

Regener8 Power

Rhigos Road Solar Farm **Historic Environment** **Assessment**

Final report

Prepared by LUC

April 2023



Regener8 Power

Rhigos Road Solar Farm Historic Environment Assessment

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Executive Summary

LUC was commissioned by Regener8 Power to prepare an Historic Environment Assessment (HEA) to accompany an application for planning permission for a solar farm (hereafter the 'Proposed Development') on land at Rhigos Road, Glamorgan, Wales (hereafter 'the Site'). The HEA assesses the potential effects to designated and non-designated historic assets and fulfils the purposes of a heritage statement and an archaeological desk-based assessment.

The HEA found that the Study Area contains evidence of human activity from the Mesolithic period, and of human occupation from the late prehistoric until the post-medieval period. During the post-medieval period, the Study Area was exploited for coal extraction and the focus of activities associated with the iron industry. In the modern era the Site has been the subject of open cast mineral extraction to the level that no archaeological remains are considered to be preserved. While evidence of the former mining and industrial activity may still be preserved within the Site, any associated features would be common and well understood and their heritage significance and importance has been considered to be negligible.

The Study Area contains numerous historic assets, the majority related to post-medieval extractive processes and ironworking. A small number of historic assets whose setting might potentially be affected by the Proposed Development have been assessed in order to understand the potential negative effects to their heritage significance.

No significant negative effects have been identified for any historic assets, including as a result of setting change.

The Proposed Development would be an integral part of a landscape shaped and characterised by industrial developments including former mining and ironwork remains, wind farms, solar farms, industrial estates and large quarries that surround the Site. In addition, permission for the proposed development of Bryngolwg Solar Farm,¹ located immediately to the west of the Site, has been recently granted. Therefore, the Proposed Development for the Site would be part of a context which has maintained an industrial character since the 19th century.

¹ <https://rctcbc.moderngov.co.uk/documents/s37769/22-0634.pdf?LLL=0> [accessed 14/11/2022].

Chapter 1

Introduction

Project background

1.1 LUC was commissioned by Regener8 Power to prepare a Historic Environment Assessment (HEA) to accompany an application for planning permission for a solar farm (hereafter 'the Proposed Development'). The Proposed Development is located c. 800m to the east of Rhigos village, Wales, on land at Rhigos Road, Glamorgan, Wales (hereafter 'the Site'). The Site boundary is shown on **Figure A** and encompasses an area approximately 16ha in extent centred on National Grid Reference SN 293435, 205691. The Site lies within the county borough of Rhondda Cynon Taf and an area covered by the Glamorgan Gwent Archaeological Trust (GGAT).

1.2 In April 2022, Regener8 Power submitted an Environmental Impact Assessment (EIA) Screening Request for the Proposed Development which concluded that an EIA would not be necessary. This was agreed by decision makers at Rhondda Cynon Taf County Borough Council, but it was requested that a heritage and archaeological assessment be completed to identify the archaeological potential of the Site, as well as to determine any impact of the Proposed Development upon the cultural heritage resource, including setting. This Historic Environment Assessment (HEA) has been prepared in response.

The Proposed Development

1.3 The main components of the Proposed Development, which are identified on Figure F, comprise:

- Ground mounted solar photovoltaic panels, which would be lifted approximately 0.8m off the ground, would not exceed 3m in height and would face south;
- Four LV transformer stations, customer switchgear enclosure and DNO enclosure located approximately in the centre of the Site (west, centre and east) which height will not exceed 3m in height;
- A new high post (up to 5m) and wire fence (up to 2.05m) within the Site boundary with associated access gates; and
- Fixed security cameras at intervals along the boundary.

1.4 The greatest depth of construction is as yet unknown, but work on the existing track (Figure F) would require only superficial ground disturbance.

1.5 The Proposed Development would have an operational period of 40 years.

Aims and objectives

1.6 The aim of this HEA is to identify the historic assets within and surrounding the Site and assess if they may be affected by the Proposed Development. This will be achieved by:

- Understanding and articulating the heritage significance of historic assets within the Site and its environs.
- Assess the likely impact of the Proposed Development upon the heritage significance of those historic assets identified.
- Provide recommendations for any appropriate mitigation strategies.

1.7 The HEA includes consideration of known historic assets and the potential for previously unrecorded historic assets, including buried archaeological remains, and therefore fulfils the purpose of an archaeological desk-based assessment and a heritage statement.

Legislative and policy context

National context

1.8 National legislation relating to the protection and treatment of the historic environment within the development process identifies historic assets as a non-renewable, fragile and finite resource and places a priority on their conservation. The key pieces of legislation are the:

- Ancient Monuments and Archaeological Areas Act 1979, as amended.
- The Planning (Listed Buildings and Conservation Areas) Act 1990, as amended.²
- Historic Environment (Wales) Act 2016.³

1.9 Scheduling is applied only to historic assets of national importance. It makes it illegal for a scheduled monument to be disturbed in any way without scheduled monument consent.

1.10 The 1990 Planning Act places a number of duties on decision makers, key amongst these are:

- Section 66, that states, in considering applications for Listed Building Consent, “special regard” will be had “to the desirability of preserving the building or its setting or

any features of special architectural or historic interest which it possesses.”; and

- Section 72, that states, in considering applications affecting Conservation Areas, “*special attention shall be paid to the desirability of preserving or enhancing the character or appearance of that area.*”

1.11 In the application of this law, the concept of ‘preservation’ referred to in Sections 66 and 72 has been interpreted as ‘to do no harm’ and confirmed by case law.

1.12 The application of these laws is guided by national policy, set out in Planning Policy Wales (PPW) Edition 11 (2021).⁴ The historic environment is covered in Chapter 6 which deals with the theme of ‘Distinctive and Natural Places’. Chapter 6 paragraphs 6.11 – 6.12 defines the historic environment in policy terms as: “... *all the surviving physical elements of previous human activity and illustrates how past generations have shaped the world around us.*” It further explains that the historic environment is made up of individual historic features, collectively known as ‘historic assets’ which can be designated or non-designated including:

- Listed buildings;
- Conservation areas;
- Historic assets of special local interest;
- Historic parks and gardens;
- Townscapes;
- Historic Landscapes;
- World Heritage Sites; and
- Archaeological remains (including scheduled monuments).

1.13 The policy recognises the Welsh Government’s objectives to “*protect, conserve, promote and enhance the historic environment as a resource for the general well-being of present and future generations.*” Recognising the historic environment as “*a finite, non-renewable and shared resource...*”.⁵

1.14 The ways in which this policy seeks to protect the historic environment through the planning process, as relevant to this application, is set out in detail in **Appendix A**.

1.15 PPW is supported by the Technical Advice Note 24: The historic environment.⁶ This document provides an overview of conservation principles and setting, as well as additional information on the protection and management of scheduled

² <https://www.legislation.gov.uk/ukpga/1990/9/contents>

³ <https://www.legislation.gov.uk/anaw/2016/4/contents>

⁴ https://gov.wales/sites/default/files/publications/2021-02/planning-policy-wales-edition-11_0.pdf

⁵ https://gov.wales/sites/default/files/publications/2021-02/planning-policy-wales-edition-11_0.pdf Paragraph 6.1.5 p. 126.

⁶ Welsh Government, 2017. Technical Advice Note 24: The Historic Environment.

monuments, World Heritage Sites, archaeological remains, listed buildings, conservation areas, Registered Historic Landscapes and historic assets of special local interest.

Local policy

1.16 Current local planning policies for the Site are included in Rhondda Cynon Taf Local Development Plan (LPD) up to 2021, Adopted March 2011.⁷ This document has not been superseded. The Rhondda Cynon Taf Revised Local Development Plan 2022-2037, Delivery Agreement March 2022⁸ has been published in order to provide basic agreement to deliver a revised LDP.

1.17 LPD policies of relevance to the current application in relation to the historic environment are identified in

Appendix A.

⁷<https://www.rctcbc.gov.uk/EN/Resident/PlanningandBuildingControl/LocalDevelopmentPlans/RelateddocumentsLDP20062021/AdoptedLocalDevelopmentPlan.pdf> [accessed 23/06/2022].

⁸<https://www.rctcbc.gov.uk/EN/Resident/PlanningandBuildingControl/RelatedDocuments/Pdfs/RCTRevisedLDPDeliveryAgreementMarch2022.pdf> [accessed 23/06/2022].

Chapter 2

Methodology

Introduction

2.1 This assessment has been undertaken in accordance with the following appropriate guidance:

- Code of conduct: professional ethics in archaeology (Chartered Institute for Archaeologists (CIfA), 2022);⁹
- Standard and Guidance for historic environment desk-based assessment (CIfA, 2020);¹⁰
- Principles of Cultural Heritage Impact Assessment (PCHIA) in the UK (CIfA, Institute of Historic Building Conservation and Institute of Environmental Management and Assessment, 2021);¹¹
- Notes and Guidance Assessment Report Monitoring Form (The Glamorgan-Gwent Archaeological Trust Limited);¹²
- Conservation Principles for the sustainable management of the historic environment in Wales (Cadw, 2011);¹³
- Setting of Historic Assets in Wales (Cadw 2017);¹⁴ and
- Heritage Impact Assessment in Wales (Cadw 2017).¹⁵

Study areas and data gathering

Study areas

2.2 The potential for physical change will only occur within the Site and the construction footprint of the cable route, therefore potential physical effects and archaeological potential are only considered in relation to the Site and cable route. Setting effects to historic assets within the Site have also been assessed.

⁹ <https://www.archaeologists.net/sites/default/files/Code%20of%20conduct%20revOct2022.pdf> [accessed 09/11/2022].

¹⁰ https://www.archaeologists.net/sites/default/files/CIfAS%26GDBA_4.pdf [accessed 23/06/2022].

¹¹ https://www.archaeologists.net/sites/default/files/i30361_iema_principlesofchia_v8.pdf [accessed 23/06/2022].

¹² <http://www.ggat.org.uk/archplan/downloads/Notes%20and%20Guidance%20Assessment%20Report%20Monitoring%20Form.pdf> [accessed 23/06/2022].

¹³ https://cadw.gov.wales/sites/default/files/2019-05/Conservation_Principles%20for%20the%20sustainable%20management%20of%20the%20historic%20environment%20of%20Wales.pdf [accessed 23/06/2022].

¹⁴ <https://cadw.gov.wales/sites/default/files/2019-05/Setting%20of%20Historic%20Assets%20in%20Wales%20EN.pdf> [accessed 23/06/2022].

¹⁵ <https://cadw.gov.wales/sites/default/files/2019-05/20170531Heritage%20Impact%20Assessment%20in%20Wales%2026917%20EN.pdf> [accessed 23/06/2022].

2.3 Two study areas have been used to inform this assessment. These are depicted on **Figures A** and **B** and comprise:

- A 2km Study Area has been used to inform contextual understanding of the Site, its archaeological potential, and to consider setting effects on both designated and non-designated historic assets.
- A 5km Study Area has been used to inform the assessment of potential for setting effects to designated historic assets.

2.4 The 2km Study Area and 5km Study Area described above are based on a larger preliminary site boundary provided by the client. The final site boundary is of a smaller extent, but the study areas have not been reduced accordingly.

2.5 The two study areas have been informed by a review of the bare earth Zone of Theoretical Visibility (ZTV) (**Figures A** and **B**) generated to model the theoretical visibility of the maximum 3m height of the solar panels and buildings and other infrastructure and an understanding of the distance over which significant visual change is likely to be perceptible.

2.6 Effects to designated historic assets out with the 5km Study Area have been considered in relation to potential in-combination visibility giving rise to setting effects. No such effects have been identified.

Sources

2.7 The following desk-top sources of information were used in the preparation of this report:

- Cadw spatial data for designated historic assets;¹⁶
- Historic Environment Record (HER) data held by the GGAT;¹⁷

- Royal Commission on the Ancient and Historical Monuments of Wales National Monuments Record of Wales (NMRW);¹⁸
- Dyfed Archaeological Trust website specifically for Historic Landscape Characterisation;¹⁹
- Historic Placenames in Wales;²⁰
- Research Framework for Wales;²¹
- Industrial Ironworks Landscapes Project documents;²²
- National Landscape Characters;²³
- Inventory of Historic Battlefields in Wales;²⁴
- Abrams J. (2022), *Archaeological and Heritage Impact Assessment Bryngolwg Solar Farm, Rhigos Road, Hirwaun, Aberdare*, Abrams Archaeology;²⁵
- Hirwaun Historical Society website;²⁶
- Aerial photography (Welsh Government Office) and publicly available LiDAR data;²⁷
- British Geological Survey data via the online geology viewer;²⁸
- Google Earth website;
- Previous site investigation (SI) results; and
- Secondary published and online sources referenced throughout.

2.8 The following historic maps have informed this assessment:

- 1847 Tithe Map (Plan of the parish of Ystradyfodwg in the County of Glamorgan);²⁹
- 1814 Aberdare Map of Thomas Budgen (**Figure E**);³⁰
- Historic Ordnance Survey maps available online from National Library of Scotland.³¹

¹⁶ <https://cadw.gov.wales/advice-support/cof-cymru/search-cadw-records> [accessed 23/06/2022].

¹⁷ Information regarding the HER data can be found at this link <https://www.ggat.org.uk/her/her.html#:~:text=The%20Glamorgan%2DGwent%20Archaeological%20Trust's,covering%20the%20twelve%20unitary%20authorities>. [accessed 12/09/2022].

¹⁸ Records available at <https://coflein.gov.uk/en/map/> accessed 23/06/2022].

¹⁹ <https://dyfedarchaeology.org.uk/HLC/HistoricLandscapeCharacterisation.htm> [accessed 23/06/2022].

²⁰ <https://historicplacenames.rcahmw.gov.uk/> [accessed 23/06/2022].

²¹ <https://www.archaeoleg.org.uk/> [accessed 23/06/2022].

²² <http://www.ggat.org.uk/cadw/swi/english/index.html> [accessed 23/06/2022]

²³ <http://landmap-maps.naturalresources.wales/> [accessed 23/06/2022].

²⁴ at <http://battlefields.rcahmw.gov.uk/about-the-inventory/> [accessed 23/06/2022].

²⁵ This document is part of a EIA application viewable at https://documents0122.rctcbc.gov.uk/PublicAccess_Live/SearchResult/RunThirdPartySearch?FileSystemId=DC&FOLDER1_REF=22/0634/10 [accessed 23/06/2022]

²⁶ <http://website.hirwaunhistorical.org.uk/> [accessed 26/09/2022].

²⁷ <http://lle.gov.wales/catalogue/item/LidarCompositeDataset/?lang=en> [accessed 23/06/2022].

²⁸ <https://www.bgs.ac.uk/> [accessed 23/06/2022].

²⁹ <https://places.library.wales/viewer/4618455#?cv=&h=837&c=&m=&s=&manifest=https%3A%2F%2Fdamsssl.llgc.org.uk%2Fiiif%2F2.0%2F4618455%2Fmanifest.json&xywh=-780%2C6392%2C13332%2C6016> [accessed 23/06/22].

³⁰ <https://britishlibrary.georeferencer.com/maps/b6e31053-bf8e-5772-9093-16828a1bcc17/> [accessed 23/09/2022].

³¹ <https://maps.nls.uk/> [accessed 23/06/2022].

2.9 No previously unrecorded historic assets were identified within the Site from the review of these maps.

Aerial imagery and Lidar

2.10 Aerial photographs held by the Welsh Government were reviewed. They show gradual, but consistent, extraction activities covering most of the Site's extent. Further information on this is provided in **Chapter 3**.

2.11 No publicly accessible LiDAR data was available for the Site.³²

Walkover survey

2.12 A walkover survey of the Site and site visits to selected historic assets within the study areas were undertaken on 29/09/2022. The aim of the survey was to identify known historic assets to confirm their type, function and condition, and any previously unrecorded historic assets within the Site.

2.13 Selected historic assets within the 2km Study Area were the subject of site visits to identify their setting, how their setting contributes to their heritage significance and identify any potential setting change.

2.14 The south-west part of the East Fforest Fawr and Mynydd-y-Glog historic landscape [Cadw ref: HLW (MGI) 3], located within the 5km Study Area, was also visited to assess potential setting changes.

2.15 The weather, during the survey/site visits, was fair and the visibility was fair to moderate.

2.16 Selected photographs from the walkover survey and site visits are included in this report.

Assumptions and limitations

2.17 Much of the information used by this HEA consists of secondary information compiled from a variety of sources. The assumption is made that this information is reasonably accurate unless otherwise stated.

2.18 Assessments are policy neutral and make no assumptions about the application of local or national policy, as it is for the decision maker to understand the likely level of harm to historic assets and balance this accordingly. Policy compliance and planning balance is covered in the Planning Statement for the Proposed Development.

2.19 The Site was not surveyed entirely due to the presence of livestock. Most of the historic assets visited were approached from public paths, which often were at a moderate distance from the assets. The post-medieval Crawshays tower

[GGATHER ref: GGAT01797m] was not visited due to access limitations.

Approach to assessment

2.20 Once all identified, the historic assets were subject to a high-level analysis to identify which ones are sensitive to the Proposed Development and required detailed assessment. This analysis was informed by the intersection of historic assets with the (bare earth) ZTV. Consideration was also given to historic assets outside the ZTV that could be experienced visually in-combination with the Proposed Development. Those historic assets identified as being likely to experience effects have been subject to a full assessment undertaken in line with the six steps set out in PCHIA:

1. Understanding historic assets:
 - a. describe the historic asset;
 - b. ascribe heritage significance;³³ and
 - c. attribute importance.
2. Evaluating the consequences of change:
 - a. understand change;
 - b. assess impact; and
 - c. weigh the effect.

Description

2.21 A factual description of each historic asset is provided covering location, form, fabric, condition, etc. As proportionality is key, the information presented is focused on that which is relevant to understanding the heritage significance of the historic asset, especially those elements that might be affected by the Proposed Development.

Ascribing heritage significance

2.22 The historic environment is defined in the PPW (2021) as comprising all surviving physical elements of past human activity and consists of historic assets. These historic assets can include designated and non-designated historic buildings, places, landscapes, and archaeological remains.

2.23 The value of historic assets to present and future generations is measured by their heritage significance, the sum of their heritage values. In this assessment, heritage significance is articulated in accordance with Cadw's *Conservation Principles for the sustainable management of the historic environment in Wales* (2011), which sets out four key heritage values:

³³ Heritage significance is synonymous with cultural significance.

- **Evidential value** – the extent to which the physical fabric tells how and when your historic asset was made, how it was used and how it has changed over time. There may be buried, or obscured elements associated with your historic asset which may also be an important potential source of evidence.
- **Historical value** – a historic asset may illustrate a particular past way of life or be associated with a specific person or event; there may be physical evidence for these connections which it could be important to retain.
- **Aesthetic value** – the design, construction, and craftsmanship of your historic asset. This can also include setting and views to and from the historic asset, which may have changed through time. This includes architectural and artistic value.
- **Communal value** – a historic asset may have particular significance to people for its commemorative, symbolic or spiritual value, or for the part it has played in local cultural or public life. This will be particularly important in the case of buildings in public use or sites where public access must be maintained or improved.

Setting

2.24 In line with PPW (2021), the contribution that setting makes to a historic asset's heritage significance has been considered with reference to Cadw's (2017) setting guidance. Setting is defined by the PPW as the surroundings in which a historic asset is understood, experienced, and appreciated - embracing present and past relationships to the surrounding landscape. The extent of setting is not fixed and may change as the historic asset and its surroundings evolve. Understanding if and how setting contributes to a historic asset's heritage significance and how a proposed development will interact with that contribution forms the basis for determining its sensitivity to setting change.

Importance

2.25 Heritage values help assess the type of heritage significance a historic asset may possess, but not the importance of that significance. For that, professional judgment has been employed informed by the designation criteria for historic assets of national significance³⁴ and the Research Framework for the Archaeology of Wales (2008).³⁵ It should be noted that whilst historic assets may derive their heritage significance from one or more of the above heritage values and a lack of interest in one or more of these areas

does not indicate a lower level of importance, just that their interest lies elsewhere.

Evaluating the consequences of change

2.26 There are three principal impact pathways that can affect historic assets (described below). This report considers the potential for all three types of effects and as per the PCHIA guidelines, the evaluation of change comprises three steps:

- The provision of a brief factual statement explaining the change wrought by the Proposed Development to a historic asset.
- An assessment of whether that change effects the historic asset's heritage significance and if so, how.
- A conclusion regarding whether an impact matters, reflecting the importance of the affected historic asset.

2.27 Effects are described in terms of the extent to which the Proposed Development will degrade or enhance a historic assets' heritage significance using professional judgement.

Physical change

2.28 Direct physical effects to historic assets occur when, as a result of a proposed development, the fabric of the asset is removed or damaged; this will be permanent and generally occurs during the construction phase. This risk exists in relation to known historic assets as well as previously unrecorded historic assets.

2.29 Indirect physical effects can also occur at any stage of development to historic assets which lie outside the proposed site. For instance, negative impacts can include increased erosion or damage to walls from vibration arising from construction machinery and plant, which is likely to be permanent.

2.30 To identify historic assets sensitive to physical change an intersection analysis was run between the recorded historic assets and the Site. Consideration has also been given to the potential to encounter previously unrecorded historic assets, including archaeological remains.

2.31 Any historic assets within the Site have been assumed to be of high sensitivity to physical change, unless otherwise stated.

Setting change

2.32 Effects related to setting change are direct and result from how a development proposal alters a historic asset's setting in a way which affects its heritage significance or how it

³⁴ Designation criteria are included in Annex A, B and C of TAN24: Historic Environment (2017).

³⁵ <https://www.archaeoleg.org.uk/intro.html>

is perceived. Such changes are often visual, but can also relate to disruptions of historical, functional, or symbolic relationships (including intervisibility between historic assets or historic patterns of land use) or sensory factors such as noise, odour or emissions.

2.33 Indirect impacts on setting can also occur away from the proposal, such as changes in traffic around a historic asset. This type of impact can occur at any stage of development and may be permanent, reversible, or temporary.

2.34 To identify historic assets whose heritage significance is potentially sensitive to setting change a high-level assessment of all recorded historic assets that intersected with the ZTV (i.e. with visibility of the Proposed Development was undertaken). Historic assets outside of the ZTV (i.e. without visibility of the Proposed Development) were also reviewed to see if any could be seen in-combination with the Proposed Development in a manner that would affect their heritage significance.

2.35 A full list of historic assets within a 2km Study Area, plus selected designated historic assets within 5km Study Area were considered affected by the Proposed Development. The scoping tables for the designated assets within the 2km Study Area can be found in **Appendix B**.

Cumulative change

2.36 Effects of a cumulative nature can relate to the physical fabric or setting of historic assets. This can be a result of interactions between different impacts of a proposed development or in-combination with impacts of other projects. Alternatively, they may be additive impacts from incremental changes caused by a proposed development together with other extant projects or those already in the planning system.

2.37 In this instance, there is one cumulative scheme under consideration: a consented solar farm adjacent to the Site, at Bryngolwg Farm (planning ref. 22/0634/10)³⁶.

³⁶ <https://rctcbc.moderngov.co.uk/documents/s37769/22-0634.pdf?LLL=0> [accessed 14/11/2022].

Chapter 3

Site conditions and context

Site location and description

3.1 The Site is located in Glamorgan, approximately 800m east of Rhigos village, and c. 1.4km west of Hirwaun village (refer to **Figure A**). The Brecon Beacons National Park is located approximately 700m to the north of the Site.

3.2 The Site is currently used for livestock grazing and comprises several small irregular pasture fields of modern date, which are crossed by multiple drainage ditches. The fields are enclosed by hedges and small areas of woodland, in places. A large pond is located in the north-east corner of the Site.

3.3 The Site is bounded to the north by the Rhigos Road, on the opposite side of which there is dense tree cover screening an industrial estate. To the east, south and west the Site is bound by fields, within and beyond which are areas of open cast mining, Cynlas Farm and buildings and area of hardstanding of industrial character stand to the northwest of the Site, just south of Rhigos Road, and to the northeast, beyond the pond, is a large substation. Further south parklands and Hirwaun Commons contain wind farms and there is a solar farm approximately 2.3km to the west of the Site.

Topography

3.4 The Site itself is relatively flat, with a gentle south-west/north-east slope (maximum height is c. 246m AOD, minimum height is 216m AOD). However, it is located between the Vale of Neath and the Cynon Valley, at the north-east base of Craig y Llynand mountain and surrounding hills.

3.5 Natural streams are located to the north and along the east of the Site and drainage ditches cross the Site and its immediate surroundings. The closest rivers are Cors- y- Pownd/ Nant Wyrfa which are located to the west of the Site at c. 1km from it. There are two other major rivers further from the Site: the Cynon River, which crosses Hirwaun village c.1.5km east of the Site and Sychryd River, which crosses Rhigos village c.1.4km west of the Site.

Geology

3.6 In modern times, the Site has been subjected to large-scale open cast mining. This is due to its bedrock geology comprising mudstone, siltstone, and sandstone of the South

Wales Lower Coal Measures Formation.³⁷ The coal measures were the focus of the open-cast mining. These were overlain by superficial deposits of Till, detrital deposits created by the movement of ice and meltwater.

3.7 The open cast mining within the Site (refer to **Figure C**), will have been removed all deposits of potential archaeological interest. Even in areas where deep mining is not confirmed (e.g. the northeast corner of the Site), topsoil stripping and heavy vehicular movement will have severely disturbed any remaining superficial deposits. Following closure of the mine, it was infilled, and reinstated in its present form as agricultural fields. Most of the Site is therefore made ground.

Previous archaeological investigations

3.8 The entire 2km Study Area was included in the Southeast Wales Industrial Ironworks Landscapes Projects [GGATHER ref: E000954]. This six-year project assessed the state of survival/preservation of historic ironworks in the landscape reviewing aerial photographs, historic mapping, and national and local archives. The survey identified part of extractive landscape: Hughes's Patch: EA028 [GGATHER ref: EA028].³⁸ This area extends into the north-west part of the Site and is discussed in more detail below. Apart from this survey, no other archaeological investigations have been undertaken within the Site.

3.9 In the 2km Study Area, there have been several archaeological watching briefs, excavations, and surveys. A few desk-based assessments and environmental statements have also been prepared. These archaeological investigations identified and recorded cairn cemeteries and burial mounds, the remains of early 19th railway construction and ironworks.

Archaeological and historical background

Prehistoric period

Palaeolithic (900,000 – 12,000 BC)

3.10 'Palaeolithic' means 'Early Stone Age' and is popularly known as the 'Ice Age'. During this period, Britain was connected to Europe by a land bridge and subject to a cycle of very cold periods (glacials) when ice covered all of Britain, and warmer (interglacial) periods when the ice melted, and sea levels rose, submerging the land bridge. During warmer interglacial periods, hominins (early humans) occupied Britain. These early humans were hunter gathers who left little

archaeological evidence other than stone tools. In Wales evidence from this period is scarce, and mostly derived from caves.

3.11 No Palaeolithic remains are recorded in the Site or have been discovered within the 2km Study Area.

Mesolithic (12,000–4,000 BC)

3.12 With the end of the last glacial period, sea levels rose separating Britain from mainland Europe and Wales became roughly the shape it is today by about 7,000 BC. With the retreat of the ice, tundra conditions gave way to dense forest. Mesolithic hunter-gathers exploited this landscape, particularly coastal areas, and rivers, again leaving little archaeological trace beyond worked flint tools.

3.13 There is no known Mesolithic activity recorded in the Site. In the Study Area, Mesolithic finds have been discovered to the south of the Site [GGATHER ref: GGAT01779m] and the remains of a settlement [GGATHER ref: GGAT04591m], comprising a flint scatter with fire-reddened stones and charcoal, approximately 1.4km to the south-east.

Neolithic (c.4,400–2,300 BC)

3.14 The Neolithic period is marked by significant cultural changes. Hunter-gathering and temporary settlements gave way to farming and more permanent settlements. Pottery and monumental structures also appear for the first time.

3.15 There is no known Neolithic activity recorded in the Site. Neolithic flint tools and a polished edge discoidal knife have been found 1.9km to the south-east of the Site [GGATHER ref: GGAT01212m].

Bronze Age (c.2,300–700 BC)

3.16 The Bronze Age period saw the introduction of new settlement and monument types, as well as metal tools and objects, which are more evident in the archaeological record.

3.17 There is no known Bronze Age activity recorded in the Site. For the Bronze Age, archaeological remains recorded within the Study Area are more numerous than the earlier prehistoric periods, showing a potential increase/better preservation of human presence and occupation of the landscape. The historic assets for this period consist primarily of burial monuments including, isolated cairns [Cadw ref: GM564 and GGATHER ref: GGAT00001m, GGAT00002m, GGAT00003m, GAT00010m, GGAT04524m], possible

³⁷ https://mapapps.bgs.ac.uk/geologyofbritain/home.html?&_ga=2.105261379.1500670134.1637353723-1037366629.1635871288 [accessed 23/06/2022]

³⁸ Roberts, R. (2010). *Southeast Wales Industrial Ironworks Landscapes. Year 6: The Aberdare-Hirwaun-Penderyn Corridor and Eastern Valley*, GGAT 2010/026, The Glamorgan-Gwent

Archaeological Trust; Roberts, R., Graham, E., (2008). *Southeast Wales Industrial Ironworks Landscapes Year4 : extraction areas*, GGAT 2008/014, The Glamorgan-Gwent Archaeological Trust, http://www.ggat.org.uk/cadw/swi/english/yr3_4.html [accessed 05/07/2022].

cairnfields [GGATHER ref: GGAT00004m, GGAT00005m, GGAT00006m], and a round barrow cemetery [GGATHER ref: GGAT04523m]. These burial monuments are located to the north-west, west, and south-east of the Site (**Figure B**). There is also evidence of some field clearance for agriculture, although no specific settlements have been identified. A Bronze Age spearhead, indicative of hunting, was found approximately 650m to the west of the Site [GGATHER ref: GGAT00008m].

Iron Age (c.800 BC–AD48)

3.18 The Iron Age saw bronze weapons and objects replaced by iron ones and the decline/modification of earlier prehistoric ritual monuments. In contrast, hillforts, which had appeared in the Late Bronze Age, became more common.

3.19 There is no known Iron Age activity recorded in the Site and in the Study Area archaeological remains related to this period are limited, comprising a hut circle [GGATHER ref: GGAT00022m].

Roman (AD 43 – AD 410)

3.20 The Romans arrived in England c. 43 AD. However, their expansion into Wales took longer and it was not until AD 78 that Wales (or at least, much of it) was occupied. A range of Roman military sites are attested. In comparison to the rest of Wales, the south coast of Wales is rich in Roman military sites and settlements including towns, villas, and farmsteads. Several Roman roads are also known.

3.21 There is no recorded Roman activity within the Site. However, two cairnfields [GGATHER ref: GGAT00017m, GGAT00018m], located to the south-west of the Site and near the Study Area edge, are recorded as Roman/ early medieval from the result of pollen analysis from associated peat deposits. They show that agricultural activity and related land clearance continued within the study area.

Early-medieval period and medieval (410 – 1539)

3.22 The early-medieval period in the south-east region, as well as in the rest of Wales, is poorly understood, archaeological evidence and historical information are scarce. However, this represents an important period of change characterised by the end of the Roman imperial control, the

development of regional kingdoms, the establishment of Christianity and the contrasts of Wales against Anglo-Saxon, Viking and Anglo-Norman.³⁹

3.23 No early medieval activity is recorded in the Site and within the study area the only known evidence for this period is an inscribed stone [GGATHER ref: GGAT01275m], found on Hirwuan Common and, subsequently, lost.

3.24 By contrast, the medieval period for the south-east Wales presents a better-preserved rural environment: remains of nucleated and dispersed settlements are well preserved together with castles and defensive structures, religious sites and buildings.⁴⁰

3.25 No medieval activity is attested in the Site and little archaeological information is recorded for the medieval period in the 2km Study Area. A poorly defined house platform [GGATHER ref: GGAT02149m] near a sheepfold represents an example of the type of historic asset attributable to this period.

3.26 To the south-east of the Site lies the Hirwuan Common. This open land area is documented from the 13th century, but probably existed before the Norman conflicts of the 11th century. After the Norman invasion, the land was probably used for common grazing and controlled by the marcher lords of Glamorgan.⁴¹ It is therefore probable that the area surrounding the Site was used for agricultural purposes, especially pasture, during the early medieval and medieval period.

Post-medieval (1539 – 1750)

3.27 Since the 16th century, South Wales has been an important centre of iron production and in the late 18th and early 19th centuries, the region became a world leader in the manufacture of iron. This is because the South Wales geology contains the three basic raw materials required for the industry: iron ore, coal and limestone.⁴² Sporadic extraction activity has been documented for Rhigos and Hirwuan in the 17th century.⁴³

3.28 There is no recorded activity of this date in the Site.

³⁹ <https://www.archaeoleg.org.uk/pdf/earlymed/VERSION%2001%20EARLY%20MEDIEVAL.pdf> [accessed 22/09/2022].

⁴⁰ <https://www.archaeoleg.org.uk/pdf/med/REGIONAL%20SEMINAR%20SE%20WALES%20MEDIEVAL.pdf> [accessed 22/09/2022].

⁴¹ <http://website.hirwaunhistorical.org.uk/history/hirwaun-timeline/hirwaun-common/> [accessed 23/09/2022].

⁴² Roberts, R. (2010). *Southeast Wales Industrial Ironworks Landscapes. Year 6: The Aberdare-Hirwuan-Penderyn Corridor and Eastern Valley*, GGAT 2010/026, The Glamorgan-Gwent

Archaeological Trust, p.37

http://www.ggat.org.uk/cadw/swi/english/yr3_4.html [accessed 05/07/2022].

⁴³ Roberts, R. (2010). *Southeast Wales Industrial Ironworks Landscapes. Year 6: The Aberdare-Hirwuan-Penderyn Corridor and Eastern Valley*, GGAT 2010/026, The Glamorgan-Gwent Archaeological Trust, p.40.

http://www.ggat.org.uk/cadw/swi/english/yr3_4.html [accessed 05/07/2022].

Industrial and Modern Period (1750 – present)

3.29 From the 19th century, the South Wales valleys saw the extensive exploitation of mineral deposits and the related development of the coal, steel, and iron industries.⁴⁴ Extraction and industrial activities caused a considerable increase in the population as people migrated from Ireland, West Wales, Somerset, Gwynedd, and the Midlands. Consequently, old settlements expanded, and new settlements developed, particularly near the extractive resources and industries. These changes are tangible in Rhigos and Hirwaun.

3.30 The Aberdare map (1814)⁴⁵ illustrates the Site as unenclosed land. However, tram roads to the north and coal pits to the east of the Site attest ongoing extractive activity in this period (**Figure E**). The tithe map (1847) shows the Site as part of a large field used as pasture and owned by the Marquis of Bute.⁴⁶ The 1st Edition of the Ordnance Survey (OS) Six-inch map,⁴⁷ shows a series of paths/roads crossing the Site and depicts the north of the Site as having been disturbed by mining activity.⁴⁸ The same map also identifies a mine air shaft outside of the Site, near the western boundary.

3.31 During this late post-medieval period, the extractive industry shaped the landscape within the Study Area. This exploitation is not only illustrated in historical maps but evidenced by a large quantity of recorded historic assets.

3.32 The Site of Hirwaun Ironworks scheduled monument [Cadw ref: BR157] with associated tramroad causeway and bridge [grade II listed; Cadw ref: 26827] represents the most consistent designated historic asset complex among a large amount of historic assets related to the industrial activity including:

- Tower collieries [grade II listed; Cadw ref: 10901,10902] and colliery sites [GGATHER ref: GGATHER ref: GGAT01795m, GGAT05190m];
- Extractive areas [GGATHER ref: GGAT09349m, GGAT09348m];
- Levels and trial level [GGATHER ref: GGAT09860m, GGAT09863m, GGAT09867m, GGAT09868m, GGAT09899m; GGAT09865m,GGAT09869m];
- Inclined planes [GGATHER ref: GGAT09880m, GGAT09884m, GGAT09902m];

- Shafts [GGAT09861m, GGAT09862m, GGAT09864m, GGAT09866m, GGAT09871m, GGAT08097m, GGAT08095m]
- Spoil heap and quarries [GGATHER ref:GGAT03233m, GGAT08094m, GGAT09888m, GGAT09889m, GGAT09443m, GGAT09444m, GGAT09873m, GGAT09886m, GGAT09890m, GGAT08466m, GGAT08467m; GGAT03232m, GGAT09872m, GGAT09876m];

3.33 Water management represents an important aspect of the extraction activity, the study area is rich in:

- Leats [GGATHER ref: GGAT01800m, GGAT08615m, GGAT08616m, GGAT08618m, GGAT08621m, GGAT08623m, GGAT08625m, GGAT08628m, GGAT08630m, GGAT08631m, GGAT08635m, GGAT09878m, GGAT09882m, GGAT09887m, GGAT09879m, GGAT09883m] ;
- Culverts/drainage channel [GGAT02880m, GGAT02881m, GGAT06020m, GGAT09881m, GGAT08626m];
- Reservoirs [GGATHER ref: GGAT01809m, GGAT08617m, GGAT08624m, GGAT08629m, GGAT08636m, GGAT08637m, GGAT08638m, GGAT09855];
- Sluices and weir [GGATHER ref: GGAT08639m, GGAT08645m, GGAT08647m, GGAT08648m, GGAT08620m, GGAT08646m]
- Water tanks [GGATHER ref: GGAT08649m, GGAT08650m, GGAT08651m, GGAT08652m, GGAT08653m, GGAT08654m, GGAT08655m, GGAT08656m].

3.34 Infrastructural remains and structures, integral part of the extractive process, are also highly represented. They consist of:

- Bridges [GGATHER ref: GGAT01808m, GGAT03225.2m];
- Trackways and tramways [GGATHER ref: GGAT09870m, GGAT09891m, GGAT09892m, GGAT01039.0m, GGAT01039.1m, GGAT02498.0m, GGAT03222m, GGAT08098m, GGAT09894m, GGAT09895m, GGAT09896m, GGAT09900m,

⁴⁴Natural Resources Wales (2014), *National Landscape Character NLCA37, South Wales Valleys*, <https://cdn.cyfoethnaturiol.cymru/media/682625/nlca37-south-wales-valleys-description-1.pdf?mode=pad&rnd=131550626700000000> [accessed 05/07/2022]

⁴⁵ <https://britishlibrary.georeferencer.com/maps/b6e31053-bf8e-5772-9093-16828a1bcc17/> [accessed 23/09/2022] Figure E.

⁴⁶ <https://places.library.wales/viewer/4618455#?cv=&h=837&c=&m=&s=&manifest=https%3A%2F%2Fdamsssl.llgc.org.uk%2Fiiif%2F2.0%2F4618455%2Fmanifest.json&xywh=-780%2C6392%2C13332%2C6016> [accessed 23/06/22].

⁴⁷ Brecknockshire Sheet XLIX.NE surveyed: 1875 to 1877, published: 1888

⁴⁸ <https://maps.nls.uk/view/101605964> [accessed 23/06/22].

GGAT09901m, GGAT09857m, GGAT09858m, GGAT09859m, GGAT09898m, GGAT09446m, GGAT09445m];

- Railways [GGATHER ref: GGAT01815.0m, GGAT03220m, GGAT03224m, GGAT09720m].

3.35 Among those historic assets, only one is partially included within the Site: an extractive landscape named Hughes's Patch [GGATHER ref: EA028].⁴⁹ This asset was recorded during the Southeast Wales Industrial Ironworks Landscapes Project. During this project, the Hughes's Patch site was not surveyed (no field walking was undertaken), the information was gained from historical maps and aerial photos.

3.36 Satellite imagery and aerial photographs show that only the flooded area of the western quarry and the north and west of the lobed tips survive in a recognisable form. This area includes a reservoir [GGAT ref: GGAT08636m], spoil heaps and tracks.

3.37 A small part of this asset is included in the Site boundary as illustrated in **Figure B**. According to the 1st edition of the OS map 6-inch map⁵⁰, the part of the Hughes's Patch contained within the Site includes the southern part of the eastern quarry with lobed tips, a building, and a small and irregular reservoir. These features will have been destroyed by the subsequent open cast mining of the Site and no remains are predicted to remain.

3.38 Domestic historic assets, associated with the industrial context, comprise worker cottages [GGATHER ref: GGAT01803m] located within Hirwaun.

3.39 The late 19th century and 20th century historical maps show few changes. On the OS map Six-inch 2nd Edition,⁵¹ old tramway segments are still illustrated to the north of the Site, and a further tramway serves the mining in the north of the Site. Paths and tracks/roads with a different location and orientation still appear crossing the Site. On the 1953 OS map, buildings are illustrated in the location of the mining areas, immediately to the north of the Site.⁵² On the 1968 Six-inch OS map, a stockpile area associated with new paths/roads is depicted at the centre of the Site.⁵³ The buildings to the north of the Site are gone and have been replaced by others smaller in size. An electric transmission

line bounds the Site to the east, while a substation is illustrated to the north-west of the Site.

3.40 The extensive exploitation of mineral resources had an intense and short life. The industry was already in decline by the late 20th century. The consequent social impacts were significant, resulting in extensive unemployment and a long-lived legacy of deprivation. This radical change is reflected in the land use of south Wales, where, from the 1980s, many industrial sites were abandoned or redeveloped for different uses. Unlike the rest of the region, extractive activity and the iron/steel industry endured within the Study Area until the last decade of the 20th century, albeit applying an opencast rather than traditional deep mining approach.

3.41 Aerial photographs confirm that the extractive activity occurred in different phases during the 20th century (**Figure C and D**). Specifically, spoil heaps and disturbances are attested at the north, at the centre and at the south in different years (1947 1953, 1960, 1981 aerial photographs).⁵⁴ During the last decades of the 20th century, the Site was heavily quarried. This is well illustrated from a series of aerial photographs taken in 1985. Only a narrow corridor along Rhigos Road may have been spared deep extraction (**Figure C**). An oblique aerial photograph taken in 1992 provides a clear idea of the depth reached by the extractive works (**Figure D**), while the 1985 vertical aerial photograph (**Figure C**) shows the extent of the extractive activity in plan. This activity overlaps with the earlier post-medieval mining area, Hughes's Patch [GGATHER ref: EA028], discussed above.

3.42 Aerial photographs from 1997 show the Site as reinstated and landscaped. Ditches across the newly formed fields, ponds and drainage channels connect the woodland to the south of the Site with the reservoir to the north-east.

3.43 In addition to the industrial remains, a few post-medieval historic assets are related to the World Wars: the Hirwaun war memorial clock tower [grade II listed; Cadw ref: 26828], the pillbox [GGATHER ref: GGAT08723m and a crash site [GGATHER ref: GGAT07905m]. The listed building is an Art-Nouveau commemorative tower located in the Hirwaun settlement core. The pillbox is located to the north-west of the Site, in a woodland area within the industrial development. On 26th September 1941 an American military aircraft crashed

⁴⁹ Roberts, R. (2010). *Southeast Wales Industrial Ironworks Landscapes. Year 6: The Aberdare-Hirwaun-Penderyn Corridor and Eastern Valley*, GGAT 2010/026, The Glamorgan-Gwent Archaeological Trust, p. 109-110
http://www.ggat.org.uk/cadw/swi/english/yr3_4.html [accessed 05/07/2022].

⁵⁰ Brecknockshire Sheet XLIX.NE surveyed: 1875 to 1877, published: 1888 <https://maps.nls.uk/view/101605964> [accessed 23/06/2022].

⁵¹ Glamorgan Sheet X.NE revised: 1897, published: 1900 - <https://maps.nls.uk/view/102182634> [accessed 23/06/2022]

⁵² Provisional edition Brecknockshire Sheet XLIX.NE, revised: 1948, published: 1953 - <https://maps.nls.uk/view/101605955> [accessed 23/06/22].

⁵³ SN90NW – A surveyed / revised: 1961 to 1968, published: 1969 - <https://maps.nls.uk/view/189231795> [accessed 23/06/22].

⁵⁴ Aerial photographs of the Site were provided by Wales Government Aerial Photo Office.

approximately 900m to the south-west of the Site. The pilot died in the accident.

3.44 In conclusion, the area immediately surrounding the Site saw a change of land use from the beginning of the 19th century. Besides initial pastoral use, the area saw an increase in extractive activity, which endured until the end of the 20th century.

Chapter 4

Assessment

Historic asset overview and scoping

4.1 This chapter provides a brief description of the historic assets identified as being likely to experience effects due to the Proposed Development. Below, the historic assets are described, their cultural significance and importance is ascribed, and the proposed development effects evaluated.

Historic assets within the Site

4.2 No designated or non-designated historic assets have been identified within the Site.

Modern ground disturbance and archaeological potential

4.3 Most of the Site has been intensively quarried. The depth and extent of the modern extractive activity is well understood, as illustrated on aerial photographs taken in 1985 and 1991, refer to **Figures C** and **D** respectively. No archaeological remains will be present within those areas of the Site subject to open cast mining.

4.4 On 26th September 1941 an American military aircraft crashed approximately 900m to the south-west of the Site [GGATHER ref: GGAT07905m]. The vicinity of the location of WWII aircraft crash with the Site would, normally, represent a constraint for ground disturbance, as the exact location of remains is usually unknown or not accurate and the possibility of finding human remains is sensitive. However, due to the mining activity undertaken within the Site this is not considered to be a factor in determining archaeological potential.

4.5 A strip of land which flanks the north/south Rhigos Road to the west and the cable route appear from the aerial photographs to be the only areas of the Site not subject to open cast mining. However, while not deeply excavated, the aerial photographs show these areas have been subject to topsoil stripping and tracked by machines and lorries. No archaeological features have been identified from the aerial photographs. These activities are likely to have removed or truncated any buried archaeological remains that may have been present, as such the archaeological potential for the northern area of the Site including the cable route and the tracks is considered to be **negligible**.

Historic assets within the study areas

Designated historic assets

4.6 There is a total of seven designated historic assets within the 2km of the Site. These comprise the following five listed buildings (all grade II listed) and two scheduled monuments the locations of which are shown on **Figure A**:

4.7 The listed buildings comprise:

- Engine House and Fan House at Tower Colliery [Cadw ref: 10901];
- Headframe and pithead at Tower Colliery [Cadw ref: 10902];
- Tramroad causeway and bridge at Hirwaun Ironworks [Cadw ref: 26827];
- Nebo Independent Chapel [Cadw ref: 23170];
- Hirwaun war memorial clock tower [Cadw ref: 26828]; and
- Old house, with attached byre and barn at Trebanog Fach [Cadw ref: 26832].

4.8 The scheduled monuments comprise:

- Craig y Bwlch round cairn [Cadw ref: 4011]; and
- Site of Hirwaun Ironworks [Cadw ref: 1786]

4.9 The ZTV suggests that only the Old house, with attached byre and barn at Trebanog Fach [Cadw ref: 26832] has theoretical visibility of the Proposed Development. However, the ZTV was generated to represent bare earth visibility, and does not account for the screening effect of intervening built development and vegetation. As a result of which Old house with attached byre and barn at Trebanog Fach [Cadw ref: 26832] will not experience the Proposed Development as part of its setting and this historic asset is not discussed further.

4.10 Designated historic assets within the 5km from the Site have also been selectively assessed as potentially affected by the Proposed Development due to setting change. Among them, only the East Fforest Fawr and Mynydd-y-Glog historic landscape [Cadw ref: HLW (MGI) 3], located approximately 2.6km north-east from the Site, has been scoped in.

Non-designated historic assets

4.11 Most non-designated historic assets identified within the 2km Study Area are related to post-medieval extractive activity and the ironwork industry. Some of these historic assets are

included within the 169 records held by GGAT HER and located within the 2km Study Area.

4.12 There are further 203 NMRW records within the 2km Study Area which have been reviewed. None of these historic assets have been assessed as potentially affected by the Proposed Development. This is because most of these features are at a substantial distance from the development, screened by intervening field boundaries and vegetation, or no longer have a visible presence and/or aspects of significance that could be affected by the scheme. For these reasons, they are not discussed further in this assessment or shown on **Figure B**.

4.13 Seven non-designated historic assets located within the 2km Study Area have been scoped into the assessment as they might experience changes to their setting due to the Proposed Development. Their locations are shown on **Figure B**, and they comprise:

- A cluster of bronze age cairns [GGATHER ref: GGAT00001m, GGAT00002m, GGAT00003m]
- A barrow cemetery [GGATHER ref: GGAT04523m];
- Cairnfields [GGATHER ref: GGAT00004m];
- A possible round barrow [GGATHER ref: GAT04524m]; and
- Post-medieval Crawshays tower [GGATHER ref: GGAT01797m].

Assessment

East Fforest Fawr and Mynydd-y-Glog historic landscape [Cadw ref: HLW (MGI) 3] located within 5km Study Area

Description

4.14 The historic landscape includes a large upland area which covers approximately 1,800 hectares of mostly unenclosed moorland located 2.6km north-east from the Site (**Figure A**).⁵⁵ The southern part diminishes in height, and it contains a col crossed by streams running westwards and eastwards. Further south is located the plateau of Mynydd-y-glog which rises to about 390 metres beyond which streams drain southwards to join the River Cynon⁵⁶.

4.15 In terms of recent land use, the historical landscape has been largely used for cattle and sheep grazing, especially during the summer.

⁵⁵Information in this paragraph is taken from [https://cadwpublic-api.azurewebsites.net/reports/historiclandscape/FullReport?lang=en&d=HLW%20\(MGI\)%203](https://cadwpublic-api.azurewebsites.net/reports/historiclandscape/FullReport?lang=en&d=HLW%20(MGI)%203) [accessed 26/09/2022].

⁵⁶ Information within this section is taken from <https://maps.nls.uk/view/101605955> [accessed 23/06/22].

4.16 Most of the area is registered as common land, the exception being the southern area, Mynydd-y-glog. The southern and western flanks of Mynydd-y-glog are subdivided into large irregularly shaped enclosures defined by drystone walls, whereas the north became part of the Fforest Faws.

4.17 The landscape includes several historic settlements and features dating from the prehistoric to the post-medieval period. Prehistoric funerary and ritual monuments, prehistoric to post-medieval domestic and agricultural features are largely attested, together with numerous post-medieval limekilns, stone quarries, and turnpike roads, represented by milestones.

4.18 The south-west of the historic landscape is the closest area to the Site, and the only part from which the Site is visible. It includes several scheduled monuments: prehistoric funerary cairns, a prehistoric hut circle, and cairn fields. The prehistoric cairns are generally between 6-20 metres across, and they have funerary and ritual functions during the Bronze Age period. The hut circle and cairnfields attest domestic remains and agricultural activity undertaken during the Bronze Age/Iron Age period.

4.19 Those designated historic assets are mostly well preserved and identify the prehistoric character of this southern part of the historic landscape.

Significance

4.20 The heritage significance of the historic landscape is derived primarily from its evidential and historic values. The historic value lies in the opportunity of illustrating a large upland area used during the Bronze Age period mainly for funerary and ritual purposes. The level of preservation of the scheduled monuments, as well as their locations, their relationship to one another (and with the cluster of cairns/cairnfields and barrow located to the north-west and south-east of the Site) is representative of the religious and funerary practices undertaken by the Bronze Age inhabitants. The location and the intervisibility of those designated historic assets illustrate the importance given from the Bronze Age people to their own dead and to places of gathering/ritual.

4.21 The historic landscape retains also evidential value as funerary and ritual and gathering remains are likely to be preserved below ground within it.

4.22 The setting of the designated assets enables understanding and appreciation of them as part of a landscape likely chosen for its visibility from the southern valley and as a location of communal gathering.

4.23 The scheduled monuments with their stone mound and earthworks within their rural environment are also considered pleasant to the sight and, therefore they have also an aesthetic value.

Importance

4.24 The asset's setting largely contributes to the understanding and the appreciation of this part of the larger historic landscape as an area used during the late prehistoric period for funerary and ritual purposes. Due to its designation and the contribution made to its heritage significance of its evidential and historic value, this historic asset is considered of **high** importance.

Effects

4.25 Although visible from this asset, the Site is located 2.6km away and perceived as part of the wider area of industrial development within which it sits. Furthermore, the topography of the Site and the orientation of the solar panels (facing south) are factors that will contribute to the view of the Site as part of the developed landscape. Therefore, the Site will not represent a distraction for the understanding and appreciation of the historic asset and its significance will not be affected.

Plate 1: View south-west towards the Site from East Fforest Fawr and Mynydd-y-Glog historic landscape, near Nant Moel reservoir



Cluster of bronze age cairns [GGATHER ref: GGAT00001m, GGAT00002m, GGAT00003m], barrow cemetery [GGATHER ref: GGAT04523m], cairnfield [GGATHER ref: GGAT00004m] and a possible round barrow [GGATHER ref: GAT04524m]

Description

4.26 This cluster of bronze age cairns is located approximately 1.6km north-west of the Site. It includes a small group of possible burial cairns [GGATHER ref: GGAT00001m, GGAT00002m, GGAT00003m], with their structural stones and grass mounds still visible and appreciable (**Figure B**).

Some of them have been excavated and excavation trenches are still visible across them.

4.27 The barrow cemetery [GGATHER ref: GGAT04523m], located near the cairns, consists of three aligned mounds and it has been recorded as a barrow cemetery, or cairnfield. Evidence of industrial evidence near these historic assets may have disturbed any further archaeological remains related to them.

4.28 To the north-east of this group, there is a further cairnfield area [GGATHER ref: GGAT00004m] and a possible round barrow [GGATHER ref: GAT04524m]. The cairnfield comprises a group of 14 cairns surveyed as extant during a survey undertaken by GGAT.⁵⁷ The group was originally part of a larger area of Bronze Age remains. Only one has been considered of clear funerary purpose (the round barrow [GGATHER ref: GAT04524m]). Apart from the round barrow, the cluster is composed of earthworks and sandstone rubble mounds. It is unclear if these remains belong to funerary cairns of field clearance.

4.29 The historic assets described above are located on lower land compared to the nearby areas that contain known funerary/ritual monuments. However, these historic assets might have been deliberately located to ensure a visual connection with the Bronze Age monuments located to the south-east of the Site, and within the East Forest Fawr and Mynydd-y-Glog historic landscape.

Significance

4.30 The heritage significance of these historic assets is primarily derived from their evidential value and their ability to inform our understanding of Bronze Age burial practices and ritual activity and settlement patterns.

4.31 The setting of these historic assets comprises their prominent location within the landscape, their relationship to one another and to other similar Bronze Age funerary monuments in the wider landscape. These setting relationships contribute to the understanding and appreciation of the historic assets monumental function.

Importance

4.32 The importance of these historic assets is considered **medium** due to the possibility of providing physical remains and information about local funerary and ritual practice for the Bronze Age period.

Effects

4.33 During operation, the Proposed Development would be perceptible in eastern views from these historic assets, it would be seen within the context of an existing industrialised landscape. In addition, the elements of the historic asset's setting which contribute most to their heritage significance, including their relationship to each other, would not be affected.

Plate 2: View looking east towards the Site from north-west from public path near the cluster of Bronze Age Cairns.



Post-medieval Crawshays tower [GGATHER ref: GGAT01797m]

Description

4.34 This historic asset is located to the south-east of the Site on a hill at the approximate distance of 1.3km. Its location is shown on **Figure B**.⁵⁸ The asset comprises the ruins of a tower that was built in the early 19th century by the Crawshays, a prominent local family who owned several ironworks in the immediate area in the early 1800s (including Hirwaun Ironworks). It is known to have been constructed of coursed hammer-dressed sandstone and to stand to 9m in height, with an internal diameter of c.4m.⁵⁹ It comprised three floors with one room on each floor with six round windows and was accessed by a single door on the ground floor. The roof was crenellated and featured a brick chimney. The Tower fell into ruin following the departure of the Crawshay Family in 1859 and today, the HER states that the tower survives to 1m high.

⁵⁷ Evans E., Lewis R. (2004). *Prehistoric Funerary and Ritual Sites Project GGAT 72*, the Glamorgan Gwent Archaeological Trust.

⁵⁸ <https://archwilio.org.uk/arch/query/page.php?watprn=GGAT01797m> [accessed 14/09/2022].

⁵⁹ <https://coflein.gov.uk/en/site/407160>

4.35 The function of the asset is uncertain. Coflien describes it as a folly, a building constructed primarily for decoration, but suggesting through its appearance some other purpose. However, such features are typically part of a designed landscape, and this example is located within an industrial making this interpretation unlikely. The GGAT HER instead suggests that it is a defensive structure, or refuge, built as a result of the tensions between the Crawshays as 'Iron Masters' and their workers who were paid little and lived in poor condition. This was part of a wider social and economic situation that created potential civil unrest during the 1830s and 1840s that culminated in the Chartist Movement.⁶⁰ The basis for this interpretation are two similarly dated towers at Nantyglo. These were built by Joseph Bailey, a relative of the Crawshays, to protect his Ty Mawr mansion as he feared his workers would revolt violently. The Nantyglo Towers are grade II* listed [Cadw ref: 17086] and it is understood that Crawshay Tower is currently being considered for listing.

historic asset, including in views to the north-west, the Proposed Development would be seen in the context of an existing industrialised landscape. In addition, the elements of the historic assets setting which contribute most to its heritage significance, i.e. defensive location and relationship with former industrial sites/iron workings associated with the Crawshay family, would not be affected.

Significance

4.36 While the integrity of the monument is significantly compromised, its physical remains retain historical and evidential value. Its historical value is both illustrative and associative as it is an unusual and rare example of a late form of private defence with links to a prominent local family, the industrial history of the area, and a political movement associated with workers' rights and working conditions. It derives its evidential value from its construction and fabric, and any associated buried remains.

4.37 This historic asset is located on high ground with views in all directions. It is in a prominent position in relation to the Hirwaun Ironworks [Cadw ref: 1786] and its associated area of former mineral extraction. Intervisibility with the Hirwaun Ironworks site is limited by modern housing and industrial developments. Although not certain, it is possible that the tower was designed to be visible from the Hirwaun Ironwork, however this visual relationship has now been lost. The tower's prominent hilltop setting contributes to the understanding of the building as a refuge/defensive structure.

Importance

4.38 Due to its evidential and historical value, and its listing candidacy, this historic asset's importance is considered to be high.

Effects

4.39 While the operation of the Proposed Development would introduce new elements of infrastructure into the setting of this

⁶⁰ <https://biography.wales/article/s-BAIL-NAN-1789> [accessed 14/09/2022].

Chapter 5

Conclusions

Summary of potential development impacts

Direct physical effects

5.1 Only one historic asset – a former quarry – was recorded within the Site. No remains of this asset are anticipated because the Site has been subject to extensive open cast quarrying. This quarrying will have removed any potential archaeological deposits within the Site.

5.2 The potential for any direct physical effects on previously unrecorded historic assets, including buried archaeological remains is therefore considered to be **none**.

Effects related to setting change

5.3 Three assets, the East Fforest Fawr and Mynydd-y-Glog historic landscape, a cluster of Bronze Age cairns and barrows, and the post-medieval Crawshay's Tower have been assessed in relation to potential setting effects. Although the Proposed Development will potentially be visible in long distance views from all three assets, the Site does not have or interrupt a setting relationship that contributes to the significance of the assets and will be read as part of the existing industrial development adjacent to the Site. As such, no effects related to setting change experienced by those historic assets identified in **Chapter 4** have been predicted.

Conclusions

5.4 This assessment has concluded that no physical effects to historic assets are predicted as a result of construction and operation of the Proposed Development. No buried archaeological remains have been assessed to be potentially preserved within the Site due to open cast mining and topsoil stripping.

5.5 No designated or non-designated historic assets have been assessed to experience setting changes which could compromise their heritage significance due to the operation of the Proposed Development.

5.6 In addition, based on the available evidence, no mitigation measures are suggested for either archaeological remains or above ground historic assets.

Chapter 6

Map Figures

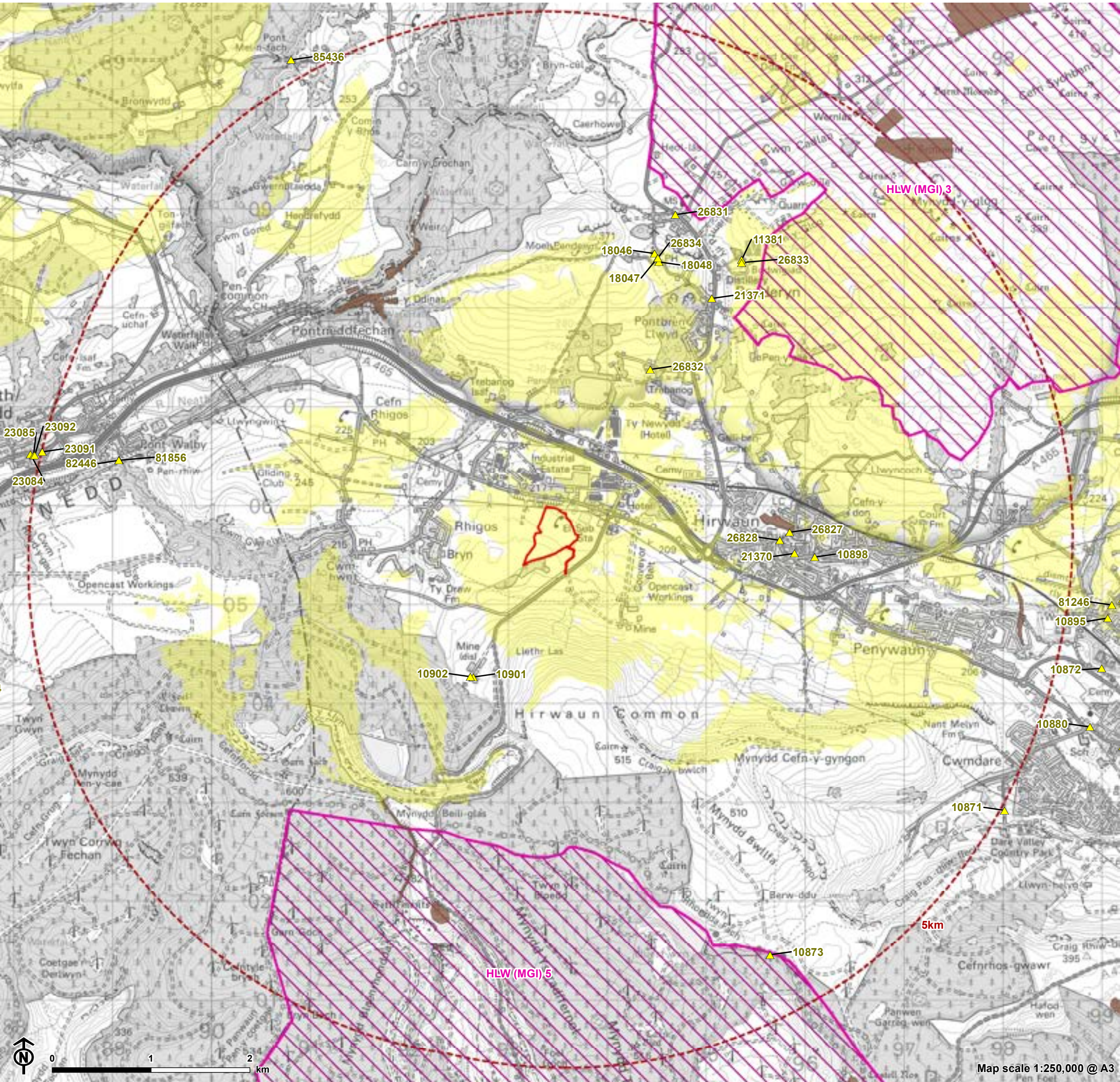


Figure A: Location of the Site and Designated Historic Assets

- Site Boundary
- 5km Study Area
- Scheduled monument
- Historic Landscapes

HLW (MGI) 3: East Forest Fawr and Mynydd-y-Glog

HLW (MGI) 5: The Rhondda
- Listed building

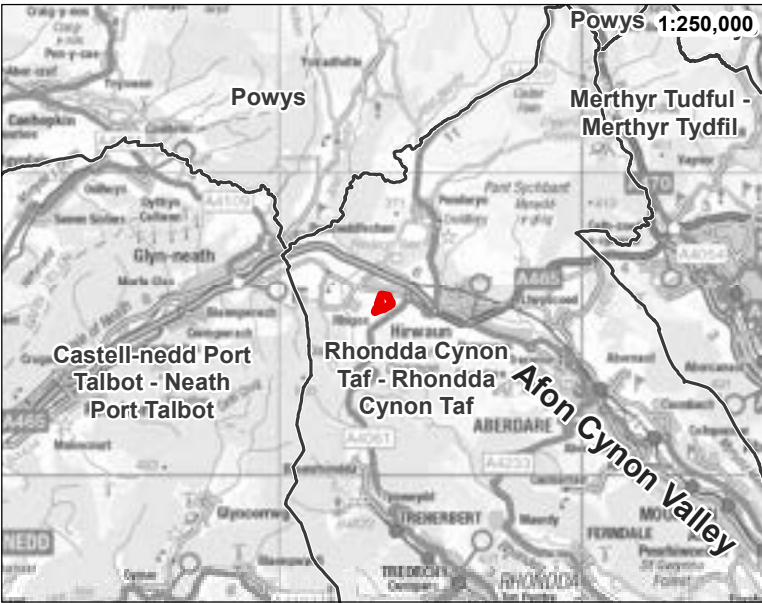
Grade II
- Zone of Theoretical Visibility

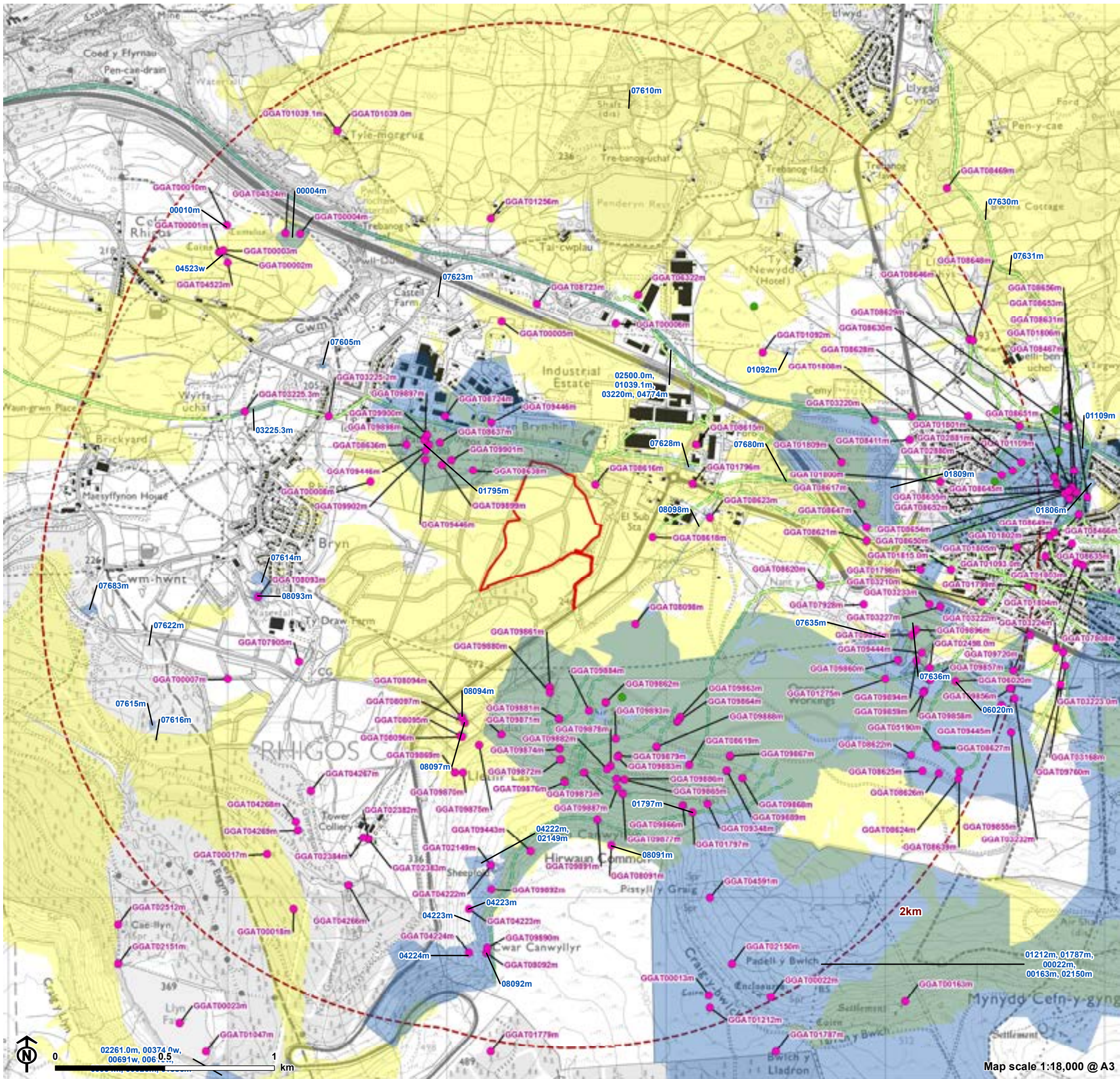
Visibility with building screening only
- Screening Feature

Building

Notes:
The ZTV is calculated from a viewing height of 2m above ground level to the following values, Solar Panels (2.856m), Customer Switchgear (2.264m), DNO Substation (2.314m), TX Stations (2.445m), Perimeter Fence (2.05m).

The terrain model is derived from OS Terrain 5 height data (obtained from Ordnance Survey in August 2022) and assumes bare ground with additional screening for buildings (7.5m). Earth curvature and atmospheric refraction have been taken into account. The ZTV was calculated using ArcMap 10.8.1 software.





Rhigos Road Solar Farm
for Regener8 Power



Figure B: Location of Non-Designated Historic Assets within the 2km Study Area

- Site Boundary
- 2km Study Area
- GGA HER data

Ironwork Landscape Project Assets

- Polygon
- Line
- Point

Zone of Theoretical Visibility

- Visibility with building screening only

Screening Feature

- Building

Notes:

The ZTV is calculated from a viewing height of 2m above ground level to the following values, Solar Panels (2.899m), Customer Substation (3m), DNO Substation (2.41m), Power Station 1 (3m) & Power Station 2 (3m).

The terrain model is derived from OS Terrain 5 height data (obtained from Ordnance Survey in August 2022) and assumes bare ground with additional screening for buildings (7.5m). Earth curvature and atmospheric refraction have been taken into account. The ZTV was calculated using ArcMap 10.8.1 software.

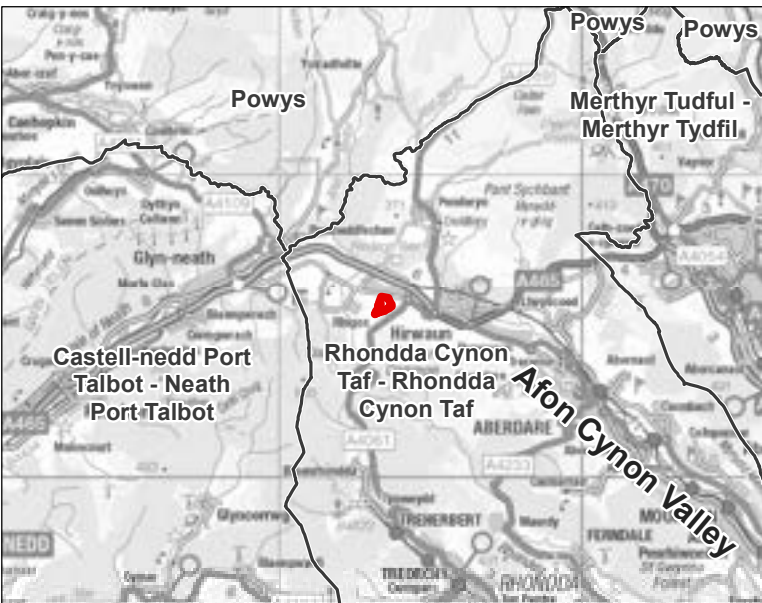


Figure C: Aerial Photograph of the Site (red line) taken in 1985 (provided by Wales Government Aerial Photo Office)



Figure D: Aerial photograph of the Site taken in 1992, looking south (provided by Wales Government Aerial Photo Office)





Rhigos Road Solar Farm
for Regener8 Power



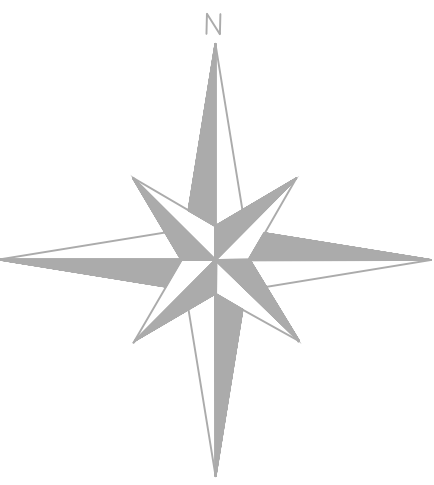
Figure E: Site Boundary on Historical map Aberdare 1814

 Site Boundary

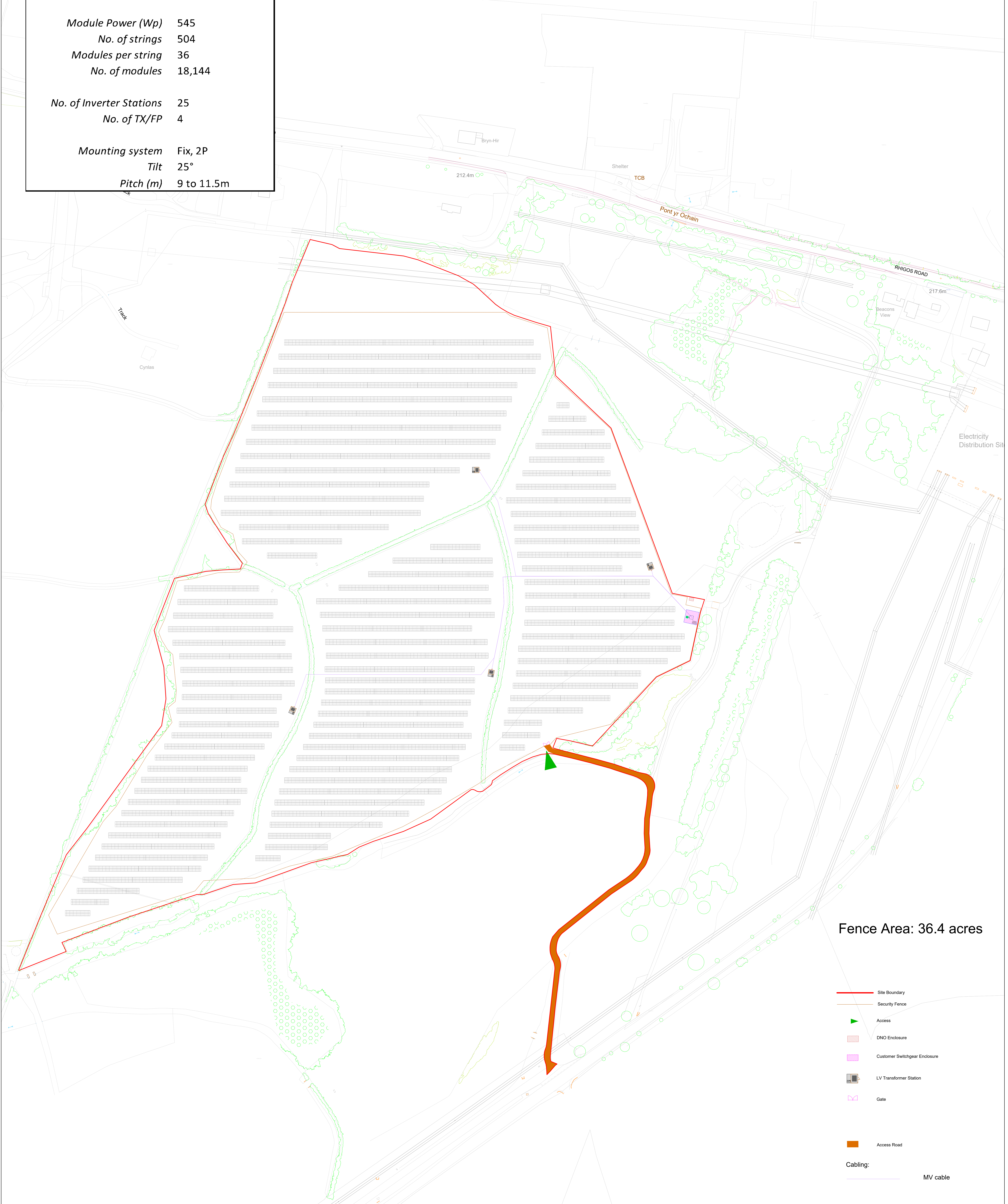
Aberdare 1814 :
Draughtsman: Budgen, Thomas

With 8,000 inhabitants, Merthyr Tydfil was the largest town in Wales during the 19th century. The town, appearing towards the right-hand margin, had access to large supplies of iron and coal, attracting ironmasters and ironworkers from miles away with the promise of high wages and good housing. A network of tramroads, the horse-worked railways that predated the locomotive era, was laid out to transport coal and ore from the pits to the iron works. The drawing indicates these tramroads with double dotted lines. Mines are shown as dots within circles.





Total DC Power (kW)	9,888
Total AC Power 20° (kVA)	8,800
Total AC Power 40° (kVA)	8,000
Grid export limit (kVA)	7,755.10
Power factor	0.98
Module Power (Wp)	545
No. of strings	504
Modules per string	36
No. of modules	18,144
No. of Inverter Stations	25
No. of TX/FP	4
Mounting system	Fix, 2P
Tilt	25°
Pitch (m)	9 to 11.5m



Fence Area: 36.4 acres

- Site Boundary
- Security Fence
- Access
- DNO Enclosure
- Customer Switchgear Enclosure
- LV Transformer Station
- Gate
- Access Road
- Cabling:
 - MV cable

COMMENTS:	REVISION	DESCRIPTION	REVISED BY	APPROVED BY	DATE	REVISION	DESCRIPTION	REVISED BY	APPROVED BY	DATE	SITE ADDRESS: Rhigos Aberdare CF44 9YR	PROJECT NAME: Rhigos TITLE: General Layout	DRAWING No.: P-Rhigos_01_GenerallLayout	REV: Rev G	ADDRESS: Enviromena Project Management UK Ltd Tel: +44 330 107 1415 15 Diddenham Court, Grazeley Reading, RG7 1JQ, United Kingdom
	Rev A	Fix structure - tilt 25 degrees, pitch 10m	AMS		12/12/2022										
	Rev B	Reallocated tables	AMS		23/12/2022										
	Rev C	Topo and reallocated tables	AMS		24/01/2023										
	Rev D	Pitch adjusted	AMS		27/01/2023										
	Rev E	Moved access, placed TX, table reallocation	AMS		14/02/2023										
	Rev F	Mining shaft considered, moved TX and reallocate tables	AMS		23/02/2023										
	Rev G	Updated cable route	AMS		27/02/2023										
						Scale:	Drawn by:	Checked by:	Signed by PM:	Date checked:	Page:	Sheet size:			
						1:1000	AMS				1 of 1	A0			

Appendix A

Relevant Planning Policy

Table A.1: Relevant paragraphs of the PPW (2021)

Paragraph	Context
6.1.20 – 6.1.21	These paragraphs cover Historic Landscapes stating that: " An assessment of development on a historic landscape may be required if it is proposed within a registered historic landscape or its setting..."
6.1.28	This paragraph requires that Historic Environment Records " <i>must be used as a key source of information in making planning decisions affecting the historic environment.</i> "

Table A.2: Relevant local policies

Policy	Context
Policy AW 12 - Renewable & Non-Renewable Energy	Development proposals which promote the provision of renewable and non-renewable energy such as schemes for energy from biomass, hydro-electricity, anaerobic digestion, on-shore oil and gas and small / medium sized wind turbines, will be permitted where it can be demonstrated that there is no unacceptable effect upon the interests of soil conservation, agriculture, nature conservation, wildlife, natural and cultural heritage, landscape importance, public health and residential amenity. Development proposals should be designed to minimise resource use during construction, operation and maintenance.

Appendix B

Scoping assessment tables

Table B.1: Scoping assessment table for designated historic assets within the 2km of the Site

Asset Type	Asset Name	Reference	Description	In ZTV	Scope in	Reasoning
Scheduled Monument	Site of Hirwaun Ironworks	BR157	The Hirwaun Ironworks earthworks and structures site	Yes	Out	Intervisibility not possible due to intervening development and vegetation (confirmed on site visit)
Scheduled Monument	Craig y Bwlch round cairn	GM564	Remains of a prehistoric round cairn	No	Out	No intervisibility
Listed Building Grade II	Engine House and Fan House at Tower Colliery	10901	Tower Colliery stands in the bowl of Mynydd Beilglas, W of the A4061 Hirwaun to Treherbert Road. The Engine House is to the S of the complex, next to the headframe.	No	Out	No intervisibility
Listed Building Grade II	Headframe and pithead at Tower Colliery	10902	Tower Colliery stands in the bowl of Mynydd Beilglas, W of the A4061 Hirwaun to Treherbert Road. The headframe is to the S of the complex.	No	Out	No intervisibility
Listed Building Grade II	Tramroad causeway and bridge at	26827	Crossing the Afon Cynon approximately 100m NE of St Lleurwg's church, on	No	Out	No intervisibility

Appendix B
Scoping assessment tables

Regener8 Power
April 2023

Asset Type	Asset Name	Reference	Description	In ZTV	Scope in	Reasoning
	Hirwaun Ironworks		the N side of Station Road and S side of the former Hirwaun Ironworks.			
Listed Building Grade II	Old house, with attached byre and barn at Trebanog Fach	26832	Approximately 1km SW of Pont Pren and reached by private road on the W side of the A4059.	Yes	Out	Intervisibility not possible due to intervening development and vegetation (confirmed on site visit)
Listed Building Grade II	Nebo Independent Chapel	21370				Intervisibility not possible due to intervening development (confirmed on site visit)
Listed Building Grade II	Hirwaun war memorial clock tower	26828	Prominently sited in the centre of the village opposite the junction of High Street with Cross Street.	Yes	Out	Intervisibility not possible due to intervening development and vegetation (confirmed on site visit)