



Fferm Wynt
Garn Fach
Wind Farm

Garn Fach Wind Farm

Accelerating to a net zero future where
clean energy powers our lives.

Proud to be investing in Wales and working
in partnership with local communities.



Fferm Wynt
Garn Fach
Wind Farm

Garn Fach Wind Farm

Accelerating to a net zero future where
clean energy powers our lives.

Proud to be investing in Wales and working
in partnership with local communities.

CONTENTS

CONTENTS	I
EXECUTIVE SUMMARY	1
2 INTRODUCTION	3
2.1 PREFACE	3
2.2 GUIDANCE	3
3 SUMMARY OF THE PROPOSAL	5
3.1 PROPOSAL OUTLINE	5
3.2 PROPOSAL SITE	5
4 BRIEF AND VISION - DESIGN	6
4.1 VISION	6
4.2 CONCEPT AND APPROACH	6
5 SITE AND CONTEXT ANALYSIS	7
5.1 INTRODUCTION	7
5.2 THE SITE AND ITS CONTEXT	7
5.3 SITE IDENTIFICATION	7
6 INTERPRETATION	9
6.1 SITE CHARACTERISTICS AND CONSTRAINTS	9
6.2 WIDER CONTEXT	9
7 DESIGN DEVELOPMENT	11
7.1 DESIGN BALANCE	11
7.2 DESIGN ITERATION	11
8 THE PROPOSAL	13
8.1 CHARACTER	13
8.2 ACCESS	13
8.3 ENVIRONMENTAL SUSTAINABILITY	14
8.4 COMMUNITY SAFETY	15
8.5 RESPONSE TO PLANNING POLICY	17

EXECUTIVE SUMMARY

- 1.1.1 This report has been prepared by Dulas Ltd on behalf of EDF Renewables in support of the Development of National Significance (DNS) application for a proposed wind farm development on land approximately 2km west of Llaithddu, 5km north-west of the village of Llanbadarn Fynydd and 8km to the south of Newtown in the County of Powys, Wales, centred at grid reference E304057, N280929. The development will have an installed generating capacity of approximately 85MW based on the installation of circa 5MW turbines, comprising up to 17 wind turbine generators.
- 1.1.2 The development is a temporary installation and would be time limited to 30 years from the first date of electricity export and would include a construction phase (approximately 18 months), an operational phase (30 years) and a decommissioning phase (approximately 6 months).
- 1.1.3 The Site is adjacent to Strategic Search Area C, identified within TAN 8 (now discontinued) as an area suitable for large-scale wind development, and is now included partly within pre-assessed area 4 of Future Wales: The National Plan to 2040.
- 1.1.4 The proposal has been subject to a full Environmental Impact Assessment (EIA), which has been based on evidence based studies completed over 2 years. The Environmental Statement (ES) describes the significance of potential impacts caused by development to the following key aspects:
- Archaeology
 - Aviation
 - Noise
 - Landscape and Visual
 - Ecology
 - Ornithology
 - Hydrology and Geology
 - Telecoms and Air Safeguarding
 - Transport and Access
 - Socio-economics
 - Shadow Flicker
- 1.1.5 The ES describes the potential for significant positive and adverse effects to key assets, qualities and receptors within range of the proposed scheme, and sets out appropriate mitigation measures where necessary to reduce adverse effects. Many of the mitigation measures are embedded in the design of the scheme, whilst others are to be implemented prior to, during and following construction. Under this approach, good design has applied in parallel with the EIA process.

Design

- 1.1.6 The concept of the design has been to optimise available land whilst ensuring the protection of the qualities and features of the receiving local environmental and local amenity. Early stage consultations took place with both key consultees and local communities.
- 1.1.7 The design of the Proposal has been informed by a combination of environmental and engineering considerations, alongside existing land uses. The environmental assessment process has also

benefited through adopting opportunities for positive design, rather than merely seeking to avoid adverse environmental effects. In addition, the previous decision for the Llaithddu Wind Farm has shaped the positioning of wind turbines to protect critical visual receptors.

Access

- 1.1.8 Access is required to the development site for installation of the proposed Development over an approximate 18 month period. Thereafter, the site will only experience very infrequent visits for maintenance, generating significantly lower volumes of traffic that are not considered to be in excess of daily traffic variation levels on the road network.
- 1.1.9 In respect of the traffic and potential highway disruption arising from installation, peak traffic generation will occur during month 7 inclusive of the construction period, with 130 movements per day (50 car/light and 80 HGV).
- 1.1.10 The wind turbine components are able to be delivered to site from the A483 south of Cwmrhiwdre, which is the existing access to the Llandinam Windfarm. An additional operational access point is also provided from an existing junction on the Powys County Council (PCC) road network at David's Well.
- 1.1.11 A Traffic Management Plan (TMP) will be agreed with key consultees (including local residents) which will detail measures aimed at minimising adverse environmental and amenity effects associated with traffic and transport during construction.

Planning

- 1.1.12 The highest tier of the Welsh Government's Development Plan in Wales is Future Wales: The National Plan 2040 (February 2021), and states that *"as set out in legislation, applications for Developments of National Significance must be determined in accordance with Future Wales"*.
- 1.1.13 Future Wales states that decision-makers must give significant weight to Wales' need to meet its international and national commitments, and the contribution of new clean energy capacity within pre-assessed areas, such as partly at Garn Fach, therefore outweighs any other material considerations related to the proposed development, subject to meeting the requirements of the Policy 18 criteria within Future Wales. The Policy 18 criteria specify that wind energy development will be permitted where there are no unacceptable impacts to a series of qualifying features and assets.
- 1.1.14 The Powys Local Development Plan 2011 – 2026 (April 2018) provides a supportive context to the development of large-scale renewable energy and recognises that proposals over 10MW will be determined by the Welsh Government (WG).
- 1.1.15 The proposal would make a significant contribution to reducing greenhouse gas emissions, supporting WG's commitment to net zero greenhouse gas emissions by 2050, including sourcing at least 70% of Wales' power consumption from renewables by 2030.

2 INTRODUCTION

2.1 Preface

- 2.1.1 This Design and Access Statement (DAS) has been prepared by Dulas Ltd on behalf of EDF Renewables ('the Applicant') to accompany a planning application for the proposed Garn Fach Wind Farm (the 'proposed Development') on land approximately 2km west of Llaithddu, 5km north-west of the village of Llanbadarn Fynydd and 8km to the south of Newtown in the County of Powys, Wales (the 'Site') (see DAS figure 1 – Site Location). The application site is centred at grid reference E304057, N280929.
- 2.1.2 The proposed Development when constructed will have an installed generating capacity of approximately 85MW, based on the installation of circa 5MW turbines, comprising up to 17 wind turbine generators.
- 2.1.3 As the generating capacity of the proposal exceeds a threshold of 10MW, it is classed as a Development of National Significance (DNS), as prescribed in The Developments of National Significance (Specified Criteria and Prescribed Secondary Consents) (Wales) Regulations 2016 (as amended). The Applicant has formally notified the Welsh Government (WG) of its intention to submit a DNS application, which was accepted by Planning Inspectorate Wales (PINS Wales) on 10th May 2021.
- 2.1.4 The Applicant, EDF Energy Renewables Ltd, operates within the United Kingdom under the brand EDF Renewables (hereinafter referred to as EDF-R). EDF-R is a joint venture between EDF Renewables Group (EDF's global renewable business) and EDF Energy (EDF's UK generation business). In the UK EDF-R currently operate 37 renewable energy sites, with a total installed capacity of almost 1GW, including two wind farms in Mid Wales and a further 500MW in early stage wind farm development.

2.2 Guidance

- 2.2.1 This DAS has been prepared following the guidelines established in *Design and Access Statements in Wales – Why, What and How* (April 2017), published by the Design Commission for Wales on behalf of the WG. The guide responds to the legislative requirements for DASs under the Planning (Wales) Act 2015, and is a guidance document to enable developers to meet the objectives of good design set out in Planning Policy Wales Edition 11, February 2021 and TAN 12: Design.
- 2.2.2 The Garn Fach Wind Farm planning application is accompanied by the following documents, in which greater detail of the site, its context and the design process are explained:
- Non Technical Statement
 - Written Statement – Volume 1
 - Figures – Volume 2
 - Appendices – Volume 3
 - Planning Statement
 - Consultation Report
- 2.2.3 The purpose of the DAS is to demonstrate and communicate, on behalf of the Applicant, the nature, location and scale of the development proposal and to explain the design process undertaken, which has responded to local characteristics and resulted in the meeting of good design standards.

2.2.4 The information contained herein explains the design concept for the scheme alongside an understanding of the site and its broader context, and how the final design of the scheme was achieved following several modifications and improvements. Such information then goes forward as an aid to pre-application consultations and ultimately will better support the decision-making process.

3 SUMMARY OF THE PROPOSAL

3.1 Proposal Outline

- 3.1.1 EDF-R is seeking permission for the construction, operation and decommissioning of 17 wind turbines, an energy storage facility and associated infrastructure including site tracks, cabling, substation, borrow pits and temporary construction areas. All three stages are described in detail in Chapter 5 Project Description ,Volume 1 of the Environmental Statement (ES).
- 3.1.2 Each wind turbine generator would be a three-bladed machine and will be a maximum of 149.9m to the tip. The generators would each be circa 5MW installed capacity.
- 3.1.3 The proposed Development would be time limited to 30 years from the first date of electricity export and would include a construction phase (approximately 18 months), an operational phase (30 years) and a decommissioning phase (approximately 6 months).
- 3.1.4 The planning application includes, within the red line boundary, an allowance for potential micro-siting of the wind farm infrastructure. If planning permission is granted, EDF-R will commission detailed ground investigations and geotechnical surveys to determine the ground conditions. Consequently, the planning application boundary allows for potential 50m micro-siting of wind turbines and associated hardstandings and provision for other site infrastructure including tracks and the substation facility.

3.2 Proposal Site

- 3.2.1 The Site is located within an area of exposed upland plateau to the south west of Newtown and south east of Llandiloes. The Ithon Valley lies to the east of the Site and a number of minor river valleys are located throughout the local area, including the Marteg Valley to the south-west. The Cambrian Mountains rise above the Severn and Wye Valleys to the south-west, west and north-west.
- 3.2.2 A summary description of the Site and its context is given in Section 5 Site and Context Analysis of this DAS, and detailed descriptions of the landscape, environmental and amenity features are set out in Volume 1 of the ES.

4 BRIEF AND VISION - DESIGN

4.1 Vision

- 4.1.1 The Garn Fach scheme forms part of a portfolio of projects in the UK that EDF-R intends to deliver to decarbonise the power generation sector, reduce energy costs to the consumer, and support the sustainability of the rural communities hosting these projects over their operational lifetimes.
- 4.1.2 EDF-R, is a major provider in the UK of wind, solar and battery technology and their investment in renewable technologies is driven by their vision, UK government policy, and WG's announcement in 2020 for net zero greenhouse gas (GHG) emissions by 2050, including sourcing at least 70% of Wales' power consumption from renewables by 2030.
- 4.1.3 The legislative and policy drivers place a substantial reliance on the wind industry, as one of the more mature technologies, to deliver new capacity as a critical tool in the decarbonisation of power generation, and increasingly the electrification of transport and heat.
- 4.1.4 The Garn Fach scheme will make a significant contribution to devolved and UK targets.

4.2 Concept and Approach

- 4.2.1 The concept of the design has been to optimise available land within the Garn Fach application boundary for deploying wind energy generators, and in so doing ensure the protection of the qualities and features of the receiving environmental and local amenity.
- 4.2.2 Design parameters for the scheme were established at the commencement of the project (i.e. 5 x 3 rotor diameter spacing of wind turbines, tip height of 149.9m to avoid fixed visible light, likely access route, track widths etc.) and thereafter a design process was applied that moderated or adjusted the design and layout of scheme in response to the environmental surveys and the design advice of technical specialists on for example landscape, ecology, heritage.
- 4.2.3 The design approach included early stage consultations with key consultees, inclusive of Powys County Council (PCC) and Natural Resources Wales (NRW), who were requested to advise on relevant environmental planning issues and comment upon initial designs. Early stage consultations with local communities were also undertaken in order to share project information and solicit local views and advice on the design of the scheme. Five public consultation events were held in January 2020 in villages around the Site, and a virtual public consultation in October 2020, both of which invited residents within 10km of the Site to attend the events and provide feedback on the scheme.

5 SITE AND CONTEXT ANALYSIS

5.1 Introduction

- 5.1.1 This section describes the location and nature of the proposed site, and provides an understanding of the qualities of the Site and its context.
- 5.1.2 Detailed descriptions of the full environmental characteristics of the Site and the wider study area are set out in Chapters 6 – 13 of the ES. A description of the selection of the Site and how the design of the proposed Development has evolved in response to environmental sensitivity testing is set out in Chapter 4 Site Selection and Project Evolution, Volume 1 of the ES.

5.2 The Site and its Context

- 5.2.1 The Site and its surroundings principally comprise upland grazing land and large commercial forestry blocks located along part of the western edge and Garn Fach forestry plantation at the centre of the site; a series of shelter belts and small woodland areas also contribute to the characteristics of the immediate area.
- 5.2.2 In general terms, the Site is situated / surrounded in the upland area of Waun Ddubarthog, Banc Du and the northern aspect of Brondre Fawr Hill, characterised by an extensive undulating plateau surrounded / bisected by incised valleys with steep-sided slopes.
- 5.2.3 The Site is formed by a subtle valley around Blue Lins Brook on the east facing slopes of Waun Ddubarthog, and enclosed by the replanted Garn Fach conifer plantation to the east. Multiple brooks and rivers radiate out from the Site, including the Ithon Valley to the east, forming a moorland plateau with rolling uplands on either side of the valley. The Cambrian Mountains rise above the Severn and Wye Valleys to the south-west, west and north-west.
- 5.2.4 A number of key road routes are located within a 10km radius from the outermost turbines of the Project, including the A483 between Newtown and Crossgates, A489 between Caersws and Newtown, A470 Caersws to Cwmbelan, and B4518 between Staylitttle, Llanidloes and Rhayader. A network of minor and rural roads also connect residential properties and hamlets within 5 km of the Site boundary.
- 5.2.5 Important recreational routes in the region include Glyndŵr's Way, the Kerry Ridgeway, the Severn Way, the Wye Valley Walk and National Cycle Network Route 825.
- 5.2.6 There are several operational wind energy developments located within the Study Area, inclusive of the scheme closest to the Site at Llandinam, and at Esgairdraenllwyn and Garreg Lwyd. There are several other single turbine developments and one twin turbine development within 7km of the Site.

5.3 Site Identification

- 5.3.1 Selecting a site suitable for a wind power project is a complex process, involving a number of technical, commercial, environmental and planning considerations such as land availability, wind resource, grid connection, aviation interests, road access, wind turbine spacing and existing land uses. These criteria were applied by the Applicant as a preliminary screening assessment of the potential for wind development at the proposed Development and to determine the preferred area of the leased land for development.

- 5.3.2 The Site is adjacent to Strategic Search Area C (SSA C), identified within TAN 8 (now discontinued) as an area suitable for large-scale wind development, and is now included partly within pre-assessed area 4 of Future Wales: The National Plan to 2040, for which Policy 17 is a material consideration. Under Policy 17 pre-assessed areas have already been modelled for likely impacts to landscape and found them to be capable of “... *accommodating development in an acceptable way. There is a presumption in favour of large-scale wind energy development ... in these areas.*” Policy 18 sets out the detailed criteria against which development will be determined.
- 5.3.3 The historical national planning context and current status of the Site under Future Wales demonstrate that there are strong grounds to acknowledge that the spatial location of the Garn Fach scheme accords with national planning spatial guidance, and, subject to good design, meets the tests in both Policies 17 and 18. The planning policy justification for the Proposal is set out in the Planning Statement.
- 5.3.4 The proposed Development was subject to a previous planning application as the Llaithddu Wind Farm (2008 – 13). The application was subject to a public inquiry and was refused by the Secretary of State due to the visual impact on Bwlch-y-Sarnau and the landscape impact on the Marteg Valley. The revised development proposal for the proposed Development has modified the design and layout of the scheme to account for and to protect the environmental and planning sensitivities of the Site and its context, including southern receptors groups. A series of wireframes, comparing the visibility of the Llaithddu and Garn Fach Wind Farms, are available within the Planning Statement.

6 INTERPRETATION

6.1 Site Characteristics and Constraints

6.1.1 The potential development area for the proposed Development was delineated and refined by the rigorous mapping and the interpretation of Site characteristics and the surrounding area. Protected areas, terrestrial constraints and buffer zones to sensitive features then informed the process of wind farm design and laying out of infrastructure. An interpretation of the essential characteristics and constraints to the Site is illustrated in DAS Figure 2 – Onsite Constraints.

6.1.2 The key characteristics and constraints to the Site and its immediate environs include:

- Commercial forestry and shelter belts, including Garn Fach
- Multiple watercourses and private water supplies
- Topography and habitats, including Rhos Cwmdrwr Site of Specific Scientific Interest (SSSI)
- Rights of way, several of which cross or route near to the Site
- Monuments and archaeological features, including Fowler’s Arm Chair
- Properties and settlements, including multiple houses and farms, and Llaithddu and David’s Well
- Local road network, inclusive of the minor Llaithddu to Bwlch-y-Sarnau road

6.1.3 These factors informed the design iteration process set out in Section 6.

6.2 Wider Context

6.2.1 The nature of wind turbines as tall structures results in potential effects beyond the immediate site boundary and over a wider geographical area. Visual effects to a variety of receptors, such as protected landscapes, national trails and residences, and national monuments, and physical impacts on, for example transport networks and aviation, need to be taken into consideration.

6.2.2 Such receptors, in some cases up to 40 kilometres from the site boundary, have been identified and assessed in terms of their sensitivity to the proposed Development and subsequently applied in evolving the wind farm design.

6.2.3 The key receptors identified were:

- Shropshire Hills Area of Outstanding Natural Beauty (10 km to the East)
- National trails and recreational routes, including Glyndŵrs Way, the Kerry Ridgeway Walk and the Wye Valley Walk
- Local roads and regional highways, such as the A483 between Newtown and Llandrindod Wells, and the A489/A470 Newtown to Llanidloes
- Key viewpoints, such as those from Gors Lydan visitor centre
- Scheduled monuments and historic landscapes
- Other wind farm development, particularly the operational Llandinam scheme and it’s consented repowering
- Towns such as Newtown and Llanidloes

- RAF Shrewsbury and other safeguarded aviation interests
- Clusters of settlements, including Bwlch-y-Sarnau to the south west and Pentre to the north-east, and other isolated properties and farms

6.2.4 These receptors were integral to the sensitivity testing exercise that formed part of the design iteration process described in Section 6 - Design Development.

7 DESIGN DEVELOPMENT

7.1 Design Balance

7.1.1 The design of the proposed Development has been informed by a combination of environmental and engineering considerations, alongside existing land uses. The aim has been to arrive at an appropriate outcome that has balanced the necessity for sufficient wind capture whilst avoiding or reducing harmful environmental effects. In tandem, the environmental assessment process has also benefited through adopting opportunities for positive design, rather than merely seeking to avoid adverse environmental effects. In addition, the previous decision for the Llaithddu Wind Farm has shaped the positioning of wind turbines to protect critical visual receptors.

7.2 Design Iteration

7.2.1 A staged approach to the design of the scheme has been informed by the interpretation of the site characteristics and context, alongside delivering the necessary parameters for wind energy generation, and following consultations with stakeholders and affected residents. This iterative process was applied based upon the technical, planning and environmental constraints described in Section 5 above.

7.2.2 The aim from a landscape and visual perspective has been to:

- locate turbines in the large-scale unenclosed areas as far as possible where landscape scale is larger, and avoiding the smaller scale valleys;
- set turbines back from the steeper western edge of the ridges (i.e. the western break of the slope);
- minimise intrusion of turbines into views from Fowler's Arm Chair (Scheduled Monument) into the Marteg Valley;
- reduce the extent of the wind farm to the south compared to the previous proposal (Llaithddu) on this Site;
- achieve as consistent a height and spacing as feasible (in light of other constraints), to achieve a well-balanced composition overall; and
- ensure no turbine is too dominant or overwhelming in the main view from a property, such that it could result in unacceptable living conditions.

7.2.3 The principal stages of design are summarised as follows:

Preliminary Layouts – January to October 2020

A preliminary layout of the scheme for the Scoping Exercise and first public consultation event, featuring a scheme comprising up to 22 wind turbines up to 149.9 metres to tip. This is presented as Figure 4-3 Scoping Layout within Volume 2 of the ES.

A second public consultation event was held virtually in October 2020, still comprising 22 turbines, several of which had been relocated from the preliminary wind farm layout. This is presented as Figure 4-4 Scoping Layout within Volume 2 of the ES.

Revised Layout – October to November 2020

Consultation was undertaken with PCC, with a particular focus on the landscape and visual impact of the wind turbines. Following this consultation and the results of the wider environmental assessments, a number of further amendments to the site layout were made, which resulted in a reduction to 17 turbines, and included an additional land parcel being incorporated as part of the Site.

The principal amendments were as follows:

- Removal of five turbines from the scheme in the main due to topographic constraints and marginal energy capture
- Relocation of three turbines to avoid deep peat or to protect residential and recreational receptors
- Realigning the crane hardstanding and blade laydown area for Turbine 1 to minimise the works on common land
- Realigning the track between Turbines 16 and 15 to follow existing tracks
- Reducing the size of borrow pit to the south of Turbine 11 to avoid areas of archaeological interest
- Relocating the borrow pit to the north of Turbine 15 to move it off the ridge line and further from archaeological features

Pre-Application Design Freeze

7.2.4 The Pre-Application design and layout was assessed and optimised to provide a visually coherent and balanced proposal that protects environmental and amenity sensitivities relevant to the Site. In this manner many potentially adverse impacts were designed-out and avoided. Where significant adverse effects are identified, mitigation measures are included in the application to reduce, where possible, any residual harmful effects.

7.2.5 The Pre-Application design was subject to further statutory and community scrutiny in accordance with Articles 8 and 9 of The Developments of National Significance (Procedure) (Wales) Order 2016.

Design Freeze

7.2.6 Following comments and responses received at the Pre-Application Consultation, a change to track routing between T10 and T11 has been adopted.

7.2.7 The relocation of this track leads to a reduction in overall track length equal to approx. 1km, and hence a reduced level of impact overall by the civils elements of the Development; the track rerouting also allowed the removal of a culvert over a water crossing between these turbines. The updated track routing is shown on DAS Figure 3 Site Layout.

8 THE PROPOSAL

8.1 Character

- 8.1.1 The Proposal will comprise 17 wind turbines with a tip height no greater than 149.9m and an energy storage facility (62m x 56m). The turbines will be three-bladed, mounted on a nacelle at the top of each turbine, which also houses the generator and switchgear. These will be the principal visual characteristics of the turbines, along with the ground concrete foundations and small external transformer units at the foot of each turbine. The turbine towers and components would be fabricated from steel and other metals; wind turbine blades are typically manufactured from glass or carbon fibre reinforced composites. Areas of hardstanding made of crushed stone at each of the turbine bases will be covered over and reseeded.
- 8.1.2 Ancillary infrastructure including the following will be necessary to the delivery and operation of the proposed Development:
- Control building with substation / switchgear facility (150m x 80m);
 - A maximum of 9.79 km of new on-site access tracks included turning heads using geotextile and crushed stone;
 - Upgrading of a maximum of 3.08 km of existing on-site access tracks and 584 m of existing forestry tracks;
 - Improvements to the access route and site entrance using geotextile and crushed stone;
 - New and upgraded drainage associated with the wind farm and connecting underground cabling.
- 8.1.3 All electricity cabling connecting the wind turbines within the site would be underground and adjacent to the access tracks.

8.2 Access

- 8.2.1 Alternative transport routes were evaluated for transporting the turbine components, plant machinery and construction materials to the Site. The basis for the evaluation is that the wind turbine loads would originate from a port on Merseyside and thereafter be routed via the A5 and A483 to Newtown before approaching the Site from the north via the local roads C2025 & U2835, as shown on DAS Figure 4 - Route to Site. All other loads would originate from construction companies and material sources within the region.

Abnormal Load Movements

- 8.2.2 Swept Path Analysis (SPA) was undertaken to identify whether the delivery route could accommodate the physical size of abnormal load delivery vehicles carrying components such as turbine blades and nacelles, and to identify any necessary engineering works to enable delivery loads. The analyses have confirmed that wind turbine components are capable of delivery to site with some minor modifications of the local road network into the Site from the A483 south of Cwmyrhiwdre, which is the existing access to the Llandinam wind farm. An additional operational access point is also provided from an existing junction on the PCC road network at David's Well.

HGV Movements

- 8.2.3 The principal effects on the surrounding road network would be experienced during month 7 inclusive of the construction period, with 130 movements per day (50 car/light and 80 HGV).
- 8.2.4 Any deliveries to the Site will be strictly managed, both in terms of route choice and the timing of deliveries. Deliveries would be scheduled as far ahead as possible to occur outside peak periods.
- 8.2.5 Police, County Highway Authority and Highways Agency involvement is proposed throughout the planning process to ensure local conditions, seasonal events and any proposed or on-going road works are taken into account in the proposals. This would ensure that highway safety is maintained and delays are kept to a minimum.
- 8.2.6 Local conditions have been assessed and the percentage increase in traffic generation on the delivery route (Newtown Bypass, A483 North and South, and C2025/U285) has identified that total traffic movements are not predicted to increase by more than 30% on all of the study area, with the exception of the C2025 / U2835 leading to site.
- 8.2.7 Total HGV traffic movements will increase on the C2025 / U2835, where HGV flows on the unclassified road will see an additional 80 HGV journeys per day (40 inbound and 40 outbound). This represents an additional five inbound HGV journeys every hour during construction activities in the peak month.

Transport Management Plan

- 8.2.8 Prior to the commencement of the Proposal, a Traffic Management Plan (TMP) will be agreed with key consultees, including local residents, a draft of which is included in Appendix 13-2, Volume 3 of the ES. The draft TMP details measures aimed at minimising adverse environmental and amenity effects associated with traffic and transport during construction.
- 8.2.9 The TMP includes details on temporary road signage requirements, construction traffic routing, convoy movement strategy and timing of deliveries.
- 8.2.10 The draft TMP includes the preferred access route for HGVs and abnormal loads. To support movements, banksmen and a Movement Co-ordinator will be appointed. The Movement Coordinator will act as the main point of contact for the developer, turbine supplier, haulier, the Balance of Plant (BoP) contractors, WG, Highways England, planning authorities and the Police. The Coordinator will be in place two months prior to loads moving and will be responsible for the implementation of the TMP and for any changes and or updates.
- 8.2.11 Liaison between local residents and EDF-R will be undertaken as part of the TMP, including the scheduling of major traffic movements to reduce impact on local residents where possible.
- 8.2.12 It should be noted that the construction phase is transitory in nature and the peak of construction activities is short-lived.
- 8.2.13 The operational phase is restricted to occasional maintenance operations which generate significantly lower volumes of traffic that are not considered to be in excess of daily traffic variation levels on the road network.

8.3 Environmental Sustainability

- 8.3.1 The projected annual electricity output of the Proposal is 260,610 MegaWatt Hours (MWh) based on

- the output of seventeen 5MW wind turbines and an assumed 35% capacity factorⁱ. The clean electricity generated annually will be equivalent to the domestic requirements of 69,000 homesⁱⁱ.
- 8.3.2 The annual offsetting reduction in carbon dioxide (CO²) emissions will range from an estimated 66,085 tonnes to 117,275 tonnesⁱⁱⁱ dependent upon the composition of fuel types (gas, nuclear, renewables etc) in UK energy production at the time of estimation with the total over the 30 year lifetime of the development equivalent to a maximum potential 3,518,250 tonnes.
- 8.3.3 The predicted payback of the carbon balance of the proposed Development ranges from 0.7 to 6.5 years, as modelled in the Carbon Balance Assessment. The expected figure will be influenced by a range of factors at the time of installation, but it is realistic to expect the scheme, based on current factors, to repay its carbon debt within 1.3 years, resulting in a scheme that will be carbon positive for the mainstay of its operational lifetime.
- 8.3.4 Farming and commercial forestry will continue to be pursued across the development site, augmenting its current mixed uses with energy generation.
- 8.3.5 A draft Outline Habitat Management Plan (OHMP) has been produced that details a series of habitat enhancement/restoration measures which, if implemented, would result in positive outcomes for the ecology in the Habitat Survey Area.
- 8.3.6 The OHMP includes measures whereby the enhancement of existing habitats and the creation of new habitats, deliver multiple benefits adopting an ecosystem approach. The OHMP seeks to set out biodiversity benefits at the landscape scale, while simultaneously benefiting ecosystem services. These include flood protection (wetlands and bog habitats), water quality (siltation, diffuse pollution) and carbon storage (bog habitats). Habitat enhancement will deliver for biodiversity and enhance habitat networks.
- 8.3.7 In the broader context, onshore wind supports 5,500 jobs in the UK, 600 of which are based in Wales^{iv}, thereby bringing employment and economic benefits to local and national economies as part of the green recovery plan^v. For the proposed Development, the majority of consultants used in the development are based in Wales, and EDF-R operates an operations and maintenance base in Aberystwyth employing five technicians and an apprentice.

8.4 Community Safety

- 8.4.1 Wind turbines, properly designed, erected and maintained are a safe form of technology. See the section on health and safety in Chapter 5 Project Description, Volume 1 of the ES.

Noise

- 8.4.2 An operational noise assessment has been undertaken that compared predicted operational noise with existing background noise at several properties in the vicinity of the proposed Development. The predictions show that operational noise levels from the proposed Development will not exceed

ⁱ 35% capacity factor - conservative figure based upon measurements collected from the on-site 90m met mast.

ⁱⁱ Average household consumption from Energy consumption in the UK - GOV.UK (www.gov.uk), ECUK: Consumption data Tables (OCU), table C9 - Domestic; average consumption (2019) of 3,772 kWh

ⁱⁱⁱ Based upon the findings of the Garn Fach Wind Farm Carbon Balance Assessment, Appendix 10.8 of the ES.

^{iv} Low Carbon and Renewable Energy Economy Estimates, ONS, 2019.

^v Green Recovery: Supporting the Environmental Sector in Wales, Natural Resource Wales, May 2020. Accessed at: <https://naturalresources.wales/about-us/strategies-and-plans/green-recovery-supporting-the-environmental-sector-in-wales/?lang=en>

the limits, informed by the ETSU / IoA guidance and background monitoring, at any residential property, ensuring the protection of residential amenity.

Traffic

- 8.4.3 During construction/delivery, a traffic management contractor, approved by the North & Mid Wales Trunk Roads Agent (NMWTRA) will be responsible for assisting loads at specific locations, removal and replacing street furniture, opening and closing depot gates and for temporary warning signs along the access route.
- 8.4.4 Abnormal loads will be transported in a convoy with police escorts, and will be controlled by the police when on the public highway. The police escort will monitor trailing traffic to judge when the convoy is to pull over to enable following traffic to pass.
- 8.4.5 Advance warning signs will be installed on the approaches to the affected roads network, advising drivers that abnormal loads will be operating. Temporary pedestrian warning signs will be erected in urban areas to alert pedestrians of the proposed loads.
- 8.4.6 Information on the movement of abnormal load convoys will be provided to local media outlets to help assist the public.

Public Rights of Way and Recreation

- 8.4.7 In order to facilitate safe use of public rights of way during the construction of the proposed Development, a number of temporary diversions and closures to footpaths and bridleways are proposed as part of this Development. These are shown on DAS Figure 5 Access Strategy.
- 8.4.8 Based on location and proximity to the construction access point, there will be no access from Footpath 75 to the Site for the duration of the proposed Development construction. A short section of the minor road to site used for the wind farm access is also used by bridleway users to link up bridleways 156 and 203. This will be re-routed adjacent to the road, to segregate road and bridleway users for the duration of the proposed Development construction period.
- 8.4.9 The other rights of way within the Site will be dealt with in zones, so any diversions and closures are kept to a minimum length of time.
- 8.4.10 EDF-R has listened to consultation feedback, worked with the landowners, the Community Liaison Group, and other stakeholders to present a package of measures aimed at improving the overall recreation use of the site during the Operational phase of the Wind Farm. Measures included, as shown on DAS Figure 5 Access Strategy, are:
- Three permissive bridleways offering horse riders an alternative route from the Prince Llewelyn Way to avoid encircling if horses aren't familiar with turbines. These permissive bridleways will also open up access routes for other users of the site;
 - A permissive footpath for access to Fowler's Arm Chair, as well as installing appropriate signage and an information board to provide improved accessibility and recognition of the Scheduled Monument;
 - Designating and promoting the internal access tracks as a cycle route with dedicated parking at the south of the site providing the area with more recreation options for families, groups and individuals.

8.5 Response to Planning Policy

8.5.1 For a more detailed policy analysis of this proposal, please refer to the Planning Statement. The Planning Statement summarises the prevailing national planning policy position in respect of securing renewable energy in Wales.

Relevant National Planning Policy

8.5.2 Future Wales: The National Plan 2040 (February 2021) is the WG's National Development Framework and is the highest tier of the Development Plan in Wales. It states that *"as set out in legislation, applications for Developments of National Significance must be determined in accordance with Future Wales"*. Future Wales has reinforced the target for 70% of electricity consumption to be generated from renewable energy by 2030, of which large-scale wind is expected to provide the greatest capacity due to the abundant available resource across Wales.

8.5.3 Future Wales has been guided by:

- Well-being of Future Generations (Wales) Act 2015
- Environment (Wales) Act 2016
- Prosperity for All: A Low Carbon Wales (March 2019)
- Policy Statement: Local ownership of energy generation in Wales – benefitting Wales today and for future generations (February 2020)

8.5.4 The Garn Fach site is partly within pre-assessed area 4 identified under Policy 17 of Future Wales: The National Plan to 2040, the supporting text to which demonstrates the Welsh Government's support in principle for all renewable energy projects and technologies. It states that in the identified Pre-Assessed Areas for Wind Energy' there is a presumption in favour of large-scale on-shore wind energy development and the associated landscape change subject to the criteria in Policy 18.

8.5.5 In this context, the proposal has an installed capacity of circa 85MW and carbon offsetting benefits over the 30 year operational lifetime. Future Wales states that decision-makers must give significant weight to Wales' need to meet its international and national commitments, and the contribution of new clean energy capacity within pre-assessed areas, such as at Garn Fach, therefore outweighs any other material considerations related to the proposed development subject to meeting Policy 18 criteria.

8.5.6 Planning Policy Wales (PPW) – Edition 11 (February 2021) provides the key principles for the planning system in Wales, in terms of what development plans and decisions must achieve and how development should deliver the best possible outcomes. Though it is not part of the Development Plan, according to Future Wales it has substantial weight as a material consideration in the planning process.

8.5.7 TAN 18 was published in March 2007 and reinforces the principle aims of PPW. It describes how to integrate land use and transport planning and explains how transport impacts should be assessed and mitigated.

8.5.8 Welsh Transport Appraisal Guidance (WelTAG) (2017) aims to provide a framework for thinking about proposed changes to the transport system and it contains best practice for the development, appraisal and evaluation of proposed transport interventions in Wales.

8.5.9 The document notes that a Transport Assessment will be required where planning applications for

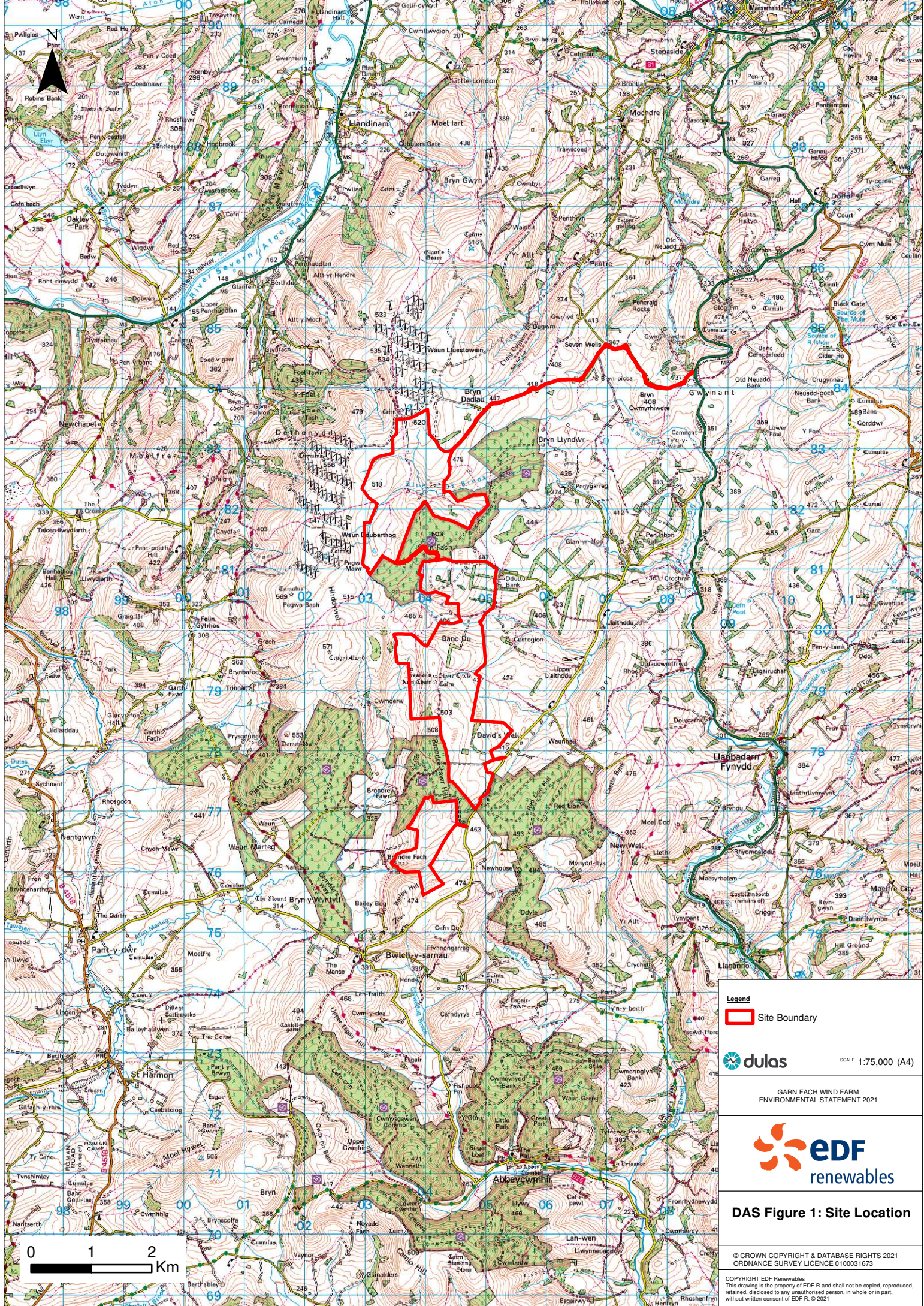
development, including changes of use, fall into the categories identified in TAN 18.


Relevant Local Policy

8.5.10 The Powys Local Development Plan 2011 – 2026 (April 2018) provides a supportive context to the development of large-scale renewable energy and recognises that proposals over 10MW will be determined by the WG.

Other Relevant Legislation

8.5.11 The Well-being of Future Generations (Wales) Act 2015 is pertinent to all public bodies in Wales and the WG. One of the well-being goals is for a globally responsible Wales, explaining that action on climate change benefits both the people and communities in Wales as well as making a contribution to the wider global effort to tackle the causes of climate change and reduce its effects.



Legend
 Site Boundary

 **dulas** SCALE 1:75,000 (A4)

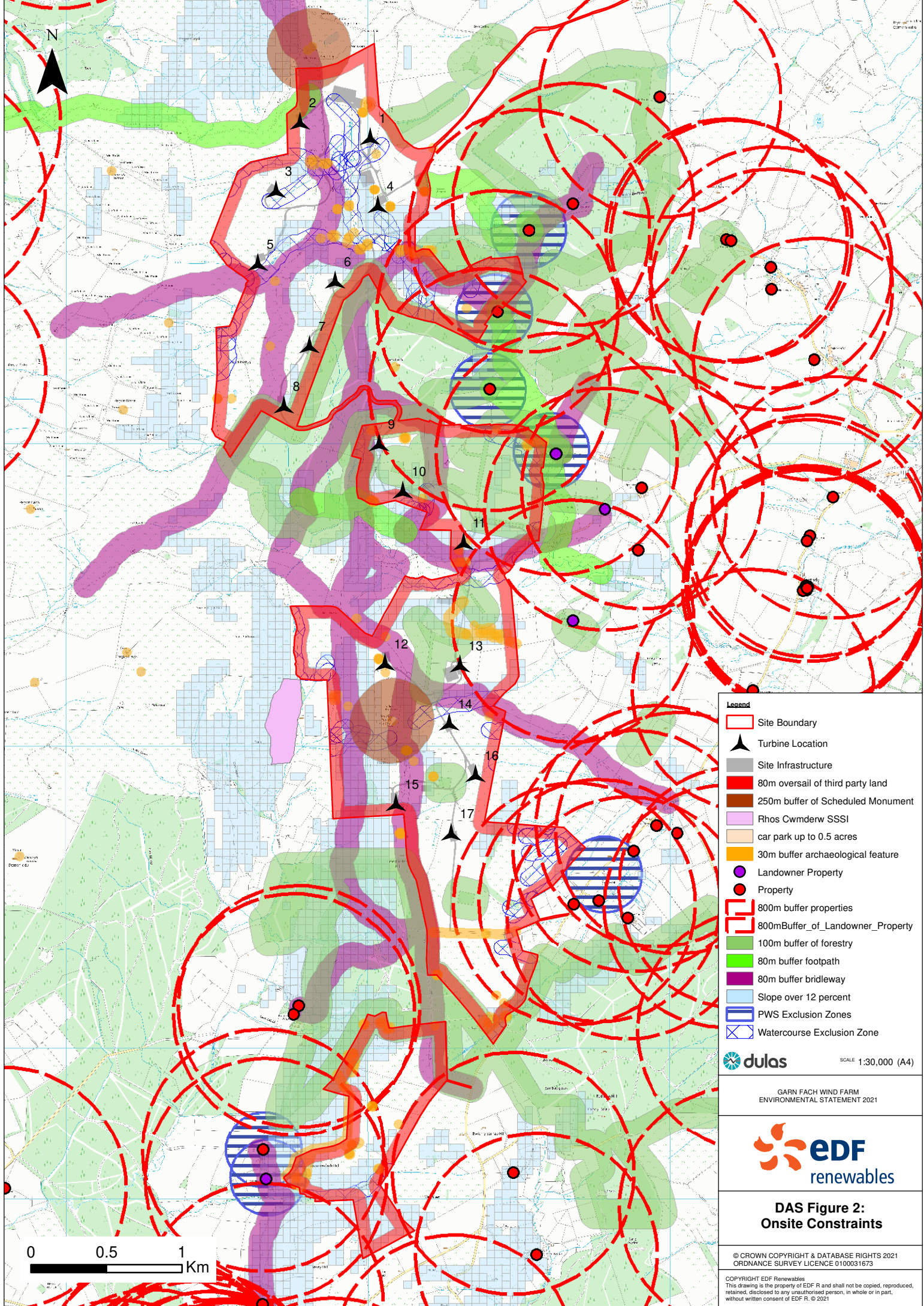
GARN FACH WIND FARM
 ENVIRONMENTAL STATEMENT 2021

 **EDF**
 renewables

DAS Figure 1: Site Location

© CROWN COPYRIGHT & DATABASE RIGHTS 2021
 ORDNANCE SURVEY LICENCE 0100031673

COPYRIGHT EDF Renewables
 This drawing is the property of EDF R and shall not be copied, reproduced, retained, disclosed to any unauthorised person, in whole or in part, without written consent of EDF R. © 2021



Legend

- Site Boundary
- Turbine Location
- Site Infrastructure
- 80m oversail of third party land
- 250m buffer of Scheduled Monument
- Rhos Cwmderw SSSI
- car park up to 0.5 acres
- 30m buffer archaeological feature
- Landowner Property
- Property
- 800m buffer properties
- 800mBuffer_of_Landowner_Property
- 100m buffer of forestry
- 80m buffer footpath
- 80m buffer bridleway
- Slope over 12 percent
- PWS Exclusion Zones
- Watercourse Exclusion Zone

SCALE 1:30,000 (A4)

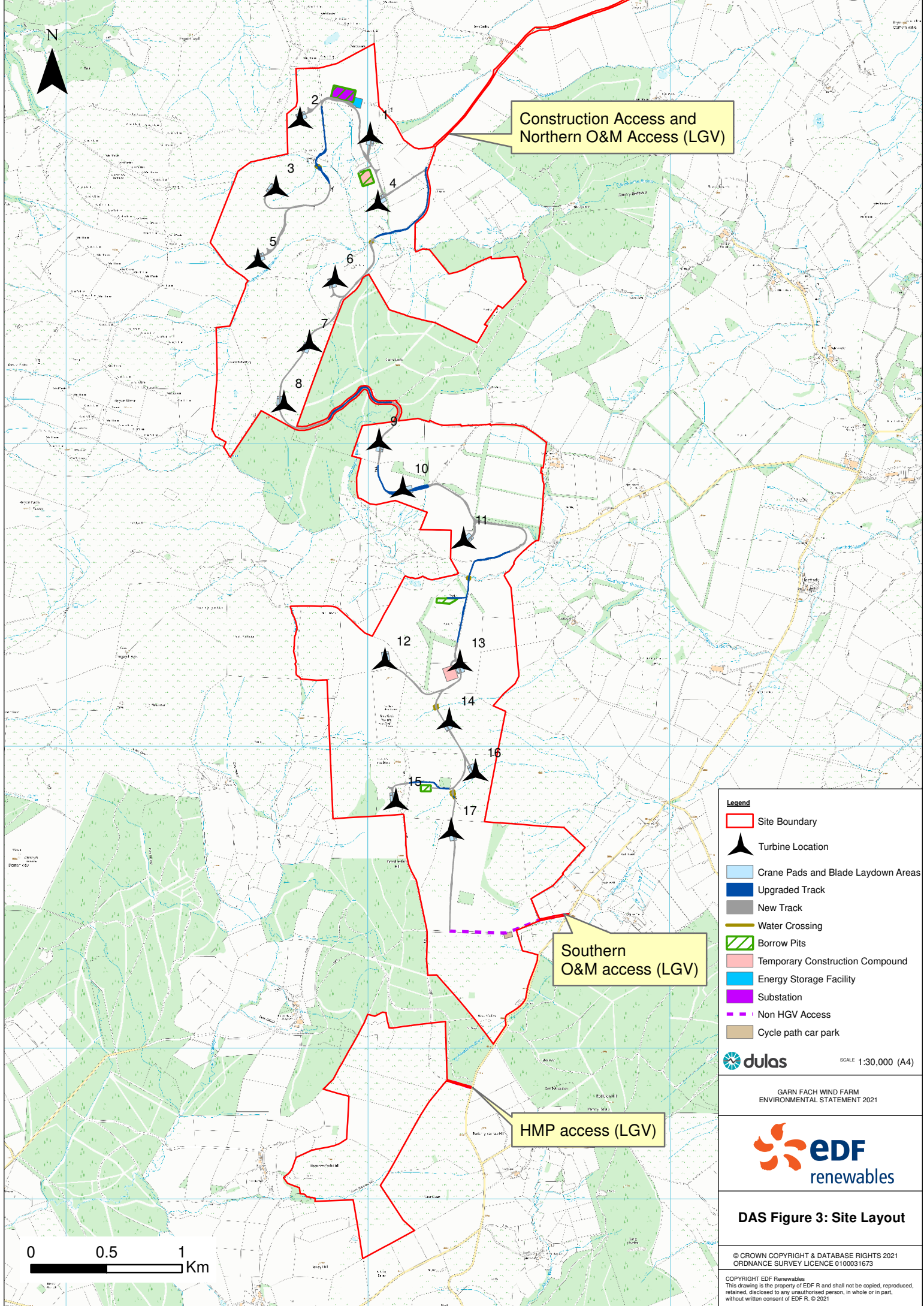
GARN FACH WIND FARM
ENVIRONMENTAL STATEMENT 2021



**DAS Figure 2:
Onsite Constraints**

© CROWN COPYRIGHT & DATABASE RIGHTS 2021
ORDNANCE SURVEY LICENCE 0100031673

COPYRIGHT EDF Renewables
This drawing is the property of EDF R and shall not be copied, reproduced, retained, disclosed to any unauthorised person, in whole or in part, without written consent of EDF R. © 2021



Construction Access and Northern O&M Access (LGV)

Southern O&M access (LGV)

HMP access (LGV)

- Legend**
- Site Boundary
 - Turbine Location
 - Crane Pads and Blade Laydown Areas
 - Upgraded Track
 - New Track
 - Water Crossing
 - Borrow Pits
 - Temporary Construction Compound
 - Energy Storage Facility
 - Substation
 - Non HGV Access
 - Cycle path car park

dulas SCALE 1:30,000 (A4)

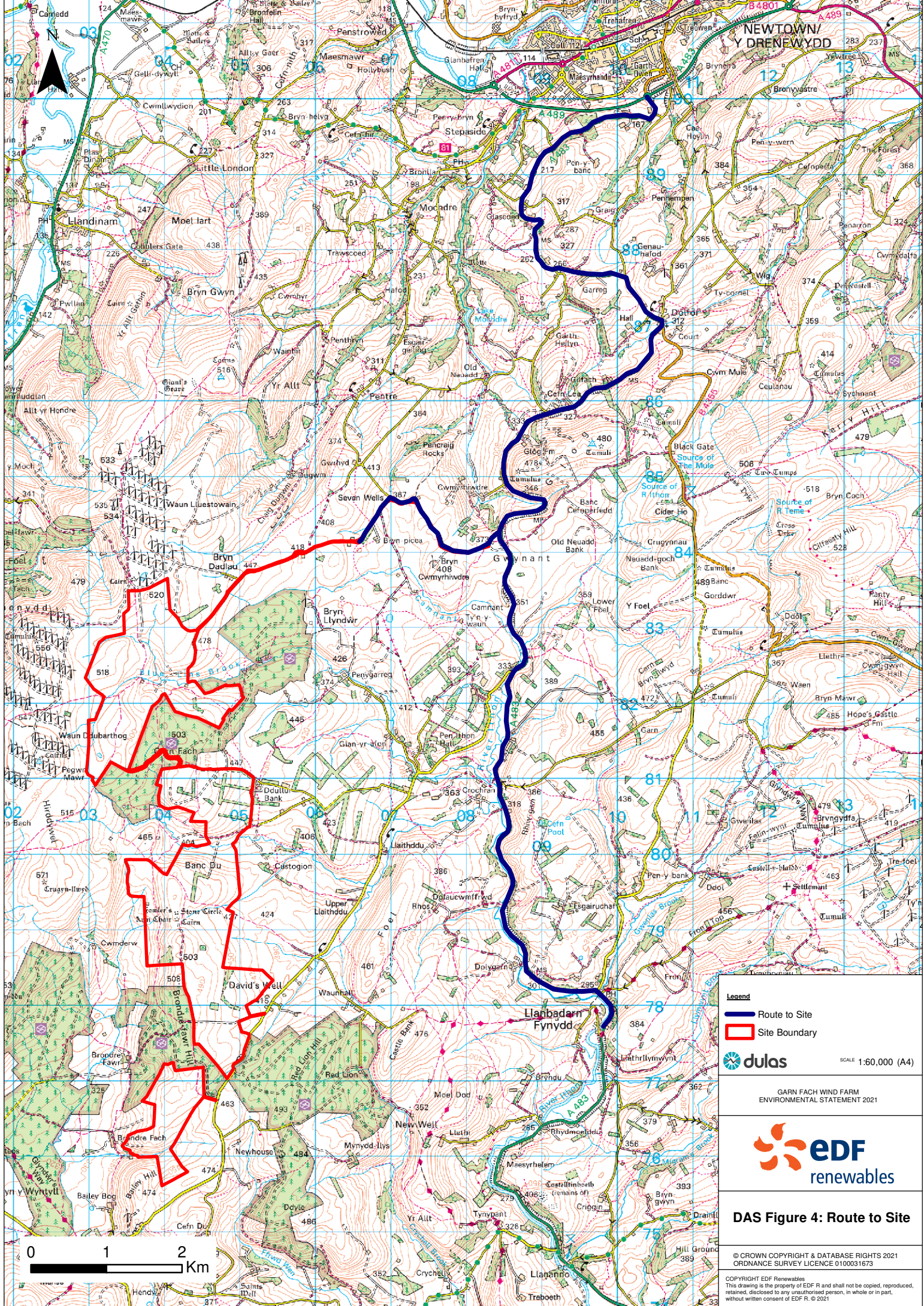
GARN FACH WIND FARM ENVIRONMENTAL STATEMENT 2021



DAS Figure 3: Site Layout

© CROWN COPYRIGHT & DATABASE RIGHTS 2021
ORDNANCE SURVEY LICENCE 0100031673

COPYRIGHT EDF Renewables
This drawing is the property of EDF R and shall not be copied, reproduced, retained, disclosed to any unauthorised person, in whole or in part, without written consent of EDF R. © 2021



Legend

- Route to Site
- Site Boundary



SCALE 1:60,000 (A4)

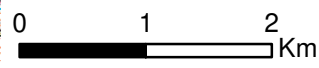
GARN FACH WIND FARM ENVIRONMENTAL STATEMENT 2021

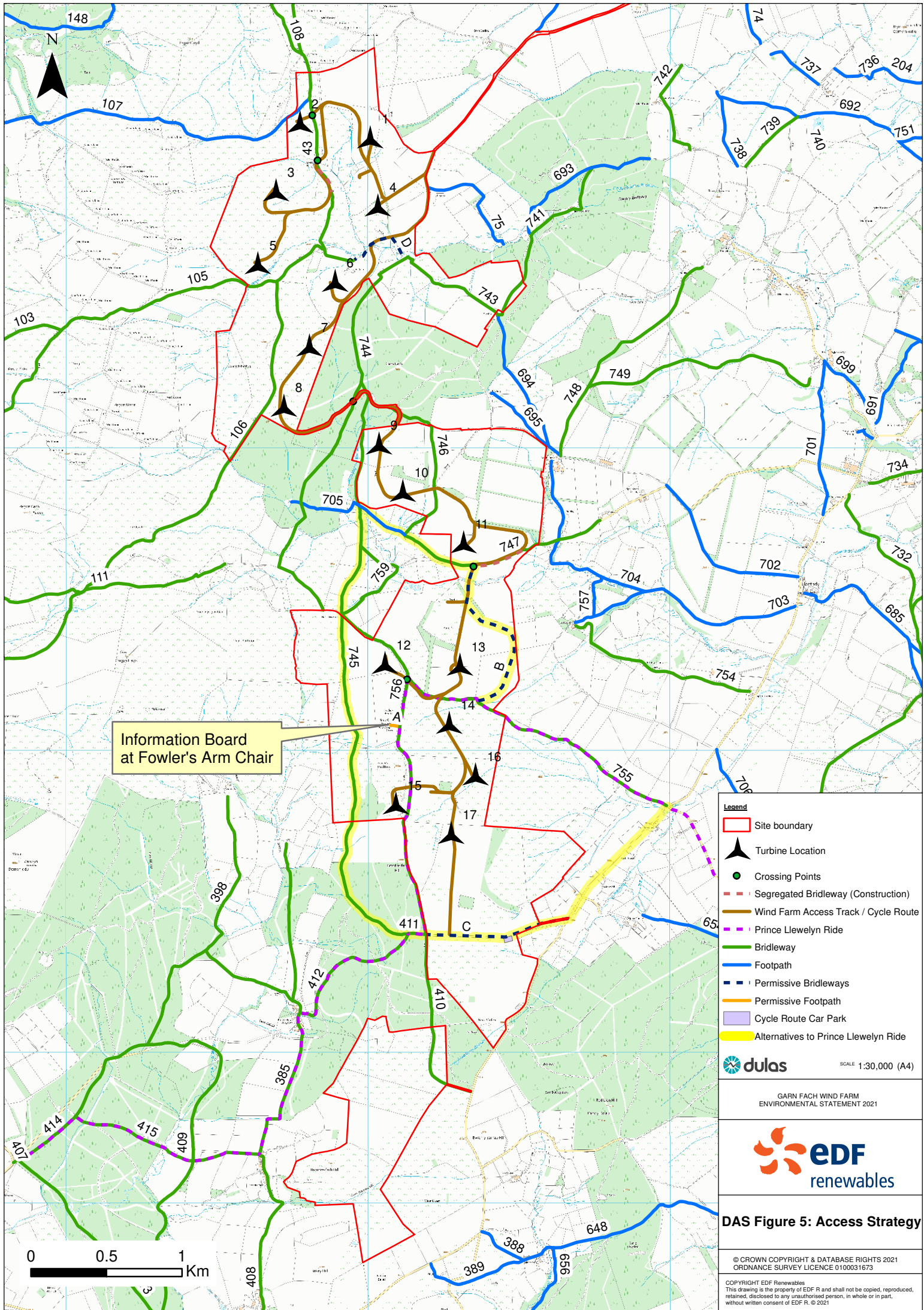


DAS Figure 4: Route to Site

© CROWN COPYRIGHT & DATABASE RIGHTS 2021
ORDNANCE SURVEY LICENCE 0100031673

COPYRIGHT EDF Renewables
This drawing is the property of EDF R and shall not be copied, reproduced, retained, disclosed to any unauthorised person, in whole or in part, without written consent of EDF R. © 2021





Information Board
at Fowler's Arm Chair

Legend

- Site boundary
- Turbine Location
- Crossing Points
- Segregated Bridleway (Construction)
- Wind Farm Access Track / Cycle Route
- Prince Llewelyn Ride
- Bridleway
- Footpath
- Permissive Bridleways
- Permissive Footpath
- Cycle Route Car Park
- Alternatives to Prince Llewelyn Ride

dulas SCALE 1:30,000 (A4)

GARN FACH WIND FARM
ENVIRONMENTAL STATEMENT 2021

edf
renewables

DAS Figure 5: Access Strategy

© CROWN COPYRIGHT & DATABASE RIGHTS 2021
ORDNANCE SURVEY LICENCE 0100031673

COPYRIGHT EDF Renewables
This drawing is the property of EDF R and shall not be copied, reproduced, retained, disclosed to any unauthorised person, in whole or in part, without written consent of EDF R. © 2021

0 0.5 1 Km