

HYBONT GREEN HYDROGEN PROJECT, LAND AT BRYNMENYN, BRIDGEND

Preliminary Landscape and Visual Impact Assessment (LVIA)

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Appendices

Appendix A Landscape Value (*to be inserted*)

Appendix B Landscape and Visual Impact Assessment Methodology

1 INTRODUCTION

General

- 1.1 RPS has been commissioned by Marubeni to prepare a Landscape and Visual Impact Assessment (LVIA) to accompany a planning application (the Application) for a proposed HyBont Green Hydrogen Project, including a green hydrogen plant, ground mounted solar photovoltaic site (PV), underground route and ancillary energy development (the Proposed Development). Located on off Squire Drive, Bridgend (hydrogen plant) and the A4061 Blackmill Road, Bryncethin (solar farm) in the County Borough of Bridgend (the Application Site), collectively referred to in this document as the HyBont Green Hydrogen Project.
- 1.2 The solar farm Application Site extends to approximately 12.6 Hectares (ha) and is located to the east of the village of Bryncethin, off the A4061 Blackmill Road, and approximately 2 km northeast of the town of Bridgend. The hydrogen plant extends to approximately 1.1 ha and is located to the west of Bryncethin, off Squire Drive. The Application Sites are a large irregular pastoral field (solar farm) and a small irregular shaped area of scrubland and trees (hydrogen plant), the Application Sites locations are shown on Figure 1.
- 1.3 The objective of the LVIA is to identify the likelihood of the Proposed Developments giving rise to significant landscape and/or visual effects, and to propose effective and appropriate measures to mitigate such effects where possible.

Baseline Methodology

- 1.4 For this LVIA, a desktop review of published information, including landscape character assessments, OS data, online mapping data, aerial photography and local planning documents was undertaken. To further inform the LVIA, representative views looking towards the Application Site were selected. Figures have been produced to support the LVIA as follows:
- Figure 1: Site Location and Landscape Planning Designations;
 - Figure 2: Zone of Theoretical Visibility (ZTV) and Representative Viewpoint Locations;
 - Figure 3: Representative Viewpoint Panoramas (to be completed);
 - Figure 4: Topography and Drainage;
 - Figure 5: National Landscape Character Areas (NLCA);
 - Figure 6: LANDMAP Landscape Visual and Sensory Aspect Areas;
 - Figure 7: LANDMAP Landscape Visual and Sensory Aspect Areas (Overall Evaluation);
 - Figure 8: LANDMAP Landscape Habitats Aspect Areas;
 - Figure 9: LANDMAP Cultural Landscape Aspect Areas;
 - Figure 10: LANDMAP Historic Landscape Aspect Areas;
 - Figure 11: LANDMAP Geological Landscape Aspect Areas;
 - Figure 12: Local Landscape Character; and,
 - Figure 13: Local Landscape Character (including ZTV).
- 1.5 A site visit would be carried out in Autumn / Winter 2022 / 23 to record views from the Representative Viewpoint locations and other publicly accessible locations, as well as to gain an understanding of the local landscape character. Fieldwork would assist in the assessment of the potential effects on the landscape character of the Application Sites and surrounding landscape, as well as on visual receptors.

- 1.6 The relevant planning background and policies are outlined below in Section 2 of the LVIA (paragraphs 2.1 to 2.23). The landscape baseline is outlined in Section 3 (paragraphs 3.1 to 3.44) together with the visual baseline (paragraphs 3.45 to 3.75).

Assessment Methodology

- 1.7 The method used to undertake this LVIA is detailed at Appendix A: Landscape and Visual Impact Assessment Methodology A, as summarised in Diagram 1 in Section 5 below of this report. It is based on the following documents:
- Landscape Institute and Institute of Environmental Management and Assessment, *Guidelines for Landscape and Visual Impact Assessment: Third Edition* (May 2013).
 - Landscape Institute *Technical Guidance Note 02/21: Assessing landscape value outside national designations* (May 2021).
 - Landscape Institute, *Technical Guidance Note 06/19 Visual Representation of Development Proposals* (September 2019).
- 1.8 The LVIA provides an overview of the existing or baseline conditions, and then assesses the potential significant effects of the proposed development upon baseline conditions during its construction and operational phases. This is undertaken through consideration of the sensitivity of the resources/receptor to the proposed impact of the Butterhill Farm Solar Park.
- 1.9 The introduction of built form to a site without any/many buildings will result in landscape and/or visual change. This report identifies whether these changes are significant or not in terms of the physical landscape and its character, and when viewed by visual receptors (people) from the surrounding countryside.

Study Area

- 1.10 For the purposes of this LVIA the Study Area extends to 5 km from the outer edges of the Application Sites. While it will be theoretically possible to see the proposed development outside the Study Area, given the site location and nature of development, there is no scope for significant effects to arise beyond this distance. Sensitive landscape and visual receptors within the Study Area as defined by the extent of the Zone of Theoretical Visibility (ZTV) have been included for assessment in the LVIA.

2 PLANNING ENVIRONMENT

Introduction

- 2.1 As part of establishing the existing baseline environment, this preliminary LVIA has reviewed and considered relevant planning policies within the currently adopted Local Development Plan for Bridgend County Borough Council (BCBC) and is subject to the Local Development Plans that comprise planning policies contained in the Bridgend Local Development Plan 2006 – 2021 (adopted June 2011).

Local Development Framework

Bridgend Local Development Plan 2006 – 2021 (adopted June 2011)

- 2.2 The Bridgend Local Development Plan 2006 – 2021 (BLDP) was adopted in June 2011 “...*setting out its objectives for the development and use of land in Bridgend County Borough over the plan period to 2021, and its policies to implement them. The Plan, which should be read as a whole, will be used by the Council to guide and manage development, providing a basis for consistent and appropriate decision-making*”.
- 2.3 The BLDP Policies Map¹ indicates that the Site does not fall within any statutory landscape designations of national importance, e.g. Areas of Outstanding Natural Beauty (AONB), but falls in close proximity to a Special Landscape Area (SLA), SLA 5: Mynydd y Gaer. The Application Site is not covered by any site-specific policies or allocations.
- 2.4 Policies with potential to be of relevance to the impacts of the Proposed Development on landscape character and visual receptors are set out in paragraphs 2.7 to 2.23 below.
- 2.5 The planning balance of these considerations is addressed in the Planning Support Statement submitted with the Application.
- 2.6 The solar farm element of the Proposed Development is temporary and reversible, but long-term in nature with a proposed operational period of at least 40 years. It is expected that the restoration of the Application Site would be subject to a number of planning conditions, to be agreed with the Local Planning Authority as appropriate. Nonetheless, the Applicant envisages that at the end of the approximately 40-year operational life of the solar park, buildings, surface equipment, cabling to plough depth, and any areas of hardstanding would be removed from the Application Site. It is proposed that trees, hedgerows and other planting established in association with the Proposed Development would remain in-situ, except where it restricts the ability to farm, thus forming a permanent enhancement and improvement to the quantum and quality of existing tree cover and hedgerow green infrastructure network in the County Borough.

Strategic Planning Policies

Policy SP4: Conservation and Enhancement of the Natural Environment

- 2.7 In relation to the natural environment within the LDP area, Policy SP4 states that “*Development which will conserve and, wherever possible, enhance the natural environment of the County Borough will be favoured.*”

Development proposals will not be permitted where they will have an adverse impact upon:

¹ <http://ldp.bridgend.gov.uk/> (Accessed July 2022).

- *The integrity of the County Borough's countryside;*
- *The character of its landscape;*
- *Its biodiversity and habitats; and*
- *The quality of its natural resources including water, air and soil.*

Areas having a high and/or unique environmental quality will be protected and the following strategically important areas within the County Borough will specifically be protected from inappropriate development which directly or indirectly impacts upon them”.

Policy SP8: Renewable Energy

- 2.8 In relation to renewable energy, Strategic Planning Policy SP8 states that *“Development proposals which contribute to meeting national renewable energy and energy efficiency targets will be permitted where it can be demonstrated that there will be no significant adverse impacts on the environment and local communities”.*

Managing Development Policies

Policy ENV1: Development in the Countryside

- 2.9 In relation to development within the countryside, in which the Application Site and much of the 5 km study area are located, Policy ENV1 states that *“Development in the countryside of the County Borough required by the local planning authority to determine whether it will be strictly controlled.*

Development may be acceptable where it is necessary for:

- 1) *Agriculture and/or forestry purposes;*
- 2) *The winning and working of minerals;*
- 3) *Appropriate rural enterprises where a countryside location is necessary for the development;*
- 4) *The implementation of an appropriate rural enterprise/ farm diversification project;*
- 5) *Land reclamation purposes;*
- 6) *Transportation and/or utilities infrastructure;*
- 7) *The suitable conversion of, and limited extension to, existing structurally sound rural buildings where the development is modest in scale and clearly sub-ordinate to the original structure;*
- 8) *The direct replacement of an existing dwelling;*
- 9) *Outdoor recreational and sporting activities;*
- 10) *The provision of Gypsy Traveller accommodation.*

Where development is acceptable in principle in the countryside it should where possible, utilise existing buildings and previously developed land and/or have an appropriate scale, form and detail for its context”.

Policy ENV3: Special Landscape Areas

- 2.10 The Application Site is outwith any designated SLA (Figure 1). Within the wider 5 km radius study area are 3 no. SLA. The nearest being SLA5: Mynydd y Gaer, located approximately 214 m to the north at its nearest point. The entirety of this SLA is within the 5 km radius study area. To the north a further two SLAs, SLA4: Bryngarw Country Park (in full) and SLA2: Northern Uplands are within the study area. Policy ENV3 states that *“Development in Special Landscape Areas (SLAs) will only be permitted where:*

- 1) *It retains or enhances the character and distinctiveness of the SLA;*
- 2) *The design of the development reflects the building traditions of the locality in its form, materials and details, and/or assimilates itself into the wider landscape; and*
- 3) *The Proposed Development is accompanied by a landscape assessment which takes into account the impact of the development and sets out proposals to mitigate any adverse effects.*

The settings of SLAs will be protected with consideration of the views from those areas to the settlements of the County Borough. New development within settlements should be designed to provide an attractive transition between the urban area and the countryside”.

Policy ENV 5: Green Infrastructure

- 2.11 With respect to green infrastructure, Policy ENV5 states that *“Green infrastructure will be provided through the protection and enhancement of existing natural assets and the creation of new multi-functional areas of green space. Green infrastructure corridors will connect locations of natural heritage, green space, biodiversity or other environmental interest. They will be safeguarded through:*

- 1) *Not permitting development that compromises their integrity and therefore that of the overall green infrastructure framework;*
- 2) *Using developer contributions to facilitate improvements to their quality and robustness;*
- 3) *Investing in appropriate management, enhancement and restoration, and the creation of new resources”.*

Policy ENV18: Renewable Energy Developments

- 2.12 When considering renewable energy developments. Policy ENV18 states that *“Proposals for renewable energy developments will be permitted provided that:*

- 1) *In the case of wind farm developments of 25MW or more, the preference will be for them to be located within the boundary of the refined Strategic Search Area;*
- 2) *The availability of identified mineral resources or reserves will not be sterilised;*
- 3) *Appropriate monitoring and investigation can demonstrate that the development will not have any significant impacts on nature conservation;*
- 4) *Appropriate arrangements have been made for the preservation and/or recording of features of local archaeological, architectural or historic interest;*
- 5) *They can be safely accessed to permit regular maintenance without detriment to the environment or the public rights of way network;*
- 6) *They will not detrimentally affect local amenity by reason of noise emission, visual dominance, shadow flicker, reflected light, the emission of smoke, fumes, harmful gases, dust, nor otherwise cause pollution to the local environment;*
- 7) *They will not lead to electromagnetic disturbance to existing transmitting and receiving systems (which includes navigation and emergency services), thereby prejudicing public safety;*
- 8) *Local receptors of heat and energy from the proposal are identified and, where appropriate, are connected to/benefit from the facility; and*
- 9) *Provision has been made for the removal of all infrastructure from, and reinstatement of the site following termination of the use”.*

Other Material Consideration

National Planning Policy

Planning Policy Wales (Edition 11, 2021)

2.13 Edition 11 of the Planning Policy Wales (PPW) was published in February 2021 by the National Assembly for Wales, replacing all previous versions, as part of National Planning Policy and guidance.

2.14 The PPW sets out the land use planning policies of the Welsh Government. The conservation and improvement of the natural heritage of Wales is one of its objectives noting the following (paragraph 6.02 and 6.03):

“The special and unique characteristics and intrinsic qualities of the natural and built environment must be protected in their own right, for historic, scenic, aesthetic and nature conservation reasons. These features give places their unique identity and distinctiveness and provide for cultural experiences and healthy lifestyles.

As well as those characteristics regarded as special or unique there are other, environmental qualities of places which are ubiquitous. Environmental components of places, such as clean air, access to open spaces and water quality, are linked to the quality of the built and natural environment. The environmental components of places influence and shape health and wellbeing as well as playing a role in sustaining and creating places which are adaptable and resilient to change. Distinctive and Natural places must maintain or incorporate green infrastructure, recognising the wide-ranging role it can play, as key components of their natural and built fabric. Doing so will maximise health and well-being of communities and the environment.”

2.15 The PPW also attaches considerable importance to the benefits of good design stating (paragraph 3.10) that:

“In areas recognised for their particular landscape, townscape, cultural or historic character and value it can be appropriate to seek to promote or reinforce local distinctiveness. In those areas, the impact of development on the existing character, the scale and siting of new development, and the use of appropriate building materials (including where possible sustainably produced materials from local sources), will be particularly important.”

2.16 In addition, the PPW attaches considerable importance to the benefits of renewable energy stating (at paragraph 5.77 and 5.91) that:

“...benefits of renewable and low carbon energy, as part of the overall commitment to tackle the climate emergency and increase energy security, is of paramount importance... ...The planning system should:

...optimise energy storage... and ...maximise renewable and low carbon energy generation...”

“Local authorities should facilitate all forms of renewable and low carbon energy development...”

Technical Advice Note (TAN) 5: Nature Conservation and Planning (2009)

2.17 TAN 5 provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. This guidance note should be read in conjunction with Planning Policy Wales Edition 11, in particular with Chapter 6: Distinctive and Natural Places, which considers matters including landscaping (Page 133).

SPG 20 Renewables in the Landscape

- 2.18 Produced to inform the Bridgend LDP *“This Supplementary Planning Guidance (SPG) is part of a suite of Green Infrastructure SPGs produced by the Council to echo the emerging principles of Natural Resources Wales: promoting the strategic management and planning of landscapes to deliver multiple (social, economic and environmental) benefits. This Renewables in the Landscape SPG recognises that the varied landscapes of Bridgend County Borough have a significant economic, social and community value, contributing to a sense of identity, well-being, enjoyment and inspiration. At the same time, many parts of the landscape have good conditions to produce wind and solar energy which are already being capitalised upon through the installation of related developments”.*
- 2.19 The document has determined the relative value and sensitivity of the Local Landscape Character Areas, within the Landscape Character Assessment for Bridgend County Borough Council (July 2013), to renewable energy developments.
- 2.20 The Application Site and wider landscape has been identified as being of High sensitivity to solar PV developments greater than 15 hectares.
- 2.21 Further the SPG sets out the overall strategy for solar PV development within LCA9 Hirwaun Common and Surrounding Ridges as follows:
“To ensure that solar PV development does not become a defining characteristic of the landscape and to maintain landscape character, as per the ‘key landscape characteristics’ set out on the second page of this LCA assessment”.
- 2.22 The SPG outlines specific guidance for solar PV development as follows:
- 2.23 Solar PV developments should avoid the most open, visible slopes and ridgelines.
*”The strong rural character of the landscape with an exposed feel on higher ground is protected.
The valued semi-natural habitats of broadleaved woodland, species rich neutral grassland and wet heath are protected.
The distinctive mixed field pattern (including small, irregular sized fields that are particularly sensitive to solar PV development) is not masked by solar PV development.
The open commons are not fragmented by the development of solar PV schemes.
Solar PV development does not affect the value and significance of the landscape’s Scheduled archaeological features.
Opportunities are sought to adopt a Green Infrastructure approach for all development. As well as protecting and enhancing landscape character in line with the guidelines set out in Part 3 of the Landscape Character Assessment, developers should consider multi-functional opportunities associated with supporting biodiversity (see Biodiversity SPG), recreational activities (LDP Policy COM11), agricultural activities, flood mitigation etc”.*

3 LANDSCAPE AND VISUAL BASELINE

Landscape Baseline

Introduction

- 3.1 The landscape of the Application Site and the Study Area has been assessed at various levels of detail, from national to local landscape character, to the site specific (i.e. physical landscape features). Notwithstanding the 5 km extent of the LVIA study area, the focus of assessment is on sensitive landscape receptors lying within the ZTV in proximity to the Application Site.
- 3.2 Relevant published landscape character assessments are reviewed below in paragraphs 3.4 to 3.22, with the site-specific assessment at paragraphs 3.23 to 3.32 (Application Site Description).
- 3.3 The section should be read in conjunction with to Figure 5 National Landscape Character Areas, Figure 6 and 7 Regional Landscape Character Areas, and Figure 4 Topography and Drainage.

National Landscape Character Areas (NLCA)

- 3.4 National Landscape Character Areas (NLCAs) are countrywide and form the broad scale landscape character assessment of Wales. The majority of the Application Site and southern half of the 5 km study area falls within NLCA 36: Bro Morgannwg (Vale of Glamorgan) (see Figure 5).
- 3.5 The key characteristics² of NLCA 36, of relevance to this LVIA, are as follows:
- *Mixed agricultural land uses - with predominantly rural character*
 - *Small woodlands – mainly to the east. Few large woods.*
 - *Mixed field patterns and sizes - with hedgerows and hedgebanks, frequent hedgerow trees.*
- 3.6 The northernmost parts of the Application Site and the northern half of the 5 km study area falls within NLCA 37: Cymoedd y De (South Wales Valleys).
- 3.7 The key characteristics³ of NLCA 37, of relevance to tis LVIA, are as follows:
- *Extensive Upland plateaux – typically wild and windswept, often with unenclosed tracts, running roughly north-south as ‘fingers’ parallel between intervening deep valleys.*
 - *Improved pastures on some lower valley sides - grazed by sheep and some dairy cattle.*
 - *Field boundaries - dry stone walls mark the boundary of common land while fields on lower slopes are bounded by dense hawthorn hedges, interspersed with swathes of broadleaved woodland.*

LANDMAP – the Welsh landscape baseline

- 3.8 LANDMAP is an “*all-Wales Geographical Information System (GIS) based landscape resource where landscape characteristics, qualities and influences on the landscape are recorded and evaluated into a nationally consistent dataset*” (CCW (now NRW), 2011). It is administered by Natural Resources Wales (NRW) and comprises five spatially related datasets or aspect layers as follows:

² <https://naturalresources.wales/evidence-and-data/maps/nlca/?lang=en> (accessed July 2022)

- Geological Landscape: *“considers the physical, primarily geological, influences that have shaped the contemporary landscape and identifies those landscape qualities which are linked to the control or influence exerted by bedrock, surface processes, landforms and hydrology”*;
- Landscape Habitats: *“Focuses on recording habitat features, characteristics and their spatial relationships within the context of the wider landscape”*;
- Visual and Sensory: *“Maps landscape characteristics and qualities as perceived through our senses, primarily visually. The physical attributes of landform and land cover, their visible patterns and their interrelationship”*;
- Historic Landscape: *“Landscape characteristics that depend on key historic land uses, patterns and features. Identifies only those classes of historic land uses, patterns and features that are prominent and contribute to the overall historic character of the present landscape.”*; and
- Cultural Landscape: *“Describes the links between landscape and people, from the way in which cultural, or human activity shapes the landscape, to the way in which culture shapes the way we respond to landscape. Focus is on mapping the landscape where it has been, or is being, shaped by a particular cultural activity or process, or where it has been directly represented, depicted or described in art, literature or folklore.”*.

3.9 For each dataset the landscape is divided into discrete geographical units referred to as aspect areas. Each is given a unique identification code and is accompanied by a dataset which includes both a description and evaluation of quality and value.

3.10 Whilst all LANDMAP Aspect Areas have been considered, for the purposes of this Landscape and Visual Impact Assessment the main focus will be on those Aspect Areas which would be directly affected by the Proposed Development, i.e. those within which the Application Site itself is located.

Visual and Sensory Landscape Aspect Area

3.11 The solar farm Application Site is located entirely within 1 LANDMAP Visual and Sensory Aspect Area, Hendre (CYNONVS572) (see Figure 6). The overall evaluation for this aspect area which would experience a direct effect as a result of the Proposed Development is judged to be Moderate (see Figure 7). Aspect area CYNONVS572 is described as an area which forms *“A rolling rural landscape with small/medium sized fields, predominantly grazing, defined by hedgerows with scattered blocks of broadleaf and mixed woodland, some with a slight parkland /estate feel... landform lies between approximately 40m and 100mAOD... scattered villages and farmsteads sit within this attractive rural landscape, slightly spoilt by the presence of intrusive/visually detractive elements e.g. M4, pylons, sharply defined urban edges. Boundary changes in all three areas at change detection, due to recent developments, on edge of Bridgend, at Llanilid/Bryncae, and at Church Village. Recent Church Village bypass through eastern polygon has altered views and perception of area, and reduced tranquillity”*.

3.12 The hydrogen plant Application Site is similarly located entirely within 1 LANDMAP Visual and Sensory Aspect Area, Bridgend (CYNONVS726) (see Figure 6). The overall evaluation for this aspect area which would experience a direct effect as a result of the Proposed Development is judged to be Low (see Figure 7). Aspect area CYNONVS726 is described as an *“urban area dominated by housing, industry and major road and rail corridors...views out to the wider rolling landscape are limited by built form... traffic noise from the motorway and the A473, A48 and A4061 provide a constant background noise throughout much of the urban area...Expansion of housing and other developments have increased aa size at change detection”*.

Landscape Habitat Aspect Areas

- 3.13 The solar farm Application Site is predominantly located within the unnamed landscape habitat aspect area (CYNONLH010) (see Figure 8). The overall evaluation of this aspect area is judged to be Moderate and is described as an area of *“Improved grassland with limited arable use, mature trees, overgrown hedges, some broadleaved woodland. Some marshy / semi-improved acid & neutral grassland, bracken. Marsh Fritillary sites (E.g. Cwm Risca)”*. The southern part of the Application Site is located within similarly unnamed landscape habitat aspect area (CYNONLH028) (see Figure 8). The overall evaluation of this aspect area is judged to be High and is described having an *“Extensive area of marshy grassland including valley mires with patchy riparian woodland..... Limited rush dominated improved grassland, bracken and semi improved acid grassland is present”*.
- 3.14 The hydrogen plant Application Site is entirely located within the unnamed landscape habitat aspect area (CYNONLH031) (see Figure 8), covering the urban areas around the town of Bridgend. The overall evaluation of this aspect area is judged to be Low and is described as *“Bridgend urban area with river corridor. Improved, semi-improved neutral, marshy and amenity grassland, broadleaved woodland (esp. Tremanes Wood), scrub and some bracken”*.

Cultural Landscape Aspect Area

- 3.15 The solar farm Application Site is located entirely within the large cultural landscape aspect area Designated Landscape Areas (CYNONCL056) (see Figure 9). The overall evaluation of this aspect area is judged to be High and is described as an *“Large expanses of (mostly) upland and moorland landscape that are present throughout the Study Area. They have been variously designated statutorily as Sites of Special Scientific Interest by the Countryside Council for Wales, or by Unitary Authorities as Special Landscape Areas, Sites of Interest for Nature Conservation or as part of the Coalfield Plateaux. Such designations are a reflection of 20th/21st century perceptions of the value of protecting both natural habitats and of rural areas of lesser importance though possessing much aesthetic and sensory value. They contain variously historic and contemporary evidence of human occupation and exploitation in the form of prehistoric monuments, redundant industrial workings and transport systems, and of forestry. As such they are a commodity for leisure enjoyment as well as providing very extensive “green lungs” to supplement those identified in urban landscapes that they surround”*.
- 3.16 The hydrogen plant Application Site is located entirely within the small cultural landscape aspect area Tondu Sarn et alia (CYNONCL017) (see Figure 9). The overall evaluation of this aspect area is judged to be Low and is described as *“A series of former industrial settlements reliant on coal and iron now being transformed into regeneration and dormitory locations”*.

Historic Landscape Aspect Area

- 3.17 The solar farm Application Site is located entirely within the H08 Cwm Ogwr Fawr (CYNONHL382) historic landscape aspect area (see Figure 10) and *“...comprises the valley floor of the Ogwr Fawr, with roads and railway, serving collieries along the length of the valley and their associated settlements”*. The overall evaluation of this small aspect area is judged to be Moderate.
- 3.18 The hydrogen plant Application Site is located within the H02 Maesteg (CYNONHL242) historic landscape aspect area (see Figure 10). The overall evaluation of this small aspect area is judged to be Outstanding described as *“An important industrial communications / settlement corridor with some outstanding relict industrial buildings of national importance...”*.

Geological Landscape Aspect Area

- 3.19 The solar farm Application Site is located within 2 geological landscape aspect areas. With the majority of it located within Tondu (CYNONGL041) geological landscape aspect area. The

northernmost parts of the Application Site are located within Mid Ogwr Fawr (CYNONGL037) (see Figure 11). The overall evaluation of these 3 Geological Aspect Areas is judged to be Moderate.

- 3.20 The hydrogen plant Application Site is located entirely within the L Ogwr Valley (CYNONGL040) geological landscape aspect area (see Figure 11). The overall evaluation of this Geological Aspect Areas is judged to be Low.

County / District Landscape Character

Landscape Character Assessment for Bridgend County Borough Council (July 2013)

- 3.21 The descriptions of the landscape character areas, within Bridgend County Borough Council, are set out in the Landscape Character Assessment for Bridgend County Borough (2013). The solar farm Application Site is located entirely within Landscape Character Area (LCA) 9: Hirwaun Common and Surrounding Ridges (see Figure 12 / 13). This LCA would be directly affected by the Proposed Development. The hydrogen plant Application Site is located within the Urban Areas LCA.

- 3.22 Key characteristics of LCA 9 that are relevant to the Application Site are as follows:

- *” Strongly undulating landscape with prominent ridgelines at Mynydd y Gaer to the north (295 metres) and the narrow Cefn Hirgoed in the south (130 metres).*
- *Open, largely treeless commons and ridges contrasting with surrounding enclosed farmland, with bands of wet woodland along springlines, tree lines forming prominent field boundaries and occasional in-field specimens.*
- *Large tracts of unimproved grassland, rush pasture and rough upland vegetation predominantly grazed by sheep. Sheep-grazed pastures and wet meadows found elsewhere.*
- *Blocks of historically important registered common land enclosed by fencing along roadsides, with some edges near housing converted to pony paddocks.*
- *Tracts of registered common land providing valued recreational opportunities.*
- *A strongly rural landscape with an exposed, upland feel on higher ground.*
- *Strong intervisibility between the two ridges, with the white/cream rendered housing of Heol-y-Cyw visible in views from Cefn Hirgoed...”*

Application Site Description

Topography and Hydrology

- 3.23 Topographical variation and hydrological features are illustrated on Figure 4. The solar farm Application Site is sloping gently northeast to southwest with some topographical variation across it. Sloping from its highest point of approximately 83 m AOD (northeast) to southwest corner of the Application Site at a height of approximately 77 m AOD. The hydrogen plant Application Site is similarly gently sloping from east to west with a generally uniform topography throughout. Sloping from its highest point of approximately 65 m AOD (east) to west of the Application Site at a height of approximately 55 m AOD
- 3.24 The wider 5 km study area is that of an undulating landscape with topographical variation throughout as a result of the numerous watercourses. At its lowest, within a number of locations, at approximately 0 to 10 m AOD. Rising to a maximum of 475 m AOD in places.
- 3.25 There are numerous watercourses throughout the 5 km study area including natural rivers, including the Ogmore River.

Land Cover and Land Use

- 3.26 The Application Sites comprises medium size open pastoral field (solar farm site) and an area of scrubland with scattered trees and areas of woodland (hydrogen plant site).

Settlement and Communication

- 3.27 The Application Site and majority of the 5 km study area are within a gently undulating and settled landscape. With the large town of Bridgend to the southwest and other smaller towns / villages (including Bryncethin) to the north of the M4 motorway. Throughout the remainder of the 5 km study area settlement is limited to scattered villages and other towns such as Pencoed. Along with scattered farmsteads throughout the 5 km study area.
- 3.28 The M4 motorway forms a major transportation corridor aligned east-west through the southern part of the 5 km study area connecting the various urban areas throughout and joining another major transport route, the A4061, A4063 and A4065 to the west of the 5 km study area which take a generally north to south directions through the town of Bridgend and connecting the more rural valleys to the north. A series of local roads, such as Cefn Carfan Road, and smaller country lanes cross the wider agricultural landscape.
- 3.29 Public access is provided within the study area via numerous public rights of way (PRoW) that include promoted footpaths such as the Bridgend Circular Walk and Ogwr Ridgeway Walk.
- 3.30 The Application Sites lies to the east of the A4061 Blackmill Road (solar farm site) and the southeast of Squire Drive (hydrogen plant) at the edge of or within the settlements of Bryncethin and Brynmenyn.
- 3.31 There is no public access within the Application Site.
- 3.32 There is an extensive Public Rights of Way (PRoW) network near the Application Site and throughout the wider 5 km study area.

Landscape Value

Designated Landscapes

- 3.33 Both Application Sites are outwith any AONB or National Parks (NP) designations of national importance (refer to Figure 1). As such, there would be no direct physical impacts upon nationally designated landscapes resulting from the development of the proposed solar park.
- 3.34 Other landscape designations, of local / regional importance, which fall wholly or partly within the 5 km study area, to the north of the Application Site, including the Northern Uplands (SLA 2), Bryngarw Country Park (SLA 4) and Mynydd y Gaer (SLA 5) Special Landscape Areas (SLA), as derived from Bridgend County Borough Council Designation of Special Landscape Areas (March 2010).
- 3.35 The nearest SLA to the Application Site, approximately 465 m to the north at its nearest point, SLA 5: Mynydd y Gaer is located immediately to the north of Cefn Carfan Road. Mynydd y Gaer SLA is described as “...*Undulating ridge line landform running east to west up to the attractive upland landscape associated with Mynydd y Gaer some 300 metres AOD.*”.
- 3.36 The primary landscape qualities and features have been identified as follows:
- “In land use terms it includes the interface between the open uplands and the bounded fields of the lower lying agricultural landscapes. These are often defined by hedgerows with trees. The southern edge of this scarp is dissected by a series of steep sided cwms, such as Cwm Crymlyn, Cwm Llwyd and Nant Ton-y-groes.*
- Limited areas of woodland or small spinneys although the north western edge of the SLA includes the wooded slopes of Allt y Rhiw, which is designated a Special Area of Conservation (SAC) under*

the EU Natura 2000 programme, together with Coedtal-yfan on the western side of the Ogmores Valley which runs down into the Ogmores Valley and the conifer plantations to the west of Gelli-feddgaer. Higher ground is open and exposed which is reflected in the sensory qualities of the area. Its level of exposure is reflected by the presence of the windfarm at Mynydd Hugh, which introduces a visual detractor to the area.

The SLA is traversed by the Ogwr Ridgeway Walk, as well as a range of other footpaths. Along the edge of the SLA, the A4061, B4280 and A4093 roads introduce visual and sensory detractors”.

3.37 Key policy and management issues affected the Mynydd y Gaer SLA have been identified as follows:

- *”Retention of agricultural land use and form.*
- *Function of designated footpaths and walls, together with Right to Roam areas introducing conflict with farmers*
- *Careful control of windfarm developments*
- *Maintenance of nature conservation and Natura 2000 designations (SACs)”.*

3.38 Within the wider 5 km study area, there are a number of other landscape related planning designations that would be indirectly impacted by the Proposed Development (see Figure 1). These include:

- SLA 4: Bryngarw Country Park and SLA 2: Northern Uplands;
- Registered Common Land; the nearest being parts of a large area of common land to the immediate south of the Application Site;
- Scheduled Monuments;
- Listed Buildings;
- Ancient Woodland;
- Conservation Areas;
- Significant Views; and,
- Historic Parks and Gardens.

3.39 There are a substantial number of individual trees, hedgerows and blocks of woodland across the Site, or immediately adjacent to it. A number of the woodland blocks, to the immediate west of the Site, are designated as Ancient Woodland.

Other Designations

3.40 It is acknowledged that there are numerous nationally and locally designated areas of importance to nature conservation, heritage and arboriculture throughout the 5 km Study Area. These are subject to separate studies in relation to the Application Site.

Value of Non-designated Landscapes

3.41 The Application Site does not lie within a nationally or locally designated landscape. This does not mean that the Application Site has no value. The *European Landscape Convention* (Council of Europe, ratified 2006) (ELC) requires that each party (member state) “*establish and implement landscape policies aimed at landscape protection, management and planning...*” through the adoption of specific measures (Article 5). Landscape Protection is defined in Article 1d as “*actions to conserve and maintain the significant or characteristic features of a landscape, justified by its heritage value derived from its natural configuration and/or from human activity.*” The specific measures set out at Article 6 require, amongst other matters, each party to undertake an analysis of the characteristics and the forces and pressures on its landscapes (Article 6C, 1a (ii)) and “to

assess the landscapes identified taking into account the specific values assigned to them by the interested parties and the population concerned” (Article 6C, 1b).

- 3.42 The ELC requires that account should be taken of all landscapes, designated or not. GLVIA Box 5.1 and the complimentary Landscape Institute *Technical Guidance Note 02/21: Assessing landscape value outside national designations* (26th May 2021) (TGN). Table 1 of the TGN, set out a range of factors that can help in the identification of valued landscapes. An analysis of TGN Table 1 is at Appendix A (*to be completed*) to this LVIA.
- 3.43 Fieldwork indicates that the landscape of the Application Site is a large arable field with a number of mature scattered trees bounded by largely intact hedgerows with trees. There are no out-of-the-ordinary landscape attributes (e.g. designations, scenic qualities, special interests or uses) on or adjacent to the Application Site which would confer above average landscape value.
- 3.44 Overall, it is considered that the Application Sites are of moderate quality and typical of the landscape at the edge of settlement within the wider study area. It is considered that the Application Site is of low to medium landscape value.

Visual Baseline

Zone of Theoretical Visibility

- 3.45 Areas from which views of any part of the Proposed Development would theoretically be possible were determined by generating a Zone of Theoretical Visibility (ZTV). The ZTV does not indicate how much of the Proposed Development would be visible. A ZTV that takes account of the screening effect of major woodland blocks (at 10 m high) and existing buildings (at 9 m high) is illustrated at Figure 2. While Figure 2 is a more accurate representation of what might be seen, it does not take account of smaller blocks of woodland or hedgerows and associated / incidental tree cover, which add to the amount of screening provided by vegetation. The ZTV is therefore an overestimation of theoretical visibility.
- 3.46 Representative Viewpoints, located within the ZTV and likely to experience visual change, were identified through desk study and fieldwork. An overview of the views and the potential visibility of the Application Site is set out in this section (paragraphs 3.30 to 3.53 below).
- 3.47 The methodology for assessing the sensitivity of the visual receptors is detailed at Appendix B.

Visual Receptor Groups

Public Rights of Way (PRoW) and Access Land

- 3.48 The ZTV (Figure 2) has indicated potential intervisibility to the Proposed Development from a number of PRoW, visual receptors of high sensitivity. Representative Viewpoints (*to be completed*) have, where possible, been located and taken from PRoW identified which fall within the ZTV envelope. The Representative Viewpoints are therefore an assessment of views from the PRoW network. It is noted however, that the potential views of and appreciation of the Proposed Development, from parts of the PRoW would alter as they traverse the landscape. Where this is likely, PRoW have been walked where possible but professional judgement, regarding the level of potential intervisibility, have in part been necessarily made.
- 3.49 Of those PRoW which fall within the ZTV, there is one (SBM/12/1) that passes through or immediately adjacent to the southern boundary of the solar farm Application Site and therefore walkers using it have the potential to be most affected by the Proposed Development solar farm only).
- 3.50 There is a large area of registered common land (access land) to the immediate south of the solar farm Application Site. In addition to the local PRoW network, there are a

number of promoted footpath / walks of local importance which follow / join the PRow network. Including, the Ogwr Ridgeway Walk (Representative Viewpoint 13).

People involved in recreational activities

- 3.51 People involved in sports and other formal recreational activities at a rural location are considered to have a Medium sensitivity to the Proposed development. This is because the focus of their attention is generally on the activity in question, appreciation of the surrounding environment is secondary.
- 3.52 There are limited recreational resources, falling within the ZTV, that will have potential to be affected by the Proposed Development. Other than PRow users, recreational users falling within the ZTV include those within the areas of common land throughout parts of the 5 km radius study, including to the south of the Application Site(s) and a small part of the Bryngarw Country Park and Historic Park and Garden.

People at work

- 3.53 People at their places of work are considered to have a Low sensitivity to the Proposed Development because the focus of attention is on their work not on the surroundings.
- 3.54 Being set within or immediately adjoining the urban edge of Bryncethin, there would be several people at work with potential to be affected by the Proposed Development. Including, but not limited to, workers within the Brynmenyn Industrial Estate and BCBC Bryncethin Depot.

Dynamic receptors

- 3.55 Because attention tends to be focused on the road or within the vehicle itself, people travelling in motor vehicles through the landscape are considered to have a Low sensitivity to the development proposals. Cyclists have a slightly raised sensitivity to the proposals, namely Medium.
- 3.56 The ZTV (Figure 2) indicates that there is the potential for vehicle users to have fleeting views of the Proposed Development from a small number of local roads in the vicinity of the Application Site. Including the B4280, Blackmill Road and Squire Drive (Candidate Viewpoint 6).
- 3.57 Within the wider 5 km study area the ZTV (Figure 2) indicates that there would be potential intervisibility to the Proposed Development from very limited lengths of several local roads.
- 3.58 With the exception of those PRow which are shared surfaces, there are no formal cycle routes within the 5 km study area with potential views to the proposed development. In addition, the local road network would likely be used by occasional cyclists. As such there is the potential that passing cyclists would have views to it.

Candidate Viewpoints

- 3.59 Candidate Viewpoint locations are shown on Figure 2. Panoramic baseline photographs looking towards the Application Site for each of the viewpoints are presented in Figures 3.1 to 3.10 (*to be completed*).

Candidate Viewpoint 1: Public right of way (footpath) SBM/12/1

- 3.60 Located on public right of way (PRow) (footpath) SBM/12/1. Located to the immediate south of the solar farm Application Site.

Candidate Viewpoint 2: Public right of way (footpath) SBM/14/1

- 3.61 Located on public right of way (PRoW) (footpath) SBM/14/1. Located approximately 380 m to the east of the solar farm Application Site, at its nearest point.

Candidate Viewpoint 3: Public right of way (footpath) SBM/15/2

- 3.62 Located on public right of way (PRoW) (footpath) SBM/15/2. Located approximately 405 m to the northeast of the solar farm Application Site, at its nearest point.

Candidate Viewpoint 4: Cefn Carfan Road

- 3.63 Located on Cefn Carfan Road. A local road approximately 400 m to the north of the solar farm Application Site, at its nearest point. At the edge of Special Landscape Area (SLA) 5: Mynydd y Gaer.

Candidate Viewpoint 5: Public right of way (footpath) YNY/9/2

- 3.64 Located on public right of way (PRoW) (footpath) YNY/9/2. Located approximately 822 m to the northwest of the hydrogen plant Application Site, at its nearest point.

Candidate Viewpoint 6: Squire Drive

- 3.65 Located on Squire Drive. A local road to the immediate northwest of the hydrogen plant Application Site, at its nearest point. The hydrogen plant access road would be located off Squire Drive.

Candidate Viewpoint 7: Heol Spencer

- 3.66 Located on Heol Spencer. A local road approximately 400 m to the south of the solar farm Application Site, at its nearest point. Within an area of registered common land.

Candidate Viewpoint 8: Public right of way (footpath) SBM/48/1

- 3.67 Located on public right of way (PRoW) (footpath) SBM/48/1. Located approximately 1.2 km to the south of the solar farm Application Site, at its nearest point.

Candidate Viewpoint 9: Public right of way (footpath) SBM/24/2 at junction with SBM/24/1 and SBM/47/1

- 3.68 Located on public right of way (PRoW) (footpath) SBM/24/2 at junction with SBM/24/1 and SBM/47/1. Located approximately 1 km to the southeast of the solar farm Application Site.

Candidate Viewpoint 10: Public right of way (footpath) OGV/59/2

- 3.69 Located on public right of way (PRoW) (footpath) OGV/59/2. Located approximately 1.6 km to the north of the solar farm Application Site, at its nearest point.

Candidate Viewpoint 11: Heol Pandy at junction with public right of way (footpath) GWV/98/1

- 3.70 Located on Heol Pandy at junction with public right of way (footpath) GWV/98/1. A local road approximately 1.5 km to the north of the hydrogen plant Application Site, at its nearest point.

Candidate Viewpoint 12: Betws Road at junction with public right of way (footpath) GWV/10/1

- 3.71 Located on Betws Road at junction with public right of way (footpath) GWV/10/1. A local road approximately 1.8 km to the northwest of the hydrogen plant Application Site, at its nearest point.

Candidate Viewpoint 10: Public right of way (footpath) LDL/2/1 (part of the Ogwr Ridgeway Walk)

- 3.72 Located on public right of way (PRoW) (footpath) LDL/2/1, part of the Ogwr Ridgeway Walk. Located approximately 3 km to the northwest of the hydrogen plant Application Site, at its nearest point. Within Special Landscape Area (SLA) 3: Western Uplands.

Private Views

- 3.73 In the planning system no individual has the right to a view. The Landscape Institute has provided guidance on residential visual amenity in *Landscape Institute Technical Guidance Note 2/19 Residential Visual Amenity Assessment* (LI TGN 2/19).
- 3.74 Views of the proposed development would neither overwhelm existing properties within the Study Area, nor render these properties so “*unattractive a place to live that planning permission should be refused*” (Inspector Kingaby, Burnthouse Farm Wind Farm, APP/D0515/A/10/2123739, Inspector’s Report, paragraph 119) (also at paragraph A1.6 of LI TGN 2/19). Inspector Kingaby noted that “*There needs to be a degree of harm over and above identified substantial effect to take a case into the category of refusal in the public interest. Changing the outlook from a property is not sufficient*” (Inspector’s Report, paragraph 120) (also at paragraph A1.7, LI TGN 2/19). The Inspector, in the Langham Wind Farm decision, noted that “*The planning system controls development in the public interest, and not in the private interest. The preservation of open views is a private interest*” (Langham Wind Farm Appeal Decision APP/D2510/A/10/2130539) (also at LI TGN 2/19, paragraph A1.11).
- 3.75 Due to the nature and location of the Proposed Development(s), it is judged that no occupiers of residential properties have the potential to experience a degree of harm over and above substantial to make considering private views a public interest matter. Consequently, private views are not considered in this LVIA.

4 PROPOSED DEVELOPMENT

Development Components

- 4.1 Development of a green hydrogen production facility with electrolysers, hydrogen storage, hydrogen refuelling station, admin building, substation, back-up generator and hydrogen pipeline 'off-take'; with access, circulation, parking, lighting, security fencing, hard and soft landscaping, and drainage infrastructure on land at Brynmenyn, Bridgend. Together with the installation of a solar photovoltaic electricity generating station (solar farm), comprising ground-mounted solar panels, inverters, transformer units, control and storage building, switch gear and a substation; with access, circulation, parking, lighting, security fencing, hard and soft landscaping, drainage infrastructure and temporary construction compound, on land at Bryncethin, Bridgend. Sites to be connected via an electrical wire (part under and part overground).

Construction

- 4.2 *(to be completed)*

Lighting

- 4.3 *(to be completed)*

Landscape Proposals

- 4.4 *(to be completed)*

Summary of Landscape Mitigation

- 4.5 *(to be completed)*

5 POTENTIAL LANDSCAPE AND VISUAL EFFECTS

General

Assessment Criteria and Assignment of Significance

Relevant Guidance

- 5.1 As a matter of best practice, this Landscape and Visual Impact Assessment (LVIA) has been undertaken based on the relevant guidance on landscape and visual impact assessment (LVIA) described in the following documents:
- *Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3)* (Landscape Institute and Institute of Environmental Management and Assessment, 2013);
 - *Landscape Character Assessment: Guidance for England and Scotland* (The Countryside Agency and Scottish Natural Heritage, 2002); and
 - *An Approach to Landscape Character Assessment* (Natural England, 2014).

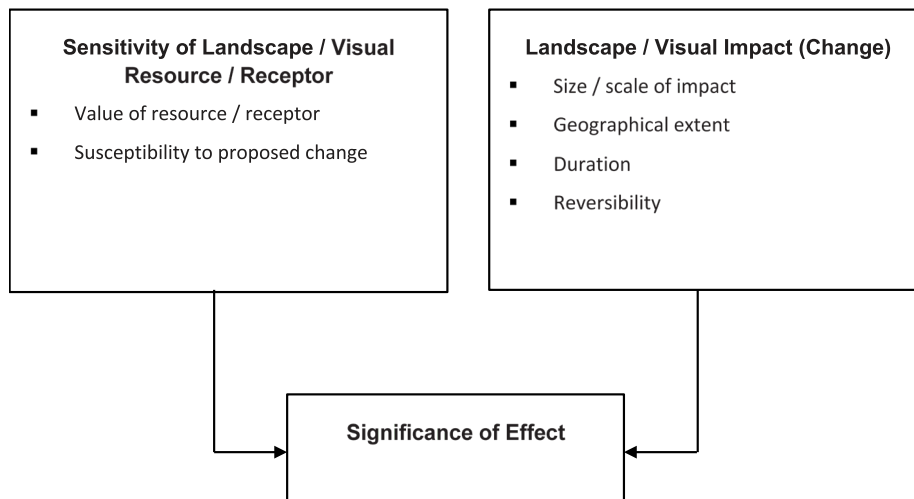
Distinction Between Landscape and Visual Effects

- 5.2 As set out in the GLVIA3, paragraph 2.21, landscape and visual effects are assessed separately, although the procedure for assessing each is closely linked. A clear distinction has been drawn between landscape and visual effects as described below:
- Landscape effects relate to the effects of the Proposed Development on the physical and other characteristics of the landscape and its resulting character and quality.
 - Visual effects relate to the effects on views experienced by visual receptors (e.g. footpath users, tourists etc) and on the visual amenity experienced by those people.

Assessment Criteria and Assignment of Significance of Effects

- 5.3 GLVIA3 sets out broad guidelines rather than detailed prescriptive methodologies. The methodologies tailored for the assessment of this development is based on GLVIA3 guidance, which recommends that an assessment “*concentrates on principles and process*” and “*does not provide a detailed or formulaic recipe*” to assess effects, it being the “*responsibility of the professional to ensure that the approach and methodology are appropriate to the task in hand*” (preface to GLVIA3). The effects on the landscape resources or visual receptors (people) are assessed by considering the proposed change in the baseline conditions (the impact of the proposal) against the type of landscape resource or visual receptor (including the importance and sensitivity of that resource or receptor). Unless stated otherwise, winter baseline conditions are assumed when deciduous vegetation is devoid of foliage. The methodology is set out in detail at Appendix A and summarised in Diagram 1, below. These factors are determined through a combination of quantitative (objective) and qualitative (subjective) assessment using professional judgement.
- 5.4 With regards valency and visual effects, an unfavourable position has been taken. That is, that of a person who is not in favour of the proposed development. Hence the significance of effect is adverse, if you can see even a small part of the proposed development. However, if the view is improved, by landscape mitigation, effects might be considered to be neutral or perhaps even beneficial.

Diagram 1: Assessment Methodology Summary



5.5 Using a combination of objective evidence and professional judgement, the potentially significant effects on the landscape and visual resources and receptors during the operational phase of the Proposed Development are assessed below. Only those resources and receptors that have the potential to experience significant effects are considered

5.6 In this assessment, those effects of Moderate and below are not considered to be significant. Those effects to be Major and above are judged to be significant.

Landscape Sensitivity to the Proposed Development

5.7 This section contains an assessment of the sensitivity of the relevant LCAs / LCTs to the proposed development. It should be read in conjunction with Figure 6.

Note on Approach

5.8 The method used in this LVIA for assessing the sensitivity of the landscape resources and receptors is detailed at Appendix A: Landscape and Visual Impact Assessment Methodology.

5.9 In line with GLVIA3 best practice, the sensitivity assessment considers both the *susceptibility* of the landscape to the Proposed Development, and the landscape’s *value*. The assessment is supported by fieldwork.

XX LCA/LCT

5.10 *(to be completed)*

XX LCA/LCT

5.11 *(to be completed)*

Construction Effects

5.12 *(to be completed)*

Potential Landscape Effects

National Landscape Character Areas

5.13 *(to be completed)*

County and District Landscape Character Areas / Types

5.14 *(to be completed)*

XX LCA/LCT

5.15 *(to be completed)*

Site Specific Landscape Characteristics

5.16 *(to be completed)*

Potential Visual Effects

5.17 The assessment of visual effects considers both winter and summer scenarios.

Visual Receptor Groups

Public Rights of Way

5.18 *(to be completed)*

People involved in recreational activities and people at work

5.19 *(to be completed)*

Dynamic receptors

5.20 *To be completed*

Representative Viewpoints

Representative Viewpoint 1:

5.21 *(to be completed)*

Representative Viewpoint 2

5.22 *(to be completed)*

Operational Effects

5.23 *(to be completed)*

Potential Landscape Effects

National Landscape Character Areas

5.24 *(to be completed)*

County and District Landscape Character Areas / Types

5.25 Refer to the Construction Effects section above for an introduction to / the scope of this subsection.

XX LCA/LCT

5.26 *(to be completed)*

XX LCA/LCT

5.27 *(to be completed)*

Site Specific Landscape Characteristics

5.28 *(to be completed)*

Potential Visual Effects

5.29 The assessment of effects has been considered in winter at Year 1 (the first year after the implementation of the landscape mitigation) and at summer Year 10.

Visual Receptor Groups

Public Rights of Way

5.30 *(to be completed)*

People involved in recreational activities and people at work

5.31 *(to be completed)*

Dynamic receptors

5.32 *(to be completed)*

Representative Viewpoints

Representative Viewpoint 1:

5.33 *(to be completed)*

Representative Viewpoint 2:

5.34 *(to be completed)*

Summary of Effects

Summary of landscape character effects

5.35 *(to be completed)*

Summary of visual effects

5.36 *(to be completed)*

Table 5.1: Summary of Likely Environmental Effects on Landscape and Visual Resources

Receptor	Sensitivity of receptor	Description of impact	Short / medium / long term	Magnitude of impact	Significance of effect	Significant / Not significant	Notes
Construction phase (temporary effects)							
Landscape resources and receptors							
Visual receptors							
Operational phase (residual effects)							
Landscape resources and receptors							
Visual receptors							

6 CUMULATIVE IMPACT ASSESSMENT

Introduction

6.1 *(to be completed if required)*

7 REFERENCES

Publications

Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3) (Landscape Institute and Institute of Environmental Management & Assessment, 2013);

Landscape Character Assessment Guidance for England and Scotland (The Countryside Agency and Scottish Natural Heritage, 2002);

An Approach to Landscape Character Assessment (Natural England, 2014);

Technical Guidance Note 06/19, Visual Representation of Development Proposals (Landscape Institute, September 2019);

TGN 02-21: Assessing landscape value outside national designations;

Bridgend Local Development Plan 2006 – 2021 (adopted June 2011);

Planning Policy Wales (Edition 11, 2021);

Natural Resources Wales (2016). LANDMAP the Welsh landscape baseline;

Natural Resources Wales (2017). National Landscape Character Areas;

Landscape Character Assessment for Bridgend County Borough Council (July 2013); and,

Technical Advice Note (TAN): Nature Conservation and Planning (2009).

Online Resources

National Landscape Character Areas, NLCA 36: Bro Morgannwg (Vale of Glamorgan).

<https://naturalresources.wales/evidence-and-data/maps/nlca/?lang=en>

(Accessed October 2022).

Bridgend County Borough Council adopted Local Development Plan (LDP) interactive proposals map.

<http://ldp.bridgend.gov.uk/>

(Accessed October 2022)

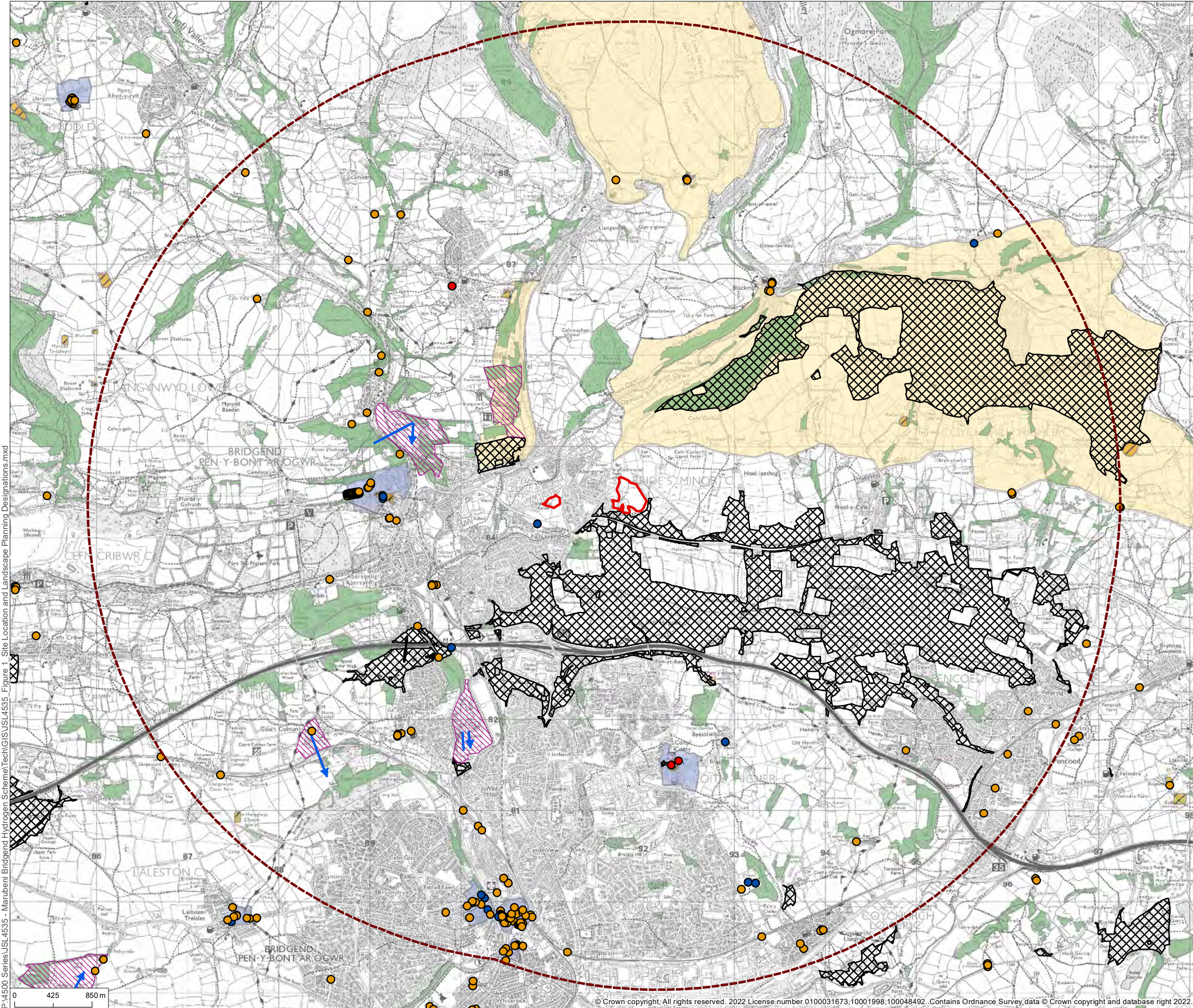
Bridgend County Borough Council web mapping

<https://maps.bridgend.gov.uk/webmap9/Map.aspx?MapName=OSWMTSBasemap>

(Accessed October 2022).



FIGURES



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Legend

- Application Site
- Study Area (5km radius)
- Grade I Listed Building
- Grade II Listed Building
- Grade II* Listed Building
- Significant Views
- Historic Parks and Gardens
- Registered Common Land
- Ancient Woodland
- Scheduled Monument
- Conservation Areas
- Special Landscape Areas (SLA)



P:\4500 Series\JSL4535 - Marubeni Bridgend Hydrogen Scheme\Tech\GIS\JSL4535 - Figure 1 - Site Location and Landscape Planning Designations.mxd

Rev	Description	By	CB	Date

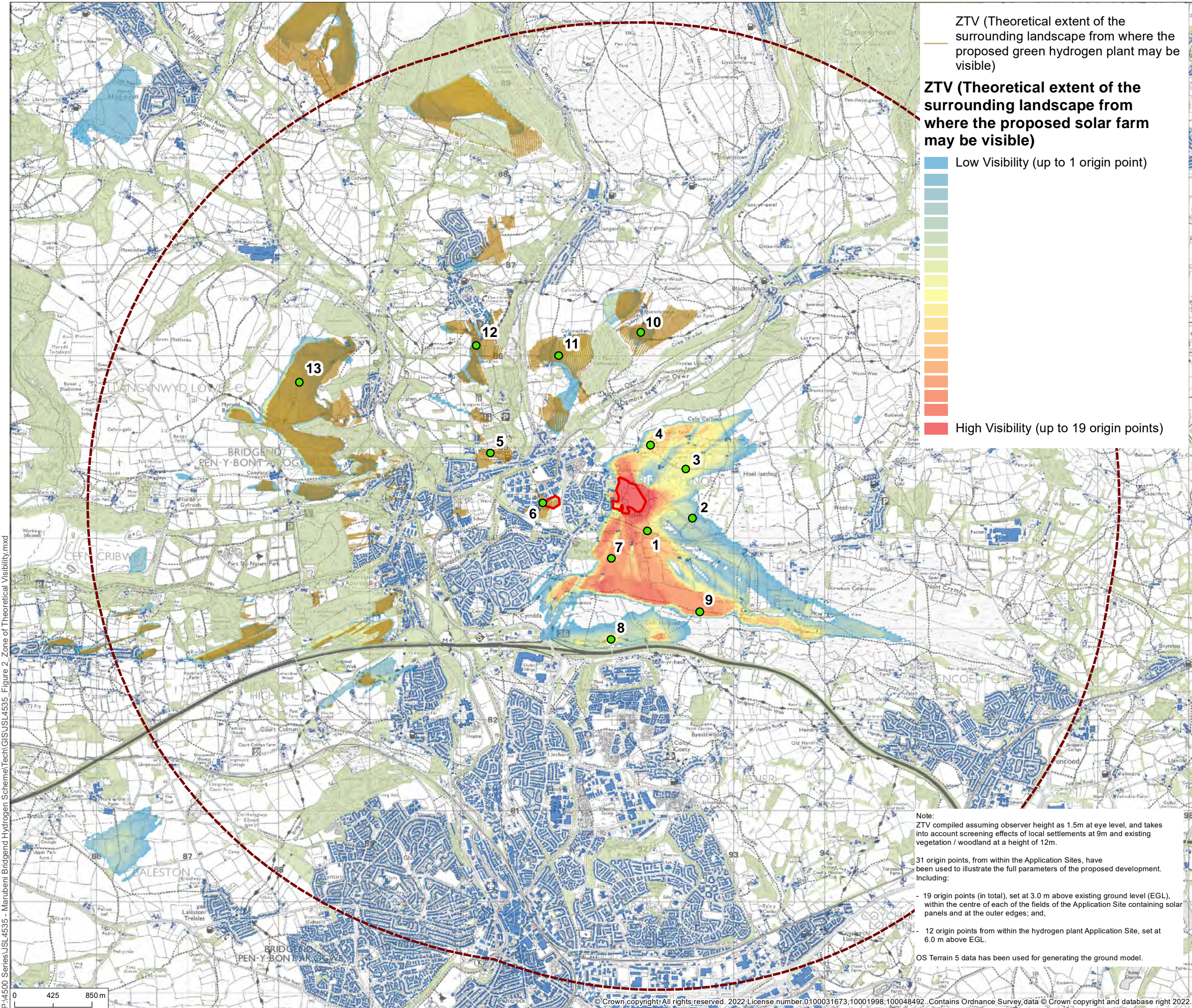


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Client Marubeni
Project HyBont Green Hydrogen Project
Title Site Location and Landscape Planning Designations

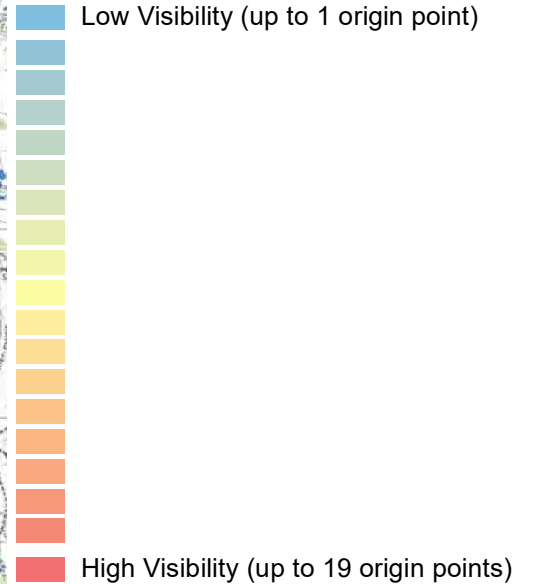
Status DRAFT	Drawn By GL	PM/Checked By PH
Project Number JSL4535	Scale @ A3 1:40,000	Date Created NOV 2022
Figure Number 1		Rev -

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ZTV (Theoretical extent of the surrounding landscape from where the proposed green hydrogen plant may be visible)

ZTV (Theoretical extent of the surrounding landscape from where the proposed solar farm may be visible)



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Legend

- Application Site
- Study Area (5km radius)
- Candidate Viewpoints
- Settlement (at 9 m EGL)
- Woodland (at 10 m EGL)



Rev	Description	By	CB	Date



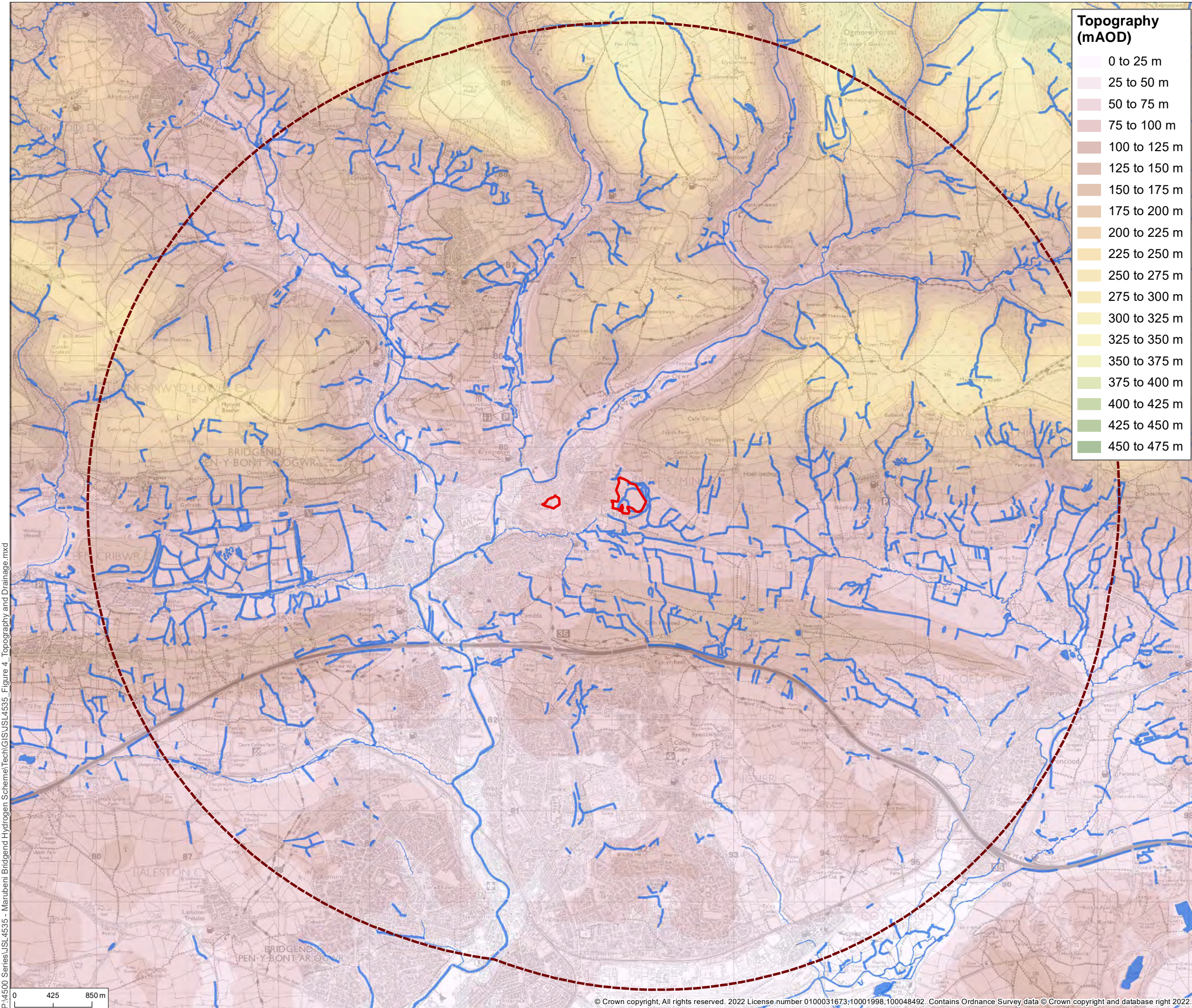
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Client **Marubeni**
 Project **HyBont Green Hydrogen Project**
 Title **Zone of Theoretical Visibility (inc. Candidate Viewpoints)**

Status **DRAFT** Drawn By **GL** PM/Checked By **PH**
 Project Number **JSL4535** Scale @ A3 **1:40,000** Date Created **NOV 2022**
 Figure Number **2** Rev **-**

Note:
 ZTV compiled assuming observer height as 1.5m at eye level, and takes into account screening effects of local settlements at 9m and existing vegetation / woodland at a height of 12m.
 31 origin points, from within the Application Sites, have been used to illustrate the full parameters of the proposed development. Including:
 - 19 origin points (in total), set at 3.0 m above existing ground level (EGL), within the centre of each of the fields of the Application Site containing solar panels and at the outer edges; and,
 - 12 origin points from within the hydrogen plant Application Site, set at 6.0 m above EGL.
 OS Terrain 5 data has been used for generating the ground model.

P:\4500 Series\JSL4535 - Marubeni Bridgend Hydrogen Scheme\Tech\GIS\JSL4535 - Figure 2 - Zone of Theoretical Visibility.mxd



Topography (mAOd)

0 to 25 m
25 to 50 m
50 to 75 m
75 to 100 m
100 to 125 m
125 to 150 m
150 to 175 m
175 to 200 m
200 to 225 m
225 to 250 m
250 to 275 m
275 to 300 m
300 to 325 m
325 to 350 m
350 to 375 m
375 to 400 m
400 to 425 m
425 to 450 m
450 to 475 m

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Legend

- Application Site
- Study Area (5km radius)
- Waterbodies



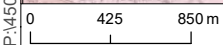
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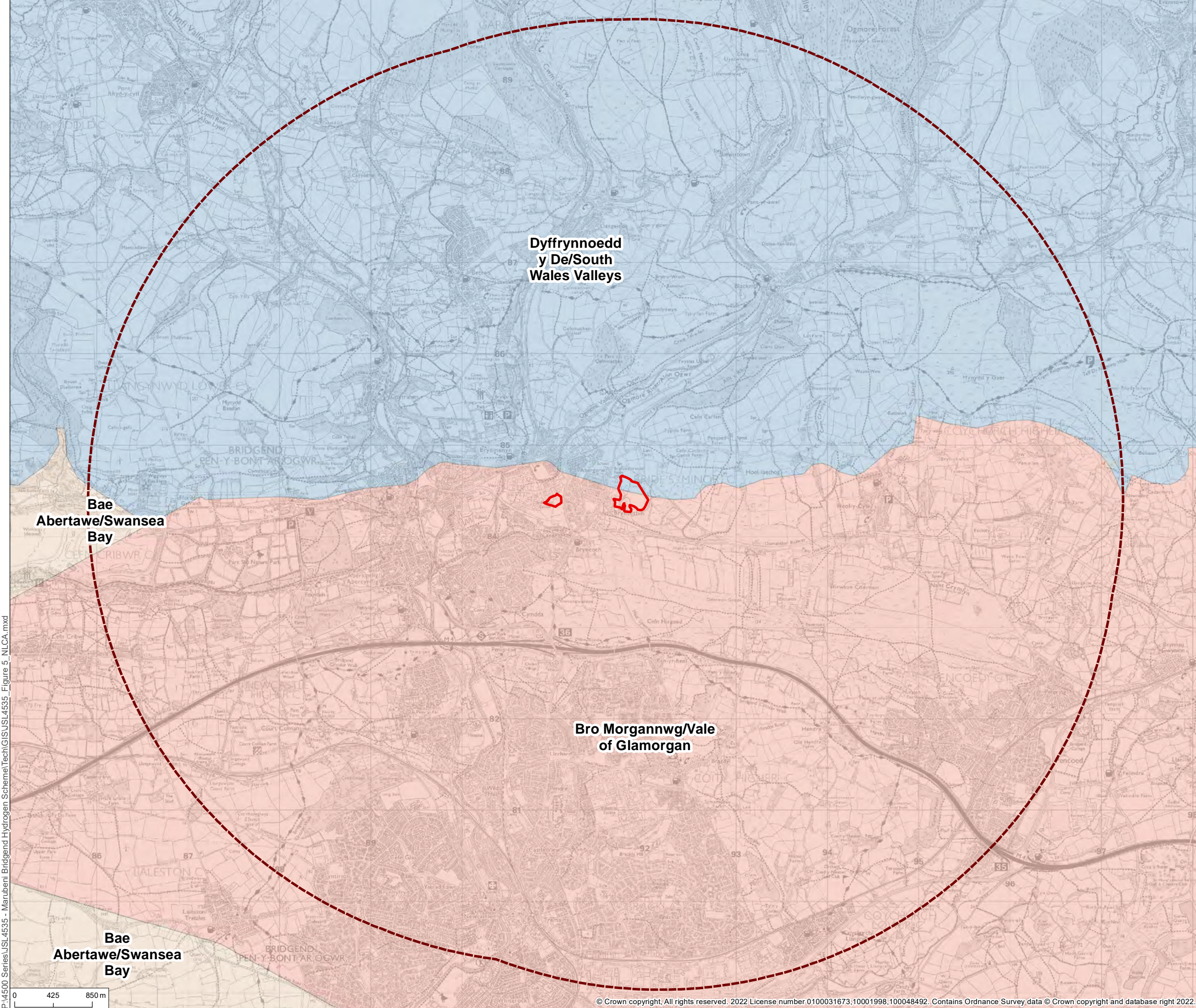
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 Project **HyBont Green Hydrogen Project**
 Title **Topography and Drainage**

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Legend

- Application Site
- Study Area (5km radius)

National Landscape Character Areas (NLCA)

- Bae Abertawe/Swansea Bay
- Bro Morgannwg/Vale of Glamorgan
- Dyffrynnoedd y De/South Wales Valleys



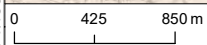
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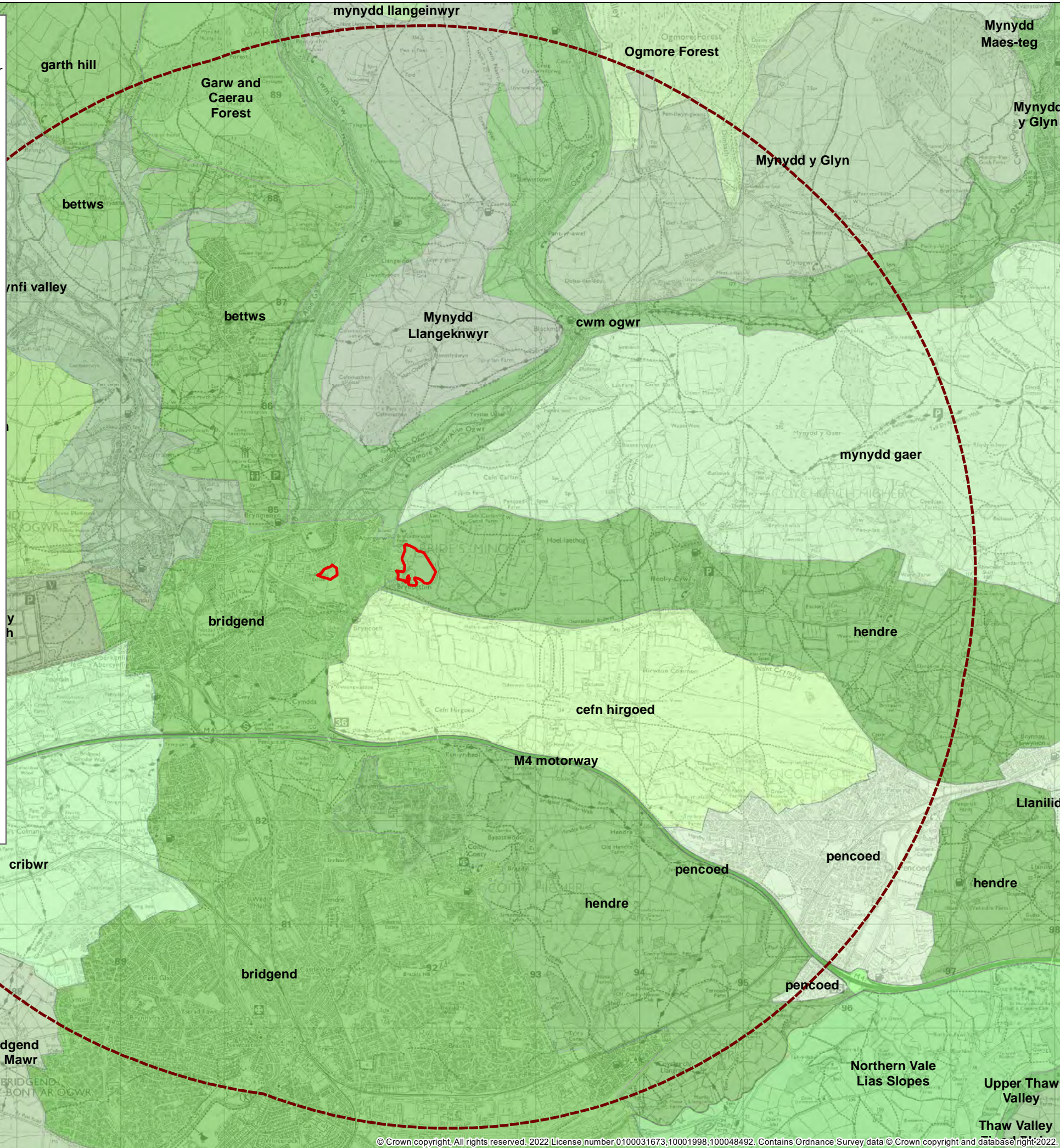
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Project	HyBont Green Hydrogen Project	
Title	National Landscape Character Areas (NLCA)	
Status	Drawn By	PM/Checked By
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Project Number	Scale @ A3	Date Created
JSL4535	1:40,000	NOV 2022
Figure Number		Rev
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LANDMAP: Landscape Visual and Sensory Aspect Areas

- Between Bridgend and Merthyr Mawr
- Coedhirwaun
- Conifer to west of study area
- Garw and Caerau Forest
- Llanilid
- M4 motorway
- Margam Opencast
- Mynydd Bromil & Scarp tops
- Mynydd Llangeknwyr
- Mynydd Maes-teg
- Mynydd Margam
- Mynydd y Glyn
- Newton Down
- Northern Vale Lias Slopes
- Ogmore Forest
- Thaw Valley Flood Plain
- Upper Thaw Valley
- bettws
- bridgend
- cefn hirgoed
- cribwr
- cwm ogwr
- ffordd y gyfraith
- garth hill
- hendre
- llynfi valley
- maesteg
- mynydd baedan
- mynydd gaer
- mynydd llangainwyr
- opencast
- pencoed



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Legend

- Study Area (5km)
- Application Site



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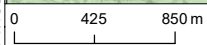


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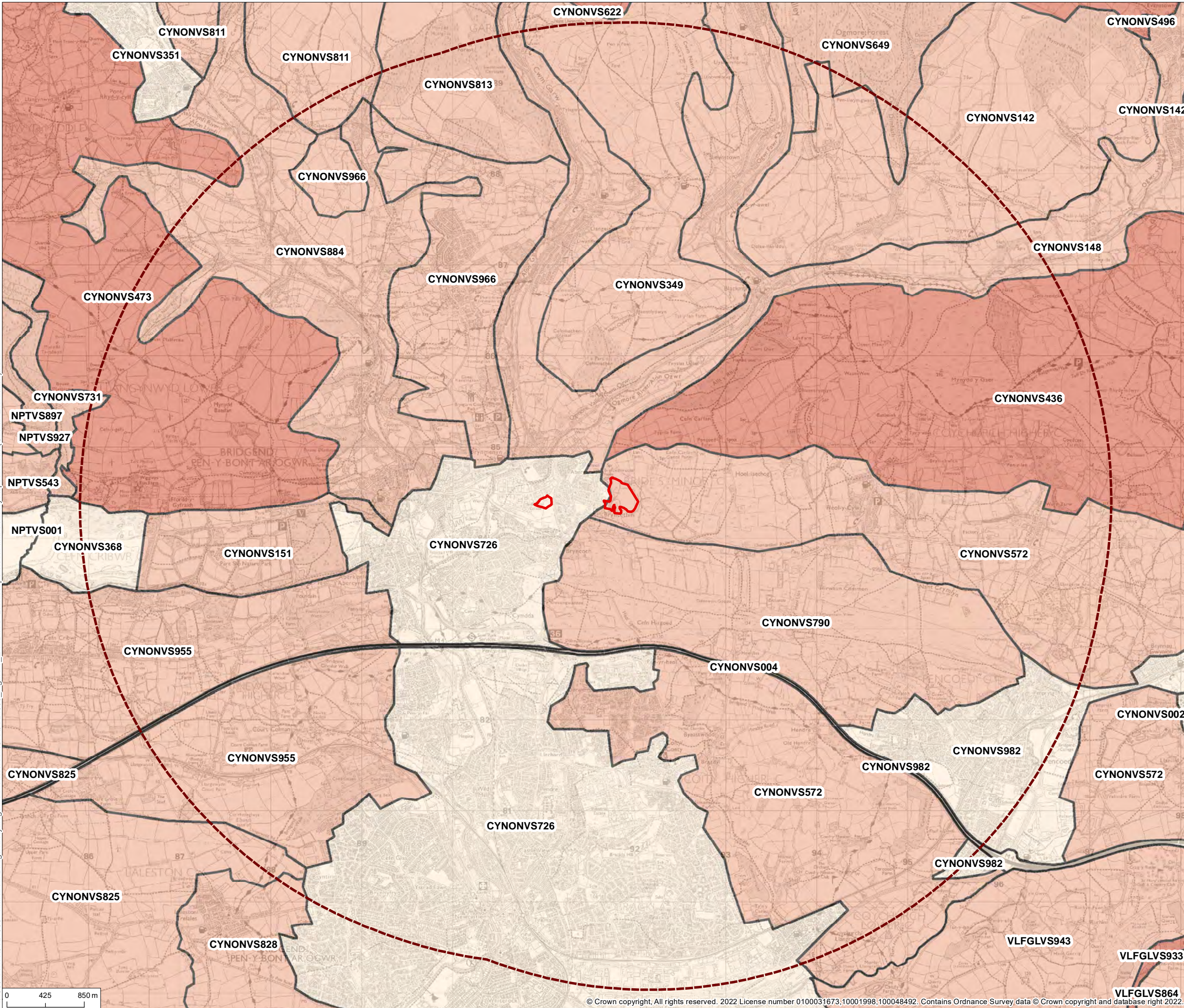
Client	Marubeni		
Project	HyBont Green Hydrogen Project		
Title	LANDMAP: Landscape Visual and Sensory Aspect Areas		
Status	Drawn By	PM/Checked By	
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Project Number	Scale @ A3	Date Created	
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Legend

- Study Area (5km)
- Application Site

LANDMAP: Visual and Sensory Aspect Areas

Overall Evaluation

- Outstanding
- High
- Moderate
- Low

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 Project: HyBont Green Hydrogen Project
 Title: LANDMAP: Landscape Visual and Sensory Aspect Areas (Evaluation)

Status: DRAFT
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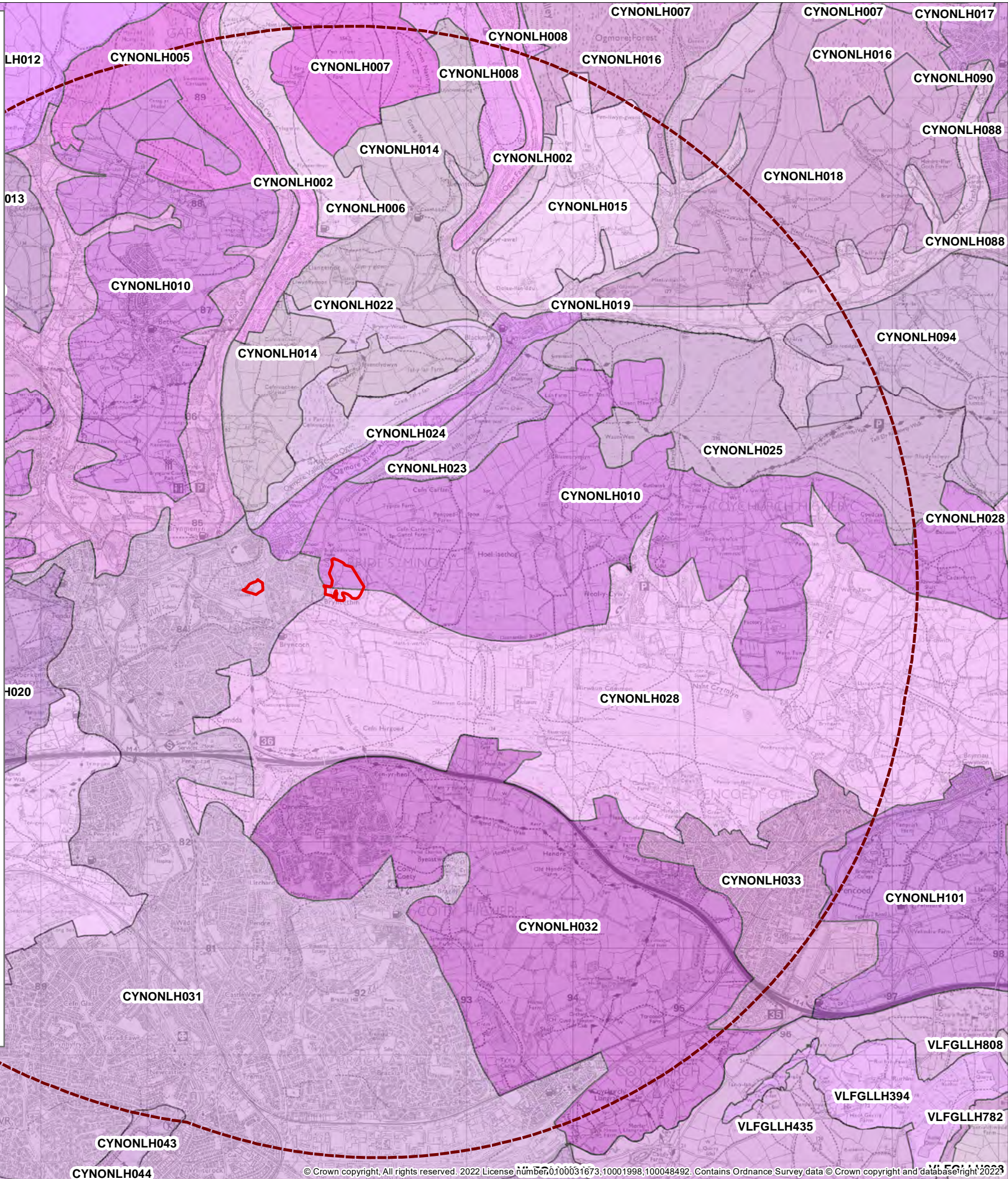
Project Number: JSL4535
 Scale @ A3: 1:40,000
 Date Created: NOV 2022

Figure Number: 7
 Rev: -

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LANDMAP: Landscape Habitats Aspect Areas

- CYNONLH002,
- CYNONLH003,
- CYNONLH005,
- CYNONLH006,
- CYNONLH007,
- CYNONLH008,
- CYNONLH009,
- CYNONLH010,
- CYNONLH011,
- CYNONLH012,
- CYNONLH013,
- CYNONLH014,
- CYNONLH015,
- CYNONLH016,
- CYNONLH017,
- CYNONLH018,
- CYNONLH019,
- CYNONLH020,
- CYNONLH021,
- CYNONLH022,
- CYNONLH023,
- CYNONLH024,
- CYNONLH025,
- CYNONLH026,
- CYNONLH027,
- CYNONLH028,
- CYNONLH029,
- CYNONLH030,
- CYNONLH031,
- CYNONLH032,
- CYNONLH033,
- CYNONLH043,
- CYNONLH044,
- CYNONLH088,
- CYNONLH090,
- CYNONLH094,
- CYNONLH101,
- CYNONLH102,
- NPTLH066,
- NPTLH069,
- NPTLH071,
- NPTLH108,
- VLFGLLH394, Ruthin
- VLFGLLH435, Cowbridge West
- VLFGLLH782, Thaw Valley Woodlands
- VLFGLLH808, Thaw Valley
- VLFGLLH948, Waterton



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Legend

- Application Site
- Study Area (5km radius)



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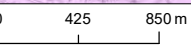
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 Project **HyBont Green Hydrogen Project**
 Title **LANDMAP: Landscape Habitats Aspect Areas**

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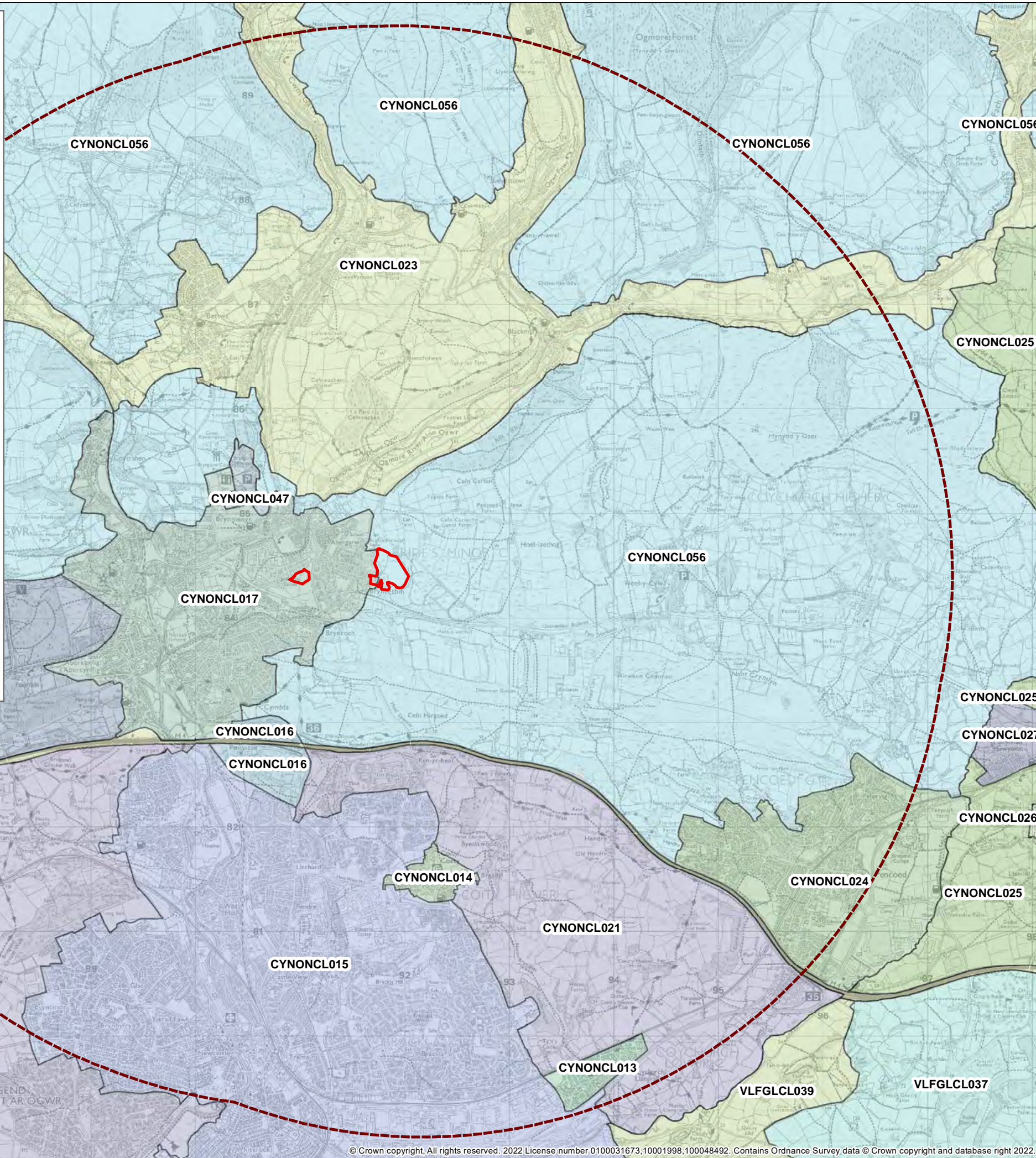
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LANDMAP: Cultural Landscape Aspect Areas

- CYNONCL001, M4 Motorway
- CYNONCL012, South Cornelly Quarries
- CYNONCL013, Laleston and Coychurch
- CYNONCL014, Coity
- CYNONCL015, Bridgend
- CYNONCL016, Designer Outlet-Wales and Sarn Park
- CYNONCL017, Tondu Sarn et alia
- CYNONCL019, Cefn Cribwr Parc Slip Bedford Park
- CYNONCL020, Llangynwyd
- CYNONCL021, Vale of Glamorgan Rural Landscape
- CYNONCL022, Maesteg
- CYNONCL023, Llynfi Garw and Ogmere Valleys
- CYNONCL024, Pencoed
- CYNONCL025, Mynydd Maendy Windfarm
- CYNONCL026, Mynydd Hywel Deio Open Cast
- CYNONCL027, Llanharan and Llanharri
- CYNONCL047, Country Parks
- CYNONCL056, Designated Landscape Areas
- NPTCL027, Margam Park
- VLFGLCL037, Windfarm Landscape
- VLFGLCL039, Vale of Glamorgan Rural Landscape



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Legend

- Application Site
- Study Area (5km radius)



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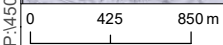
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Client **Marubeni**
 Project **HyBont Green Hydrogen Project**
 Title **LANDMAP: Cultural Landscape Aspect Areas**

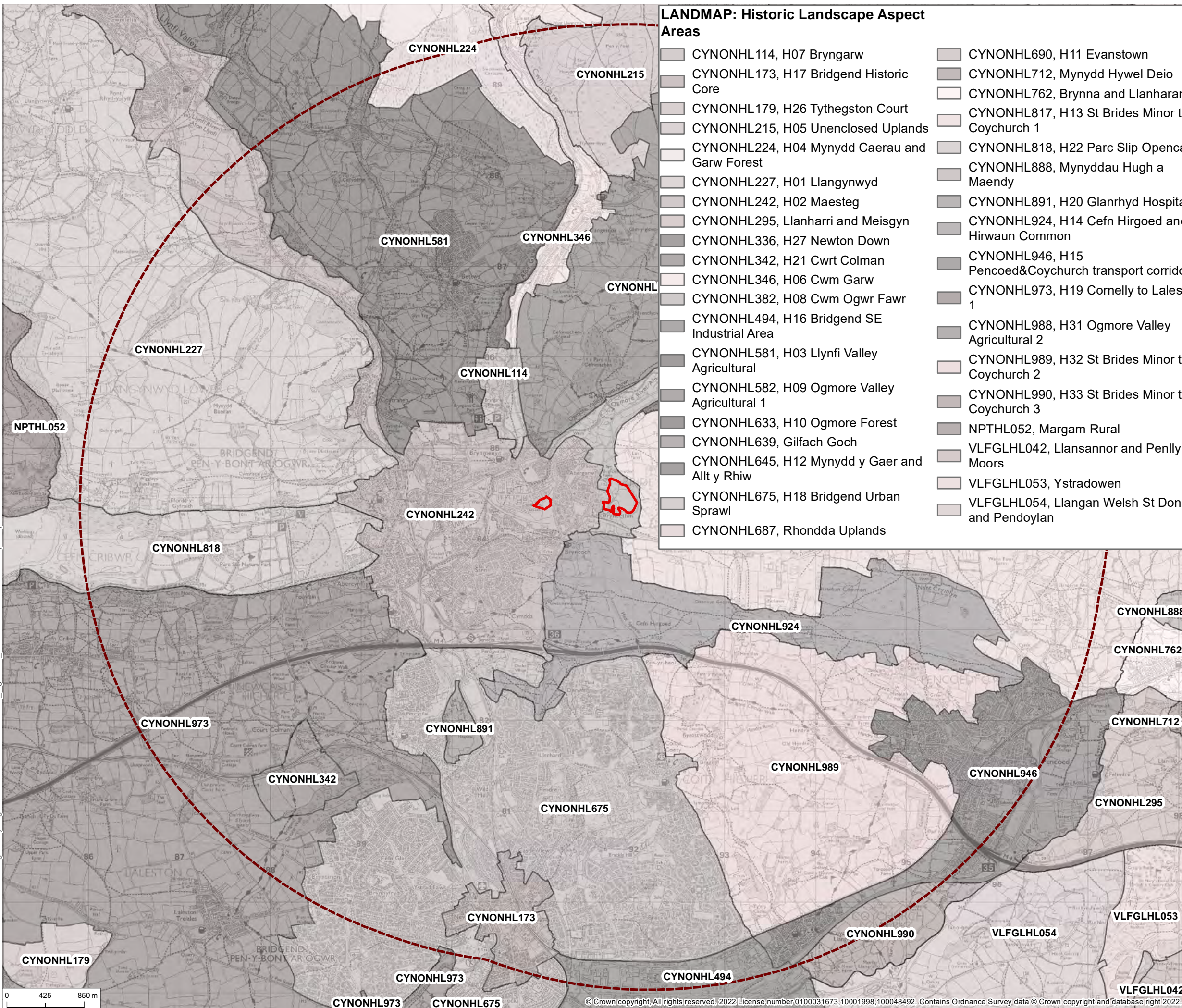
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LANDMAP: Historic Landscape Aspect Areas

- CYNONHL114, H07 Bryngarw
- CYNONHL173, H17 Bridgend Historic Core
- CYNONHL179, H26 Tythegston Court
- CYNONHL215, H05 Unenclosed Uplands
- CYNONHL224, H04 Mynydd Caerau and Garw Forest
- CYNONHL227, H01 Llangynwyd
- CYNONHL242, H02 Maesteg
- CYNONHL295, Llanharri and Meisgyn
- CYNONHL336, H27 Newton Down
- CYNONHL342, H21 Cwrt Colman
- CYNONHL346, H06 Cwm Garw
- CYNONHL382, H08 Cwm Ogwr Fawr
- CYNONHL494, H16 Bridgend SE Industrial Area
- CYNONHL581, H03 Llynfi Valley Agricultural
- CYNONHL582, H09 Ogmores Valley Agricultural 1
- CYNONHL633, H10 Ogmores Forest
- CYNONHL639, Gilfach Goch
- CYNONHL645, H12 Mynydd y Gaer and Allt y Rhiw
- CYNONHL675, H18 Bridgend Urban Sprawl
- CYNONHL687, Rhondda Uplands
- CYNONHL690, H11 Evanstown
- CYNONHL712, Mynydd Hywel Deio
- CYNONHL762, Brynna and Llanharan
- CYNONHL817, H13 St Brides Minor to Coychurch 1
- CYNONHL818, H22 Parc Slip Opencast
- CYNONHL888, Mynyddau Hugh a Maendy
- CYNONHL891, H20 Glanrhyd Hospital
- CYNONHL924, H14 Cefn Hirgoed and Hirwaun Common
- CYNONHL946, H15 Pencoed&Coychurch transport corridor
- CYNONHL973, H19 Cornelly to Laleston 1
- CYNONHL988, H31 Ogmores Valley Agricultural 2
- CYNONHL989, H32 St Brides Minor to Coychurch 2
- CYNONHL990, H33 St Brides Minor to Coychurch 3
- NPTHL052, Margam Rural
- VLFGLHL042, Llansannor and Penllyn Moors
- VLFGLHL053, Ystradowen
- VLFGLHL054, Llangan Welsh St Donats and Pendoylan

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Legend

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- Study Area (5km radius)



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 Project **HyBont Green Hydrogen Project**
 Title **LANDMAP: Historic Landscape Aspect Areas**

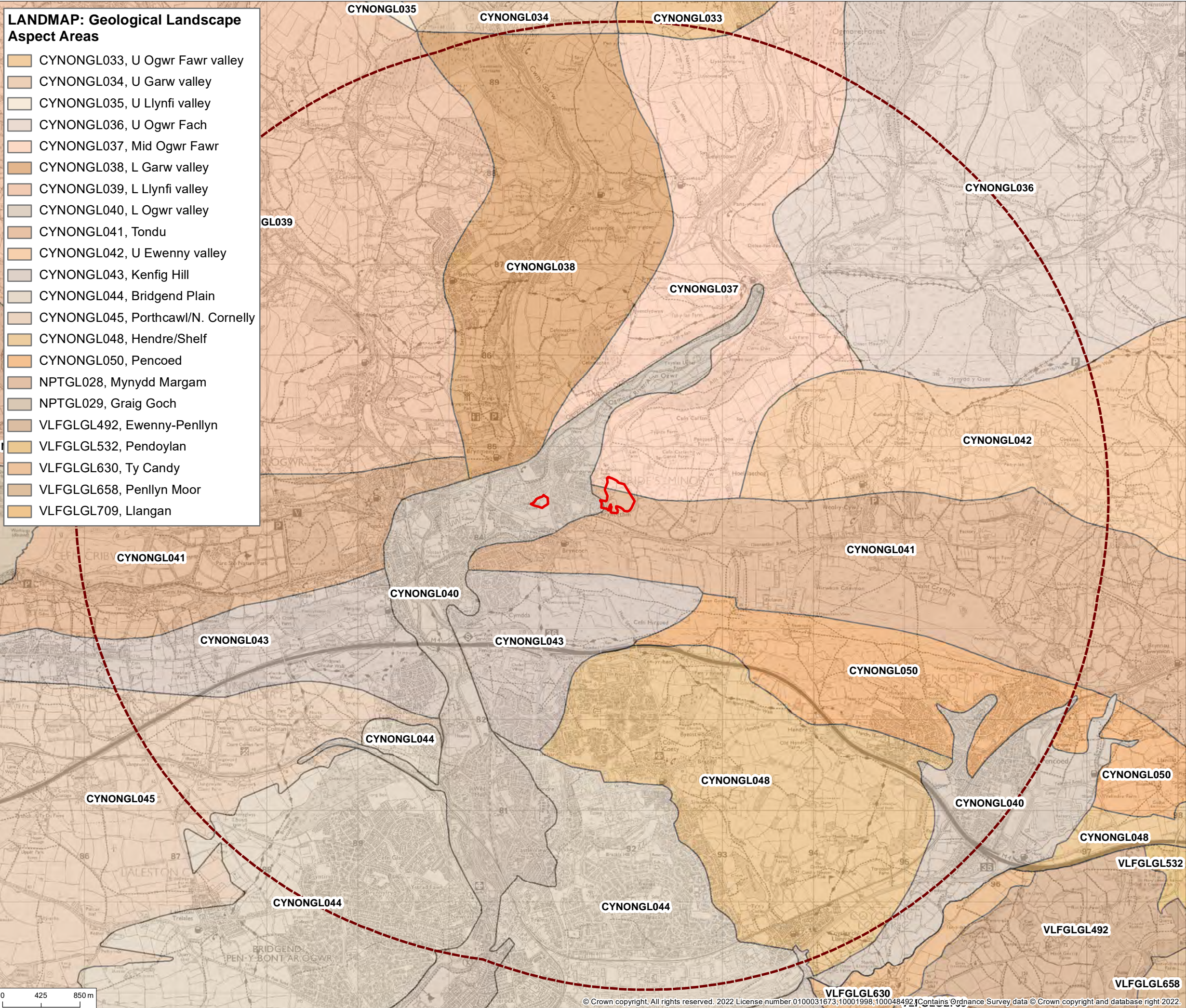
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Figure Number **10** Rev **-**

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LANDMAP: Geological Landscape Aspect Areas

- CYNONGL033, U Ogwr Fawr valley
- CYNONGL034, U Garw valley
- CYNONGL035, U Llynfi valley
- CYNONGL036, U Ogwr Fach
- CYNONGL037, Mid Ogwr Fawr
- CYNONGL038, L Garw valley
- CYNONGL039, L Llynfi valley
- CYNONGL040, L Ogwr valley
- CYNONGL041, Tondu
- CYNONGL042, U Ewenny valley
- CYNONGL043, Kenfig Hill
- CYNONGL044, Bridgend Plain
- CYNONGL045, Porthcawl/N. Cornelly
- CYNONGL048, Hendre/Shelf
- CYNONGL050, Pencoed
- NPTGL028, Mynydd Margam
- NPTGL029, Graig Goch
- VLFGLGL492, Ewenny-Penllyn
- VLFGLGL532, Pendoylan
- VLFGLGL630, Ty Candy
- VLFGLGL658, Penllyn Moor
- VLFGLGL709, Llangan



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- Study Area (5km radius)



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 Project **HyBont Green Hydrogen Project**
 Title **LANDMAP: Geological Landscape Aspect Areas**

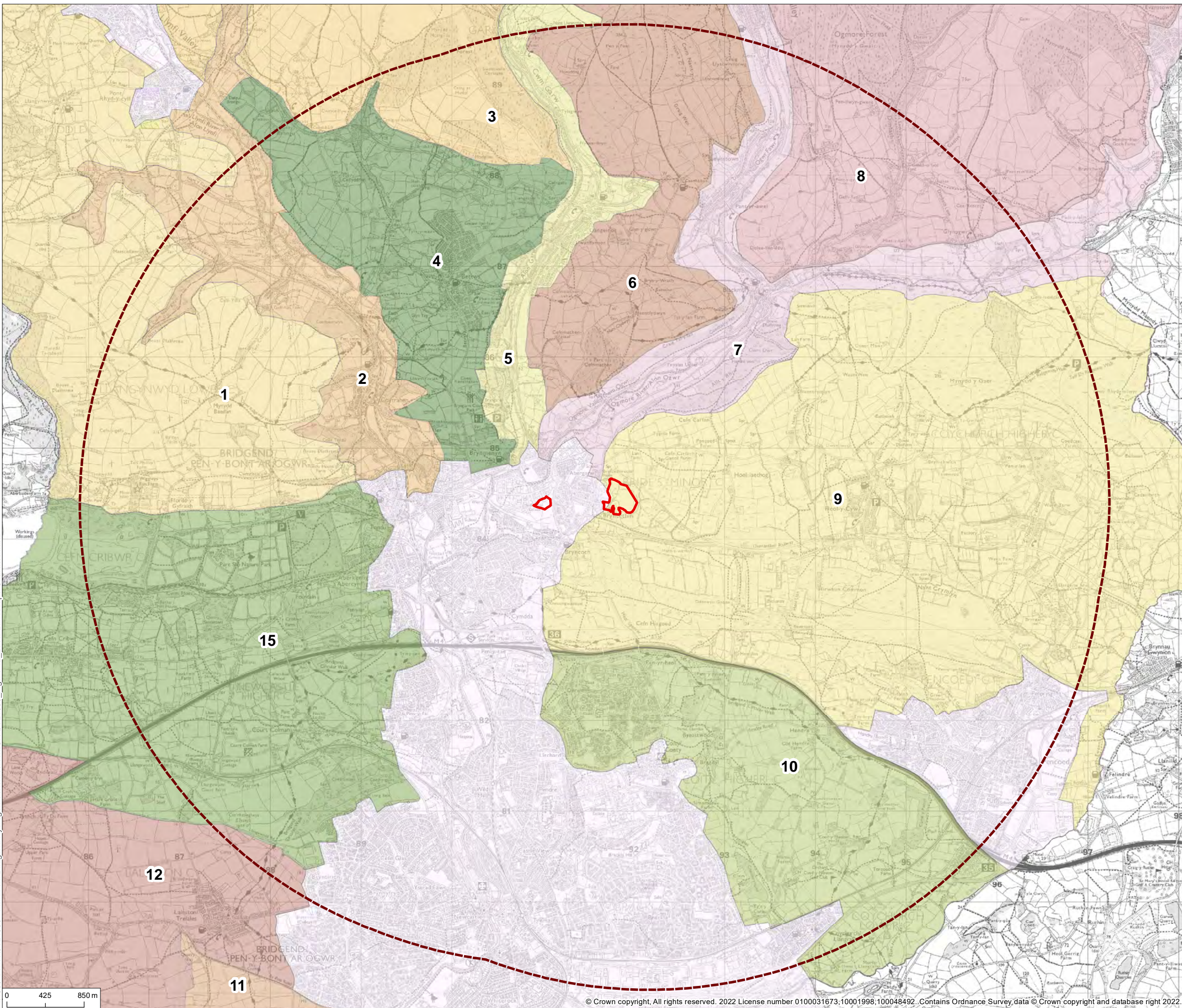
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Legend

- Application Site
- Study Area (5km radius)

Bridgend Landscape Character Area Study (July 2013) - Landscape Character Areas

- 1. Llangynwyd Rolling Uplands and Forestry
- 2. Llynfi Valley Floor and Lower Slopes
- 3. Llynfi & Garw Uplands and Forestry
- 4. Bettws Settled Farmland
- 5. Garw Valley Floor and Lower Slopes
- 6. Mynydd Llangeinwyr Uplands
- 7. Ogmores Valley Floor and Lower Slopes
- 8. Ogmores Forest and Surrounding Uplands
- 9. Hirwaun Common and Surrounding Ridges
- 10. Coity Rural Hinterland
- 11. Merthyr Mawr Farmland Warren and Coastline
- 12. Newton Down Limestone Plateau
- 15. Cefn Cribwr Ridge and Settled Farmland
- Urban Areas



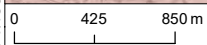
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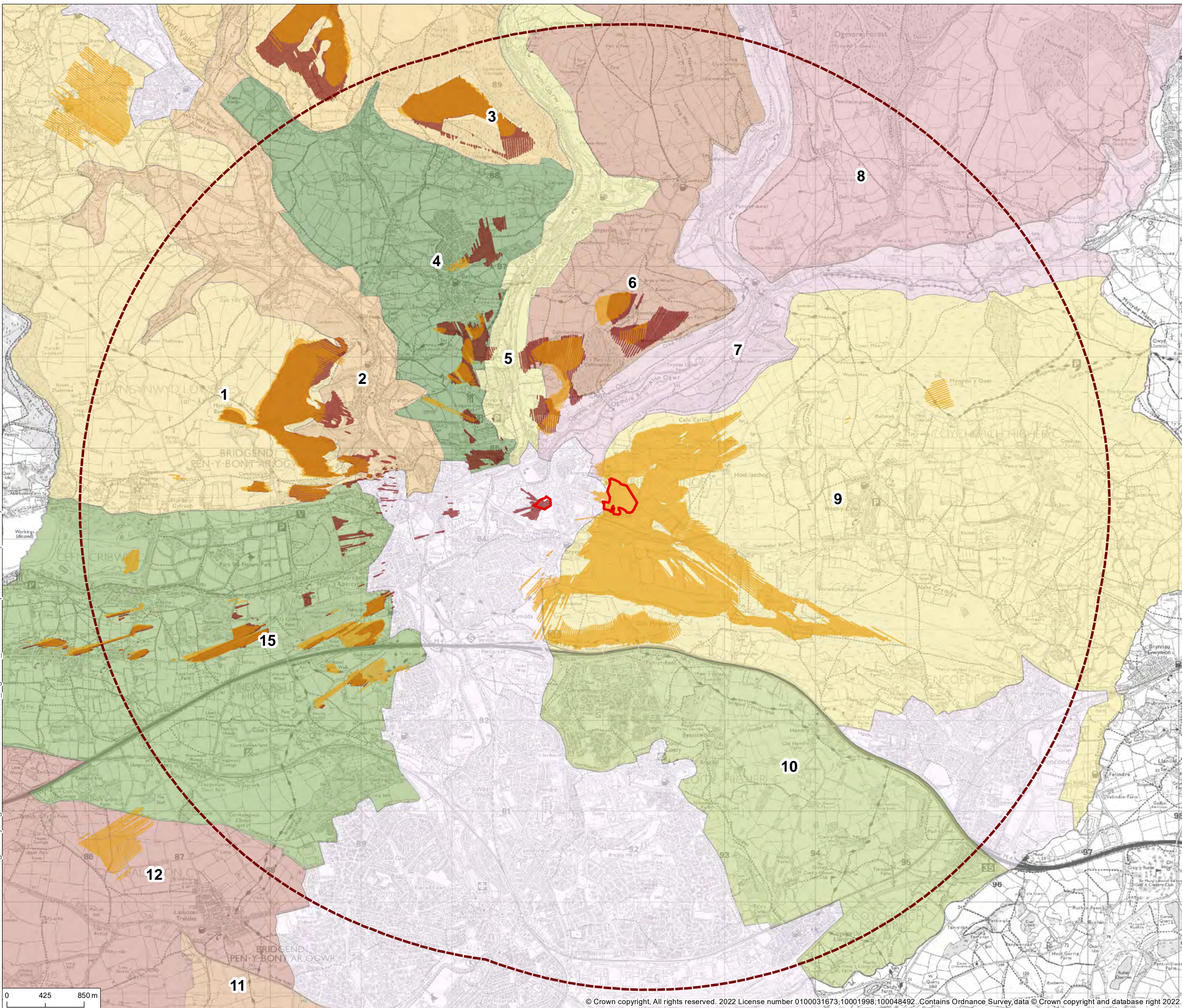
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Client	Marubeni		
Project	HyBont Green Hydrogen Project		
Title	Local Landscape Character Areas		
Status	Drawn By	PM/Checked By	
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Legend

- Application Site
- Study Area (5km radius)

Bridgend Landscape Character Area Study (July 2013) - Landscape Character Areas

- 1. Llangynwyd Rolling Uplands and Forestry
- 2. Llynfi Valley Floor and Lower Slopes
- 3. Llynfi & Garw Uplands and Forestry
- 4. Bettws Settled Farmland
- 5. Garw Valley Floor and Lower Slopes
- 6. Mynydd Llangeinwyr Uplands
- 7. Ogmore Valley Floor and Lower Slopes
- 8. Ogmore Forest and Surrounding Uplands
- 9. Hirwaun Common and Surrounding Ridges
- 10. Coity Rural Hinterland
- 11. Merthyr Mawr Farmland Warren and Coastline
- 12. Newton Down Limestone Plateau
- 15. Cefn Cribwr Ridge and Settled Farmland
- Urban Areas



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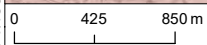


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Client **Marubeni**
 Project **HyBont Green Hydrogen Project**
 Title **Local Landscape Character Areas (including ZTV)**

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APPENDICES

Landscape Value (to be completed)

Table 8.1: Range of factors that can be considered when identifying landscape value from *Technical Guidance Note 02/21: Assessing landscape value outside national designations* Table 1

Range of factors that can be considered when identifying landscape value						
Factor	Definition	Examples ³ of Indicators of landscape value	Example ⁴ of evidence	Evidence present		
Natural heritage	Landscape with clear evidence of ecological, geological, geomorphological or physiographic interest which contribute positively to the landscape	Presence of wildlife and habitats of ecological interest that contribute to sense of place	Landscape character assessment	LANDMAP Geological Landscape and Habitats Aspects (in Wales)		
			Extent and survival of seminatural habitat that is characteristic of the landscape type		Ecological and geological designations	
		Presence of distinctive geological, geomorphological or pedological features	SSSI citations and condition assessments	Geological Conservation Review		
			Landscape which contains valued natural capital assets that contribute to ecosystem services, for example distinctive ecological communities and habitats that form the basis of ecological networks		Habitat surveys	
		Landscape which makes an identified contribution to a nature recovery/ green infrastructure network	Priority habitats	Nature recovery networks/ nature pathways		
			Habitat network opportunity mapping/ green infrastructure mapping			
					Catchment management plans	Ecosystem services assessment/ schemes
					Specialist ecological studies	
Cultural heritage	Landscape with clear evidence of archaeological, historical or	Presence of historic landmark structures or designed landscape elements	LANDMAP Historic Landscape and Cultural Landscape			

³ These examples are not exhaustive.

⁴ Evidence may be set out in development plans (or evidence that sits alongside development plans). Online mapping may also provide useful information

Range of factors that can be considered when identifying landscape value

Factor	Definition	Examples ³ of Indicators of landscape value	Example ⁴ of evidence	Evidence present
	cultural interest which contribute positively to the landscape	(e.g. follies, monuments, avenues, tree roundels) Presence of historic parks and gardens, and designed landscapes Landscape which contributes to the significance of heritage assets, for example forming the setting of heritage assets (especially if identified in specialist studies) Landscape which offers a dimension of time depth. This includes natural time depth, e.g. presence of features such as glaciers and peat bogs and cultural time depth e.g. presence of relic farmsteads, ruins, historic field patterns, historic rights of way (e.g. drove roads, salt ways, tracks associated with past industrial activity)	Services Aspect (in Wales) Historic environment and archaeological designations Conservation Area appraisals, Village Design Statements Historic maps Historic landscape character assessments ⁵ Historic Land Use Assessment ⁶ and Historic Area Assessments ⁷ Place names Specialist heritage studies	
Landscape condition	Landscape which is in a good physical state both with regard to individual elements and overall landscape structure	Good physical condition/ intactness of individual landscape elements (e.g. walls, parkland, trees) Good health of elements such as good water quality, good soil health Strong landscape structure (e.g. intact historic field patterns) Absence of detracting/	Landscape character assessment LANDMAP condition and trend questions (in Wales) Hedgerow/ tree surveys Observations about intactness/ condition made in the field by the assessor	

⁵ Historic Landscape Characterisation has developed as a GIS mapping tool to capture how land use has changed and the ‘time-depth’ of the present-day landscape.

<https://historicengland.org.uk/research/methods/characterisation/historic-landscape-characterisation/>

⁶ Mapping of Scotland’s Historic Landscape: <https://hlamap.org.uk/>

⁷ <https://historicengland.org.uk/images-books/publications/understanding-place-historic-area-assessments/>

Range of factors that can be considered when identifying landscape value

Factor	Definition	Examples ³ of Indicators of landscape value	Example ⁴ of evidence	Evidence present
		incongruous features (or features are present but have little influence)	SSSI condition assessments Historic landscape character assessments/ map regression analysis	
Associations	Landscape which is connected with notable people, events and the arts	Associations with well-known literature, poetry, art, TV/film and music that contribute to perceptions of the landscape Associations with science or other technical achievements Links to a notable historical event Associations with a famous person or people	Information about arts and science relating to a place Historical accounts, cultural traditions and folklore Guidebooks/ published cultural trails LANDMAP Cultural Landscape Services aspect (in Wales)	
Distinctiveness	Landscape that has a strong sense of identity	Landscape character that has a strong sense of place (showing strength of expression of landscape characteristics) Presence of distinctive features which are identified as being characteristic of a particular place Presence of rare or unusual features, especially those that help to confer a strong sense of place or identity Landscape which makes an important contribution to the character or identity of a settlement Settlement gateways/approaches which provides a clear sense of arrival and contribute to the character of the settlement (may be ancient/historic)	Landscape character assessment LANDMAP Visual & Sensory question 3 and 25, – Historic Landscape question 4 (in Wales) Guidebooks Observations about identity/ distinctiveness made in the field by the assessor	
Recreational	Landscape offering recreational opportunities	Presence of open access land, common land and public rights of way (particularly	Definitive public rights of way mapping/ OS map data	

Range of factors that can be considered when identifying landscape value

Factor	Definition	Examples ³ of Indicators of landscape value	Example ⁴ of evidence	Evidence present
	where experience of landscape is important	National Trails, long distance trails, Coastal Paths and Core Paths) where appreciation of landscape is a feature Areas with good accessibility that provide opportunities for outdoor recreation and spiritual experience/ inspiration Presence of town and village greens Other physical evidence of recreational use where experience of landscape is important Landscape that forms part of a view that is important to the enjoyment of a recreational activity	National Trails, long distance trails, Coastal Paths, Core Paths Open access land (including registered common land) Database of registered town or village greens Visitor surveys/ studies Observations about recreational use/ enjoyment made in the field by the assessor	
Perceptual (Scenic)	Landscape that appeals to the senses, primarily the visual sense	Distinctive features, or distinctive combinations of features, such as dramatic or striking landform or harmonious combinations of land cover Strong aesthetic qualities such as scale, form, colour and texture Presence of natural lines in the landscape (e.g. natural ridgelines, woodland edges, river corridors, coastal edges) Visual diversity or contrasts which contributes to the appreciation of the landscape Memorable/ distinctive views and landmarks, or landscape which	Landscape character assessment LANDMAP Visual and Sensory scenic quality question 46 (in Wales) Protected views, views studies Areas frequently photographed or used in images used for tourism/ visitor/ promotional purposes, or views described or praised in literature Observations about scenic qualities made in the field by the assessor Conservation Area Appraisals	

Range of factors that can be considered when identifying landscape value

Factor	Definition	Examples ³ of Indicators of landscape value	Example ⁴ of evidence	Evidence present
		contributes to distinctive views and landmarks	Village Design Statements, or similar	
Perceptual (Wildness and tranquillity)	Landscape with a strong perceptual value notably wildness, tranquillity and/or dark skies	High levels of tranquillity or perceptions of tranquillity, including perceived links to nature, dark skies, presence of wildlife/ birdsong and relative peace and quiet ⁸	Tranquillity mapping and factors which contribute to and detract from tranquillity	
		Presence of wild land and perceptions of relative wildness (resulting from a high degree of perceived naturalness ⁹ , rugged or otherwise challenging terrain, remoteness from public mechanised access and lack of modern artefacts)	Dark Skies mapping	Wildness mapping, and Wild Land Areas in Scotland
		Sense of particular remoteness, seclusion or openness	LANDMAP Visual and Sensory Aspect	Land cover mapping
		Dark night skies A general absence of intrusive or inharmonious development, land uses, transport and lighting	Field survey	
Functional	Landscape which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape	Landscapes and landscape elements that contribute to the healthy functioning of the landscape, e.g. natural hydrological systems/ floodplains, areas of undisturbed and healthy soils, areas that form carbon sinks such as peat bogs, woodlands and oceans, areas of diverse landcover	Land cover and habitat maps	Ecosystem services assessments and mapping (particularly supporting and regulating services)

⁸More about tranquillity can be found in Landscape Institute Technical Information Note 01/2017 (Revised; Landscape Institute, 2017).

⁹ Relating to extensive semi-natural vegetation, presence of wildlife and presence of natural processes/ lack of human intervention.

Range of factors that can be considered when identifying landscape value				
Factor	Definition	Examples ³ of Indicators of landscape value	Example ⁴ of evidence	Evidence present
		(benefits pest regulation), pollinator-rich habitats such as wildflower meadows	Green infrastructure studies/strategies	
		Areas that form an important part of a multifunctional Green Infrastructure network	Development and management plans for nationally designated landscapes, Local Plans and SPDs	
		Landscapes and landscape elements that have strong physical or functional links with an adjacent national landscape designation, or are important to the appreciation of the designated landscape and its special qualities	Landscape character assessments	

Appendix B

Landscape and Visual Impact Assessment Methodology

B.1 Assessment Criteria and Assignment of Significance

Relevant Guidance

B.1.1 As a matter of best practice, this Landscape and Visual Impact Assessment (LVIA) has been undertaken based on the relevant guidance on landscape and visual impact assessment (LVIA) described in the following documents:

- *Landscape Character Assessment: Guidance for England and Scotland* (The Countryside Agency and Scottish Natural Heritage, 2002);
- *Guidelines for Landscape and Visual Impact Assessment, Third Edition* (GLVIA3) (Landscape Institute and Institute of Environmental Management and Assessment, 2013);
- *An Approach to Landscape Character Assessment* (Natural England, 2014);
- *Technical Guidance Note 2/19 Residential Visual Amenity Assessment* (Landscape Institute, 2019); and
- *Technical Guidance Note 02/21: Assessing landscape value outside national designations* (Landscape Institute, May 2021).

Distinction Between Landscape and Visual Effects

B.1.2 As set out in the GLVIA3, paragraph 2.21, landscape and visual effects are assessed separately, although the procedure for assessing each is closely linked. A clear distinction has been drawn between landscape and visual effects as described below:

- Landscape effects relate to the effects of the proposed development on the physical and other characteristics of the landscape and its resulting character and quality.
- Visual effects relate to the effects on views experienced by visual receptors (e.g. footpath users, road users, people in their places of work etc) and on the change in views experienced by people.

Assessment Criteria and Assignment of Significance of Effects

B.1.3 GLVIA3 sets out broad guidelines rather than detailed prescriptive methodologies. The methodologies tailored for the assessment of this development is based on GLVIA3 guidance, which recommends that an assessment “*concentrates on principles and process*” and “*does not provide a detailed or formulaic recipe*” to assess effects, it being the “*responsibility of the professional to ensure that the approach and methodology are appropriate to the task in hand*” (preface to GLVIA3). The effects on the landscape resources or visual receptors (people) are assessed by considering the proposed change in the baseline conditions (the impact of the proposal) against the type of landscape resource or visual receptor (including the importance and sensitivity of that resource or receptor). The methodology is set out in detail below and summarised in Diagram 1. These factors are determined through a combination of quantitative (objective) and qualitative (subjective) assessment using professional judgement.

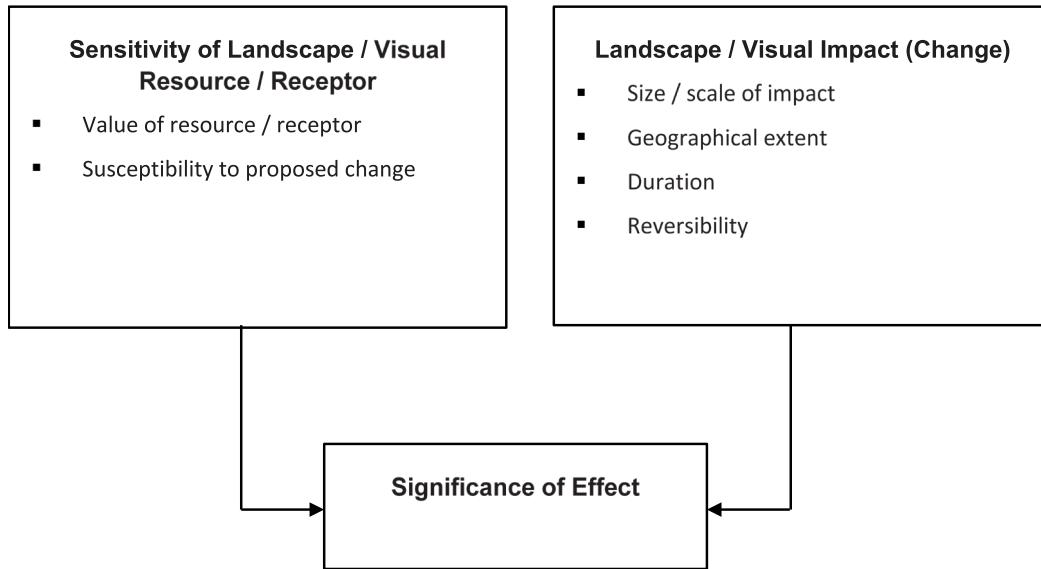


Diagram 2: Assessment Methodology Summary

Sensitivity

Sensitivity of landscape receptors

B.1.4 The sensitivity of a landscape receptor is a combination of “*judgements of their susceptibility to the type of change or development proposed and the value attached to the landscape*” (GLVIA, para 5.39). For the purpose of this assessment, susceptibility and value of landscape receptors are defined as follows:

- Landscape susceptibility: “*the ability of the landscape receptor (whether it be the overall character or quality/condition of a particular landscape type or area, or an individual element and/or feature, or a particular aesthetic and perceptual aspect) to accommodate the proposed change without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies*” (GLVIA, para 5.40).
- Value of the landscape receptor: “*The value of the Landscape Character Types or Areas that may be affected, based on review of designations at both national and local levels, and, where there are no designations, judgements based on criteria that can be used to establish landscape value; and, the value of individual contributors to landscape character, especially the key characteristics, which may include individual elements of the landscape, particularly landscape features, notable aesthetic, perceptual or experiential qualities, and combinations of these contributors*” (GLVIA, para 5.44).

B.1.5 Sensitivity is not readily graded into bands. However, descriptions of landscape susceptibility and value are set out in Table 1 below.

Table 2: Definitions of Landscape Sensitivity

Sensitivity	Typical Descriptors	
	Landscape Resource/Receptor Susceptibility	Landscape Resource/Receptor Value
Very High	Exceptional landscape quality, no or limited potential for substitution. Key elements / features well known to the wider public.	Nationally/internationally designated/valued landscape, or key elements or features of nationally/internationally designated landscapes.
High	Strong/distinctive landscape character; absence of landscape detractors.	Regionally/nationally designated/valued countryside and landscape features.
Medium	Some distinctive landscape characteristics; few landscape detractors.	Locally/regionally designated/valued countryside and landscape features.
Low	Absence of distinctive landscape characteristics; presence of landscape detractors.	Undesignated countryside and landscape features.
Negligible	Absence of positive landscape characteristics. Significant presence of landscape detractors.	Undesignated countryside and landscape features.

Sensitivity of visual receptors

B.1.6 Visual receptors are always people. The sensitivity of each visual receptor (the particular person or group of people likely to be affected at a specific viewpoint) *“should be assessed in terms of both their susceptibility to change and in views and visual amenity and also the value attached to particular views”* (GLVIA, para 6.31). For the purpose of this assessment, susceptibility and value of visual receptors are defined as follows:

- Visual susceptibility: *“The susceptibility of different visual receptors to changes in views and visual amenity is mainly a function of: The occupation or activity of people experiencing views at the particular locations; and, the extent to which their attention or interest may therefore be focused on the views and the visual amenity they experience at particular locations”* (GLVIA, para 6.32).
- Value of views: Judgements made about the value of views should take account of: *“recognition of the value attached to particular views, for example in relation to heritage assets, or through planning designations; and, indicators of value attached to views by visitors, for example through appearances in guidebooks or on tourist maps, provision of facilities for their enjoyment (such as parking places, sign boards or interpretive material) and references to them in literature or art...”* (GLVIA, para 6.37).

B.1.7 Sensitivity is not readily graded in bands and GLVIA notes, with regards to visual sensitivity, that the division of who may or may not be sensitive to a particular change *“is not black and white and in reality, there will be a gradation in susceptibility to change”* (GLVIA, para 6.35). In order to provide both consistency and transparency to the assessment process, however, Table 2, below defines the criteria which have guided the judgement as to the intrinsic susceptibility and value of the resource/receptor and subsequent sensitivity to the proposed development.

Table 3: Definitions of Visual Sensitivity

Sensitivity	Typical Descriptors	
	Visual Receptor Susceptibility	Value of View
Very High	Observers, drawn to a particular view, including those who have travelled from around Britain and overseas to experience the views.	See paragraph 1.6 and 1.7, above
High	Observers on the public rights of way network in the countryside are more sensitive to visual change.	See paragraph 1.6 and 1.7, above

Sensitivity	Typical Descriptors	
	Visual Receptor Susceptibility	Value of View
Medium	Observers enjoying the countryside from vehicles on quiet/promoted routes or pedestrians on less scenic/urban rights of way are moderately sensitive to visual change.	See paragraph 1.6 and 1.7, above
Low	Observers in vehicles or people involved in outdoor activities where attention is not focused on landscape are less sensitive to visual change.	See paragraph 1.6 and 1.7, above
Negligible	Observers in vehicles or people involved in frequent or frequently repeated activities are less sensitive to visual change.	See paragraph 1.6 and 1.7, above

Magnitude of Impact

Magnitude of impact on landscape resources and receptors

- B.1.8 The magnitude of impact or change affecting landscape receptors depends on the size or scale, geographical extent of the area influenced and its duration and reversibility. These factors are described below:
- Size or scale: *“The extent of the existing landscape elements that will be lost, the proportion of the total extent that this represents and the contribution of that element to the character of the landscape...; the degree to which aesthetic or perceptual aspects of the landscape are altered either by removal of existing components of the landscape or by addition of new ones...”* and, *“whether the effect [impact] changes the key characteristics of the landscape, which are critical to its distinctive character”* (GLVIA, para 5.49).
 - Geographical extent: Distinct from scale or size, this factor considers the geographical area over which the landscape impacts will be felt, it might, for example, be a moderate loss of landscape receptors or character over a large area, or a large loss of receptors or character over a very localised area. At para 5.50 GLVIA3 notes that *“in general effects [impacts] may have an influence at the following scales, although this will vary according to the nature of the project and not all may be relevant on every occasion: at the site level within the development site itself; at the level of the immediate setting of the site; at the scale of the landscape type or character area within which the proposal lies; and, on a larger scale, influencing several landscape types or character areas.”* For the purposes of this LVIA, the assessment considers the impact of the proposed development on the published landscape character areas, both at local and national level, i.e. the third and fourth landscape scales.
- B.1.9 Duration and reversibility: Duration is categorised as short, medium or long-term. GLVIA explains that as there are no standard lengths of time within these categories, the appraisal must state what these are and why these have been chosen (GLVIA, para 5.51). Reversibility is described as *“a judgement about the prospects and practicality of the particular effect being reversed in, for example, a generation”* (GLVIA, para 5.52). Projects can be considered to be permanent (irreversible), partly reversible or fully reversible. For the purposes of this assessment the proposed development is considered to be fully reversible.

Magnitude of impact on visual receptors

- B.1.10 As with the magnitude of landscape impacts, the magnitude of impact or change affecting visual receptors depends on the size or scale, geographical extent of the area influenced and its duration and reversibility. These factors are described below:
- Size or scale: Judgements need to take account of: *“the scale of the change [impact] in the view with respect to the loss or addition of features in the view and changes in its*

composition, including the proportion of the view occupied by the proposed development; the degree of contrast or integration of any new features or changes in the landscape with existing or remaining landscape elements and characteristics in terms of form, scale and mass, line, height, colour and texture; and, the nature of the view of the proposed development, in terms of the relative amount of time over which it will be experienced and whether views will be full, partial or glimpses” (GLVIA, para 6.39).

- Geographical extent: This will vary from viewpoint to viewpoint and will reflect: *“the angle [orientation] of view in relation to the main activity of the receptor; the distance of the viewpoint from the proposed development; and, the extent of the area over which the changes [impacts] would be visible” (GLVIA, para 6.40).*

B.1.11 Duration and reversibility of visual effects: As with landscape impacts, duration should be categorised as short, medium or long-term and projects considered to be permanent (irreversible), partially reversible or fully reversible (GLVIA, para 6.41). For the purposes of this assessment the impacts on views of the proposed development are considered to be fully reversible.

B.1.12 The magnitude of the predicted impact has been described using criteria outlined above and Diagram 1 and detailed in methodology below. Magnitude of impact has been classified on a four-point scale (Large, Medium, Small and Negligible). The definitions of terms relating to the magnitude of impact are set out in Table 3, below.

Table 4: Example Definitions of Magnitude of Impact

Magnitude of Impact	Typical Descriptors	
	Landscape Resource	Visual Resource
Large	Total loss or addition or/very substantial loss or addition of key elements/features/patterns of the baseline i.e., pre-development landscape and/or introduction of dominant, uncharacteristic elements with the attributes of the receiving landscape.	Complete or very substantial change in view, dominant involving complete or very substantial obstruction of existing view or complete change in character and composition of baseline, e.g., through removal of key elements.
Medium	Partial loss or addition of or moderate alteration to one or more key elements/features/patterns of the baseline i.e., pre-development landscape and/or introduction of elements that may be prominent but may not necessarily be substantially uncharacteristic with the attributes of the receiving landscape.	Moderate change in view: which may involve partial obstruction of existing view or partial change in character and composition of baseline, i.e. pre-development view, through the introduction of new elements or removal of existing elements. Change may be prominent but would not substantially alter scale and character of the surroundings and the wider setting. Composition of the views would alter. View character may be partially changed through the introduction of features which, though uncharacteristic, may not necessarily be visually discordant.
Small	Minor loss or addition of or alteration to one or more key elements/features/patterns of the baseline i.e., pre-development landscape and/or introduction of elements that may not be uncharacteristic with the surrounding landscape.	Minor change in baseline, i.e. pre-development view, – change would be distinguishable from the surroundings whilst composition and character would be similar to the pre-change circumstances.
Negligible	Very minor loss or addition of or alteration to one or more key elements/features/patterns of the baseline i.e., pre-development landscape and/or introduction of elements that are not uncharacteristic with the surrounding landscape approximating to a ‘no-change’ situation.	Very slight change in baseline, i.e. pre-development view, – change barely distinguishable from the surroundings. Composition and character of view substantially unaltered.

Significance of effects

- B.1.13 It is recognised that new development will lead to some landscape and visual effects. However, it should be stressed that not all landscape and visual effects arising will be significant.
- B.1.14 GLVIA3 explains, at paragraph 5.55, that a staged approach can be adopted when assessing landscape significance *“susceptibility to change and value can be combined into an assessment of sensitivity for each receptor, and size/scale, geographical extent and duration and reversibility can be combined into an assessment of magnitude for each effect. Magnitude and sensitivity can then be combined to assess overall significance.”*
- B.1.15 Within this assessment, the assessment of significance has taken the following into account (as appropriate):
 - reference to regulations or standards;
 - reference to best practice guidance;
 - reference to policy objectives;
 - reference to criteria, for example designations or protection status;
 - outcomes of consultation to date; and
 - professional judgement based on local / regional / specialist experience.
- B.1.16 Significance varies depending on the receptor's sensitivity and the magnitude of impact of the project. The distance to the development can be a major factor in determining the magnitude of the impact. Those resources or receptors closer to the project are likely to experience a greater significance of effects than those further away.
- B.1.17 A significant effect would not necessarily mean that the effect is unacceptable in planning terms. What is important is that the likely effects of any proposal are transparently assessed and understood in order that the determining authority can bring a balanced and well-informed judgement to bear when making any decision. This judgement should be based upon weighing up the benefits of the proposal against the anticipated effects, both positive and negative.
- B.1.18 The matrix, at Table 4, has been used to guide the assessment of effects. Where the matrix provides a choice of level of effects, e.g., Minor to Moderate, the assessor has exercised professional judgement in determining which of the levels is more appropriate.

Table 5: Assessment of Significance of Effects Matrix

Sensitivity	Magnitude of Impact			
	Negligible	Small	Medium	Large
Negligible	Negligible	Negligible to Minor	Negligible to Minor	Minor
Low	Negligible to Minor	Negligible to Minor	Minor	Minor to Moderate
Medium	Negligible to Minor	Minor	Moderate	Moderate to Major
High	Minor	Minor to Moderate	Moderate to Major	Major to Substantial
Very high	Minor	Moderate to Major	Major to Substantial	Substantial

- B.1.19 The significance of effect on landscape, views and visual amenity has been described according to the five-point scale shown in the above matrix (Substantial, Major, Medium, Minor, Negligible or Neutral). A description of these terms is provided in Table 5, below.

Table 6: Definitions of Significance Criteria

Magnitude	Typical Descriptors	
	Landscape Resource	Visual Resource
Substantial	Where proposed changes would be uncharacteristic and/or would significantly alter a landscape of exceptional landscape quality (e.g., internationally designated landscapes), or	Where proposed changes would be uncharacteristic and/or would significantly alter a view of remarkable scenic quality, within internationally designated landscapes

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	key elements known to the wider public of nationally designated landscapes (where there is no or limited potential for substitution nationally).	or key features or elements of nationally designated landscapes that are well known to the wider public.
Major	Where proposed changes would be uncharacteristic and/or would significantly alter a valued aspect of (or a high quality) landscape.	Where proposed changes would be uncharacteristic and/or would significantly alter a valued view or a view of high scenic quality.
Moderate	Where proposed changes would be noticeably out of scale or at odds with the character of an area.	Where proposed changes to views would be noticeably out of scale or at odds with the existing view.
Minor	Where proposed changes would be at slight variance with the character of an area.	Where proposed changes to views, although discernible, would only be at slight variance with the existing view.
Negligible	Where proposed changes would have an indiscernible effect on the character of an area.	Where proposed changes would have a barely noticeable effect on views/visual amenity.
Neutral	Where there is a balance of proposed changes, both negative and positive, which leave the character of an area effectively unaltered.	Where there is a balance of proposed changes, both negative and positive, which leave the visual amenity of an area effectively unaltered.

B.1.20 In this assessment, those effects of Moderate and below are not considered to be significant. Those effects to be Major and above are considered to be significant.

October 2022