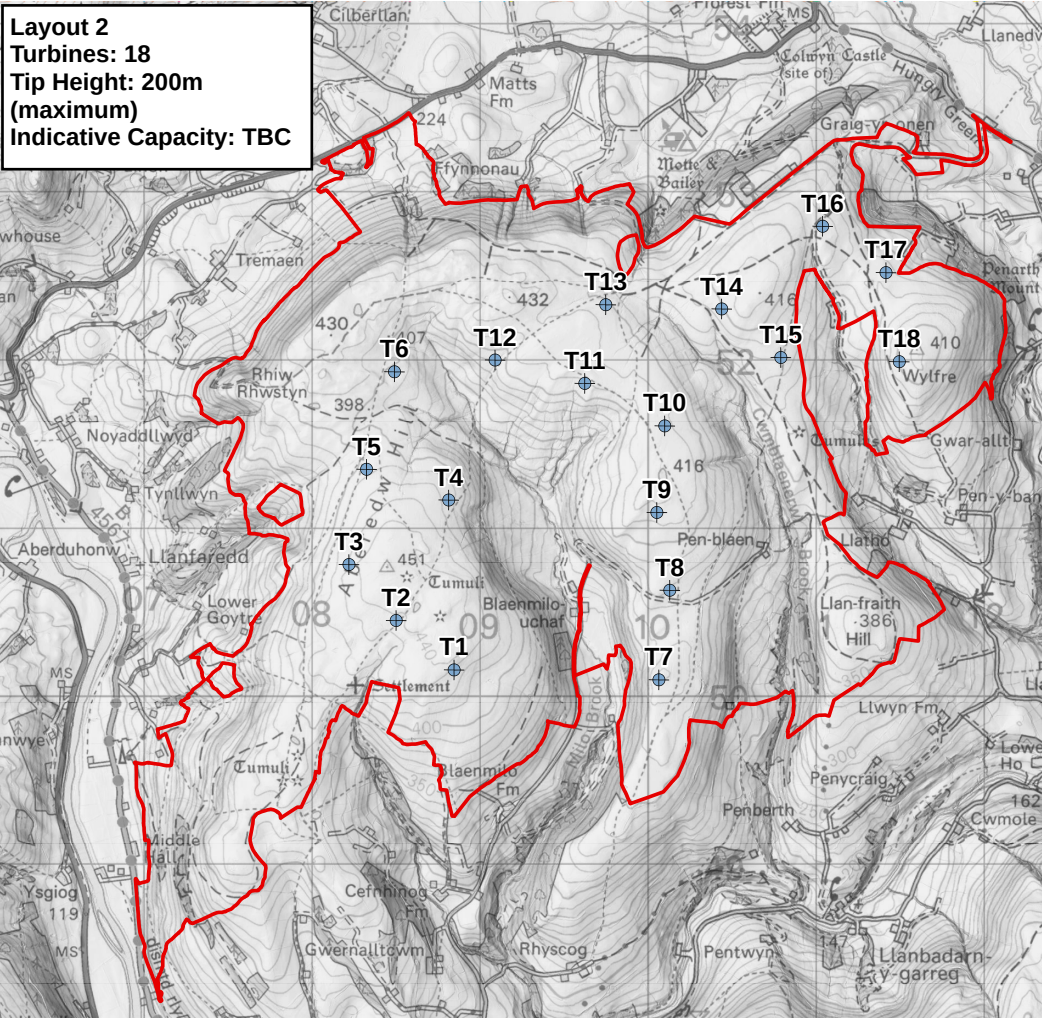
Notes

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Layout 1: Scoping
Turbines: 18
Tip Height: 200m
(maximum)
Indicative Capacity: TBC



Layout 2
Turbines: 18
Tip Height: 200m
(maximum)
Indicative Capacity: TBC



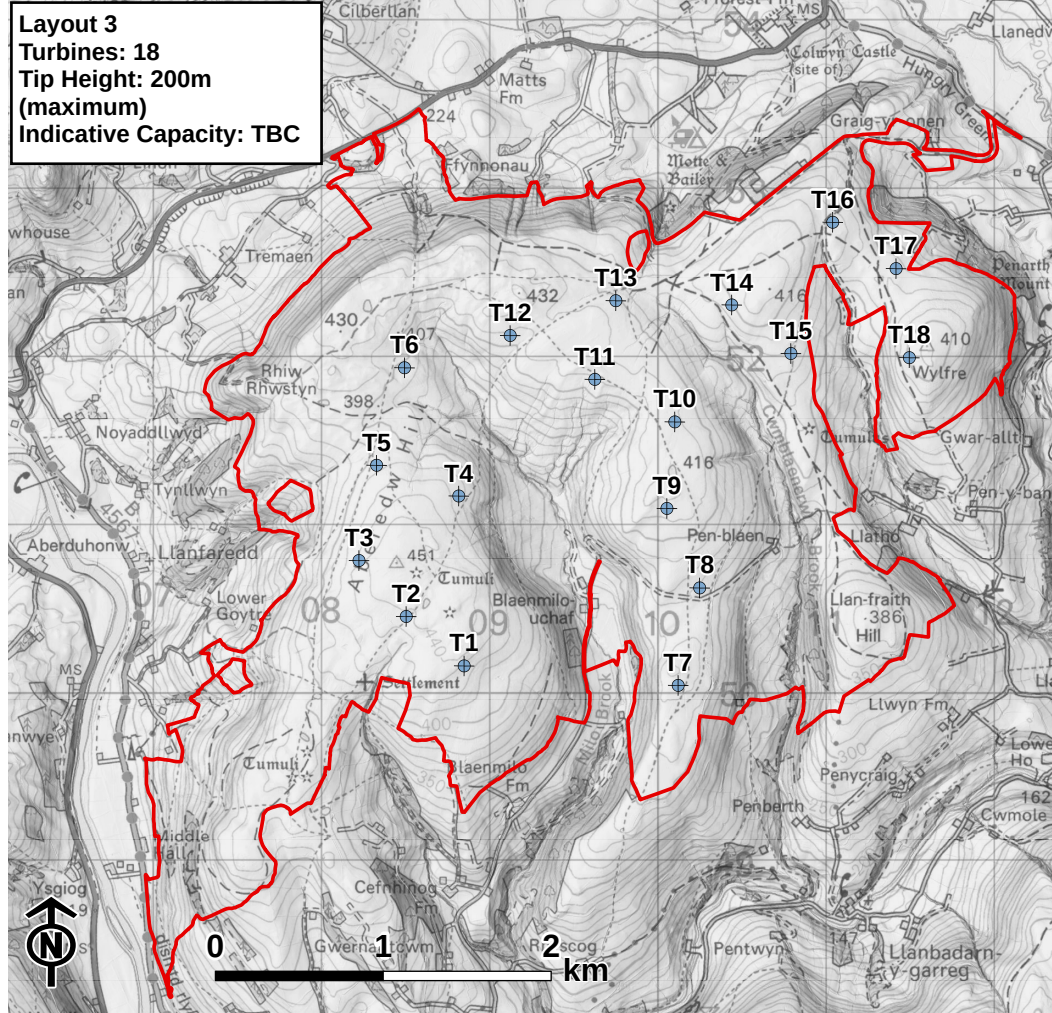
Aberedw Energy Park
Aberedw Energy Park Ltd



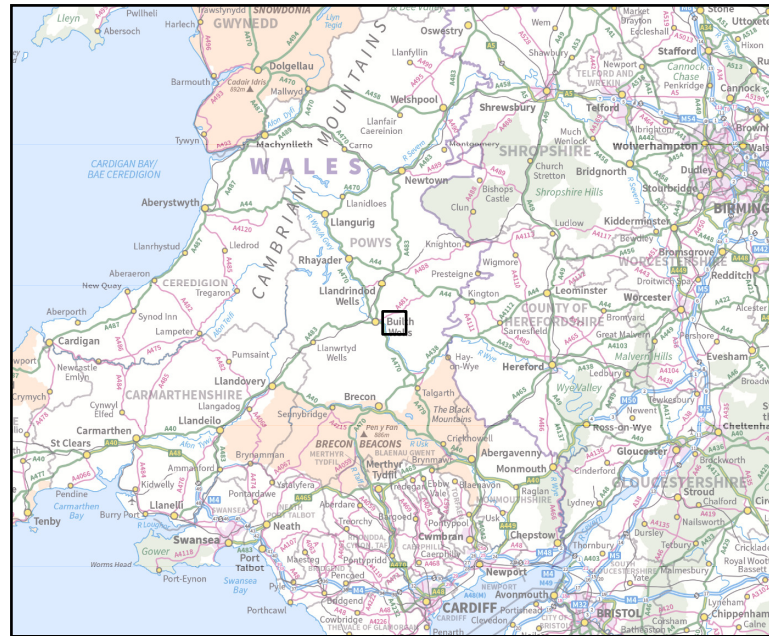
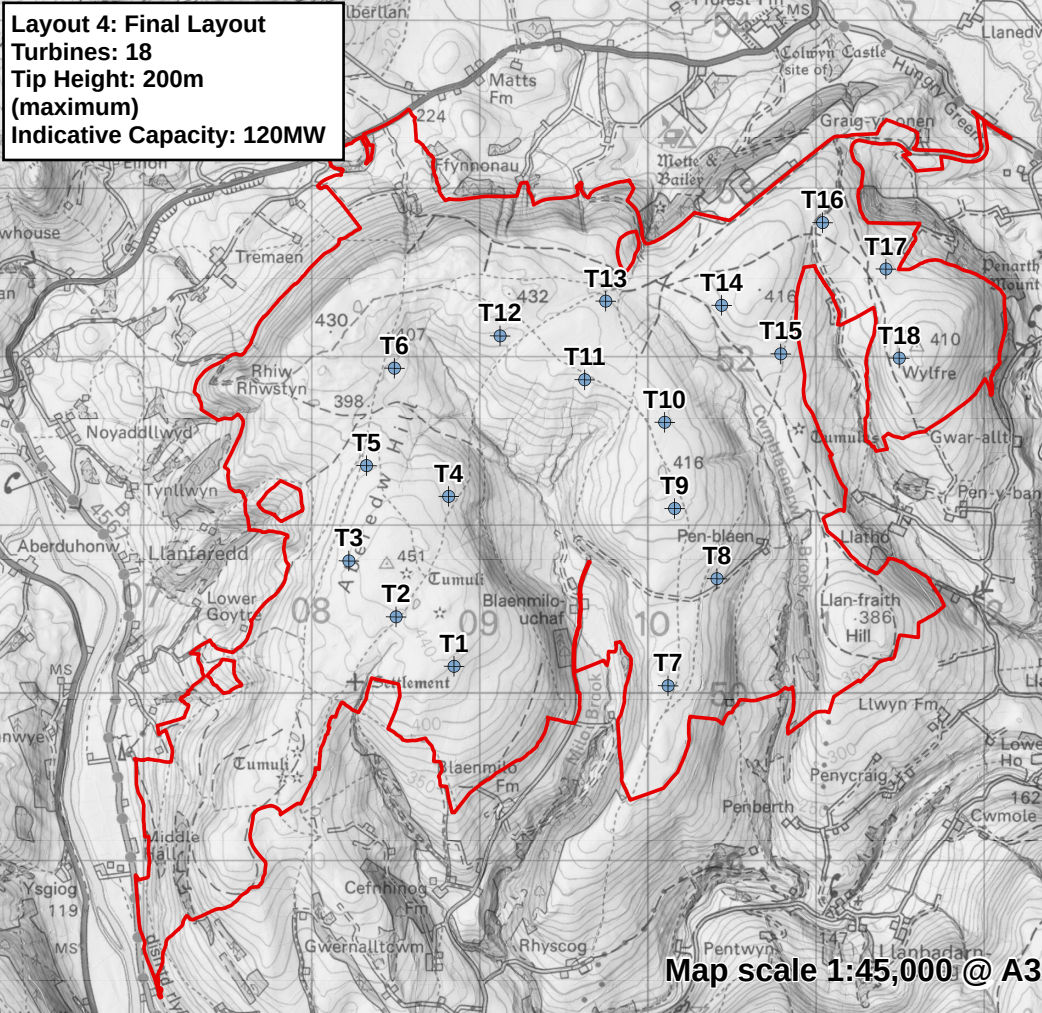
Figure 3: Indicative Turbine Layout Evolution

Application boundary
Turbine

Layout 3
Turbines: 18
Tip Height: 200m
(maximum)
Indicative Capacity: TBC



Layout 4: Final Layout
Turbines: 18
Tip Height: 200m
(maximum)
Indicative Capacity: 120MW



Bute Energy
Aberedw Energy Park

Figure 4: Turbine Foundation

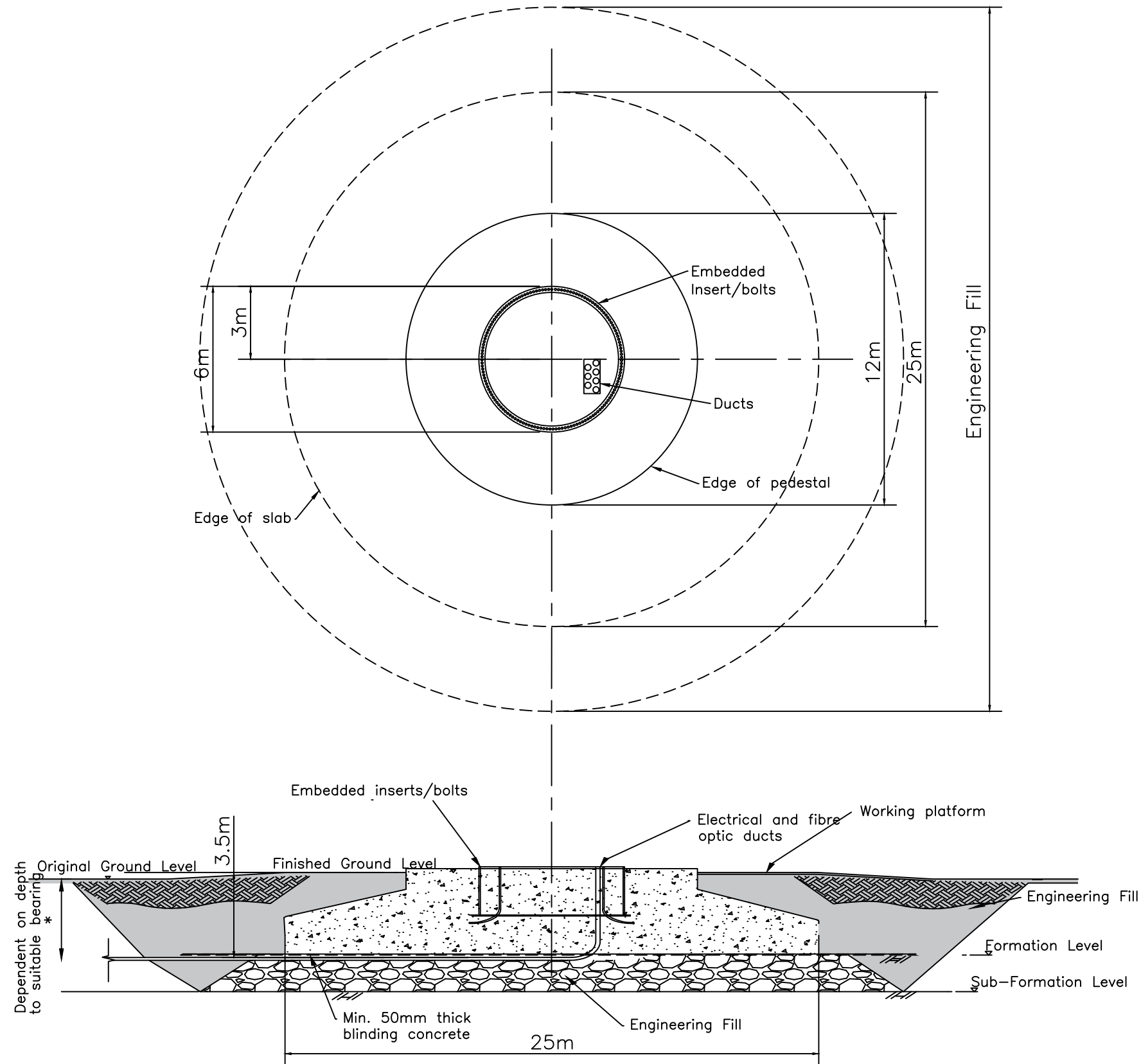


Figure 5: Typical Crane Hardstanding and Laydown Areas Arrangement

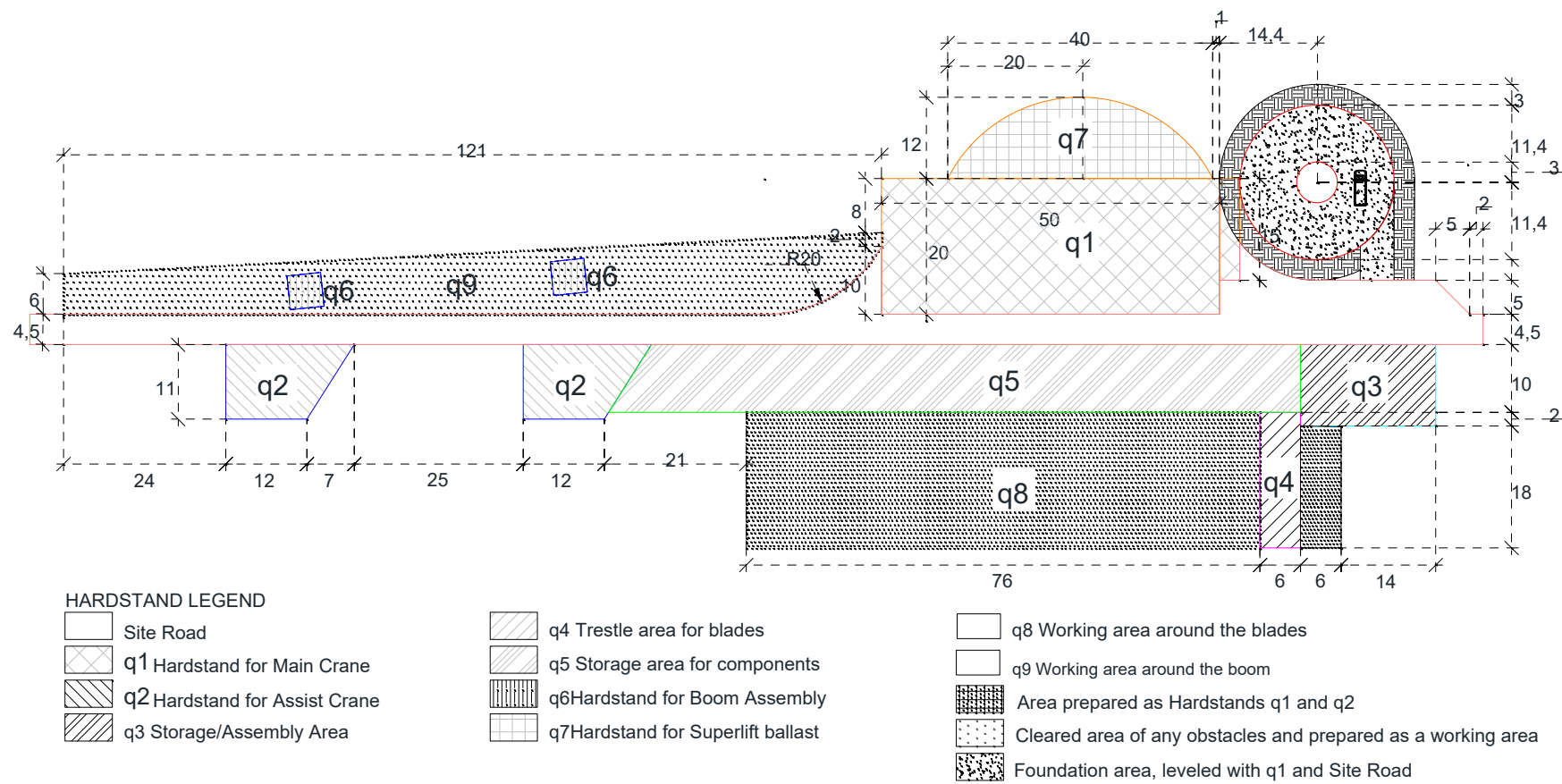


Figure 1: Example of Installation Area with modified rectangular Hardstand for the Main Crane (LG1750)

Area	Description	Max. fall	Area (m2)	Dimensions (m)	Maintenance	Relationship to other q areas
Road	Site road section from q1 to q2	≤0.25%		4,5	Permanent	Level with q1, q2, q3 and q5
q1	Hardstand for Main Crane	≤0.25%	1,045	(50 x 20) + (15 x 3)	Permanent	See comments below
q2	Hardstand for Assist Crane	1.5%	341	2x (12 x 11) + 77	Temporary	Ideally the q2 will be level with the site road, if not, then access for the assist crane must be provided. Please see GP Section 5.1.6
q3	Storage area for containers	≤0.25%	240	20 x 12	Temporary	Level with site road, q4 and q5
q4	Trestle area for blades	≤0.25%	120	6 x 20	Temporary	Level with q3, q5 and q8
q5	Storage area for components	≤0.25%	975	(96 x 10) + 15	Temporary	Level with site road, q2, q3, q4 and q8
q6	Hardstand for boom assembly	≤0.25%	50 / 75	2x (5 x 5) or 3x (5 x 5)	Temporary	Level with or higher than q1.
q7	Flying ballast laydown area	≤0.25%	336	12 x 40 – 12 x 12	Temporary	Level with q1
q8	Working area blades	≤0.25%	1.628	76 x 20 + 6 x 18	Temporary	Level with q4 and q5
q9	Working area boom assembly	≤ 1.5%	835 or 810	885m ² – (2x 5x5) or 885m ² – (3x 5x5)	Temporary	Level with site road

Figure 6: Substation Layout

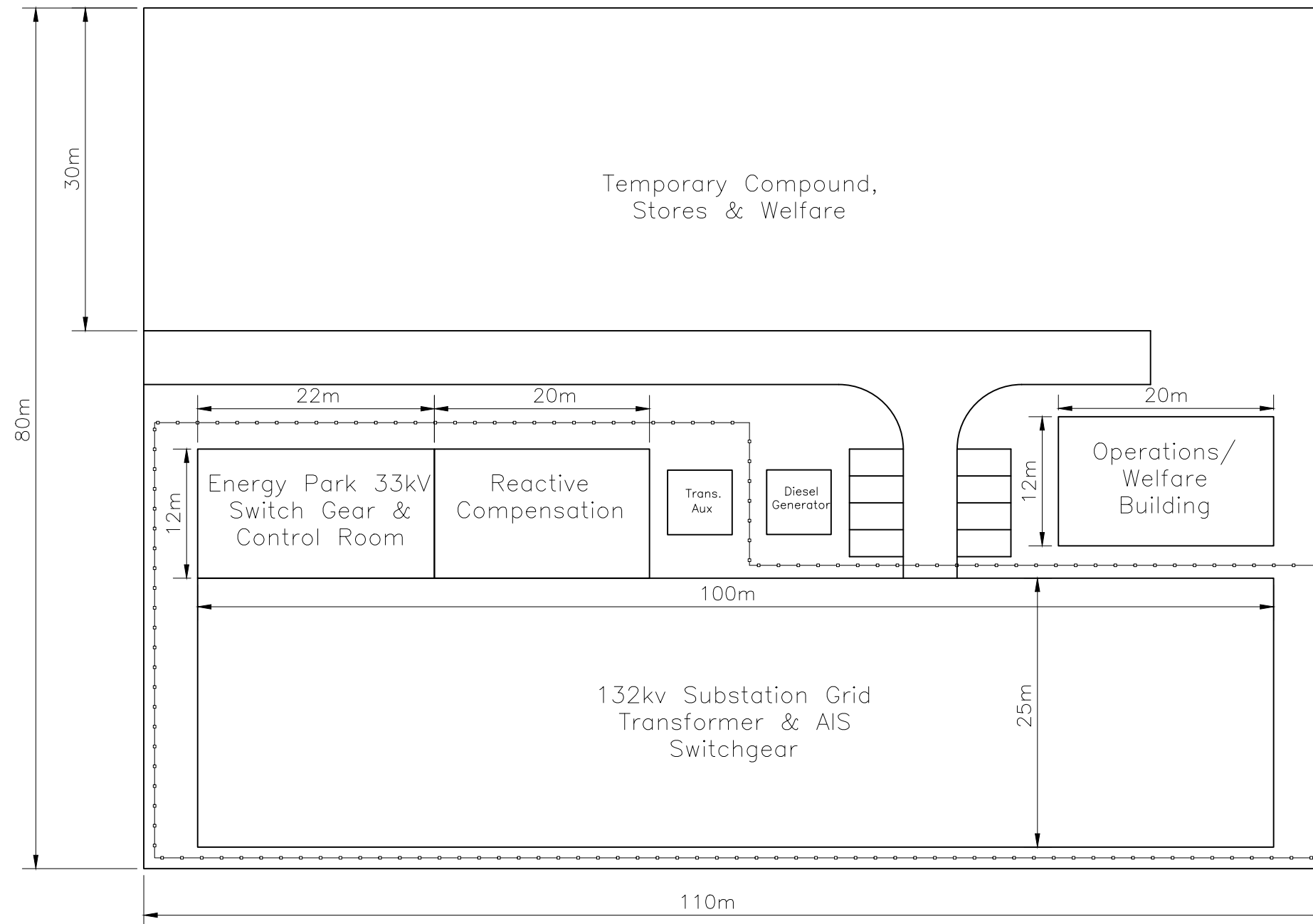
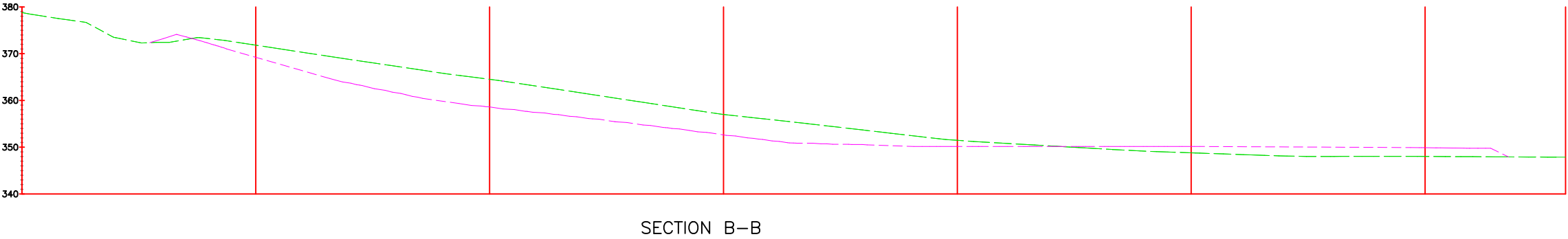
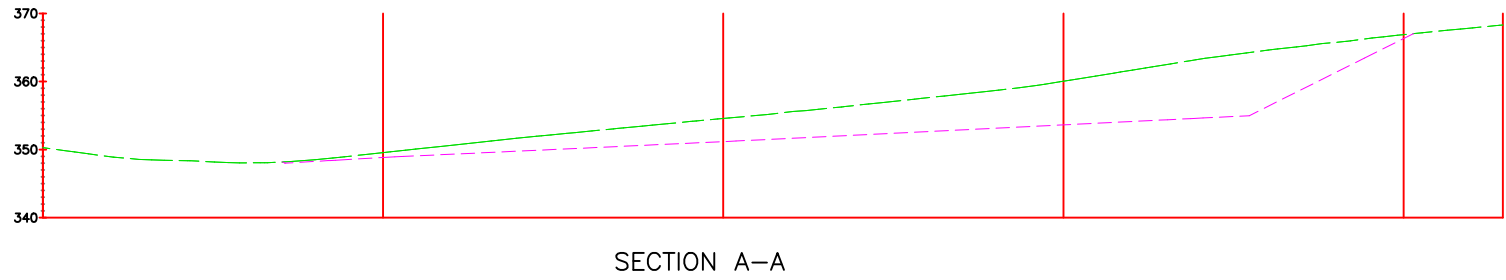




Figure 7a: Borrow Pit A Layout & Cross Sections

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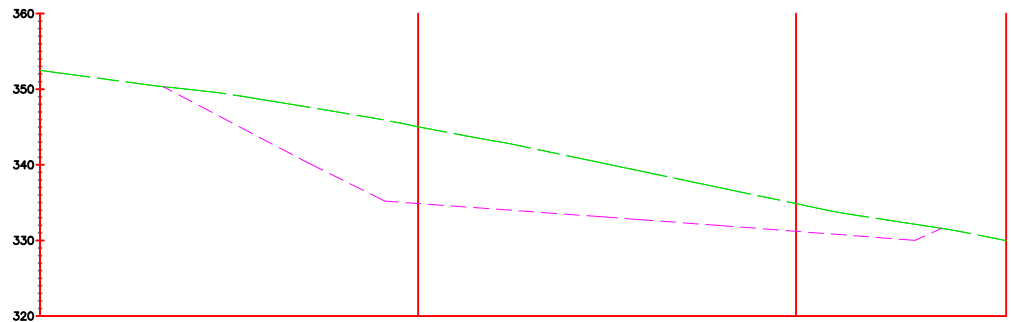


Scale as shown

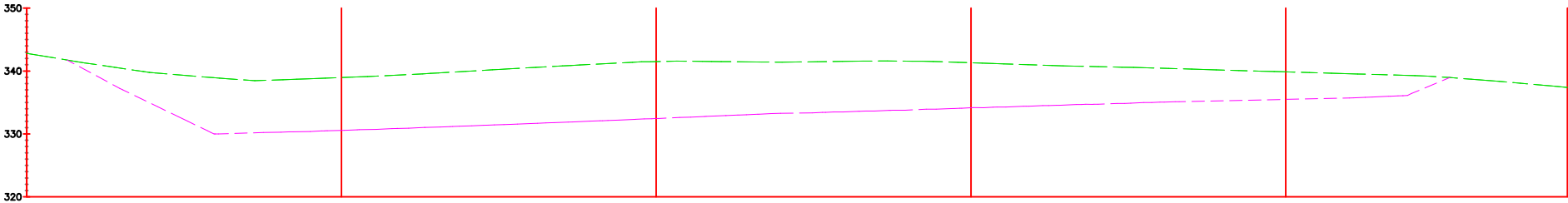


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Figure 7b: Borrow Pit B Layout
& Cross Sections



SECTION C—C



SECTION D—D

Figure 8: Temporary Construction Compound Layout

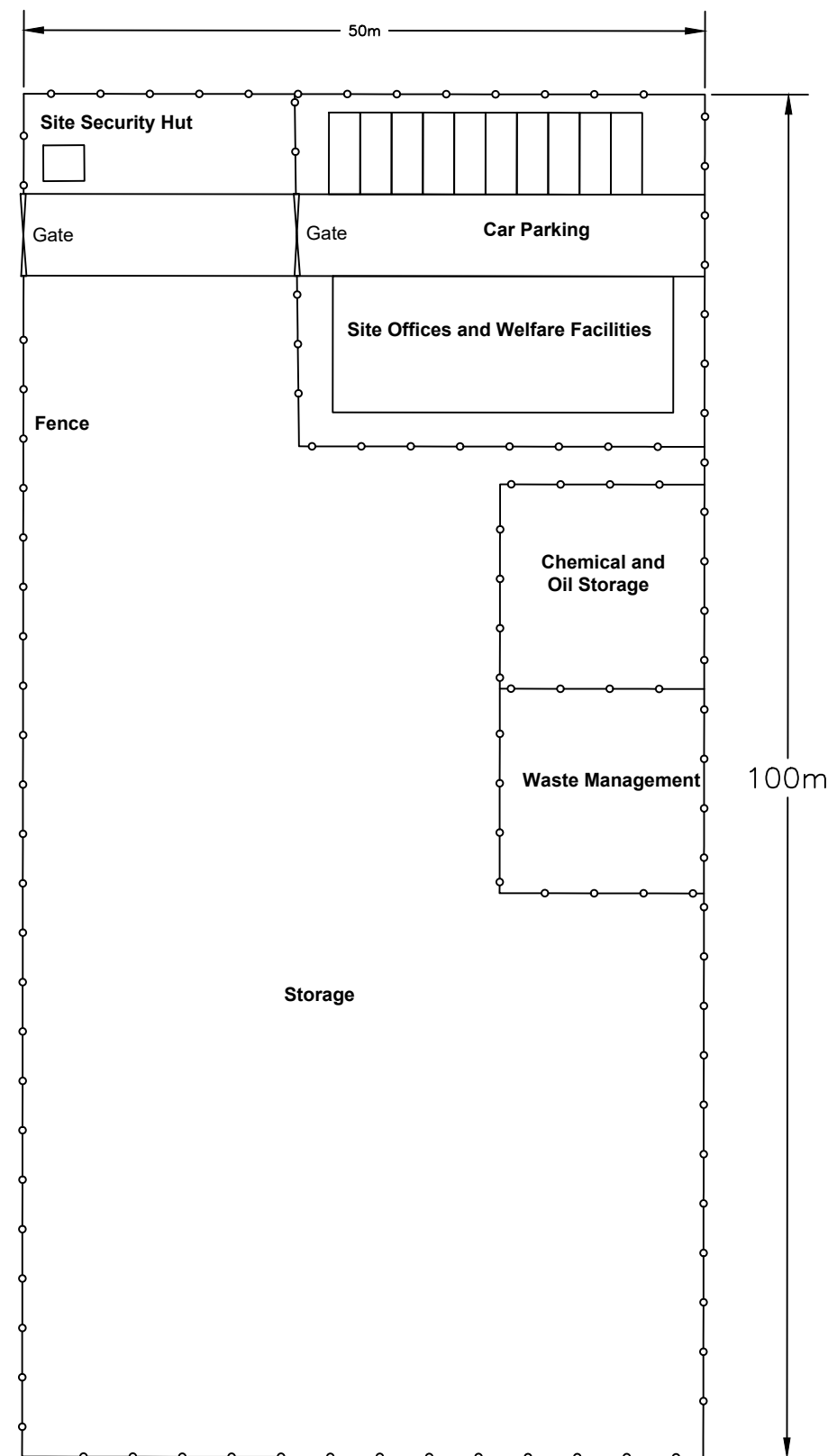


Figure 9: Access Track Arrangement

