



Pengarnddu Service Reservoir

Assessment of the Significance of the Impact of
Development on Historic Landscape (ASIDOHL2)

June 2020

Mott MacDonald
35 Newhall Street
Birmingham B3 3PU
United Kingdom

T +44 (0)121 234 1500
mottmac.com

Welsh Water,
Fortran Rd,
St. Mellons,
Cardiff CF3 0LT

Pengarnddu Service Reservoir

Assessment of the Significance of the Impact of
Development on Historic Landscape (ASIDOHL2)

June 2020

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
A	12/05/20	M.Cooper	-	-	First Draft for Information
B	27/06/20	I Gray-Davies	R.Cameron	M.Hopper	Second Draft for Submission

Document reference: B10237-123532-XX-XX-RP-YA-DH0107 | B

Information class: Standard

This document is issued for the party which commissioned it and for specific purposes connected with the above-captioned project only. It should not be relied upon by any other party or used for any other purpose.

We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.

This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from us and from the party which commissioned it.

Contents

Executive summary	1
1 Introduction	2
2 Baseline (Stage One)	3
2.1 Scheme Context	3
2.2 Proposed Development	4
2.3 Production of this ADISOHL2	6
2.3.1 Scope	6
2.3.2 Assumptions and Limitations	6
2.4 Merthyr Tydfil Registered Historic Landscape	7
2.5 Planning Policy Background	9
2.5.1 Legislation	9
2.5.2 National Planning Policy	9
2.5.3 Local Planning Policy	10
3 Assessment of Direct Impact on Historic Character Area (Stage Two)	11
3.1 Assessment (Stage Two) Methodology	11
3.2 Assessment of Direct Impact (Stage 2 Assessment)	13
3.2.1 HCA041	13
3.2.2 Assessment of direct impact on HCA041	14
3.3 Overall Magnitude of Direct Physical Impacts (Stage 2 Outcome)	15
4 Assessment of Indirect Impacts on Historic Character Areas (Stage Three)	16
4.1 Methodology for Assessment of Indirect Impacts (Stage three)	16
4.2 Character Areas with the potential for Indirect Impact	17
4.3 HCA007, Dowlais	18
4.3.1 Indirect, Physical Impacts	19
4.3.2 Indirect, Non-Physical Impacts	19
4.3.3 Outcome	20
4.4 HCA029, Ivor Iron Works Area	20
4.4.1 Indirect, Physical Impacts	20
4.4.2 Indirect, Non-Physical Impacts	20
4.4.3 Outcome	21
4.5 HCA030, Pantcadifor, Rhyd-y-bedd and Caeracca	21
4.5.1 Indirect, Physical Impacts	22
4.5.2 Indirect, Non-Physical Impacts	22
4.5.3 Outcome	23

4.6	HCA035, Pengarnddu	23
4.6.1	Indirect, Physical Impacts	24
4.6.2	Indirect, Non-Physical Impacts	25
4.6.3	Outcome	26
4.7	HCA041, Merthyr Common, North	26
4.7.1	Indirect, Physical Impacts	26
4.7.2	Indirect, Non-Physical Impacts	27
4.7.3	Outcome	28
4.8	HCA043, Garth and Blaen-y-garth	28
4.8.1	Indirect, Physical Impacts	28
4.8.2	Indirect, Non-Physical Impacts	28
4.8.3	Outcome	29
4.8.4	Indirect, Physical Impacts	29
4.8.5	Indirect, Non-Physical Impacts	29
4.8.6	Outcome	30
4.9	HCA047, Dowlais Top	30
4.9.1	Indirect, Physical Impacts	30
4.9.2	Indirect, Non-Physical Impacts	30
4.9.3	Outcome	31
4.10	HCA078, Dowlais Great Tip, Trecatti, Trehir and Twyn-y-Waun	31
4.10.1	Indirect, Physical Impacts	32
4.10.2	Indirect, Non-Physical Impacts	32
4.10.3	Outcome	33
4.11	Summary of Indirect Impacts	33
5	Evaluation of Relative Importance (Stage Four)	34
5.1	Methodology for Evaluation of Relative Importance (Stage Four)	34
5.2	Relative Importance of development area in relation to HCA041	35
5.3	Relative Importance of development area in relation to the whole of the historic landscape area on the Register	36
5.4	Relative Importance of Impacted HCAs in relation to the national context	37
5.5	Outcome	39
6	Overall Significance of Impact (Stage Five)	40
6.1	Methodology for Overall Significance of Impact (Stage Five)	40
6.2	Overall Significance of Impact (Stage Five) Assessment	41
6.2.1	HCA035	41
6.2.2	HCA041	41
6.2.3	HCA047	42
6.3	Overall Significance of Impact (Stage Five) Outcome	42
6.4	Enhancement and Mitigation	42
7	Concluding Statement	44

8	Bibliography	45
8.1	Sources	45
8.2	Guidance	45
	Appendix A: Registered Historic Landscape Details	0

Tables

Table 1: Grades of Direct Physical Impact	11
Table 2: Impacts and Element Sensitivity Score	12
Table 3: ASIDOHL2: Overall Magnitude of Direct Physical Impacts	13
Table 4: Assessment of Direct Impact on HCA041	15
Table 5: Indirect Non-Physical Impacts on HCA035	25
Table 6: Indirect Physical Impacts on HCA035	26
Table 7: Indirect Non-Physical Impacts on HCA041	27
Table 8: Indirect Physical Impacts on HCA047	30
Table 9: Indirect Impacts Summary	33
Table 10: Stage 4 Evaluation Scores	34
Table 11: Outcome of Stage 4 of Assessment	35
Table 12: Relative Importance of the Development Area compared to HCA041	36
Table 13: Relative Importance of the Development Area to the whole of Merthyr Tydfil registered historic landscape	37
Table 14: Relative importance of Impacted HCAs	37
Table 15: Assessment of Relative Importance Summary	39
Table 16: Significance of Impact (Stage 5) Assessment and Scoring	40
Table 17: Overall Grading of Impact	40
Table 18: Overall Significance of Impact for Character Area HCA035	41
Table 19: Overall Significance of Impact for HCA041.	41
Table 20: Overall Significance of Impact for Character Area HCA047	42

Figures

Figure 1: Location of Merthyr Tydfil Registered Historic Landscape	3
Figure 2: Location of the scheme in Merthyr Tydfil Registered Historic Landscape	4
Figure 3: Example Reservoirs	5
Figure 4: Weldmesh Security Fencing Example	5
Figure 5: Location of Merthyr Tydfil Historic Landscape and HCAs	7
Figure 6: HCAs within 2km of Scheme Area	8
Figure 7: HCA041	14
Figure 8: HCAs within 2km with no anticipated indirect impacts from the scheme	18
Figure 9: Location of HCA007 and HCA029 in relation to the scheme	19
Figure 10: HCA029 in relation to the scheme	21

Figure 11: HCA030 in relation to the scheme	22
Figure 12: HCA035 in relation to the scheme	24
Figure 13: HCA043 in relation to the scheme	29
Figure 14: HCA047 in relation to the scheme	31
Figure 15: HCA078 in relation to the scheme	32

Executive summary

This Assessment of the Significance of the Impact of Development on Historic Landscape (ASIDOHL) has been produced by Mott MacDonald on behalf of Mott MacDonald Bentley for Welsh Water for the construction of the proposed new Pengarnddu Service Reservoir ('the scheme'). This scheme will provide additional capacity at Pengarnddu Reservoir. The scheme is located at NGR SO 07500 08900 in the County Borough of Merthyr Tydfil within the historic county of Glamorgan. The scheme will include the construction of a reservoir in concrete with an abutting embankment, construction of one-storey concrete valve house, provision of roads and footpaths and an enclosure with secure fencing. This ADISOHL uses the current (2007) guidance from CADW, the national historic environment body, which is the second iteration of ADISOHL guidance (known as ADIOSHL2).

The scheme area is located within the Merthyr Tydfil historic landscape, an area of largely post-medieval industrial development on the southern border of the Brecon Beacons. The historic character areas (HCAs) were defined by Glamorgan Gwent Archaeological Trust (GGAT), the archaeological advisors to Merthyr Tydfil Borough County Council. The scheme is located entirely within HCA041, which will lose approximately 0.7% of its area. Additional impacts identified on HCA035, HCA041 and HCA047.

- HCA035 is an area of agricultural and military land, with historic limestone quarries and three scheduled monuments in the north. Expected impacts are indirect and non-physical, anticipated in the south of the HCA.
- HCA041 is an area of common land, with a former extractive landscape and water management features. Adjacent to the scheme area the HCA will also experience indirect physical and non-physical impacts.
- HCA047 is an area of reclaimed industrial land, now developed into light industrial and commercial units. The impact on this area will be limited to indirect physical impact on its northern edge, as access to Pengarnddu reservoir is via HCA047.

Based on this ASIDOHL2 assessment, the overall significance of the impact of the scheme on HCA035 is considered moderate, on HCA041 the impact is considered moderate and on HCA047 it is slight.

Planting of the embankment with grass will reduce the visual impact of the reservoir, as assessed in the Landscape and Visual Impact Assessment (Ref: B10237-123532-ZZ-XX-RP-LA-DH010). Additionally, hard surfacing seeks only to extend existing provisions and are kept to the minimum needed for functionality. Potential indirect visual impact of the scheme may be reduced by the planting of vegetation at the scheme boundary. However, due to the open character of HCA041 this should be approached with caution, if used planting should be sporadic, rather than forming a dense or continuous barrier between the scheme and the rest of the HCA. Archaeological monitoring of topsoil stripping is recommended for the scheme, this is considered proportionate to the low archaeological potential of the site, importance of the registered historic landscape and the scale of the scheme. No additional mitigation is recommended. The archaeological and heritage strategy and mitigation proposed by this ASIODHL should be agreed with the local planning authority and GGAT to ensure minimal impact to the historic environment. The scheme will be delivered in accordance with the agreed strategy and mitigation.

1 Introduction

This Assessment of the Significance of the Impact of Development on Historic Landscape (ASIDOHL) has been produced by Mott MacDonald on behalf of Mott MacDonald Bentley (MMB) for Welsh Water for the construction of the proposed new Pengarnddu Service Reservoir ('the scheme'). This scheme will provide additional capacity at Pengarnddu Reservoir. Additional contextual and baseline information is provided in section 2 of this report. This ADISOHL uses the current (2007) guidance from CADW¹, the national historic environment body, which is the second iteration of ADISOHL guidance (known as ADIOSHL2). The ASIDOHL2 process includes five stages of assessment:

- Stage 1: Contextual Information; this stage collates the appropriate baseline information to perform subsequent assessment. See chapter 2.
- Stage 2: Assessment of direct, physical impacts of development; this stage measures the direct impacts of the scheme on the Historic Character Areas (HCAs) of the registered historic landscape. See chapter 3.
- Stage 3: Assessment of indirect impacts of development; considers the indirect and visual impacts of the scheme in both areas which will and will not experience physical impacts. See chapter 4.
- Stage 4: Evaluation of relative importance; this stage examines the importance of the areas affected by the development in relation to the landscape and the landscape in relation to the national context. See chapter 5.
- Stage 5: Assessment of overall significance of impact; this stage uses the above assessments to inform an overall assessment of impact. It also details any mitigation and enhancement for the scheme. See chapter 6.

These are followed by a concluding statement, see chapter 7.

The remainder of this document follows these stages. The individual methodology for each assessment stage is laid out at the start of each chapter. Tables provided throughout to summarise and quantify assessment have been produced using exemplar tables in CADW guidance.

¹ CADW (2007) Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales: 2nd edition including revisions to the assessment process (ADISOHL2).

2 Baseline (Stage One)

2.1 Scheme Context

This ASIDOHL2 has been produced by Mott Macdonald on behalf of MMB to accompany the planning application for the scheme, as part of understanding the potential impact of the scheme on the historic environment. It is being produced based on pre-application advice received from Merthyr Tydfil Borough Council on 6th March 2020, see below:

<i>Consultee</i>	<i>Date of Consultation</i>	<i>Consultation Response</i>	<i>Project Response</i>
Merthyr Tydfil County Borough Council (MTCBC)	March 2020	A proportionate ASIDOHL should be carried out for the proposed development, to understand the impact on the registered historic landscape of Merthyr Tydfil.	Assessment carried out accordingly.

Additionally, A Cultural Heritage Desk-Based Assessment (DBA) was previously produced for the scheme by Arcadis in 2019².

The scheme is located at NGR SO 07500 08900 in the County Borough of Merthyr Tydfil within the historic county of Glamorgan. The scheme area is approximately 4.35ha and located on the northern edge of a modern industrial estate, to its north is the Brecon Beacons National Park. It is located in the north-east of the Merthyr Tydfil Registered Historic Landscape. The location of the Merthyr Tydfil Historic Landscape can be seen below in Figure 1. The impact of the scheme on the registered historic landscape is assessed in this document.

Figure 1: Location of Merthyr Tydfil Registered Historic Landscape



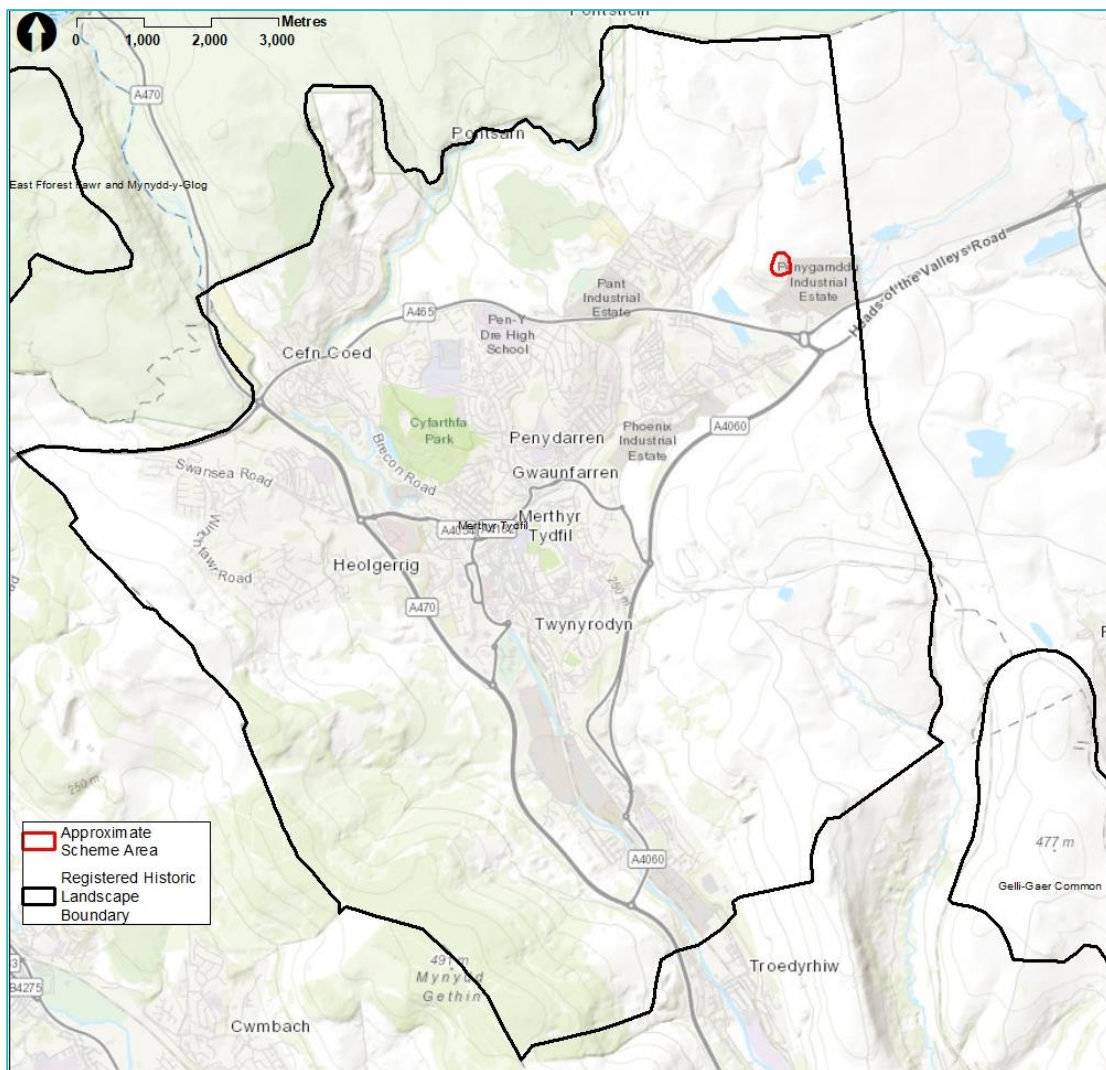
Source: Mott MacDonald and Esri (2020)

² Latham, A. and Summers, J (2019) Pengarnddu Cultural Heritage Desk-Based Assessment

2.2 Proposed Development

The scheme at Pengarnddu is for the construction of an additional service reservoir, to upgrade the storage capacity of the facility, and related works. The scheme is located in the north-east of the Merthyr Tydfil Registered Historic Landscape, north of a modern industrial estate (NGR: SO075089). The scheme is required to be located within the registered landscape, as following optioneering this has been determined to be the only suitable location for the scheme due to land availability and hydraulic constraints. Please refer to the planning submission for further clarification.

Figure 2: Location of the scheme in Merthyr Tydfil Registered Historic Landscape



Source: Mott MacDonald and Esri (2020)

The scheme will provide a new service reservoir at Pengarnddu adjacent to the west of the existing circular reservoir. This reservoir will be a rectangular precast concrete structure in an excavated area 50m x 61m with a gravel-topped roof. The two cell precast reservoir will be 4.52m deep. A new embankment profiled 1:3 will be formed from excavated material to integrate the reservoir into the grass and bury the concrete exterior where it extends above the excavated area. The reservoir will be covered, with no water exposed. A new 7m x 12m precast concrete valve house will be located at the south, abutting the reservoir and partially within the

embankment. This part of the scheme will be similar in final appearance to the service reservoirs at Hanchurch and Grange, shown below in figure 3.

Figure 3: Example Reservoirs



Source. Left: Hanchurch, Severn Trent (2017), Right: Grange, Coffey Group (2014)

The existing access road will be extended to the south of the new reservoir in hardcore. The footpath will have a concrete retaining wall to the north, to allow it to be incorporated into the embankment. The existing 3m x 4m valve house and kiosk will be relocated less than 10m further west. A new 6m x 6m one-storey valve house will be located north of the existing access road at the existing reservoir. A new attenuation tank will be located at the south of the scheme area. Piping will also be installed and realigned respectively to integrate the new reservoir.

The scheme area will be surrounded to the west by 1.8m tall class 2 Weldmesh Fencing, for security and safety. The new fencing will adjoin to existing palisade fencing in the east the scheme area. This new fencing will appear similar to figure 4, below. There will be a new access gate on the access road.

Figure 4: Weldmesh Security Fencing Example



Source: Huws Grey (2014)

The scheme design can be seen in drawing B10237-123532-ZZ-XX-DR-ZA-PN0069 submitted as part of this planning application..

2.3 Production of this ADISOHL2

This ADISOHL2 has been undertaken in accordance with the methodology outlined in CADW Guidance, as given in the introduction of each section, and has consulted the following sources:

- Information on Merthyr Tydfil Registered Landscape and HCAs via GGAT (www.ggat.org.uk/cadw/historic-landscape/Merthyr_Tydfil/English/Merthyr_Main.html)
- Latham, A. and Summers, J (2019) *Pengarnddu Cultural Heritage Desk-Based Assessment*
- A search of designated assets including scheduled monuments and listed buildings (Via: www.historicwales.gov.uk)
- A search of the local historic environment record (HER) and national monuments record (NMR) (Via: www.historicwales.gov.uk)

This data is held by GGAT and CADW and is considered a reliable source of information for undertaking this ADISOHL2.

This ADISOHL2 has been undertaken by the following archaeology and heritage professionals at Mott MacDonald:

- Io Gray-Davies, Graduate Archaeology and Heritage Consultant. MSc, BSc (hons). 1.5 years' experience.
- Ross Cameron, Senior Heritage Consultant MLitt MA (Hons) MCIfA FSA Scot 15 years' experience
- Maurice Hopper, Principal Archaeologist MSc, BSc (Hons) MCIfA, 19 years' experience

This ADISOHL2 assesses the potential impact from the scheme on registered landscapes at Merthyr Tydfil. The entirety of the landscape is considered in this assessment, especially in regard to chapter 6 (stage 4) which assesses relative importance.

2.3.1 Scope

This ADISOHL2 covers only the potential impact of the scheme in relation to the registered historic landscape and its Historic Character Areas (HCAs). The potential impact on other heritage and archaeology assets was covered in a Cultural Heritage Desk-Based Assessment (DBA) produced for the scheme by Arcadis in 2019³, and is not covered in this ADISOHL2 unless directly relevant to the historic landscape.

2.3.2 Assumptions and Limitations

A site visit was undertaken for the production of the 2019 DBA, which informs this assessment. However, no additional site visit was undertaken for production of this ASIDOHL2 due to travel restrictions imposed in the UK due to the SARS-COV-19 pandemic.

Databases such as the Welsh historic environment record (HER), a centralised database managed here by GGAT, are limited in their ability to predict new results. The HER is often based on random opportunity for research and investigation. Therefore, lack of HER data within an area does not necessarily equate to a lack of heritage assets and archaeological remains.

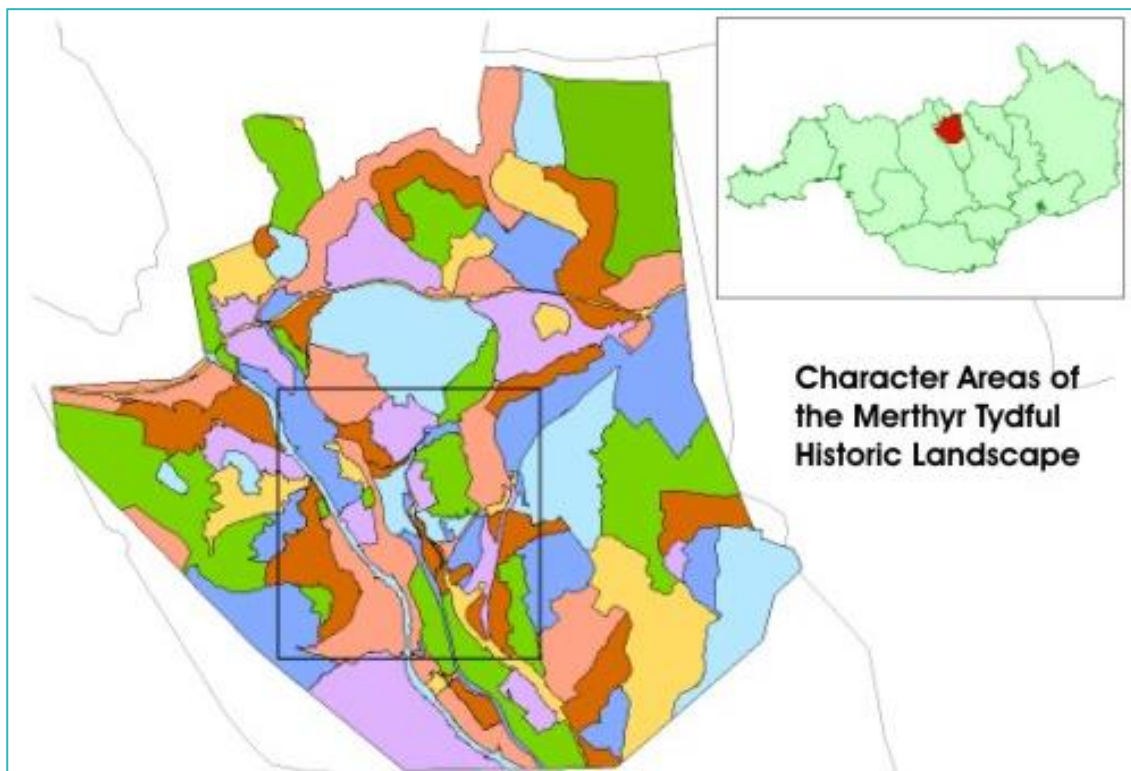
³ Latham, A. and Summers, J (2019) *Pengarnddu Cultural Heritage Desk-Based Assessment*

2.4 Merthyr Tydfil Registered Historic Landscape

Merthyr Tydfil occupies a natural basin at the top of the Taff Valley. The historic interest of the landscape is largely associated with its post-medieval industrial development, with particular interest in landscapes relating to the iron and steel industry.

Merthyr Tydfil has been assessed by GGAT as containing 79 distinct HCAs, as can be seen below on figure 5. These HCAs comprise medieval and post-medieval agricultural landscapes, medieval and post-medieval common land and enclosed common land, post-medieval industrial landscapes (related to the mining and the steel industries and water management), post-medieval and modern townships and reclaimed industrial land.

Figure 5: Location of Merthyr Tydfil Historic Landscape and HCAs



Source: GGAT Via: www.ggat.org.uk/cadw/historic_landscape/Merthyr_Tydfil/English/Merthyr_Main

Special consideration has been given to the potential for impact on HCA041, in which the development area is located. HCA041 is located in the north-eastern corner of the Merthyr Tydfil historic landscape (see figure 6 below) and is one of the largest HCAs within the landscape. It comprises open common land, used for grazing, with evidence of post-medieval extraction and water management.

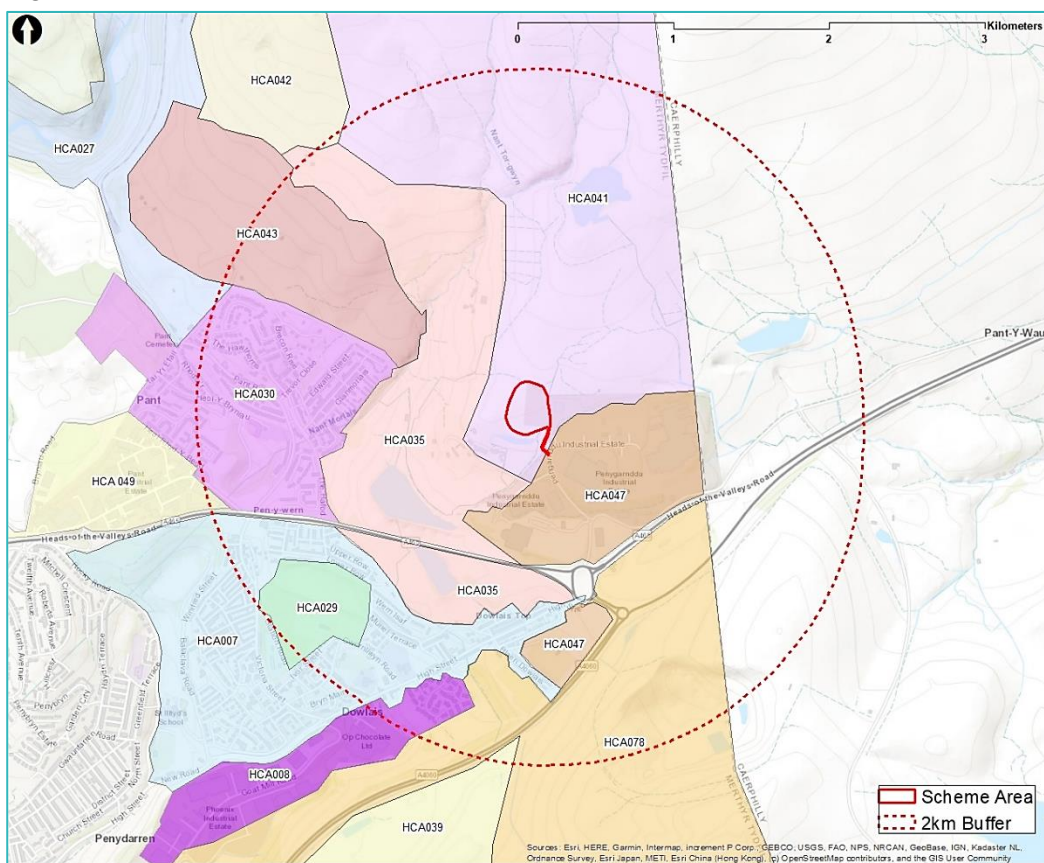
Special consideration has also been given to the following HCAs, located within 2km of the scheme, this area is considered proportionate to the scale of the development, rural nature of the setting to the north and greater sensitivity of the registered landscape. The following HCAs are located within 2km of the scheme area, as seen on figure 6 below;

- HCA007, Dowlais, the post-medieval settlement associated with the Dowlais Iron Works;
- HCA008, Dowlais Iron Works Area, a reclaimed industrial area of former iron works;
- HCA027, Taff Fechan, a transport corridor based around the Taff Fachen valley;

- HCA029, Ivor Iron Works, an industrial area of former iron works;
- HCA030, Pantcadifor, Rhyd-y-Bedd and Caeracca, a minor post-medieval settlement;
- HCA035, Pengarnddu, a former industrial landscape of quarrying and water management;
- HCA039, Ffos-y-Fran, a nationally important landscape associated with former iron works;
- HCA041, Merthyr Common, North, as described above;
- HCA042, Twynau Gwynion Quarries, 19th century quarries associated with iron works;
- HCA043, Garth and Blaen-Y-Garth, a medieval and post-medieval agricultural landscape;
- HCA047, Dowlais Top, a modern industrial estate on reclaimed land
- HCA049, Bon-y-Maen, a modern industrial estate on reclaimed land, and;
- HCA078, Dowlais Great Tip, Trecatti, Trehir and Twyn-y-Waun, reclaimed industrial land.

Full descriptions of the HCAs, as given by GGAT, are provided in Appendix A. The Merthyr Tydfil HCAs have been identified through a characterisation exercise initially undertaken by GGAT between 1999 and 2003⁴. These boundaries are mostly accurate to the current nature of the landscape, however where development has altered these boundaries or the nature of an area in a way which may affect this assessment this is noted as is relative.

Figure 6: HCAs within 2km of Scheme Area



Source: Mott MacDonald and Esri (2020)

⁴ Latham, A. and Summers, J (2019) Pengarnddu Cultural Heritage Desk-Based Assessment

2.5 Planning Policy Background

2.5.1 National Planning Policy

National Planning Policy is provided by Planning Policy Wales (2018). Policy for the treatment of the Historic Environment is included in chapter 6.1 of this document and supplemented by Technical Advice Note (TAN) 24: The historic Environment (2018). The relevant policies from these documents to this ADISOHL2 are given below.

Planning Policy Wales, paragraphs 6.1.20-6.1.21 on Historic Landscapes:

6.1.20 The Welsh Government seeks to protect areas on the register of historic landscapes in Wales.

6.1.21 Planning authorities should protect those assets included on the register of historic landscapes in Wales. As above, the sharing and use of evidence and assessments undertaken for wider reasons, such as Green Infrastructure Assessments, should be used to identify and better understand historic landscapes and ensure their qualities are protected and enhanced. The register should be taken into account in decision making when considering the implications of developments which meet the criteria for Environmental Impact Assessment or, if on call in, in the opinion of the Welsh Ministers, the development is of a sufficient scale to have more than a local impact on the historic landscape. An assessment of development on a historic landscape may be required if it is proposed within a registered historic landscape or its setting and there is potential for conflict with development plan policy.

TAN 24, paragraph 7.6 and annex C.7 on Historic Landscapes on the Welsh Register:

7.6 The Register of Historic Landscapes in Wales is a non-statutory advisory register (see Annex C.5–C.7). ... The register should ensure that necessary change is accommodated without sacrificing the essential integrity and coherence of historic landscape areas. The wider purpose of the register is to promote the value of the historic landscape as a resource for social and economic well-being.

C.7 The criteria for identifying, either singly or in combination, landscapes of outstanding or special historic interest are:

- *Intensively developed or extensively remodelled - Landscapes in which development or change as a result of human activity (land use) has been so intense, resulting in substantial alterations to the natural (landform) and semi-natural (land cover) elements: large towns, cities, conurbations, industrial areas, large-scale civil engineering projects, landscapes showing human endeavour on a grand scale.*
- *Period - Landscapes in which development or change as a result of human activity has been arrested at one or more stages and subsequent material alteration restricted: relict (or fossil) landscapes showing human activity within one or more periods, perhaps abandoned or essentially unchanged after the principal activity ceased.*
- *Historic diversity/Multi-period - Landscapes in which development or change as a result of human activity continues, and into which past evidence from more than one period has become cumulatively assimilated with the natural (landform) and semi-natural (land cover) elements, with particular regard for those areas in which evolution over time is shown by a variety of archaeological or historic features with one or more of the following attributes: a. different forms of the same type of class of feature b. range of different features c. density of related features d. particular group value e. continuity through several periods f. features relating to the development of a particular theme or process.*

- *Buried/Subsumed or destroyed - Landscapes with historic (events, traditions, legends, folklore), artistic, literary, architectural, technological, religious, or other important cultural association, either singly or in combination*

2.5.2 Local Planning Policy

Local Planning is managed through the Merthyr Tydfil Local Development Plan. The latest iteration of this is the Merthyr Tydfil County Borough Council Replacement Local Development Plan (2016 - 2031)⁵. This contains the following policies relevant to this assessment.

Policy CW1: The Historic Environment

The integrity of our historic environment assets will be conserved and enhanced.

Development proposals will only be permitted where it can be demonstrated they would preserve or enhance the architectural quality, character or the historic or cultural importance of our designated historic environment assets.

Development affecting undesignated historic environment assets including, Locally Listed Buildings or structures, Landscapes of Outstanding Historic Interest in Wales, Urban Character Areas and Archaeologically Sensitive Areas should have regard to their special character and archaeological importance.

This is supported by the Merthyr Tydfil Built Heritage Strategy and Action Plan⁶, which outlines the key heritage considerations in the borough and contains the following assessment from Glamorgan Gwent Archaeological Trust (GGAT) regarding the Merthyr Tydfil Historic Landscape:

“... Merthyr still retains its industrial landscape character as the most significant Welsh town of the Industrial Revolution. The town and its environs remain a potent example of an internationally renowned industrial landscape of the 18th and 19th centuries and a permanent reminder of man’s exploitation of the landscape”⁷

⁵ Available via: www.merthyr.gov.uk/media/5642/replacement-ldp-written-statement-final-composite-version-140120.pdf (accessed May 2020)

⁶ Merthyr Tydfil Council (2008). Available via: www.merthyr.gov.uk/media/1141/merthirtydfilheritagestrategy.pdf (accessed May 2020)

⁷ Ibid.

3 Assessment of Direct Impact on Historic Character Area (Stage Two)

This section describes the direct, physical impacts of the scheme on the relevant HCAs. This assessment relates only to the land directly impacted by the scheme, for indirect impacts to land outside the scheme area please see section 4.

3.1 Assessment (Stage Two) Methodology

In line with CADW guidance⁸ direct physical impact has been assessed:

- In absolute terms - expressed as a statement indicating the actual percentage or proportion of the surface area of the HCA that is directly affected, in line with table 1, below.
- In relative terms – indicating the proportion of identified key elements of characteristics which will be permanently lost or removed by the proposed development. This is carried out in line with table 1, below.
- In landscape terms – understanding impact on the extrinsic importance of elements or characteristics within the landscape of the HCA and the potential impact of the scheme on this value (note, this is not equivalent to group value). This assesses the landscape value and the potential effect on this value.

Table 1: Grades of Direct Physical Impact

75% -100% Permanently lost or removed	Very Severe
50-74% Permanently lost or removed	Severe
30-49% Permanently lost or removed	Considerable
15-29% Permanently lost or removed	Moderate
5-14% Permanently lost or removed	Slight
0-4 % Permanently lost or removed	Very Slight

Source: CADW (2007)

Stage 2 assessment also includes consideration of the Category of the individual elements, these can be:

- Category A: Sites and Monuments of National Importance.
- Category B Sites and Monuments of Regional Importance
- Category C Sites / Features of Local Importance
- Category D Minor and Damaged Sites / Features
- Category U Sites / Features Needing Further Investigation

In line with guidance, the grades assigned through table 1 and through the categories outlined above, have been assigned numerical scores relating to their sensitivity, as outlined in table 2.

⁸ CADW (2007) *Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales: 2nd edition including revisions to the assessment process (ADISOHL2)*

Table 2: Impacts and Element Sensitivity Score

Direct physical impacts — absolute	Very Severe	6
	Severe	5
	Considerable	4
	Moderate	3
	Slight	2
	Very Slight	1
Direct physical impacts — relative	Very Severe	6
	Severe	5
	Considerable	4
	Moderate	3
	Slight	2
	Very Slight	1
Site category	A	4
	B	3
	C	2
	D	1
	U	1
Direct physical impacts — landscape value	Very High	6
	High	5
	Considerable	4
	Medium	3
	Low	2
	Very Low	1
Landscape value effect	Lost	6
	Substantially Reduced	5
	Considerably Reduced	4
	Moderately Reduced	3
	Slightly Reduced	2
	Very Slightly Reduced	1

Source: CADW (2007)

An average (mean) score for all individual elements was calculated:

(Status [Category] + Magnitude + Landscape Value + Landscape Value Effect) ÷ number of individual elements = mean.

This was added to the scores for absolute and relative impact and rounded to the nearest integer. This score was then related to the below table (table 3) to assess the overall magnitude of direct physical impacts (table 4).

Table 3: ASIDOHL2: Overall Magnitude of Direct Physical Impacts

Score	Grading
24–28	Very Severe
19–23	Severe
14–18	Considerable
9–13	Moderate
4–8	Slight
0–3	Very Slight

Source: CADW (2007)

3.2 Assessment of Direct Impact (Stage 2 Assessment)

3.2.1 HCA041

The absolute physical impacts of the scheme are located within HCA041 only. These relate to the excavation and installation of a new reservoir and associated structures and works. HCA041 is Merthyr Common, North. This character area is described by GGAT as:

*“An area of common land containing characteristic water-management features, including part of the 19th century Dowlais Free Drainage System associated with the Dowlais and later the Ivor Iron Works; individual components include the Saints and Pitwellt Ponds and numerous associated features”.*⁹

The area is dissected by several natural watercourses and has been exploited for water management purposes. It contains the northerly part of the Dowlais Free Drainage System, a system of reservoirs and leats evolved over c.70 years to serve the local Ironworks. Two key reservoirs in the HCA are Pitwellt Pond, constructed c.1850 – 1862, and Saints Pond, constructed c.1890. There is an additional reservoir built by the Merthyr Tydfil Corporation c.1902. There are also numerous stone quarries in the area, which is considered characteristic of the extractive history of the HCA. It contains no scheduled monuments or listed buildings.

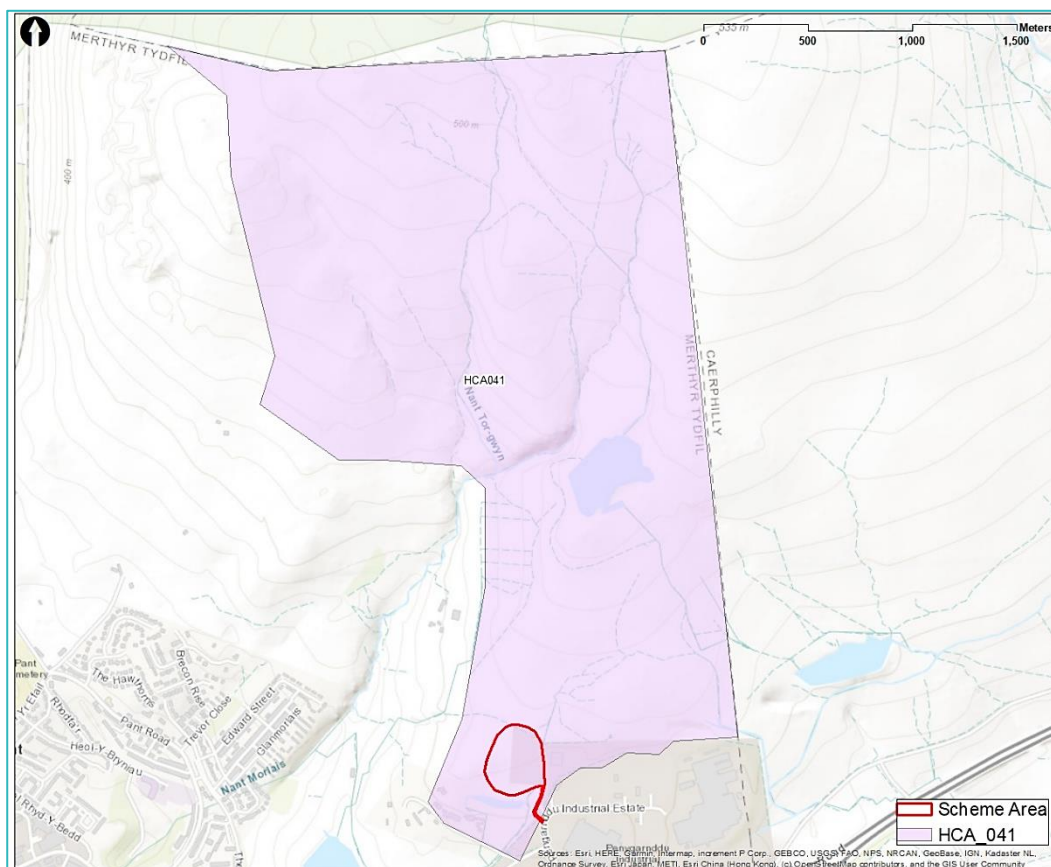
The key characteristic elements of this landscape are:

- common land;
- water management features (related to Dowlais Free Drainage and Merthyr Tydfil Corporation) and;
- minor industrial extractive landscape.

The extent of HCA041 in relation to the scheme area and registered historic landscape is shown below in figure 7.

⁹ GGAT (2020) 041 Merthyr Common, North [online]. Via: www.ggat.org.uk/cadw/historic-landscape/Merthyr-Tydfil/English/Merthyr_041.htm (accessed May 2020)

Figure 7: HCA041



Source: Mott MacDonald and Esri (2020)

3.2.2 Assessment of direct impact on HCA041

The scheme will result in the loss of common (open grazing) land within the HCA. The area of HCA041 is approximately 58.8ha, the scheme area is approximately 4.35ha, inclusive of the new reservoir, fencing and works area. Based on these figures the loss of the HCA amounts to 0.7% of its total area. The total area of the final scheme is less than 3ha, however as the scheme has potential to affect direct physical impact to the entirety of the 4.35ha area of the historic landscape on the register this figure has been used for this assessment. This equates to a very slight absolute physical impact in accordance with tables 1 and 2 (see table 4).

There is no anticipated direct impact from the scheme on category A or B landscape elements as there are no protected assets in the development area. There are no Category C landscape elements identified in the HER, within the scheme area. Saints Pond is located approximately 40m south but does not form part of the scheme area or access routes. The key landscape features of HCA041 are not located within the scheme area. The contribution to the character of the HCA made by the scheme area is considered to have local importance. This amounts to the loss of open grazing land, totalling approximately 4% of the common land within HCA041.

The overall direct impact on the value of HCA041 will be slight, based on the contribution to this value made by the areas lost. The water management features and features of the extractive landscape will not experience a direct physical impact from the scheme.

The direct impacts of the scheme on HCA041 (overall direct impacts) are summarised below in table 4.

Table 4: Assessment of Direct Impact on HCA041

Absolute Impact (total loss)		Magnitude and Score				
0.7 %		Very Slight - 1				
Relative Elements and Landscape (loss of elements/characteristics) and Score						
Element	% lost	Category	Magnitude	Landscape Value	Landscape Value Effect	Summary
Common (Open Grazing) Land	4	C - 2	Very Slight - 2	Medieval/Post-medieval Landscape – Medium - 3	Very Slightly Reduced - 1	7
Average of all elements				7		
Overall Magnitude				8 – Slight		

3.3 Overall Magnitude of Direct Physical Impacts (Stage 2 Outcome)

The absolute physical impact received a score of 1, the mean outcome for individual elements was 7. The overall score for stage 2: Direct physical impacts for the scheme amounts to 8, this relates to **slight overall magnitude of direct physical impact**.

4 Assessment of Indirect Impacts on Historic Character Areas (Stage Three)

This section focuses on the greater area of the HCA with the potential to be indirectly affected through fragmentation, visual intrusion and/or encroachment that could devalue the historic landscape area as a whole.

4.1 Methodology for Assessment of Indirect Impacts (Stage three)

This section describes and quantifies the potential indirect impacts of the scheme, including the following key areas outlined in CADW guidance¹⁰:

- a. Indirect, physical impacts
 - i. An increased risk of exposure, erosion, disturbance, decay, dereliction or any other detrimental physical change to elements, during or consequent to development.
 - ii. Related to (i), the likelihood of increased management needs to maintain elements as, for example, through altered habitats, water levels, increased erosion, new access provision etc., during or consequent to development.
 - iii. The severance, fragmentation, dislocation or alteration of the functional connections between related elements, for example, a field system becomes 'severed' from its parent farmstead by an intervening development.
 - iv. The frustration or cessation of historic land use practices, for example, it becomes more difficult or impossible to manage an area in a traditional manner as a result of development
 - v. The frustration of access leading to decreased opportunities for education, understanding or enjoying the amenity of elements, during or consequent to development.
- b. Indirect (non-physical) visual impacts. These are considered in relation to form and appearance of the development and considering its maximum height. These can occur to elements as a result of one, or a combination, of the following factors:
 - i. Visual impacts on elements from which a development can be seen (considered up to its maximum height).
 - ii. Impact on the visual connections between related elements, by occlusion, obstruction, etc.
 - iii. Conversely, the creation of inappropriate visual connections between elements not intended to be inter-visible originally, by the removal of intervening structures, barriers, shelters, screening or ground.
 - iv. Visual impact of the development itself in relation to the existing historic character of the area considering its form and appearance.

¹⁰ CADW (2007) *Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales: 2nd edition including revisions to the assessment process (ADISOHL2)*

For each anticipated indirect physical impact from the scheme, relating to the above, the severity of the impact has been assessed ranging within the following;

- Very Slight (1),
- Slight (2),
- Moderate (3),
- Considerable (4),
- Severe (5) and;
- Very Severe (6).

These ratings are based on professional judgement and informed by the category of the individual element of the landscape with potential to be impacted (as above in section 4.1). These impacts and their related numerical scores are given below for the scheme by HCA. This is repeated for each indirect non-physical impact.

The average (mean) total numerical score for each potential impact (Category Score + Magnitude Score) was then calculated for both physical and non-physical direct impacts. These scores have been added to provide an outcome for the assessment of indirect impacts for each HCA impacted, which is understood in line with table 3 to provide an outcome from 'very slight' to 'very severe'.

4.2 Character Areas with the potential for Indirect Impact

Whilst all character areas within a historic landscape have the potential to be impacted by a scheme within the landscape, HCAs within 2km of the scheme are considered to be most likely to experience indirect impact from the scheme, based on its design and scale and the greater sensitivity of the registered landscape. The following HCAs are within 2km of the scheme; HCA007, HCA008, HCA027, HCA029, HCA030, HCA035, HCA039, HCA041, HCA042, HCA043, HCA049 and HCA078.

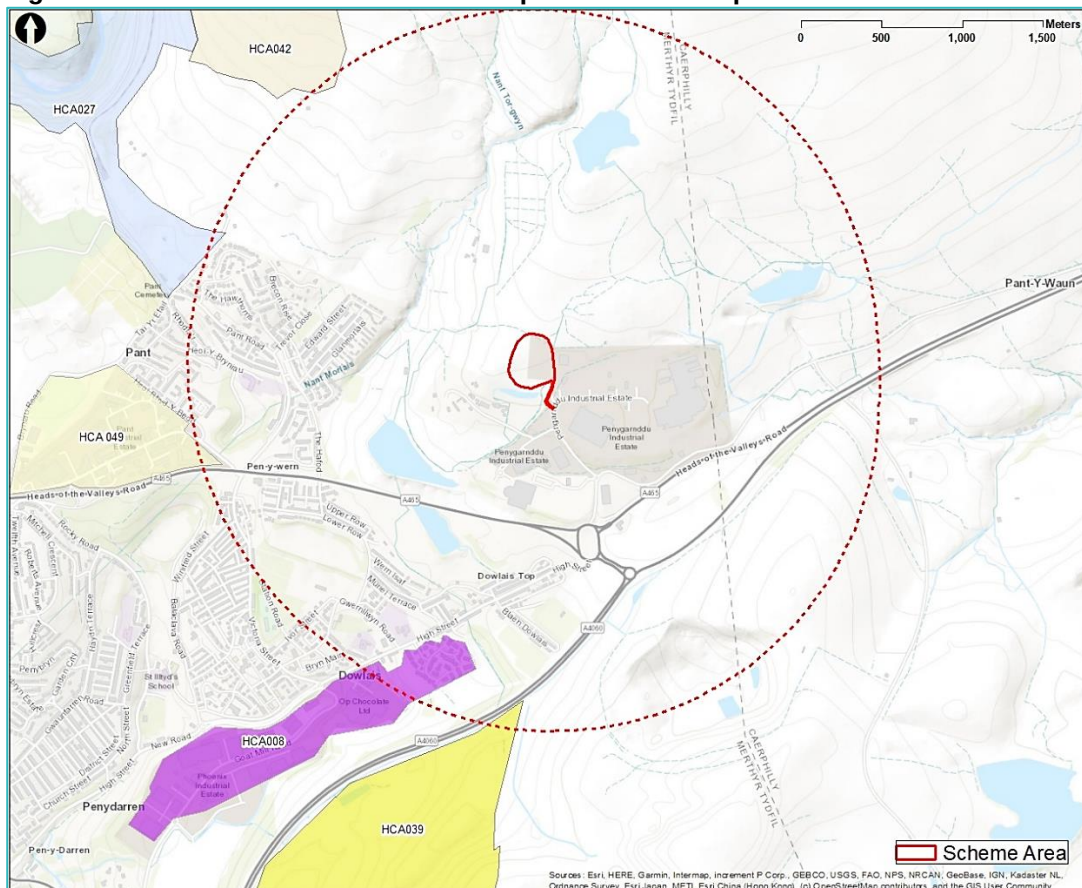
This initial 2km study area has been considered to ensure HCAs with the greatest potential for impact are considered with the greatest depth in this assessment, with particular relevance to long views, historic associations and visual connections which may not be readily apparent. The potential for indirect impact to all HCAs within this 2km radius has been given additional consideration, however based on professional judgement several HCAs within this study area can be scoped out of further examination into potential indirect impact. These are;

- HCA008, Dowlais Iron Works Area, a reclaimed industrial area of former iron works. There are no lines of sight from HCA008 to the scheme area due to the buildings in HCA007, topography of the landscape and landscape around Head of the Valleys Road.
- HCA027, Taff Fechan, a transport corridor based around the Taff Fachen valley. The valley location of HCA027 limits extended external views, where HCA 027 extends towards the scheme area is hidden over the crest of two rises, even at maximum height.
- HCA039, Ffos-y-Fran, a nationally important landscape associated with former iron works. Less than 1% of HCA039 extends to within the study area. External views north towards the scheme area are obstructed by the landscaping associated with two major roads, buildings and topography.
- HCA042, Twynau Gwynion Quarries, 19th century quarries associated with iron works. Less than 2% of HCA043 extends to within the study area. There are no direct lines of sight associated with HCA042 and the scheme area and it is not anticipated that the scheme will be visible from anywhere within HCA042. And;

- HCA049, Bon-y-Maen, a modern industrial estate on reclaimed land. The setting of this industrial estate does not extend to the scheme area, any long views are blocked by the topography and the development of the settlement at HCA030.

The location of these HCAs relative to the scheme area can be seen below on Figure 8.

Figure 8: HCAs within 2km with no anticipated indirect impacts from the scheme



Source: Mott MacDonald and Esri (2020)

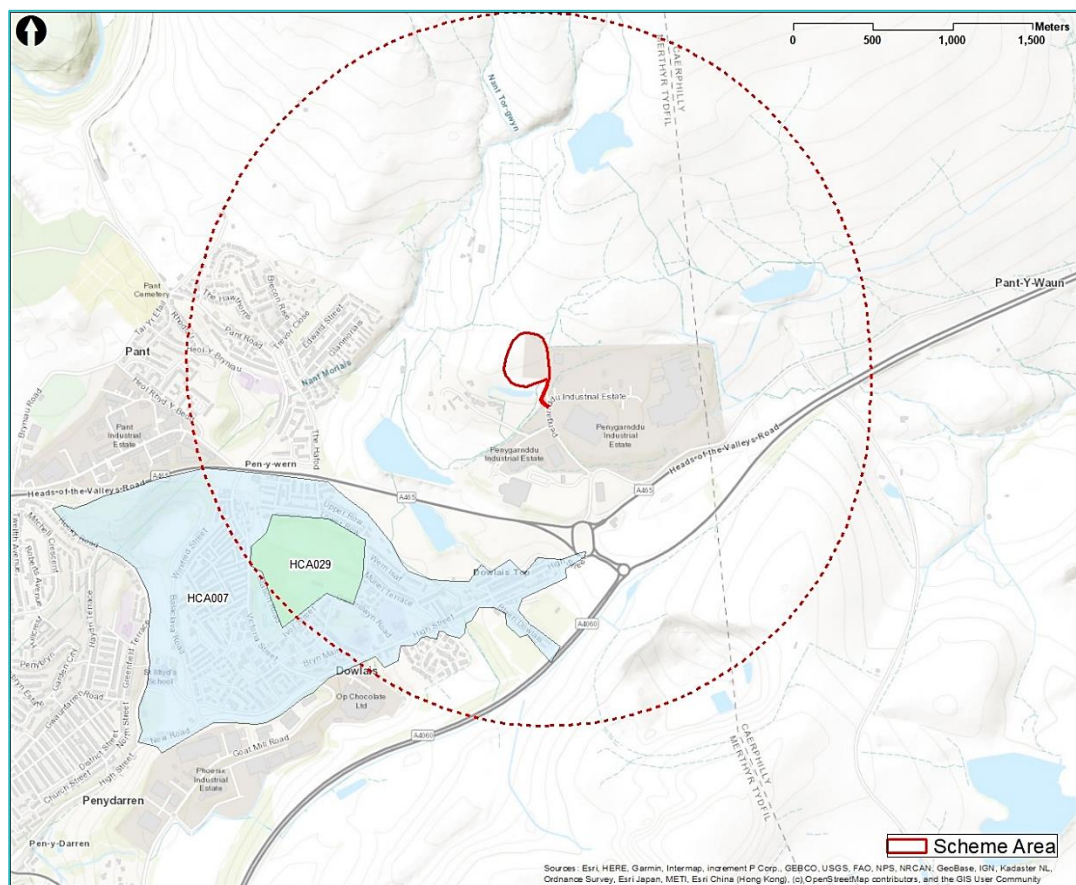
Therefore, the following HCAs are considered to have the greatest potential for indirect impact, as discussed below; HCA007, HCA029, HCA030, HCA035, HCA041, HCA043, and HCA078.

4.3 HCA007, Dowlais

HCA007, Dowlais, is an area of industrial settlement formerly Iron Company owned. The historic settlement developed from the latter half of the 18th century, in association with Dowlais and later Ivor Works, and has undergone extensive 20th century redevelopment. The initial ribbon development, with unplanned irregular dispersed settlement 'squatter-type' at Cwm Rhyd-y-Bedd, has been supplemented by a linear, grid-planned core. This core features public, educational and religious buildings. The HCA also contains a transport corridor.¹¹ The location of HCA007 relative to the scheme and HCA029 (which it surrounds) can be seen below in Figure 9: Location of HCA007 and HCA029 in relation to the scheme.

¹¹ GGAT (2020) 007 Dowlais [online]. Via: www.ggat.org.uk/cadw/historic_landscape/Merthyr_Tydfil/English/Merthyr_007.htm (accessed May 2020)

Figure 9: Location of HCA007 and HCA029 in relation to the scheme



Source: Mott MacDonald and Esri (2020)

4.3.1 Indirect, Physical Impacts

There are no anticipated indirect, physical impacts from the scheme on HCA007. The scheme will have no direct impact on the management of elements of HCA007, or cause risk of erosion, decreased access or opportunity for education or increase management needs. HCA007 and its elements are severed from features and HCAs north of Head of the Valleys Road and the scheme by the road itself, therefore truncation of elements, serration or fragmentation of the landscape with regard to HCA007 will not be caused by the scheme. Therefore there are no anticipated indirect, physical impacts from the scheme on HCA007.

In accordance with the above methodology, the score for anticipated indirect physical impacts to HCA007 is 0.

4.3.2 Indirect, Non-Physical Impacts

There are no anticipated indirect, non-physical impacts of the scheme on HCA007. This is primarily due to the scale of the scheme proportional to the distance from the scheme area (c.1.1km) and the topography of the area causing no visual connection between the HCA and scheme area. It is not anticipated that the scheme will be visible from HCA007 even at maximum height. Additionally, the most visually intrusive element of the scheme is likely to be the proposed secure fencing, the density, height and colouring of the fencing type proposed make it unlikely to be visible at 1.1km distance. There is therefore no anticipated severance of visual connections, disruption of key views or introduction of inappropriate elements or

connections anticipated from the scheme, with consideration to both the form and appearance of the scheme. Therefore there are no anticipated indirect, non-physical impacts on HCA007 from the scheme.

In accordance with the above methodology, the score for anticipated indirect non-physical impacts to HCA007 is 0.

4.3.3 Outcome

In accordance with the above methodology, **the score for anticipated indirect impacts from the proposed scheme to HCA007 is 0.** This amounts to 'very slight' overall impact in accordance with table 3.

4.4 HCA029, Ivor Iron Works Area

HCA029, Ivor Iron Works Area, relates to the industrial landscape of the site of the former Ivor Iron Works which opened in 1839 (**Error! Reference source not found.**). The HCA comprises the site of the works, now characterised by early 20th century disused industrial buildings. A single building, in red brick dating post-1915, survives from the pre-British Steel era. British Steel ran the Ivor Works in the latter 20th century, before its closure in 1987 which ended a more-than-200-year association between Merthyr and the industry¹². The location of the HCA relative to the scheme area can be seen below in Figure 10.

4.4.1 Indirect, Physical Impacts

there are no anticipated indirect physical impacts on HCA029 from the scheme. The Ivor Iron Works is historically related to the water management elements of the landscape immediately surrounding the scheme area, as these supplied the local Iron and steel industries. However there is no physical connection in the current landscape, due to existing separation by the Head of the Valleys Road. Therefore there is no anticipated additional severance between these elements from the scheme. The scheme will have no direct impact on the management of elements of HCA029, or cause risk of erosion, decreased access or opportunity for education or increase management needs. Therefore there are no anticipated indirect physical impacts.

In accordance with the above methodology, the score for anticipated indirect physical impacts to HCA029 is 0.

4.4.2 Indirect, Non-Physical Impacts

There is no anticipated indirect impact on HCA029 from the scheme. HCA029 is completely visually screened from the scheme area due to distance, topography, vegetation, buildings and the embankment around Head of the Valleys Road. There is no visual connection between the historic elements of HCA029 and the scheme area due to this screening and their distance. There is therefore no anticipated severance of visual connections, disruption of key views or introduction of inappropriate elements or connections anticipated, with consideration to both the form and appearance of the scheme and its maximum height.

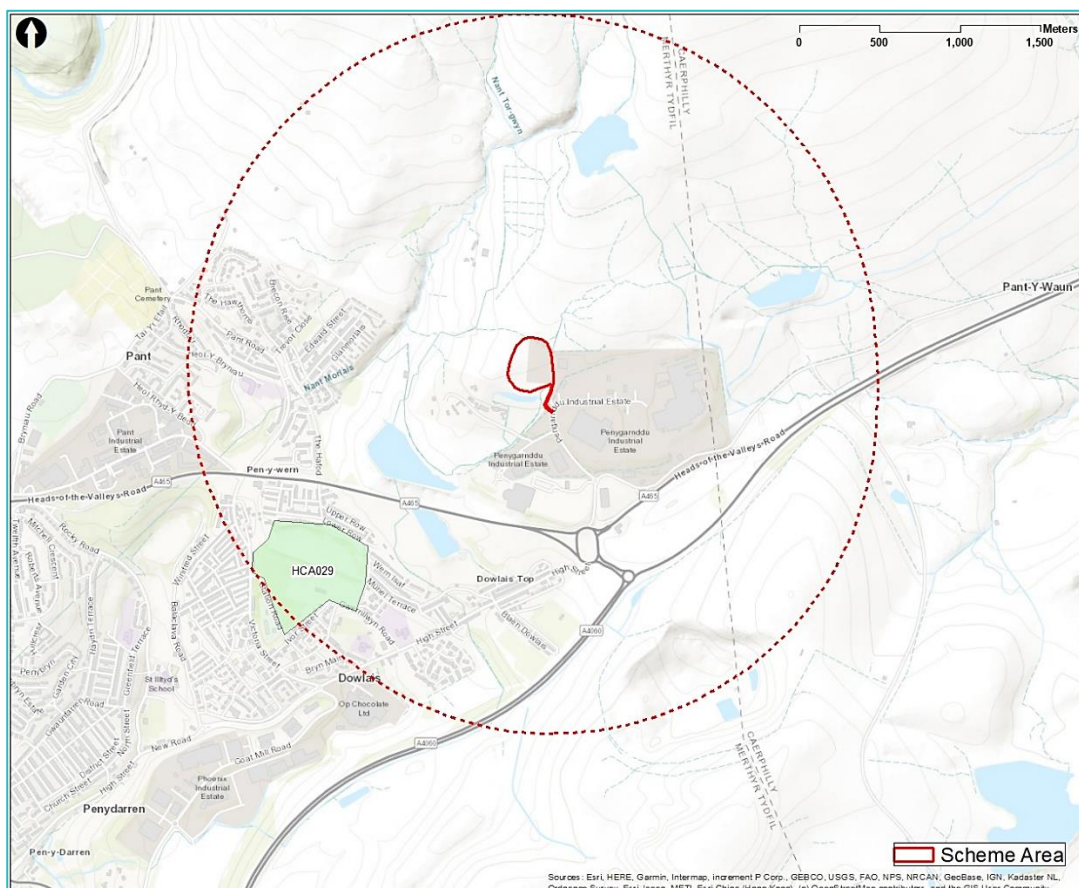
In accordance with the above methodology, the score for anticipated indirect non-physical impacts to HCA0029 is 0.

¹² GGAT (2020) 029 Ivor Iron Works Area [online]. Via:
http://www.ggat.org.uk/cadw/historic_landscape/Merthyr_Tydfil/English/Merthyr_029.htm (accessed May 2020)

4.4.3 Outcome

In accordance with the above methodology, **the score for anticipated indirect impacts from the scheme to HCA029 is 0**. This amounts to 'very slight' overall impact in accordance with table 3.

Figure 10: HCA029 in relation to the scheme



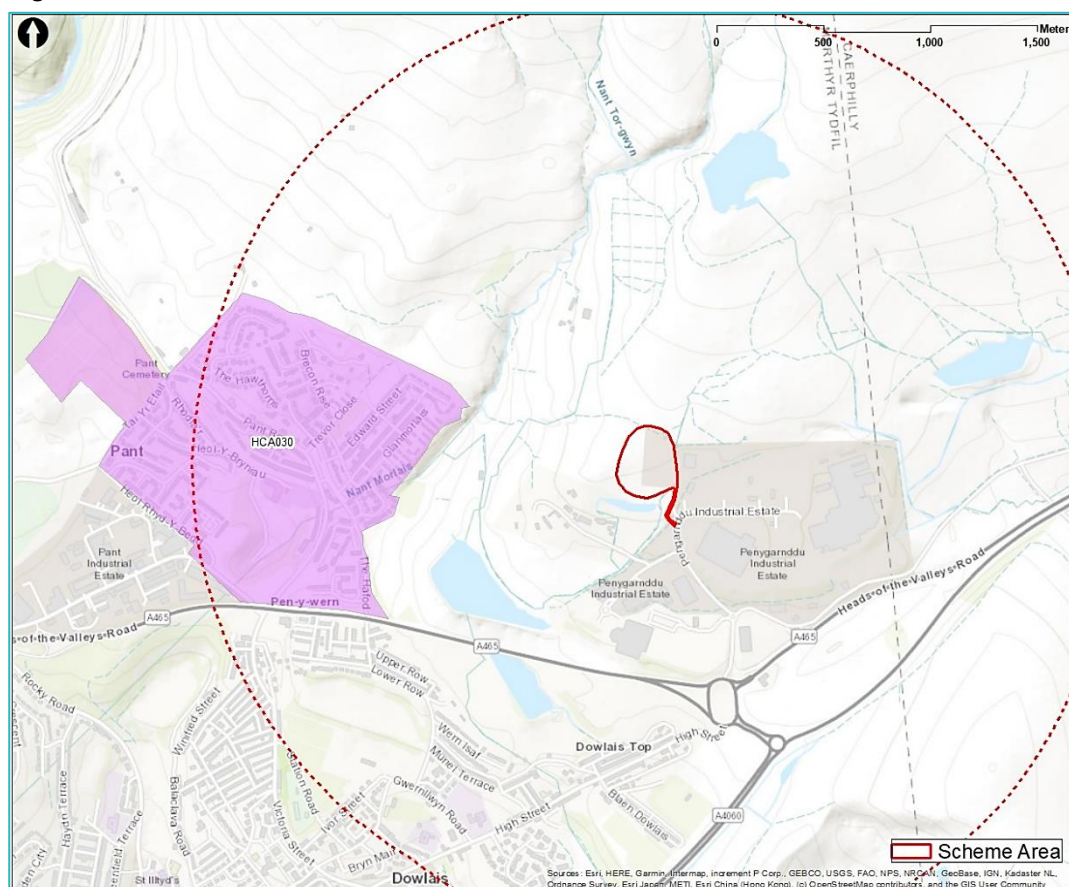
Source: Mott MacDonald and Esri (2020)

4.5 HCA030, Pantcadifor, Rhyd-y-bedd and Caeracca

HCA030, Pantcadifor, Rhyd-y-bedd and Caeracca, is an 18th-and-19th-century roadside settlement associated with local quarries and now also containing 20th century social housing and executive housing. The settlement originated as a roadside quarryman's settlement at the junction of the Pen-y-darren and Dowlais roads to Brecon nucleated around the Pant-Cad-Ivor Inn, growing in a ribbon pattern to the north and south and merging with Dowlais by the 1870s. By the early 20th century the settlement had grown to include King and Queen Streets in the area between Pant Road and the Merthyr Extension of the LNWR and included a station, schools, two churches, a post office and laundry. During the 20th century the area underwent further residential development¹³. The location of the HCA relative to the scheme area can be seen below in Figure 11.

¹³ GGAT (2020) 030 Pantcadifor, Rhyd-y-bedd and Caeracca [online]. Via: <http://www.ggat.org.uk/cadw/historic-landscape/Merthyr-Tydfil/English/Merthyr-030.htm> (accessed May 2020)

Figure 11: HCA030 in relation to the scheme



Source: Mott MacDonald and Esri (2020)

4.5.1 Indirect, Physical Impacts

There is no anticipated indirect, physical impact on HCA030 from the scheme. The scheme does not increase the risk of detrimental physical change to any element of HCA030, nor increase the management requirements of these elements, due to the physical distance (c.800m) between the HCA and the scheme area. The relationship of elements of HCA030 with HCA035 and HCA041 to HCA030, i.e. the post-medieval quarrying, water management features and the settlement associated with related industries, will not be obfuscated by the scheme. The development will not sever these features from one another or frustrate the ability to interpret their historic connection. Therefore there is no anticipated indirect physical impact on HCA030 from the scheme.

In accordance with the above methodology, the score for anticipated indirect physical impacts to HCA030 is 0.

4.5.2 Indirect, Non-Physical Impacts

There are no anticipated indirect non-physical impacts from the scheme on HCA030. The western half of HCA030, nearest to the scheme area, is located in a slight valley, with the scheme area hidden over the crest of the hill. The eastern part of HCA030 is screened by buildings with few views westward and no views towards the scheme area. Therefore there is no anticipated visual intrusion, severance or change in views from the HCA or between connected elements from the scheme. Therefore there are no anticipated indirect non-physical

impacts from the scheme on HCA030 with consideration to both the form and appearance of the scheme and its maximum height.

In accordance with the above methodology, the score for anticipated indirect non-physical impacts to HCA030 is 0.

4.5.3 Outcome

In accordance with the above methodology, **the score for anticipated indirect impacts from the scheme to HCA030 is 0.** This amounts to 'very slight' overall impact in accordance with table 3.

4.6 HCA035, Pengarnddu

HCA035, Pengarnddu, is an area of semi-improved land north and south of Head of the Valleys Road, with historic association to limestone quarries, Rhymey Limestone and Brecon & Merthyr Railways and 19th century water management. Part of the Dowlais Free drainage System, including three reservoirs and masonry aqueducts, survives in the HCA. The area largely formed part of the Bute Estate during the 1850s. There was an established settlement in the area by 1915, with a church, but this was abandoned in the 1960s. The HCA now includes a military landscape with volunteers rifle range¹⁴.

The characteristic elements of this HCA are:

- a transport corridor;
- a water management area;
- domestic and agricultural buildings;
- a historic industrial settlement associated with limestone quarries;
- improved agricultural land and enclosure of Common edge; and
- a Military landscape with volunteers rifle range.

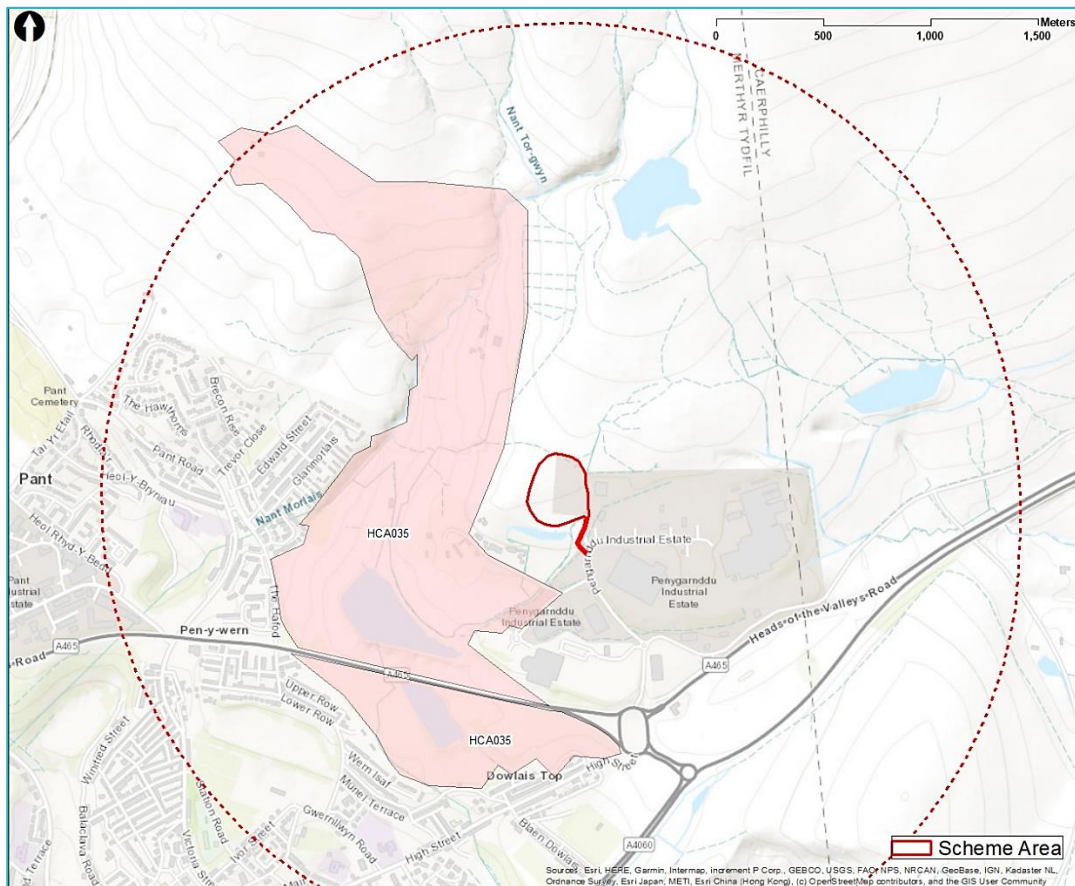
HCA035 contains three scheduled monuments, all in its north:

- Waun y Gwair cairn (Ref: BR278);
- Nant Morlais Hafod (prehistoric enclosure) (Ref: BR279); and
- Pontsticill platform cairn (Ref: BR362).

The location of the HCA relative to the scheme area can be seen below in figure 12.

¹⁴ GGAT (2020) 035 Pengarnddu [online]. Via: http://www.ggat.org.uk/cadw/historic_landscape/Merthyr_Tydfil/English/Merthyr_035.htm (accessed May 2020)

Figure 12: HCA035 in relation to the scheme



Source: Mott MacDonald and Esri (2020)

4.6.1 Indirect, Physical Impacts

There is no anticipated indirect physical impact on HCA035 from the scheme. The scheme will not increase the risk of detrimental physical change to elements within HCA035 due to the location of the scheme area c.200m from the boundary of HCA035. This is considered sufficient distance as to not increase risk of erosion from foot or vehicle traffic or increased hardstanding, especially when considering the design of the scheme and intended access routes including security of the boundaries. There is no risk of other detrimental physical change from the scheme to elements of HCA035. There is also no anticipated impact on the management or understanding of, or access to, historic elements of HCA035 from the scheme.

The nature of the scheme is related to the multi-period development of water-management in the north-east of Merthyr-Tydfil registered historic landscape, and especially within HCA030 and HCA041. The scheme can be seen as an expansion of the existing reservoir site at Pengarnddu and further development of this element of the landscape; therefore it will not affect the ability to interpret a connection between the 19th century water management features in HCA035 and HCA041.

Therefore there is no anticipated indirect physical impact on HCA035 from the scheme. In accordance with the above methodology, the score for anticipated indirect physical impacts to HCA035 is 0.

4.6.2 Indirect, Non-Physical Impacts

There are some anticipated indirect, non-physical impacts from the scheme on elements of HCA035. The scheme will be visible from areas of HCA035 west of the access track which runs north south centrally within it. The elements in the east and north of HCA035 are therefore not anticipated to experience indirect non-physical impact from the scheme.

There is anticipated negative impact from the scheme on improved agricultural land within HCA035. This land is set within a wider landscape of agricultural land within the registered landscape, including within HCA041 and the land which comprises the scheme area. This setting will be altered by reducing the extent of grazing land and replacing this with a modern industrial feature, which will intrude on the views from this agricultural land. This impact will be temporarily greater during construction, as a larger area of land will be consumed for temporary construction compounds and access arrangements. However, there is considerable modern industrial development within HCA035 and adjacent to the scheme area, therefore this impact is considered very slight.

The security fencing bordering the scheme may be visible from the collection of rural, agricultural buildings south-west of Saint's Pond. This will visually intrude on this element of the landscape, reducing the extent of their rural setting and increasing the extent of the modern industrial area. As there is already a substantial modern industrial area within their setting this will only result in a slight impact.

There is anticipated visual severance 19th century water management elements of Dowlais Free Drainage System in HCA035 from modern water management features in HCA041. As discussed above, the scheme can be seen as an expansion of the existing reservoir site at Pengarnddu and further development the water management features in the landscape, therefore this impact is only slight.

There is no anticipated visual impact on the three scheduled monuments within HCA035. These are all located in the north of the HCA, farthest from the scheme area where it is unlikely the scheme will be visible, and do not have any visual relationships which will be interrupted by the scheme. It is not anticipated that the small one-storey kiosk buildings will visually intrude on any key views between HCA035 and HCA041 and therefore there will be no additional impact from construction of these.

Table 5 outlines the indirect non-physical impacts from the scheme, in accordance with the above methodology.

Table 5: Indirect Non-Physical Impacts on HCA035

Impact	Category of Impacted Element	Magnitude of Impact	Score
Visual impact on views from/setting of improved agricultural land	D – local importance (1)	Very Slight (1)	2
Visual intrusion of modern industrial elements into the rural setting of agricultural buildings	D – local importance (1)	Slight (2)	3
Visual severance of HCA030 19 th century water management features of Dowlais Free drainage System from modern counterparts in HCA041.	C – regional Importance (2)	Slight (2)	4

Additional Assessment	Average Category	Magnitude of Impact	Score
Development Form	1	Very slight (1)	2
Development Appearance	1	Slight (2)	3
Outcome	3 – Very Slight		

4.6.3 Outcome

Impacts on HCA035 from the scheme are anticipated to have an outcome of 0 for indirect, physical impacts and an outcome of 3 for indirect, non-physical impacts. This equates to a **mean score of 1.5, amounting to a very slight magnitude of impact** on HCA035 in accordance with the above methodology.

4.7 HCA041, Merthyr Common, North

HCA041, Merthyr Common, North, is described and shown above in section 3.2.2.

4.7.1 Indirect, Physical Impacts

There are anticipated indirect, physical impacts on HCA041 from the scheme.

The scheme will result in determinate physical change to elements of HCA041. Approximately 4% of the common land will be lost by the scheme, as accounted for in stage 2. The development will also result in the potential disturbance or erosion of the surroundings of the development area during works access. This will amount to considerable impact on the HCA. Additionally, the development will require considerable maintenance compared to the existing land use, however these management needs will be transferred to Welsh Water. This will amount to a slight indirect physical impact.

The scheme would not represent a complete cessation of historic land use within HCA041. The nature of the scheme is related to the multi-period development of water-management in the north-east of Merthyr-Tydfil registered historic landscape, and especially within HCA035 and HCA041. However the use of the scheme area for grazing would cease, this amounts to slight impact.

The scheme is required to be contained within a secure compound, for safety. Therefore enjoyment of this part of the landscape and opportunities for education relating to it would be lost. However, as only a small (c.4%) area of the element would be lost and all key elements retained this would amount to moderate impact.

Provided mitigation outlined in section 6.4 is complied with during construction, there is no anticipated indirect physical impact on saints pond, located immediately south of the compound and access area during construction (see appendix B).

The below table (table 6) outlines the indirect physical impacts from the scheme, in accordance with the above methodology.

Table 6: Indirect Physical Impacts on HCA035

Impact	Category of Impacted Element	Magnitude of Impact	Score
--------	------------------------------	---------------------	-------

Potential disturbance or erosion of common land during works access	D – local importance (1)	Considerable (4)	5
Additional management requirements	D – local importance (1)	Slight (2)	3
Change in land use from grazing and water management to water management alone.	D – local importance (1)	Slight (2)	3
Reduced access and education opportunity	D – local importance (1)	Moderate (3)	4
Outcome	4 - Slight		

4.7.2 Indirect, Non-Physical Impacts

There are anticipated indirect, non-physical impacts of the scheme on HCA041.

The development will be visible from examples of each of the three key elements which comprise the HCA, however it is unlikely it will be visible from the whole HCA and will likely not visually intrude on the north.

The common land immediately adjacent to the scheme area will experience negative impact from the enclosure of land and therefore change in its setting, in addition to the impacts discussed above. The scheme will create a new boundary and enclosed area within the open landscape, resulting in a considerable impact on the adjacent common (open grazing) land.

The extractive landscape is related to the development of water management features in the HCA through common industry. Therefore, further expansion of this water management will have a lesser impact on this element of the landscape. However, the scheme still represents the introduction of new materials and mass into views from this landscape which are not in-keeping with its post-medieval character. As a result the scheme will have a slight indirect, visual impact on this element.

The water management features of the HCA have developed gradually and relate to multiple industrial phases. Therefore the scheme represents a continuation of this tradition and does not, in its nature, create a visual intrusion not in-keeping with the character and land use of the HCA. However, the scheme will interrupt existing relationships between the existing Pengarnddu Reservoir and other landscape features, such as Saints Pond. Therefore it represents a moderate indirect, non-physical impact on this element. Table 7 outlines the indirect non-physical impacts from the scheme, in accordance with the above methodology.

Table 7: Indirect Non-Physical Impacts on HCA041

Impact	Category of Impacted Element	Magnitude of Impact	Score
Change in the setting of common land from enclosure	D – local importance (1)	Considerable (4)	4
Introduction of modern elements in setting of post-medieval extractive landscape	C – regional importance (2)	Slight (2)	4

Disruption of visual relationship between water management features	C -regional importance (2)	Moderate (3)	5
Additional Assessment	Average Category	Magnitude of Impact	Score
Development Form	C -regional importance (2)	Slight (2)	4
Development Appearance	C -regional importance (2)	Moderate (3)	5
Outcome	4 - Slight		

4.7.3 Outcome

Impacts on HCA041 from the scheme are anticipated to have an outcome of 4 for indirect, physical impacts and an outcome of 4 for indirect, non-physical impacts. This equates to a **mean score of 4, amounting to a slight magnitude of impact on HCA041** in accordance with the above methodology.

4.8 HCA043, Garth and Blaen-y-garth

HCA043, Garth and Blaen-y-garth, comprises an agricultural landscape characterised by an area of surviving medieval or post-medieval irregular enclosures, traditional field boundaries, and vernacular domestic and agricultural buildings. Later landscape features include the Garth Storage Reservoir and Filter Beds, as part of localised evidence for small-scale extraction and water management features on a smaller scale compared to neighbouring HCAs. These features are connected by 12" main to the Lower Neuadd Reservoir of 1884, and later by high level aqueduct to the Upper Neuadd Reservoir and to the existing service reservoir at Pengarnddu¹⁵.

The location of the HCA relative to the scheme area can be seen below in Figure 13.

4.8.1 Indirect, Physical Impacts

There are no anticipated indirect, physical impacts anticipated on HCA043 from the development, due to its distance (c.700m) from the scheme area. The scheme will have no direct impact on the management of elements of HCA007, or cause risk of erosion, decreased access or opportunity for education or increase management needs. Therefore there are no anticipated indirect physical impacts on HCA043, amounting to a score of 0.

4.8.2 Indirect, Non-Physical Impacts

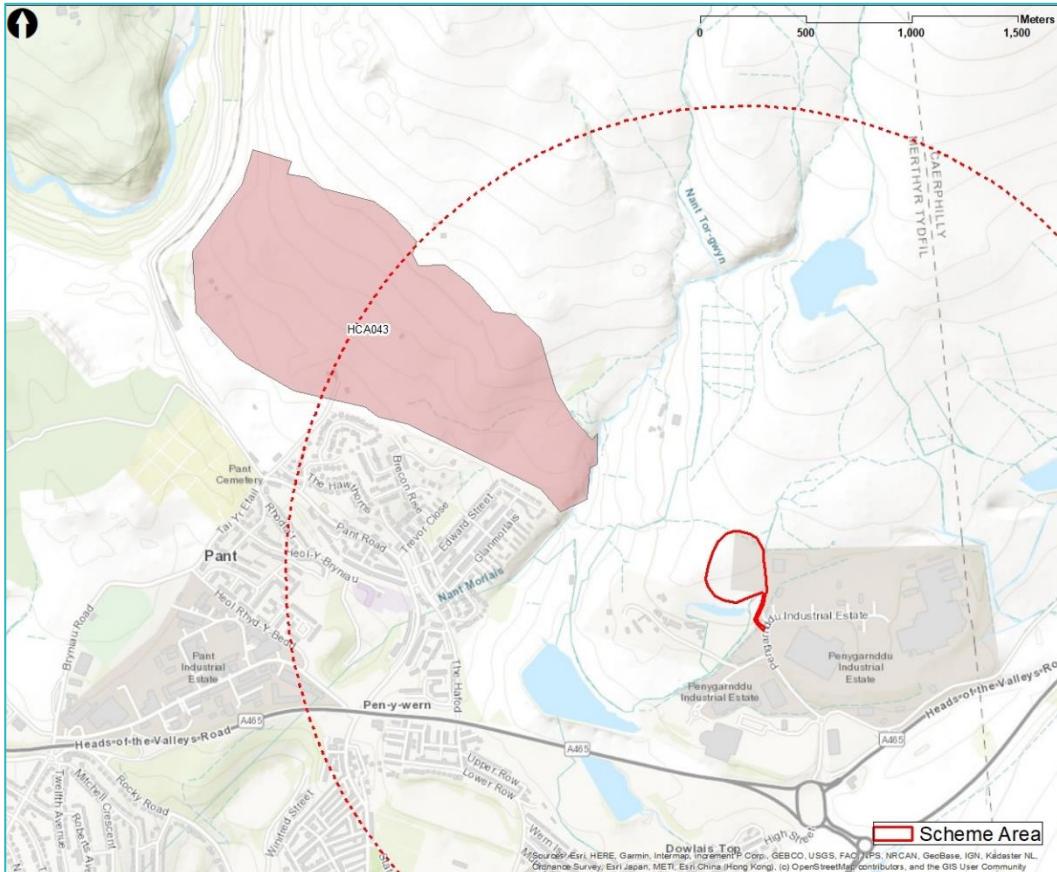
There is no anticipated indirect, non-physical impact anticipated from the scheme on HCA043. Due to the topography of the landscape, frequent characteristic field boundaries within HCA043, distance from the scheme area and scale and appearance of the scheme it is not anticipated that the scheme will intrude on view from HCA041. Additionally, there are no important historic connections between elements of HCA043 and other HCAs threatened by the scheme. Therefore the anticipated indirect, non-physical impact amounts to 0.

¹⁵ GGAT (2020) 043 Garth and Blaen-y-garth [online]. Via: <http://www.ggat.org.uk/cadw/historic-landscape/Merthyr-Tydfil/English/Merthyr-043.htm> (accessed May 2020)

4.8.3 Outcome

In accordance with the above methodology, **the score for anticipated indirect impacts from the scheme to HCA043 is 0**. This amounts to 'very slight' overall impact in accordance with table 3.

Figure 13: HCA043 in relation to the scheme



Source: Mott MacDonald and Esri (2020)

4.8.4 Indirect, Physical Impacts

There are no anticipated indirect, physical impacts anticipated on HCA043 from the development, due to its distance (c.700m) from the scheme area. The scheme will have no direct impact on the management of elements of HCA007, or cause risk of erosion, decreased access or opportunity for education or increase management needs. Therefore there are no anticipated indirect physical impacts on HCA043, amounting to a score of 0.

4.8.5 Indirect, Non-Physical Impacts

There is no anticipated indirect, non-physical impact anticipated from the scheme on HCA043. Due to the topography of the landscape, frequent characteristic field boundaries within HCA043, distance from the scheme area and scale and appearance of the scheme it is not anticipated that the scheme will intrude on view from HCA041. Additionally, there are no important historic connections between elements of HCA043 and other HCAs threatened by the scheme. Therefore the anticipated indirect, non-physical impact amounts to 0.

4.8.6 Outcome

In accordance with the above methodology, **the score for anticipated indirect impacts from the scheme to HCA043 is 0**. This amounts to 'very slight' overall impact in accordance with table 3.

4.9 HCA047, Dowlais Top

HCA047, Dowlais Top, in an area of largely reclaimed industrial land, now redeveloped for modern commercial, retail and light industrial use. It comprises the former industrial landscapes associated with the Dowlais Ironworks. This included yards, an area of quarrying, a tramway and railways as well as Dowlais Top Station and leats associated with the neighbouring Dowlais free Drainage System. The historic industrial activity is largely 19th century, the northern area can be characterised as commercial and light industrial whilst the southern half now contains sports pitches¹⁶. There are no designated heritage assets within the HCA. The HCA is characterised by the following elements:

- Reclaimed industrial land;
- recent commercial, retail and light industrial area;
- site of industrial extractive landscape: quarries and spoil tips;
- rail corridor: Brecon and Merthyr Railway (including Dowlais Top Station) and sidings associated with Dowlais Iron Company Railway.

The location of the HCA relative to the scheme area can be seen below in Figure 14.

4.9.1 Indirect, Physical Impacts

There are anticipated indirect, physical impacts on HCA047 from the scheme. Access to the Pengarnddu Reservoir is via HCA047 from the transport corridor. An increase in facilities and the construction of the works is likely to result in increased traffic within the HCA. However, the character of the area is industrial and access is via existing roads. Therefore it is unlikely this increase will result in detrimental physical change to elements of HCA049. Therefore this impact amounts to very slight. There are no other anticipated indirect physical impacts from the scheme on HCA047. Table 8 outlines the indirect physical impacts from the scheme, in accordance with the above methodology.

Table 8: Indirect Physical Impacts on HCA047

Impact	Category of Impacted Element	Magnitude of Impact	Score
Harm from an increase in traffic on access roads to the scheme area.	D – local importance (1)	Very Slight (1)	2
Outcome	2 – Very Slight		

4.9.2 Indirect, Non-Physical Impacts

There are no anticipated negative indirect, non-physical impacts of the scheme on HCA047. The development will be visible from the very edge of HCA047, on approach to the scheme area. However, the scheme is in-keeping with the modern industrial character of HCA047 and its existing setting to the north (within HCA041). There is no anticipated visual intrusion on

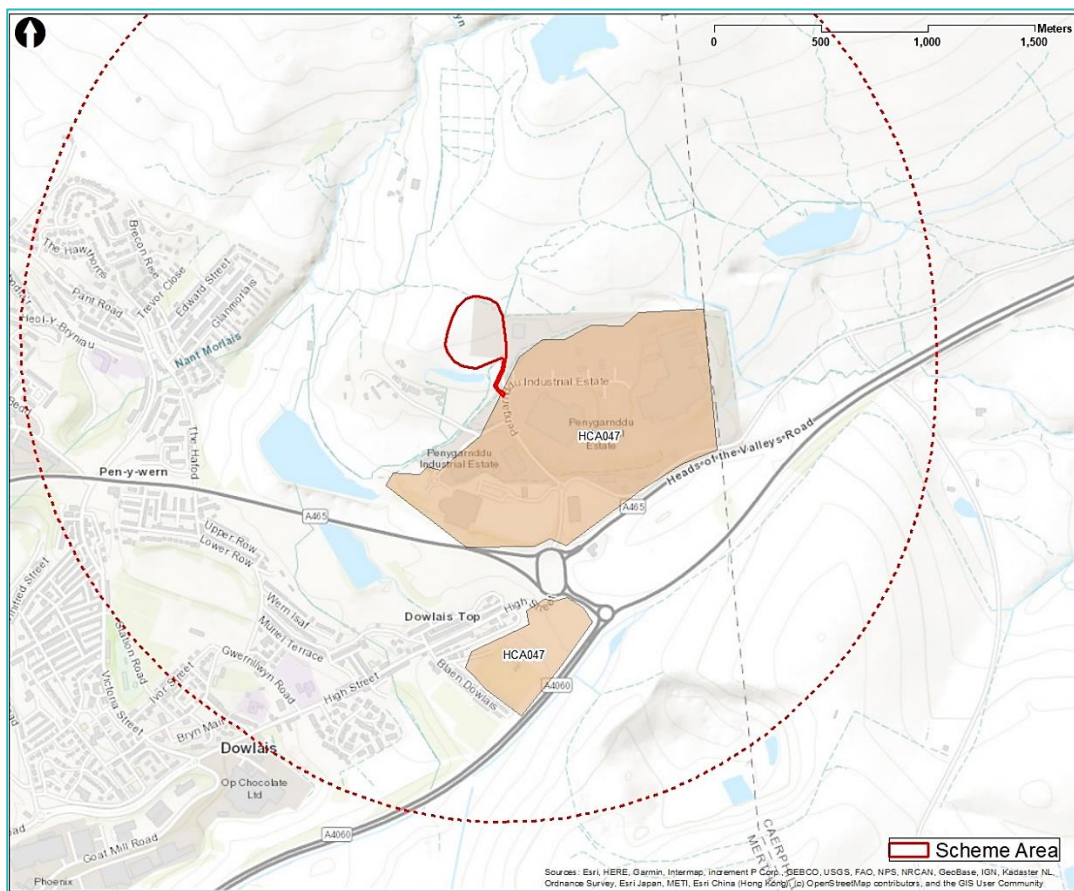
¹⁶ GGAT (2020) 047 Dowlais Top [online]. Via: www.ggat.org.uk/cadw/historic_landscape/Merthyr_Tydfil/English/Merthyr_047.htm (accessed May 2020)

elements which form key views or relationships and the introduction of the materials will not have a negative visual impacts, as these are similar to those already present within HCA047. Therefore there are no anticipated negative indirect, non-physical impacts of the scheme on HCA047, amounting to a score of 0.

4.9.3 Outcome

Impacts on HCA047 from the scheme are anticipated to have an outcome of 2 for indirect, physical impacts and an outcome of 0 for indirect, non-physical impacts. This equates to a **mean score of 1, amounting to a very slight magnitude of impact on HCA047** in accordance with the above methodology.

Figure 14: HCA047 in relation to the scheme



Source: Mott MacDonald and Esri (2020)

4.10 HCA078, Dowlais Great Tip, Trecatti, Trehir and Twyn-y-Waun

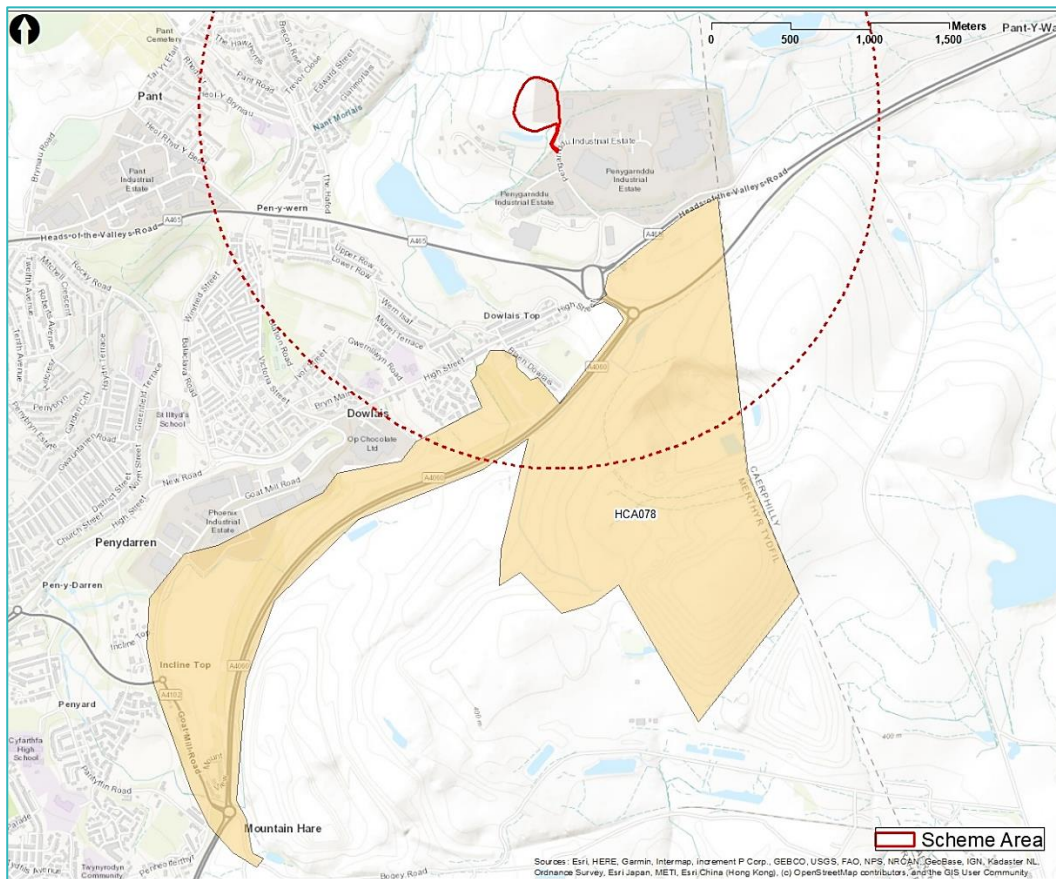
HCA078, Dowlais Great Tip, Trecatti, Trehir and Twyn-y-Waun, is comprised of a reclaimed industrial landscape. A regionally important medieval fair¹⁷ and market was formerly located within the HCA, but likely in the south (outside the 2km study area). In the latter post-medieval the landscape was dominated by multi-period extractive and drainage features associated with the Dowlais Ironworks. By 1879, most if not all the pits and levels within the area, were probably

¹⁷ GGAT (2020) 078 Dowlais Great Tip, Trecatti, Trehir and Twyn-y-Waun [online]. Via: http://www.ggat.org.uk/cadw/historic_landscapes/Merthyr_Tydfil/English/Merthyr_078.htm (accessed May 2020)

already defunct. The land has now been reclaimed and according to GGAT the landscape contains no above-ground features of historic interest¹⁸.

The location of the HCA relative to the scheme area can be seen below in figure 14.

Figure 15: HCA078 in relation to the scheme



Source: Mott MacDonald and Esri (2020)

4.10.1 Indirect, Physical Impacts

There are no anticipated indirect, physical impacts from the scheme on HCA078. This is primarily due to the distance from the scheme (c.600m) and lack of relationship between the scheme area and HCA078. The scheme will have no direct impact on the management of elements of HCA078, or cause risk of erosion, decreased access or opportunity for education or increase management needs. Therefore there are no anticipated indirect, physical impacts from the scheme on HCA078.

In accordance with the above methodology, the score for anticipated indirect physical impacts to HCA078 is 0.

4.10.2 Indirect, Non-Physical Impacts

There are no anticipated indirect, non-physical impacts of the scheme on HCA078. Due to topography, distance, buildings screening and separation by a road and additional HCA there is

¹⁸ GGAT (2020) 078 Dowlais Great Tip, Trecatti, Trehir and Twyn-y-Waun [online]. Via: <http://www.ggat.org.uk/cadw/historic-landscape/Merthyr-Tydfil/English/Merthyr-078.htm> (accessed May 2020)

no visual connection between HCA078 and the scheme area. It is not anticipated that the scheme will be visible from HCA078 even at maximum height. Therefore there is no anticipated visual intrusion, severance or other negative indirect, non-physical impact, with consideration to both the form and appearance of the scheme. In accordance with the above methodology, the score for anticipated indirect non-physical impacts to HCA078 is 0.

4.10.3 Outcome

In accordance with the above methodology, **the score for anticipated indirect impacts from the scheme to HCA078 is 0**. This amounts to 'very slight' overall impact in accordance with table 3.

4.11 Summary of Indirect Impacts

The below table (table 9) provides an overall magnitude of indirect impact anticipated on all HCAs in the registered landscape by the scheme. As this section is intended to assess the potential indirect impacts of all HCAs in which there is anticipated impact, in accordance with CADW guidance¹⁹, those HCAs with no anticipated indirect physical and non-physical impact have not been included in the calculation of mean indirect impact. Therefore this mean is comprised of the indirect impacts, both physical and non-physical, to the following HCAs; HCA035, HCA041 and HCA047.

Table 9: Indirect Impacts Summary

HCA	Physical	Non-Physical	Mean Score	Outcome
035	0	3	1.5	Very Slight
041	4	4	4	Slight
047	2	0	1	Very Slight

¹⁹ CADW (2007) *Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales: 2nd edition including revisions to the assessment process (ADISOHL2)*

5 Evaluation of Relative Importance (Stage Four)

This section evaluates the relative importance of the Historic Character Area(s) (or part(s) thereof) directly and/or indirectly affected by development in relation to:

- a. the whole of the Historic Character Area(s) concerned, and;
- b. the whole of the historic landscape area on the Register, followed by;
- c. an evaluation of the relative importance of the Historic Character Area(s) concerned in the national context.

5.1 Methodology for Evaluation of Relative Importance (Stage Four)

For each of the above (a, b and c) the relative importance of the HCA was graded based on the criteria and value for each outlined in CADW guidance²⁰ and given below:

- Rarity (None, Low, Moderate, High, Very High),
- Representiveness (None, Low, Moderate, High, Very High),
- Documentation (None, Low, Moderate, High, Very High),
- Group Value and Diversity (None, Low, Moderate, High, Very High),
- Survival (Poor, Fair, Moderate, Good, Very Good),
- Condition (Poor, Fair, Moderate, Good, Very Good),
- Coherence (Very Low, Low, Moderate, High, Very High),
- Integrity (Very Low, Low, Moderate, High, Very High),
- Potential (Very Low, Low, Moderate, High, Very High),
- Amenity (Very Low, Low, Moderate, High, Very High), and,
- Associations (None, Low, Moderate, High, Very High)

The decision for each above criterion the value is based on professional judgement and the criteria outlined in CADW guidance²¹.

Following the criteria for relative importance evaluation above for a, b and c, each of these was scored using the below process. Each rating for the above criteria was given a score from the below table (table 10).

Table 10: Stage 4 Evaluation Scores

Criterion Value	Score
Very High / Very Good	5
High / Good	4
Moderate	3
Low / Fair	2

²⁰ Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales: 2nd edition including revisions to the assessment process (ADISOHL2) (CADW, 2007)

²¹ Ibid

Very Low / Poor	1
None	0

Source: CADW (2007)

An outcome is determined by performing the following calculation for each:

$$(\text{SCORE} \div 55) \times 100 = \text{OUTCOME}$$

This is then compared to the below table (table 11).

Table 11: Outcome of Stage 4 of Assessment

Score	Outcome
80–100	Very High
60-79	High
40-59	Considerable
20-39	Moderate
5-19	Low
0-4	Very Low

Source: CADW (2007)

5.2 Relative Importance of development area in relation to HCA041

The scheme area is located entirely within HCA041. The scheme area is comprised of grazing land and modern water management features. The relative importance of the scheme area with relation to the HCA is assessed below.

The development area is part of a large common (open grazing) area, this area has low rarity in the HCA as it comprises the largest component of the HCA. However, the development area is moderately representative of this common land containing several key characterising elements. Documentation of the landscape is moderate, much of the development is post-medieval and therefore mapped and recorded, however the development area is not recorded with greater detail than the remainder of the HCA.

The development area has low group value, with few linked elements located within its boundary. The survival of the characterising elements within the development area is moderate, with their condition also low, due to some degradation over time. The themes of the area can be understood however its articulation is somewhat lost, therefore the coherence of the development area is moderate. Elements retain their original character but are not always easily understood, therefore the integrity of the development area is also moderate.

The development area has low potential for future analysis, comparative to the rest of the HCA which has undergone more substantial human alteration. The amenity of the development area is very low, with almost no potential for the historic elements of the landscape to form a recreational or educational attraction. The development area has associations with iron works, relating to regional importance due to the importance of quarrying history in the national identity. However these associations are not strong or well-known and the development area itself is not strongly associated with these iron works, therefore this amounts to a low score.

The below table (table 12) summarises the relative importance of the development area compared to the whole of HCA041.

Table 12: Relative Importance of the Development Area compared to HCA041

	Very High / Very Good	High / Good	Moderate	Low/ Fair	Very Low / Poor	None
Criterion						
Rarity					X (1)	
Representiveness			X (3)			
Documentation			X (3)			
Group Value				X (2)		
Survival			X (3)			
Condition				X (2)		
Coherence			X (3)			
Integrity			X (3)			
Potential				X (2)		
Amenity					X (1)	
Associations				X (2)		
Overall score for relative importance of the development area compared to HCA041					24 (Moderate)	

5.3 Relative Importance of development area in relation to the whole of the historic landscape area on the Register

The scheme area comprises approximately 0.15% of the registered historic landscape of Merthyr Tydfil. The below summarises the relative importance of this area comparative to the entirety of the registered landscape.

There are more than five examples of similar open common land within the Merthyr Tydfil landscape, this equates to a low rarity. However, the development area is moderately representative of this common land containing several key characterising elements. Documentation of the landscape is high, primarily due to much of the development being post-medieval and therefore mapped and recorded. The development area has low group value, with few linked elements located within its boundary. The survival of elements, comparative to the rest of the registered landscape, is low and their condition is low, as other and similar elements survive more complete and in better condition elsewhere in the landscape. The themes of the area can be understood however its articulation is somewhat lost, therefore the coherence of the development area is moderate. Elements retain their original character but are not always easily understood, therefore the integrity of the development area is also moderate. The development area has very low potential for future analysis, comparative to the rest of the registered landscape which has undergone more substantial human alteration. The development area has associations with iron works, relating to regional importance due to the importance of quarrying history in the national identity. However these associations are not

strong or well-known and the development area itself is not strongly associated with these iron works. Additionally the associations with the Iron and Steel industry are much stronger and well known elsewhere in the landscape, making this association comparatively low.

The below table (table 13) indicates the relative importance of the development area compared to the whole historic landscape area.

Table 13: Relative Importance of the Development Area to the whole of Merthyr Tydfil registered historic landscape

	Very High / Very Good	High / Good	Moderate	Low/ Fair	Very Low / Poor	None
Criterion						
Rarity				X (1)		
Representiveness			X (3)			
Documentation		X (4)				
Group Value				X (1)		
Survival				X (1)		
Condition				X (1)		
Coherence			X (3)			
Integrity			X (3)			
Potential				X (1)		
Amenity				X (1)		
Associations				X (1)		
overall score for relative importance of the development area compared to Merthyr Tydfil registered historic landscape					20 - Moderate	

5.4 Relative Importance of Impacted HCAs in relation to the national context

The scheme is located within HCA041. Additional potential impacts have been identified in HCAs 035 and 047. The below table (table 14) indicates the relative importance of the HCAs concerned in the development in the national context. This analysis is based on the above methodology and understanding of the characteristic of the HCAs, as outlined in sections 5.6, 5.7 and 5.9

Table 14: Relative importance of Impacted HCAs

	Very High / Very Good	High / Good	Moderate	Low/ Fair	Very Low / Poor	None
HCA035						
Rarity			X (2)			
Representiveness		X (4)				

	Very High / Very Good	High / Good	Moderate	Low/ Fair	Very Low / Poor	None
Documentation		X (4)				
Group Value			X (3)			
Survival				X (2)		
Condition			X (3)			
Coherence				X (2)		
Integrity			X (3)			
Potential		X (4)				
Amenity			X (2)			
Associations				X (2)		
Overall score for relative importance of HCA035 in the national context				32 - Moderate		
HCA041						
Rarity				X (2)		
Representiveness				X (2)		
Documentation		X (4)				
Group Value			X (3)			
Survival			X (3)			
Condition			X (3)			
Coherence				X (2)		
Integrity		X (4)				
Potential			X (3)			
Amenity				X (2)		
Associations				X (2)		
Overall score for relative importance of HCA041 in the national context				30 - Moderate		
HCA047						
Rarity					X (1)	
Representiveness				X (2)		
Documentation		X (4)				
Group Value				X (2)		
Survival				X (2)		
Condition				X (2)		

	Very High / Very Good	High / Good	Moderate	Low / Fair	Very Low / Poor	None
Coherence					X (1)	
Integrity				X (2)		
Potential					X (1)	
Amenity						X (0)
Associations					X (1)	
Overall score for relative importance of HCA047 in the national context				18 - Low		

5.5 Outcome

Overall score for the assessment of relative importance stage 4 is shown on the below table (table 15).

Table 15: Assessment of Relative Importance Summary

Relative importance of	Compared to	Score	Adjusted Score (÷55 x 100)	Outcome
Step A				
Scheme Area	HCA041	24	43	Considerable
Step B				
Scheme Area	Merthyr Tydfil	20	36	Moderate
Step C				
HCA035	National Context	32	58	Considerable
HCA041	National Context	30	54	Considerable
HCA047	National Context	18	33	Moderate
			49	Considerable

6 Overall Significance of Impact (Stage Five)

This section contains an assessment of the overall significance of impact (Stage Five), based on the above analysis.

6.1 Methodology for Overall Significance of Impact (Stage Five)

The final score for the overall significance of the impact has been determined by using professional judgement to assess the outcomes of stages 2-4 (above) in relation to the below table (Table 16). In line with CADW guidance²², this assessment took account of outlying 'highs' and 'lows' and carefully weighed the above averages, rather than being calculated directly from the final scores for each stage. The below table has been used to guide this assessment, and provide a considered score for each stage, based on the CADW guidance. The below is undertaken for each historic character area affected by the scheme.

Table 16: Significance of Impact (Stage 5) Assessment and Scoring

Assessment	Assessment and Score				
Value of Historic Character Area (based on Stage 4)	Very High	High	Medium	Low	Very Low
	9 / 10	7 / 8	4 / 5 / 6	2 / 3	1
Impact of Development (based on Stages 2 & 3)	Very High	High	Medium	Low	Very Low
	9 / 10	7 / 8	4 / 5 / 6	2 / 3	1
Reduction of Value of historic landscape area (based on total assessment)	Very High	High	Medium	Low	Very Low
	9 / 10	7 / 8	4 / 5 / 6	2 / 3	1

Source: CADW (2007)

For each affected HCA the scores from the above table were added to provide an outcome in relation to the below table (table 17). This score provides a summary of the assessment of the overall significance of impact to the HCA from the scheme.

Table 17: Overall Grading of Impact

Score	Grading
26–30	Very Severe
21–25	Severe

²² Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales: 2nd edition including revisions to the assessment process (ADISOHL2) (CADW, 2007)

16–20	Fairly Severe
10–15	Moderate
4–9	Slight
0–3	Very Slight

Source: CADW (2007)

Following CADW guidance²³, mitigation action is not included in the above assessment nor excluded from discussion. A separate subsection describing the mitigation and enhancement actions for the scheme is included at the end of this section.

6.2 Overall Significance of Impact (Stage Five) Assessment

6.2.1 HCA035

The below table provides a stage 5 assessment of overall significance of Impact for HCA035.

Table 18: Overall Significance of Impact for Character Area HCA035

Assessment	Score	Explanation
Value of Historic Character Area	7	The value of the HCA is high, with representative elements of local industry and 3 category A assets.
Impact of Development	3	The impact will be Low, with no physical impacts and only limited visual impact on part of the HCA and no category C or above elements.
Reduction of value of historic landscape area	2	The reduction in value for HCA035 will be Low
Outcome for HCA035:		
Total score for Historic Character Area		12
Overall significance of impact for Historic Character Area		Moderate

6.2.2 HCA041

The below table provides a stage 5 assessment of overall significance of Impact for HCA041.

Table 19: Overall Significance of Impact for HCA041.

Assessment	Score	Explanation
Value of Historic Character Area	4	The HCA is representative of local industry and development but contains no category C

²³ Ibid (42)

		and above assets and scored mostly low/moderate in stage Four.
Impact of Development	5	The scheme will result in total loss of 0.7% of the HCA and visual and minor physical impact on the surroundings in the south of the HCA.
Reduction of Value of historic landscape area	3	There will be a slight reduction in value, but no loss of elements category C or higher, or substantial visual change. The impacts of the scheme are contained to the south of the HCA.
Outcome for HCA041:		
Total score for Historic Character Area	12	
Overall significance of impact for Historic Character Area	Moderate	

6.2.3 HCA047

The below table provides a stage 5 assessment of overall significance of Impact for HCA047.

Table 20: Overall Significance of Impact for Character Area HCA047

Assessment	Score	Explanation
Value of Historic Character Area	2	Understanding of historic use of the HCA and its key elements are mostly lost due to modern redevelopment of the HCA.
Impact of Development	1	The development will have very limited impact on HCA047, based on Stage Three.
Reduction of Value of historic landscape area	1	The scheme represents only a minor reduction in value for HCA047.
Outcome for HCA047:		
Total score for Historic Character Area	4	
Overall significance of impact for Historic Character Area	Slight	

6.3 Overall Significance of Impact (Stage Five) Outcome

Based on this ASIDOHL2 assessment, the overall significance of the impact of the scheme:

- on **HCA035 is moderate**
- on **HCA041 is moderate**, and;
- on **HCA047 is slight**.

6.4 Enhancement and Mitigation

Initial proposals included weldmesh security fencing at 2.4m in height, this has been revised to minimise the visual impact of the scheme to 1.8m. The embankment will be planted with grass,

to aid in integrating the new reservoir into the landscape. Proposed hard surfaces (roads, footpaths etc) seek only to extend existing provisions and are kept to the minimum needed for functionality. This minimises the visual impact of the scheme on the registered historic landscape. The visual impact of the scheme is assessed within the Landscape and Visual Impact Assessment.²⁴

As the direct impact is in the loss of irreplaceable historic landscape, the ability to mitigate this loss is limited. However, by undertaking archaeological monitoring of any excavations elements relating to the historic importance of the landscape can be recorded and contribute to understanding of its importance. Archaeological monitoring of the stripping of soil to the depth of the archaeological horizon within the works are considered proportionate to the archaeological potential relative to the historic landscape. This would include monitoring to the depth of the anticipated archaeological horizon, and no deeper, and recording/sampling of any remains encountered. There is moderate potential for remains relating to the registered historic landscape within the scheme area, such as post medieval water management or extraction features, as this area has not been heavily developed since the post-medieval use of the landscape. However, there is not specific evidence of archaeology (e.g. crop marks, points within the HER, structures on historic maps) therefore more extensive archaeological intervention is not considered necessary. This will also ensure that archaeological expertise is available regarding features identified within the geophysical report.²⁵ These are anticipated to be modern mains (especially two which are already mapped), however due to the importance of water management to this historic landscape this will manage risk regarding these being related to historic water management. Therefore, archaeological monitoring of topsoil stripping for the scheme is considered a proportionate intervention.

The temporary works area for the scheme should not extend beyond the boundaries stated in appendix B, as this will affect the outcome of this ASIDOHL2. In particular, the southern boundary of the works area should not extend to the bank of Saint's Pond. This feature is of importance to the character of the historic landscape and should not be impacted by any works (e.g. by collapsing banks due to storing materials, by access to the site or by disposing of materials etc.). There is no intention for this to form part of the scheme at time of writing. On site contractors should be made aware of the importance of this feature and the southern edge of the temporary works area should be delineated by temporary security tape or similar to prevent any accidental damage.

Potential indirect visual impact of the scheme may be reduced by the planting of vegetation at the scheme boundary. However, due to the open character of HCA041 this should be approached with caution. It may be most appropriate to plant sporadically to improve views from key locations within affected HCAs (especially HCA035) as opposed to planting a solid boundary.

The mitigation required for the scheme will be agreed with relevant stakeholders, including GGAT and the LPA.

²⁴ Mott MacDonald (2020) *Landscape and Visual Impact Assessment Ref: B10237-123532-ZZ-XX-RP-LA-DH0100*.

²⁵ TerraDat (2020). *A geophysical investigation to characterise ground conditions, Location: Pengarnddu, Merthyr Tydfil, South Wales.* 6816.

7 Concluding Statement

This ADISOHL2 has assessed the potential impact of the scheme to construct an additional service reservoir at Pengarnddu on the Merthyr Tydfil registered historic landscape and HCAs contained within it. The scheme will include the construction of a reservoir in cast concrete with an abutting embankment, construction of one-storey concrete valve house, two one-storey kiosks, provision of roads and footpaths and enclosure with secure fencing.

The Merthyr Tydfil registered historic landscape is an area of largely post-medieval industrial development on the southern border of the Brecon Beacons, with 79 distinct HCAs. The scheme is located entirely within HCA041. The HCA will lose approximately 0.7% of its area. Additional impacts are identified on HCA035 and HCA047.

HCA035 is an area of agricultural and military land, with historic limestone quarries and three scheduled monuments in the north. Expected impacts are indirect and non-physical, anticipated in the south of the HCA.

HCA041 is an area of common land, with a former extractive landscape and water management features. Adjacent to the scheme area the HCA will experience indirect physical and non-physical impacts.

HCA047 is an area of reclaimed industrial land, now developed into light industrial and commercial units. The impact on this area will be limited to indirect physical impact on its northern edge, as access to Pengarnddu reservoir is via HCA047.

Based on this ASIDOHL2 assessment, the overall significance of the impact of the scheme on:

- on **HCA035 is moderate**
- on **HCA041 is moderate**, and;
- on **HCA047 is slight**.

Planting of the embankment with grass will reduce the visual impact of the reservoir, as assessed in the Landscape and Visual Impact Assessment (Ref: B10237-123532-ZZ-XX-RP-LA-DH010). Additionally, hard surfacing seeks only to extend existing provisions and are kept to the minimum needed for functionality. Potential indirect visual impact of the scheme may be reduced by the planting of vegetation at the scheme boundary. However, due to the open character of HCA041 this should be approached with caution, if used planting should be sporadic, rather than forming a dense or continuous barrier between the scheme and the rest of the HCA. Archaeological monitoring of topsoil stripping is recommended for the scheme, this is considered proportionate to the low archaeological potential of the site, importance of the registered historic landscape and the scale of the scheme. No additional mitigation is recommended. The archaeological and heritage strategy and mitigation proposed by this ASIODHL should be agreed with the local planning authority and GGAT to ensure minimal impact to the historic environment. The scheme will be delivered in accordance with the agreed strategy and mitigation.

8 Bibliography

8.1 Sources

- GGAT (2020) *007 Dowlais* [online]. Via: www.ggat.org.uk/cadw/historic_landscape/Merthyr_Tydfil/English/Merthyr_007.htm (accessed May 2020)
- GGAT (2020) *029 Ivor Iron Works Area* [online]. Via: http://www.ggat.org.uk/cadw/historic_landscape/Merthyr_Tydfil/English/Merthyr_029.htm (accessed May 2020)
- GGAT (2020) *030 Pantcadifor, Rhyd-y-bedd and Caeracca* [online]. Via: http://www.ggat.org.uk/cadw/historic_landscape/Merthyr_Tydfil/English/Merthyr_030.htm (accessed May 2020)
- GGAT (2020) *035 Pengarnddu* [online]. Via: http://www.ggat.org.uk/cadw/historic_landscape/Merthyr_Tydfil/English/Merthyr_035.htm (accessed May 2020)
- GGAT (2020) *041 Merthyr Common, North* [online]. Via: www.ggat.org.uk/cadw/historic_landscape/Merthyr_Tydfil/English/Merthyr_041.htm (accessed May 2020)
- GGAT (2020) *043 Garth and Blaen-y-garth* [online]. Via: http://www.ggat.org.uk/cadw/historic_landscape/Merthyr_Tydfil/English/Merthyr_043.htm (accessed May 2020)
- GGAT (2020) *047 Dowlais Top* [online]. Via: www.ggat.org.uk/cadw/historic_landscape/Merthyr_Tydfil/English/Merthyr_047.htm (accessed May 2020)
- GGAT (2020) *078 Dowlais Great Tip, Trecatti, Trehir and Twyn-y-Waun* [online]. Via: http://www.ggat.org.uk/cadw/historic_landscape/Merthyr_Tydfil/English/Merthyr_078.htm (accessed May 2020)
- GGAT (2020) *Merthyr Tydfil*. Via: www.ggat.org.uk/cadw/historic_landscape/Merthyr_Tydfil/English/Merthyr_Main (accessed May 2020)
- Historic Wales (2020) *Searchable Map*. via: www.historicwales.gov.uk (accessed May 2020)
- Latham, A. and Summers, J (2019) *Pengarnddu Cultural Heritage Desk-Based Assessment*
- Merthyr Tydfil Borough Council (2008) *Heritage Strategy*. Via: www.merthyr.gov.uk/media/1141/merthirtydfilheritagestrategy.pdf (accessed May 2020)
- TerraDat (2020). A geophysical investigation to characterise ground conditions, Location: Pengarnddu, Merthyr Tydfil, South Wales. 6816.

8.2 Guidance

- CADW (2007) *Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales: 2nd edition including revisions to the assessment process (ADISOHL)*

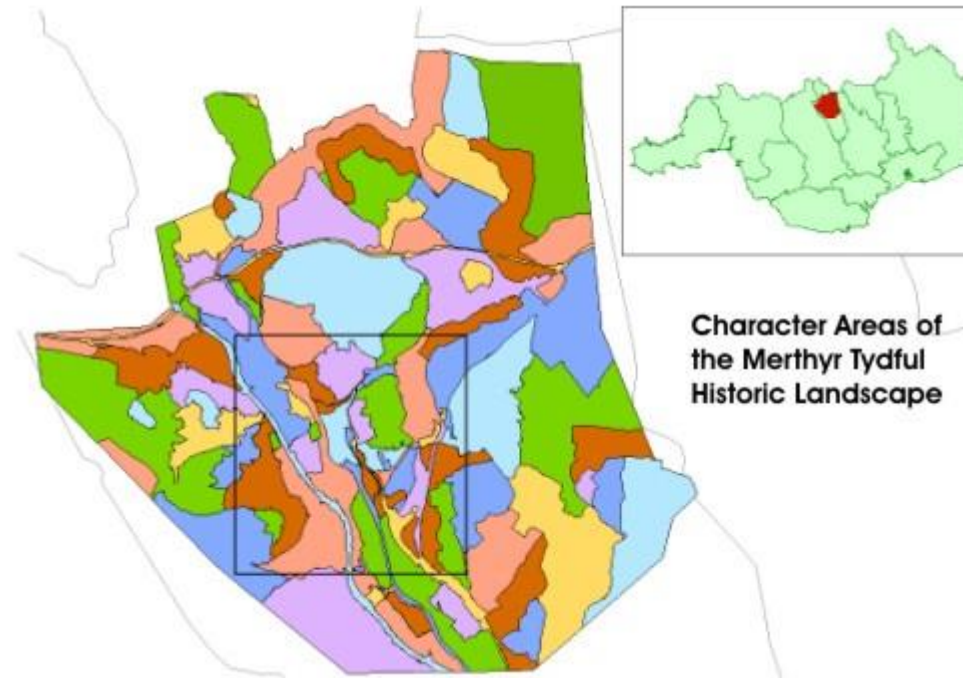
Appendix A: Registered Historic Landscape Details

The following is the entry for Merthyr Tydfil registered historic landscape on the GGAT website, via:

http://www.ggat.org.uk/cadw/historic_landscape/Merthyr_Tydfil/English/Merthyr_Main.htm (accessed May 2020)

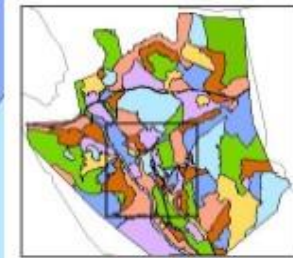
Historic Landscape Characterisation: Merthyr Tydfil
Merthyr Tydfil occupies a natural basin at the head of the Taff valley. High hills and ridges reach 450m above OD on all sides, with development constrained to the basin floor and smaller tributary valleys of the Taff, which itself provides the only natural route out of the basin to the south east. However, it is not topography alone that has shaped the town, but the mineral resources contained within its hinterland. It was probably the largest iron-making town in the world in the early to mid- 19th century, with an output calculated to be a quarter of that of the entire United States of America. The town, and its associated landscape, was rapidly transformed from a modest village in the 1750s to the largest town in Wales by 1801.

Despite extensive recent land reclamation and the sanitisation of the surrounding waste tips, overall Merthyr still retains its industrial landscape character as the most significant Welsh town of the Industrial Revolution. The town and its environs remain a potent example of an internationally renowned industrial landscape of the 18th and 19th centuries and a permanent reminder of man's exploitation of the landscape.



The primarily late 18th to 19th centuries landscape comprises numerous relict elements and foci set within the present landscape. These individual elements consist of the remains of large ironworks, remnants of the associated coal mining industry, water power eats, an early iron bridge, communication systems, including early tramroads, tips, terraced industrial housing, and the ironmasters house, Cyfarthfa Castle. Merthyr Tydfil, however, retains not only its economic significance, but also its importance as a religious, literary and political centre.

The area identified here contains many and diverse elements, which include Merthyr's Dowlais Ironworks, established in 1759, and probably the first such works to use coke in South Wales. It was followed by the foundation of other ironworks such as Plymouth in 1763, Cyfarthfa in 1765 and Penydarren in 1784. Other subsidiary works were created in the early 19th century at Ynysfach by Cyfarthfa, Ivor by Dowlais, Dyffryn by Plymouth, with further forges at Pentrebach, a part of Plymouth.



**Merthyr Tydfil centre
in detail**

Surviving remains include the renowned furnace bank at the Cyfarthfa Ironworks, where six out of its seven late 18th century blast-furnaces, and its ranges of calcining kilns, survive substantially intact. At the Dowlais Ironworks the remains include the great stables and the blast-engine house, which have been restored. The remains of the Ynysfach Ironworks consist of one blast engine house and four early 19th century furnaces. The engine house is also restored and acts as a museum of the iron industry.

Locally, early communication systems survive, though to varying degrees. Adjoining the Cyfarthfa Ironworks lies the Pontycafnau bridge built in 1793, and the first ever iron railway bridge to be built. The bridge has added significance in that it had a combined use as an aqueduct. The Gyrnos tramroad which used the Pontycafnau bridge carried limestone from the Gyrnos quarries and exists today as a scenic footpath retaining its stone sleeper blocks. The remains of limekilns and fulling mills survive on either side of the route. Elsewhere, the line of the Penydarren tramroad, built in 1802 to carry iron by horse-drawn tram, survives and is also historically significant as the route of the first steam-hauled railway journey by Richard Trevithick's 1804 locomotive. The tramroad also includes a tunnel constructed under the Plymouth Ironworks.

Short sections of the famous Glamorganshire Canal, built in the 1790s, also survive as important landscape features, including a restored section in front of Chapel Row. This is crossed by the relocated Rhydycar bridge which is an early iron girder bridge dating from the 1790s. Chapel Row itself was built by the Cyfarthfa Iron Company as workers' houses, one of which is restored, both as an example of a period ironworker's cottage and also as the birthplace of the renowned composer Dr Joseph Parry. In a sharp distinction which reflects the other social extreme of the Merthyr ironmasters' activities, Cyfarthfa Castle, overlooking the Cyfarthfa Ironworks, was the largest and grandest ironmaster's house in Merthyr Tydfil, and amongst the most notable surviving industrialist's house in Wales. The house is situated in 64ha of grounds, which were landscaped by the Crawshay family to include woodlands and a lake. This grand house and its parkland setting also provide an interesting and important contrast to the other relict landscape features of Merthyr.

HCAs within 2km of the scheme:

HLCA 007 Dowlais Industrial settlement: Iron Company owned settlement with regular and evolved element to layout; initial ribbon development and unplanned irregular dispersed settlement 'squatter-type' at Cwm Rhyd-y-Bedd, supplemented by linear grid planned core, public, educational and religious buildings; extensive 20th century redevelopment; transport corridor.



(Photo: GGAT Merthyr 007)

Dowlais character area: early ironworkers' settlement

Summary

The settlement associated with the Dowlais and later Ivor Works. Although it initially started in the second half of the 18th century as a dispersed scatter of cottages, it evolved via several phases of ribbon development to a grid system, which was already partly in place by 1814. Areas of

industrial housing survive, but the area as a whole is dominated by imposing public and religious buildings, such as the Dowlais Ironworks Stables and the Memorial Library.

Historical background

The historic landscape area of **Dowlais** comprised the settlement associated with the Dowlais and later Ivor Works. The settlement developed on the holdings Wern-Llwyn Isaf and Uchaf farms during the latter half of the 18th century. Estate maps of the area (Dowlais Iron Company 1784-1806) provide useful background to the area's early development. The initial settlement comprised a loosely dispersed scatter of cottages, mainly along the road to the Dowlais Iron Works furnaces and in the area immediately north of the furnaces, with a core cluster at the junction of the road from Upper Garth with Nantmorlais (the Cae-Harris area).

By 1814, the settlement was characterised as a linear ribbon development along the road west of Pontgellifaelog to the junction with the lane from Pant, where there was a small nucleus of settlement adjacent to the furnaces, in the area south of the later Dowlais stables.

The characteristic grid system imposed on the settlement was partly in place by the 1820s, with the area to the south of Union Street complete, including a church and the Dowlais stables (1820; site of the first educational facility for workers in Merthyr, established by Josiah John Guest in 1828). Gwern Llwyn Uchaf Farm remained, separated by agricultural land, to the east of the settlement. There was also a scatter of cottages in the area of Morgan Sweet during the period.

Between 1832 and 1850 the settlement at Dowlais underwent major expansion; by the latter date Dowlais comprised linear ribbon development to the south of High Street, while the original core had been extended to include Cae Canol Street. Ribbon development now extended east beyond the junction with Pant Road. The southern area of Dowlais, all Dowlais Iron Company land, had already been laid out in grid fashion. By 1850, this area extended north of High Street as far as Upper Elizabeth Street and the southern end of Victoria Sweet, extending as far as the later station area and the road to Pant. The area included the north side of Ivor Street, where a barracks was located (later replaced by Barrack Row), and Lower and Upper Row. The northwestern area of Dowlais, adjacent to Cwm-Rhyd-y-Bedd belonged to a number of minor landowners and developed slightly different characteristics: notably in its layout. The latter was typified by a scatter of short rows and individual cottages and included the area between Pant Road and the Ivor Iron Works (HLCA 029), Llewellyn Street; Winifred Street and a row to the west of the later Balaclava Road in the area of Pen Cae Eira.

The OS 6-inch and 25-inch First Edition maps (1875 and 1878) provide further detail such as the Dowlais Ironworks stables, Market House, Dowlais Iron Company schools, the Guest Reading Room, Hebron chapel, Dowlais House Lodge, hospital, and Beulah chapel. The area from Victoria Street and Elizabeth Sweet as far north as Francis Street, ie north western Dowlais, had developed in a more tightly-packed fashion with a less regular grid street pattern, perhaps indicating different house provision to the south part of Dowlais where the Influence of the Iron Company on town-planning was clear.

Dowlais was largely complete by 1878, though there was some minor additional development during the period up to 1919, such as Alfonso Terrace and Moulson, Rees and Jones Street.

HLCA 027 Taff Fechan Transport corridor: public rail and road, Ancient Woodland

Summary

A transport corridor based on the **Taff Fechan** Valley, characterised by public rail networks of the latter half of the 19th century, including the B&M/LNWR Joint Railway and the impressive structure of the Glais Viaduct at Pontsarn.



(Photo: GGAT Merthyr 027)

Taff Fechan character area: transport corridor based on public rail networks of the 19th century.

Historical background

The historic landscape area of Taff Fechan contains features associated with the BM and LNWR joint Line (built 1868 by the BM, joint from 1879), the Brecon and Merthyr Line, and the Merthyr Tredegar & Abergavenny (LNWR) and the Morlais Tunnel (1879). Particularly impressive structures

include the Glais Viaduct at Pontsarn (built by Savin and Ward 1866). The remains of the Brecon and Merthyr Line, to the northeast of Pant junction are partly re-used by the current Brecon Mountain Railway. Other distinctive features are the ventilation towers of the Morlais Tunnel.

HLCA 029 Ivor Iron Works Area Industrial area: ironworks

Summary

An industrial landscape, the site of the Ivor Iron Works, opened in 1839, and now characterised by early 20th century disused industrial buildings.



(Photo: GGAT Merthyr 029)

Ivor Iron Works Area character area: site of the early 19th century ironworks with later disused industrial buildings.

Historical background

The historic landscape area of the **Ivor Iron Works Area** comprises the site of the works, which opened in 1839 as an extension of the Dowlais Iron Works, initially with four blast furnaces. A single redbrick built building, post-1915 in date, survives from the pre-British Steel era.

During the second half of the 20th century the site of the Ivor Works was given over to a foundry operated by British Steel. The closure of the foundry in 1987 ended Merthyr's association with the iron industry; an association which had lasted more than 200 years.

HLCA 030 Pantcadifor, Rhyd-y-Bedd and Caeracca Minor industrial settlement: early ribbon development with later regular terraces; major cemetery; transport corridor (railway); historic associations.

Summary

A roadside settlement of late 18th century to early 19th century and later date, associated with local quarries. The settlement, which now also contains 20th century social housing and executive housing, is dominated by its mid 19th century cemetery with two chapels.



(Photo: GGAT Merthyr 030)
Pantcadifor, Rhyd-y-Bedd and Caeracca character area: roadside settlement associated with local quarries.

Historical background

The historic landscape area of **Pantcadifor, Rhyd-y-bedd and Caeracca** originated as a small roadside quarrymen's settlement. By the 1870s, the settlement had grown to the north and south eventually merging with Dowlais. The original settlement at Pant appears in 1799 as a small settlement at the junction of the Penydarren and Dowlais roads to Brecon, nucleated around the Pant-Cad-Ivor Inn (c 1740), with minor development along the road south to Nant Morlais (Dingle) and Dowlais, including the farms of Cae'r-acca and Cwm Rhyd-y-bedd. By 1814 a

small settlement was in place at Pantysgallog, including Pantysgallog House, just to the south of the original settlement at Pantcadifor, while to the west was a row of cottages (Tair Efail on the 1850 Tithe Map).

The settlement remained static during the period up to 1850, apart from a major shift in the alignment of Pant Road to the south, and the establishment in 1849 of the prominent cemetery for victims of the second cholera epidemic to hit Merthyr (the first being in 1832). Pant Cemetery with its two mortuary chapels, one nonconformist, one Church of England, was located on land formerly part of Castle Farm.

The Dowlais Fever Hospital located slightly to the south of Pantysgallog had been constructed in 1869 for the Merthyr Board of Health, built of wood, this 32 bed hospital was occupied on a temporary basis during epidemics. Just northeast of Pant Road was the Dowlais Branch of the Brecon & Merthyr Railway, built in 1864/65, with a signal box.

The settlement developed in ribbon fashion with roadside developments of industrial workers' rows constructed at Pantysgallog and at Pant-Cerddinen to the south of Bryniau Quarry by 1875. Forty years later, the settlement had grown to include King and Queen Streets in the area between Pant Road and the Merthyr Extension of the LNWR (c 1868). Additional terraces had been constructed on the west side of Pant Road (New Houses), while a new area had been established to the east of the Brecon & Merthyr Railway including Caracas Terrace, and the grid layout of Edward and Gwladys Streets. By this date the settlement, served by a halt on the BM Railway and a station on the LNWR, also boasted schools, a post office, and a church, Christ Church, a laundry.

HLCA 035 Pengarnddu Transport corridor; water management area; domestic and agricultural buildings; industrial settlement associated with limestone quarries; improved agricultural land and enclosure of Common edge; Military landscape. Volunteers rifle range; historic associations

Summary

A transport corridor associated with the limestone quarries at Twynau Gwynion, where mineral railways replaced the 18th-19th century pack-horse route. It also contains extensive remains of the Dowlais Free Drainage System and the former industrial settlement of Pengarnddu, associated with the adjacent limestone quarries.



(Photo: GGAT Merthyr 035)

Pengarnddu character area: mineral railways serving limestone quarries.

Historical background

The historic landscape area of **Pengarnddu** comprises an area of semi-improved land bordered at the north and east by the Rhymney Limestone Railway of c 1864. The latter served the Twynau-gwynion quarries (HLCA 042), connecting the quarries with the Guest's Ironworks at Rhymney and was connected to the ironworks by the Rhymney Mineral (Limestone) Railway in c 1864. The Twynau Gwynion Tramroad of 1805 to Dowlais Ironworks passed through the area; a Tramroad bridge of 1805/15 survived until 1984. The area also contains the remains of the Brecon & Merthyr (Newport Branch) Railway, dating from between 1860 and 1865.

Interesting water management features dating from the 19th century, also survive in the area, part of the extensive 'Dowlais Free Drainage System': these remains are primarily Lower (Fish Pond) and Upper Reservoirs (New Pond) with associated leats (with brick and masonry lining) and aqueducts (masonry), and a 19th century red-brick pumping station, below Upper Reservoir. Lower Reservoir was built before 1850, while Upper reservoir dates to between 1850 and 1875.

The area largely formed part of the Bute Estate during the 1850s and included the farm of Blaen-Morlais. The area contains the small industrial settlement of Pengarnddu, extant in 1814. By 1875, this comprised two isolated rows, one associated with yards, to either side of the existing farmstead, and a school to the southwest. By 1915, the settlement boasted a church, St Michaels south of the school and a public house, among other features. By the 1960s the settlement has been abandoned, the farmstead and one cottage remaining.

HLCA 41 Merthyr Common, North Common land, water management features (Dowlais Free Drainage and Merthyr Tydfil Corporation); minor industrial extractive landscape.

Summary

An area of common land containing characteristic water-management features, including part of the 19th century Dowlais Free Drainage System associated with the Dowlais and later the Ivor Iron Works; individual components include the Saints and Pitwellt Ponds and numerous associated features.



(Photo: GGAT Merthyr 041)

Merthyr Common, North character area: area of common land containing industrial water-management features.

Historical background

The historic landscape area of **Merthyr Common, North** comprises an area of traditionally open mountain grazing, part of the extensive Merthyr Common east of Twynau-gwynion Quarries and its associated limestone railway. The area's characteristics extend beyond the eastern boundary of the Merthyr Tydfil and the historic landscape. The watershed of the area dissected by various natural watercourses such as Nantmorlais and Torgwyn, has been subsequently exploited for water management purposes: the area contains the most northerly part of the Dowlais Free

Drainage System, a system of reservoirs and leats, which evolved over a period of over 70 years to serve the Dowlais Ironworks and associated workings.

The area contains Pitwellt Pond, shown on the 1850 tithe map, known to have been complete by 1862. The other reservoir in the area is the Saints Pond, which had been added by 1891. Pitwellt (Pitwellt) Pond is shown as drained and 'disused' on the 1919 OS map, but is described as in use in Dowlais documents of 1920.

In addition to these industrial features, the area has a reservoir built by the Merthyr Tydfil Corporation in c 1902 as part of sanitation improvements; other features are mainly stone quarries.

HLCA 43 Garth and Blaen-Y-Garth Medieval/post-medieval agricultural enclosure: evolved irregular pattern, traditional enclosure boundaries; vernacular domestic and agricultural; minor industrial extractive landscape and water management features.

Summary

An agricultural landscape characterised by an area of surviving medieval or post-medieval irregular enclosures, traditional field boundaries, and vernacular domestic and agricultural buildings. There is also localised evidence for small-scale extraction, and water-management features associated with public health improvements of the late 19th century.



(Photo: GGAT Merthyr 043)

Garth and Blaen-y-Garth character area: agricultural landscape characterised of irregular enclosures.

Historical background

The historic landscape area of Garth and Blaen-y-garth comprises an area of post-medieval evolved agricultural enclosure with medieval origins. The holding is centred on the post-medieval farm of Garth Farm, which lies on the site of the medieval settlement of Castell Madoc, a fortified manor known to have been abandoned by the 14th century.

The post-medieval (early 18th century) farmhouse at Garth belongs to the hearth passage group of sub-medieval houses, and is of the three-unit chimney backing on entry type with hail between heated outer and narrow inner rooms, typical of the Blaenau. A characteristic feature of the building is the lateral stone stairs within an outshut.

The Tithe map of 1850 details the layout of the area's farmsteads and holdings prior to the arrival of the lines of the Brecon and Merthyr Railway. The holding of Garth, owned by one Mary Williams, was characterised by an irregular arrangement of linear fields, possible amalgamated medieval strip fields, while Blaen-y-Garth (Blaenayr Garth) was characterised by larger irregular enclosures of possibly later date. While little had altered by the date of the OS survey of 1875, a series of quarries had been added to the west and north of Garth farm, those to the west were connected to Pantysgallog by track or minor tramroad.

Later landscape features include the Garth Storage Reservoir and Filter Beds constructed by 1884 for the Merthyr Tydfil Corporation and linked by 12" main to the Lower Neuadd Reservoir of 1884, and later by high level aqueduct to the Upper Neuadd Reservoir and to a new service reservoir at Pengarnddu.

HLCA 47 Dowlais Top Reclaimed industrial area, recent commercial, retail and light industrial area, site of industrial extractive landscape: quarries and spoil tips, rail corridor: Brecon and Merthyr Railway (including Dowlais Top Station) and sidings associated with Dowlais Iron Company Railway.

Summary

An area of largely reclaimed industrial land, now redeveloped for modern commercial, retail and light industrial use.



(Photo: GGAT Merthyr 047)

Dowlais Top character area: reclaimed industrial land redeveloped for commercial, retail and light industrial use.

Historical background

The historic landscape area of Dowlais Top comprises former industrial landscapes associated with the Dowlais Ironworks. The area to the north contained extensive workings, extant in 1814 and 1826 and connected to Dowlais and Dowlais Top by haulage or tramroad. These workings, depicted on later maps as quarries with numerous linear and lobed tips, were the remains of early surface or patch workings, and levels probably worked from the adjacent settlement of Penygarnddu (HLCA 035) and Dowlais Top. The workings, like those to the south (Ffos-y-fran HLCA 039) would have been largely redundant by the 1860s, confirmed by the apparent lack of associated railed tramroads depicted on the 1875 OS 6-inch

maps. Rail and tramroad routes passed through the area: that of the Twynau Gwynion Tramroad ('Tramway' in documentary evidence) of 1805 to Dowlais Ironworks, later the Rhymney Limestone Railway of c 1864, and the B&M (Newport Branch) Railway c 1860-1865, opened 1863. The latter had a station at Dowlais Top, detailed on the 1st, 2nd and 3rd edition 6-inch OS maps (1875-1915). This survives to the present-day. A kiln was depicted in the area adjacent to the Twynau Gwynion Tramway in 1826, apparently still extant in 1875 as a limekiln adjacent to the Rhymney Limestone Railway. Leats associated with the Dowlais Free Drainage system (see neighbouring 5) also once existed in the area.

The area to the south comprises an open area of reclaimed industrial land to the south of Dowlais Top primarily a former rail corridor associated with Dowlais Iron Company Railway, which formerly contained lines and sidings in area north east of the charging bank and blast furnaces of Dowlais Ironworks. The lines served both the Dowlais and Ivor Works and connected tips, and the Dowlais coke yard. The present character of the area is that of a recreational landscape with sports facilities, football fields and until recently commercial provided by the site of recently demolished MacDonalds Restaurant, one of the earliest in the area.

HLCA 49 Bon-y-Maen Modern industrial estate; former agricultural land; former industrial tramroad (on line of access road along north east side of HLCA)

Summary

A modern industrial estate built on the site of former agricultural land with a fieldscape of large but irregular fields, associated with the holding of Bon-y-maen.



(Photo: GGAT Merthyr 049)

Bon-y-Maen character area: modern industrial estate.

Historical background

The historic landscape area of **Bon-y-Maen** was formerly similar to the adjacent surviving agricultural area of HLCA 052, and included a rectangular range of buildings, the post-medieval farmstead, on the southern edge of a very large sub-circular enclosure of unknown date to the north of Cwm Rhyd-y-Bedd. The northwest boundary of the area is formed by the Bryniau Road to Pant, while along the northeast is Heol Rhyd-y-Bedd, which formerly carried the line of the tramroad from Bryniau Quarry to the Dowlais Ivor Ironworks, shown on maps between 1878/9 and 1915.

The entire area was radically changed during the 1930s when ICI established a works in the area, in operation by 1939. The construction of the Heads of the Valleys Road during the mid-1960s opened up the area to renewed commercial and industrial possibilities and in response the site of the old works area was developed as the Merthyr Tydfil Industrial Estate by the Borough in 1966. The current features of the area comprise mixed industrial and commercial units and a sports ground.

HLCA 78 Dowlais Great Tip, Trecatti, Trehir and Twyn-y-Waun Reclaimed industrial landscape; an area, formerly similar to HLCAs 031 and 039, since subject to reclamation, opencast and landfill, or combinations thereof former site of multi-period extractive and drainage features associated with the Dowlais Ironworks; former site of industrial and post-medieval upland settlements; former site of a regionally important Medieval Fair/market.

Summary

A reclaimed industrial landscape typified by open-cast and landfill operations. It contains nothing of historic interest above ground.



(Photo: GGAT Merthyr 078)

Dowlais Great Tip, Trecatti, Trehir and Twyn-Y-Waun character area: reclaimed industrial landscape.

Historical background

The historic landscape area of **Dowlais Great Tip, Trecatti, Trehir and Twyn-y-Waun** comprises an extensive area of reclaimed industrial land, part of which has been subjected to opencast operations. The area encompasses the sites of Longtown (Trehir), Trecatti and Twyn-y-waun, the latter being the former site of a medieval market mentioned in numerous documentary sources.

The area formed part of the extensive coal and ironstone workings associated with Dowlais Ironworks, part of which survives within the adjacent HLCA 039. The workings of the area spanned from the latter half of the 18th century, through the hey days of iron production associated with railway construction during the 1840s, and the conversion of Dowlais to steel production during the 1860s. With conversion to steel production the area's mineral workings declined, being all but abandoned by the early 1870s; a result of coal and iron ore imports from northern Spain, the local ore, rich in phosphorous and sulphur being unsuitable for steel production. By 1879, most if not all the pits and levels within the area, were probably already defunct.

