

# LLYN Y FAN FACH RESERVOIR, BRECON BEACONS NATIONAL PARK, CARMARTHENSHIRE: HISTORIC ENVIRONMENT DESK-BASED ASSESSMENT



Prepared by DAT Archaeological Services  
For: Arup



**DYFED ARCHAEOLOGICAL TRUST**

REPORT NO. 2021-59

PROJECT NO. 126366

March 2021

Mawrth 2021

**LLYN Y FAN FACH RESERVOIR, BRECON  
BEACONS NATIONAL PARK,  
CARMARTHENSHIRE:  
HISTORIC ENVIRONMENT DESK-BASED  
ASSESSMENT**

By

**Philip Poucher**



*The report has been prepared for the specific use of the client. Dyfed Archaeological Trust Limited can accept no responsibility for its use by any other person or persons who may read it or rely on the information it contains.*

Ymddiriedolaeth Archaeolegol Dyfed Cyf  
Corner House, 6 Stryd Caerfyrddin, Llandeilo, Sir  
Gaerfyrddin SA19 6AE  
Ffon: Ymholiadau Cyffredinol 01558 823121  
Adran Rheoli Treftadaeth 01558 823131  
Ebost: [info@dyfedarchaeology.org.uk](mailto:info@dyfedarchaeology.org.uk)

*Dyfed Archaeological Trust Limited*  
Corner House, 6 Carmarthen Street, Llandeilo,  
Carmarthenshire SA19 6AE  
Tel: General Enquiries 01558 823121  
Heritage Management Section 01558 823131  
Email: [info@dyfedarchaeology.org.uk](mailto:info@dyfedarchaeology.org.uk)

*Cwmni cyfyngedig (1198990) ynghyd ag elusen gofrestredig (504616) yw'r Ymddiriedolaeth.  
The Trust is both a Limited Company (No. 1198990) and a Registered Charity (No. 504616)*

CADEIRYDD CHAIR: Judith Wainwright MA MSc FIC FRSA. CYFARWYDDWR DIRECTOR: K Murphy BA MCIfA



**LLYN Y FAN FACH RESERVOIR, BRECON BEACONS NATIONAL PARK,  
CARMARTHENSHIRE**

**HISTORIC ENVIRONMENT DESK BASED ASSESSMENT**

<b>Client</b>	Arup
---------------	------

**Event Record No** 126366

<b>Report No</b>	2021-59
------------------	---------

**Project Code** FS19-085

<b>Report Prepared By</b>	Philip Poucher
---------------------------	----------------

**Site-visit Undertaken By** Philip Poucher

<b>Illustrated By</b>	Philip Poucher
-----------------------	----------------

**Report Approved By**

---

Rev Number	Description	Undertaken	Approved	Date
1	Draft V1	PP		25/10/21
2	Draft V2	PP		29/11/21

**LLYN Y FAN FACH RESERVOIR, BRECON BEACONS NATIONAL PARK,  
CARMARTHENSHIRE:  
HISTORIC ENVIRONMENT DESK-BASED ASSESSMENT**

<b>EXECUTIVE SUMMARY</b>	<b>1</b>
<b>1 INTRODUCTION</b>	<b>2</b>
<b>1.1 Project Proposals and Commission</b>	<b>2</b>
<b>1.2 Scope of the Project and Methodology</b>	<b>2</b>
<b>1.3 Abbreviations</b>	<b>4</b>
<b>1.4 Illustrations</b>	<b>4</b>
<b>1.5 Timeline</b>	<b>4</b>
<b>2 POLICES AND GUIDANCE</b>	<b>6</b>
<b>2.1 The Historic Environment (Wales) Act</b>	<b>6</b>
<b>2.2 Planning Policy Wales</b>	<b>6</b>
<b>2.3 Technical Advice Note 24: The Historic Environment</b>	<b>6</b>
<b>2.4 Local Development Plan</b>	<b>7</b>
<b>3 LOCATION, TOPOGRAPHY AND GEOLOGY</b>	<b>8</b>
<b>4 DESIGNATED HISTORIC ASSETS</b>	<b>10</b>
<b>4.1 General</b>	<b>10</b>
<b>4.2 Listed Buildings</b>	<b>10</b>
<b>4.3 Scheduled Monuments</b>	<b>10</b>
<b>4.4 Registered Historic Landscapes</b>	<b>11</b>
<b>4.5 Registered Historic Parks &amp; Gardens</b>	<b>13</b>
<b>4.6 Conservation Areas</b>	<b>13</b>
<b>5 NON-DESIGNATED HISTORIC ASSETS</b>	<b>16</b>
<b>5.1 General</b>	<b>16</b>
<b>5.2 Palaeolithic, Mesolithic &amp; Neolithic</b>	<b>16</b>
<b>5.3 Bronze Age</b>	<b>16</b>
<b>5.4 Iron Age &amp; Roman</b>	<b>17</b>
<b>5.5 Early Medieval &amp; Medieval</b>	<b>17</b>
<b>5.6 Post-Medieval</b>	<b>18</b>
<b>5.7 Modern</b>	<b>18</b>
<b>6 ASSESSMENT OF EVIDENCE</b>	<b>23</b>
<b>6.1 General</b>	<b>23</b>
<b>6.2 Previous Archaeological Work</b>	<b>23</b>
<b>6.3 Historic Mapping</b>	<b>25</b>
<b>6.4 Aerial &amp; Historic Photography</b>	<b>27</b>
<b>6.5 LiDAR</b>	<b>30</b>

<b>6.6 Site Visit</b>	31
<b>7 ASSESSMENT OF ARCHAEOLOGICAL POTENTIAL, IMPORTANCE AND SETTING</b>	43
<b>7.1 Potential &amp; Importance</b>	44
<b>7.2 Setting</b>	45
<b>8 IMPACT ASSESSMENT</b>	48
<b>8.1 Development Details</b>	48
<b>8.2 Impact Assessment Criteria</b>	56
<b>8.3 Physical impacts upon historic assets</b>	56
<b>8.4 Impacts to the Settings of Surrounding Designated Assets</b>	57
<b>9 CONCLUSIONS</b>	58
<b>9.1 Archaeological Potential and Impact Assessment</b>	58
<b>9.2 Mitigation</b>	59
<b>10 SOURCES</b>	60
<b>FIGURES</b>	
<b>Figure 1</b>	Location of development area 9
<b>Figure 2</b>	Designated historic assets 15
<b>Figure 3</b>	Non-designated historic assets 22
<b>Figure 4</b>	Original plan and section of the reservoir dam wall 24
<b>Figure 5</b>	1887 Ordnance Survey map 26
<b>Figure 6</b>	1887 Ordnance Survey map 26
<b>Figure 7</b>	Existing reservoir site layout plan 49
<b>Figure 8</b>	Existing plan and section of the reservoir dam tower 50
<b>Figure 9</b>	Existing section and elevation of the reservoir spillway 51
<b>Figure 10</b>	Proposed work on the reservoir dam tower 52
<b>Figure 11</b>	Proposed work on the reservoir spillway 53
<b>Figure 12</b>	Proposed work on the reservoir spillway 54
<b>Figure 13</b>	Location of proposed constructor's compound 55
<b>TABLES</b>	
<b>Table 1</b>	Archaeological and Historical Timeline for Wales 5
<b>Table 2</b>	Designated historic assets within the study area 13
<b>Table 3</b>	All sites recorded on the HER 19
<b>Table 4</b>	Site potential definitions 43
<b>Table 5</b>	Site importance definitions 43
<b>Table 6</b>	Assessment of Impacts 58

Llyn y Fan Fach Reservoir, Brecon Beacons National Park, Carmarthenshire:  
Historic Environment Desk-Based Assessment

**PHOTOS**

<b>Photo 1</b>	The Valve House and Filter Beds under construction	28
<b>Photo 2</b>	The WWI Conscientious Objectors Camp	29
<b>Photos 3 - 5</b>	RAF aerial photograph 1945-8	29
<b>Photos 6-27</b>	Site Visit	31

**LLYN Y FAN FACH RESERVOIR, BRECON BEACONS NATIONAL PARK,  
CARMARTHENSHIRE**

**HISTORIC ENVIRONMENT DESK-BASED ASSESSMENT**

**EXECUTIVE SUMMARY**

*DAT Archaeological Services were commissioned to prepare an Historic Environment Desk-Based Assessment of proposed repair and refurbishment works to Llyn y Fan Fach Reservoir, within the Brecon Beacons National Park, Carmarthenshire (SN 8032 2198). A moderate adverse impact upon the Grade II listed reservoir dam was highlighted, along with a slight adverse impact upon some surrounding contemporary features and the general archaeological potential of the area. Mitigation measures are proposed to reduce potential impacts.*

**CRYNODEB GWEITHREDOL**

*Comisiynwyd Gwasanaethau Archeolegol YAD i baratoi Asesiad Ddesg yr Amgylchedd Hanesyddol o waith atgyweirio ac adnewyddu arfaethedig i Gronfa Ddŵr Llyn y Fan Fach, ym Mharc Cenedlaethol Bannau Brycheiniog, Sir Gaerfyrddin (SN 8032 2198). Amlygwyd effaith andwyol gymedrol ar argae cronfa ddŵr rhestredig Gradd II, ynghyd ag ychydig o effaith andwyol ar rai nodweddion cyfoes o amgylch a photensial archeolegol cyffredinol yr ardal. Cynigir mesurau lliniaru i leihau effeithiau posibl.*



## **1. INTRODUCTION**

### **1.1 Project Proposals and Commission**

- 1.1.1 DAT Archaeological Services were commissioned by Arup, to prepare an Historic Environment Desk-Based Assessment on proposed development works at Llyn y Fan Fach Reservoir, Brecon Beacons National Park, Carmarthenshire (SN 8032 2198).
- 1.1.2 The site currently comprises a reservoir formed from a natural lake. The reservoir was created in the early 20<sup>th</sup> century, built in part using the labour of interned Conscientious Objectors to the First World War, and is recorded as a site of archaeological and historic interest. The lake itself has close links to Welsh folklore, and a number of prehistoric features are also recorded in the surround landscape. As a result Arup have requested that a desk-based assessment be carried to determine the impact of the development and what potential mitigation may be required.
- 1.1.3 The Desk-Based Assessment was initially commissioned to assess a larger scheme of works, but following the listing of the reservoir wall and other associated structures in March 2021 the plans have been reconsidered, and will now comprise the refurbishment of the dam wall.
- 1.1.4 This Historic Environment Desk-Based Assessment provides an indication of the archaeological potential of the development area and highlights possible issues in relation to the impact of the development on the historic environment.
- 1.1.5 The assessment has been a primarily desk-based study of the site area, identifying any known archaeological or historical sites within the site and its environs, identifying potential setting impacts on designated archaeological assets in the vicinity, identifying any historic landscape areas that may be affected by the proposals and assessing the potential for hitherto unknown archaeological remains to be present within the development area. Due to current restrictions related to the Covid-19 outbreak some archive sources may not have been consulted, although sufficient information has been gained to provide a comprehensive assessment of the site.

### **1.2 Scope of the Project and Methodology**

- 1.2.1 The scope of the assessment follows the Standard And Guidance For Historic Environment Desk-Based Assessment as laid down by the Chartered Institute for Archaeologists (CIfA 2014). The standard is stated by CIfA as:

*Desk-based assessment will determine, as far as is reasonably possible from existing records, the nature, extent and significance of the historic environment within a specified area. Desk-based assessment will be undertaken using appropriate methods and practices which satisfy the stated aims of the project, and which comply with the Code of Conduct and other relevant regulations of CIfA. In a development context desk-based assessment will establish the impact of the proposed development on the significance of the historic environment (or will identify the need for further evaluation to do so), and will enable reasoned proposals and decisions to be made whether to mitigate, offset or accept without further intervention that impact.*

- 1.2.2 A desk-based assessment is defined by CIfA as:

*.....a programme of study of the historic environment within a specified area or site on land, the inter-tidal zone or underwater that addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic and electronic information in order to identify the likely historic assets, their interests and significance and the character of the study area, including appropriate consideration of the settings of historic assets and, in England, the nature, extent and quality of the known or potential archaeological, historic, architectural and artistic interest. Significance is to be judged in a local, regional, national or international context as appropriate.*

- 1.2.3 The desk-based study of the area identifies known archaeological sites within the site and its environs, and assesses the potential for hitherto unknown remains to be present within the proposed development area. This will help inform future decision making, design solutions and potential mitigations strategies, including the potential for further archaeological works.
- 1.2.4 The report also includes a brief assessment of the impact on the settings of surrounding designated historic assets, including scheduled monuments, listed buildings, historic landscape character areas and undesignated archaeological sites. This utilises the best practice guidance in *Setting of Historic Assets in Wales* (2017).
- 1.2.5 The report presents relevant information from a number of sources including:
  - Dyfed Archaeological Trust Historic Environment Record data;
  - Map regression exercise using earlier cartographic sources;
  - Available and relevant reports on any archaeological work undertaken in the area that affects the site or its setting;
  - Archive records held at the County Archive, the National Library of Wales (NLW) and the Royal Commission on the Ancient and Historic Monuments of Wales (RCAHMW) (where accessible);
  - Aerial photography, satellite imagery and Lidar data;
  - Relevant records held by the developer;
  - Identification of any Scheduled Monuments, Listed Buildings, Registered Parks and Gardens, Registered Historic Landscapes, Historic Landscape Character Areas or Conservation Areas within or in the vicinity of the site area (Cadw, DAT, NRW);
  - Assessment of the archaeological potential of the area;
  - Assessment of the likely impact upon the settings of surrounding features of the historic environment; and
  - Assessment of likely impacts on any identified remains within the development site (or potential remains) and likely requirements, if any, for further stages of archaeological work.
- 1.2.6 An initial search area of 1km was used to discuss sites recorded on the Historic Environment Record and other source, which was extended to examine the potential impact on the setting of high status, designated, historic assets in the surrounding landscape. The extent of this search area varies, and is determined by visibility of the scheme and potential impacts. Although the scheme was subsequently reduced in scope, these search areas had already been applied and therefore are retained within this report.

- 1.2.7 For the purposes of planning policy in Wales, the historic environment is defined as:

*All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and deliberately planted or managed* (Welsh Government 2017).

An historic asset is:

*An identifiable component of the historic environment. It may consist or be a combination of an archaeological site, a historic building or area, historic park and garden or a parcel of historic landscape. Nationally important historic assets will normally be designated* (ibid).

- 1.2.8 This report contains information about the historic environment and historic assets in the vicinity of the proposed development site, which will assist the archaeological advisors to the planning authority in their decision about what, if any, archaeological mitigation will be required. Further guidance on how the planning system considers the historic environment and historic assets during development plan preparation and decision making on planning and Listed Building (LBC) applications can be found in *Planning Policy Wales: Technical Advice Note 24: The Historic Environment* (Welsh Government 2017; available online).

### **1.3 Abbreviations**

- 1.3.1 All sites recorded on the regional Historic Environment Record (HER) are identified by their Primary Record Number (PRN) and located by their National Grid Reference (NGR). Sites recorded on the National Monument Record (NMR) held by the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) are identified by their National Primary Record Number (NPRN). Scheduled Monument (SM). Listed Buildings (LB). Altitude is expressed to a height above Ordnance Datum (aOD). References to cartographic and documentary evidence and published sources will be given in brackets throughout the text, with full details listed in the sources section at the rear of the report.

### **1.4 Illustrations**

- 1.4.1 Printed map extracts are not necessarily reproduced to their original scale. North is towards the top of the page unless otherwise indicated.

### **1.5 Timeline**

- 1.5.1 The following timeline gives date ranges for the various archaeological periods that may be mentioned within this report.

**Table 1:** Archaeological and Historical Timeline for Wales

Period	Approximate date	
Palaeolithic –	c.450,000 – 10,000 BC	<b>Prehistoric</b>
Mesolithic –	c. 10,000 – 4400 BC	
Neolithic –	c.4400 – 2300 BC	
Bronze Age –	c.2300 – 700 BC	
Iron Age –	c.700 BC – AD 43	
Roman (Romano-British) Period –	AD 43 – c. AD 410	<b>Historic</b>
Post-Roman / Early Medieval Period –	c. AD 410 – AD 1086	
Medieval Period –	1086 – 1536	
Post-Medieval Period <sup>1</sup> –	1536 – 1750	
Industrial Period –	1750 – 1899	
Modern –	20th century onwards	

---

<sup>1</sup> The post-medieval and Industrial periods are combined as the post-medieval period on the Regional Historic Environment Record as held by Dyfed Archaeological Trust

## **2. POLICIES AND GUIDANCE**

### **2.1 The Historic Environment (Wales) Act**

2.1.1 The Ancient Monuments and Archaeological Areas Act 1979 was previously the primary legislation for protecting archaeological remains and scheduled monuments. This has more recently been amended by The Historic Environment (Wales) Act 2016 which has three main aims as defined by Cadw:

- to give more effective protection to listed buildings and scheduled monuments;
- to improve the sustainable management of the historic environment; and
- to introduce greater transparency and accountability into decisions taken on the historic environment.

2.1.2 The new Act amends the Ancient Monuments and Archaeological Areas Act 1979 and also the Planning (Listed Buildings and Conservation Areas) Act 1990. It is supported by a number of planning guidance documents. The Act most specifically provides better safeguards for the protection of scheduled monuments, listed buildings and historic parks and gardens. It also includes further guidance on place names.

### **2.2 Planning Policy Wales**

2.2.1 Planning Policy Wales (Ed.11, 2021) sets out the Welsh Government's land use planning policies. Its primary objective is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required by the Planning (Wales) Act 2015, the Well-being of Future Generations (Wales) Act 2015 and other key legislation.

2.2.2 Chapter 6, 'Distinctive and Natural Places', explains how planning systems must take into account the Welsh Government's objectives to protect, conserve, promote and enhance the historic environment as a resource for the general well-being of present and future generations. It also sets out the planning policies for the sustainable management of specific categories of historic environment assets.

### **2.3 Technical Advice Note 24: The Historic Environment**

2.3.1 This technical advice note provides guidance on how the planning system considers the historic environment during development plan preparation and decision making on planning and Listed Building consent applications. It also provides specific guidance on how the following historic environment assets should be considered:

- scheduled monuments
- archaeological remains
- listed buildings
- conservation areas
- historic parks and gardens
- historic landscapes
- historic assets of special local interest
- World Heritage Sites

- 2.3.2 The technical advice note usefully gathers together the selection criteria employed in the designation of scheduled monuments and listed buildings and the registration of historic parks and gardens and historic landscapes.
- 2.3.3. Advice and decisions on planning applications affecting nationally significant historic environment features (or designated historic environment assets) is provided by Cadw acting on behalf of Welsh Government.
- 2.3.4 This report will also make reference to other guidance documents published by Cadw, namely: Conservation Principles (March 2011); Heritage Impact Assessment in Wales (May 2017); Managing Historic Character in Wales (May 2017); and Setting of Historic Assets in Wales (May 2017).

## **2.4 Local Development Plan**

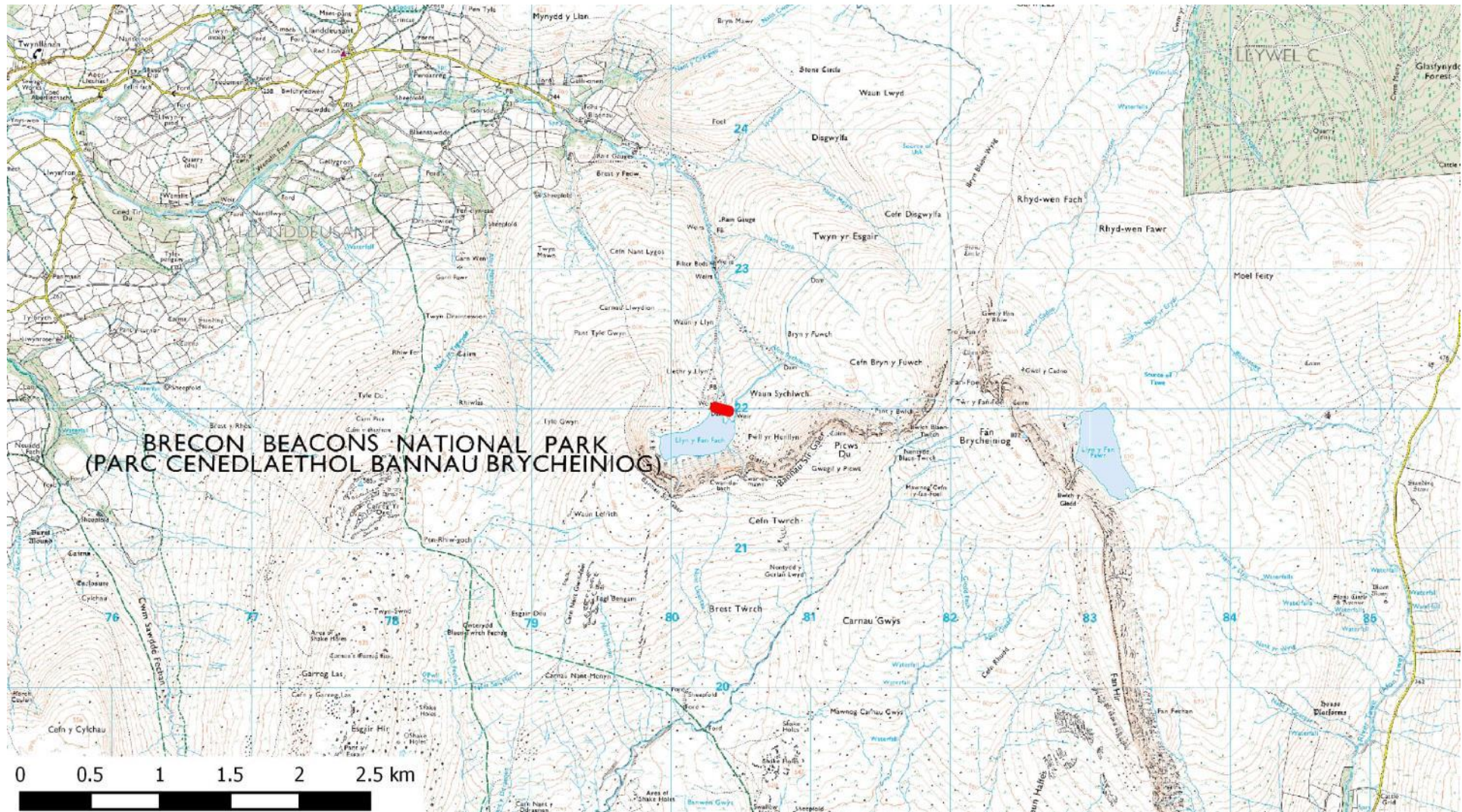
- 2.4.1 The site lies within the Brecon Beacons National Park (BBNP). The BBNP Authority Local Development Plan (LDP) was adopted in December 2013, and sets out the planning development strategy for the area. The LDP policies are set out in line with national policy and guidance outlined above, but sets out policies and proposals to meet the needs for housing, jobs and services whilst protecting the Park's high quality environment.
- 2.4.2 Strategic Policy SP3 Environmental Protection states that all proposals for development, or change of use of land or buildings in the National Park must demonstrate that the proposed development does not have an unacceptable impact on, nor detract from, or prevent the enjoyment of (e) cultural and historic heritage, and (f) the character of the built heritage, including listed buildings, conservation areas and archaeological features.
- 2.4.3 Section 3.15 of the LDP deals specifically with 'Conserving the Historic Environment'. Of particular relevance for this project are two specific policies. Policy 21 relates to 'Historic Landscapes', which states that development which directly or indirectly affects a Registered Historic Landscape will only be permitted if the essential integrity and coherence of the area, as defined in the Register, is preserved or enhanced.
- 2.4.4 Policy 22 relates to 'Areas of Archaeological Evaluation', which requires areas where archaeological remains are known to exist, or potentially exist, the archaeological implications of development proposals shall be evaluated by qualified and independent Archaeologists before planning applications are determined.

### **3 LOCATION, TOPOGRAPHY AND GEOLOGY**

- 3.1 The site is located at Llyn y Fan Fach reservoir, on the northern margin of the Black Mountain in Carmarthenshire, lying within the Brecon Beacons National Park (SN 8032 2198).
- 3.2 The extent of the proposed works is focussed on the dam wall at the northern end of the reservoir. The reservoir itself covers an area of approximately 10 hectares (25 acres), lying at an altitude of approximately 510m (1660 feet). The lake is bounded to the south and southwest by the prominent ridge of Waun Lefrith and Picws Du, with vertical crags clearly showing the extent of a former glacier. The reservoir then drains away on falling ground to the north, along a steep channel which is joined by a number of other watercourses to form the Afon Sawdde at the base of the slope, which drains away to the west and northwest, eventually feeding into the Afon Tywi near Llangadog.
- 3.3 The location of the temporary site compound is also considered as part of the development. This will be located adjacent to the car park at the foot of the slope up to Llyn y Fan Fach. The car park lies at the east end of a publically accessible single-track road along the valley base. Beyond this point it becomes a trackway and footpath that climbs up towards the Llyn y Fan Fach reservoir to the southeast. A number of streams, including the Sychnant, Garwnant, Nant y Creigiau, Nant Melyn and Nant Coch run off the high ground to the east to combine into the river immediately to the east of the car park. The valley then runs in a westerly direction, before it opens out as it approaches Llandeussant.
- 3.4 The area around the reservoir is an open upland landscape, on the northern edge of the Black Mountain and Carmarthen Fans, with an undulating, sometimes craggy and mountainous, landscape extending for some distance in all directions. At the base of the valley to the north, around the Afon Sawdde, the lower valley slopes are enclosed in a farmland of irregular fields and dispersed farmsteads. The enclosed landscape extends along the southeast side of the Tywi valley. The nearest dwelling lies over 2km to the north, the nearest settlement being the small village of Llandeussant nearly 4km to the northwest. The access to the site is via a trackway installed during the creation of the reservoir, running along the valley to the north.
- 3.5 The prominent ridge line that overlooks the reservoir is formed from the hard wearing sandstone of the Lower Plateau Beds. The slopes to the north, within which the lake has formed, comprises sandstones, mudstones and argillaceous rocks of the Brownstones Formation, carved out through glacial action. Hummocky glacial deposit of diamicton, sand and gravels, form the damming material at the northern end of the reservoir, with glacial till extends across the falling ground to the north. Pockets of peats are also recorded in the locality (BGS viewer).



Llyn y Fan Fach Reservoir, Brecon Beacons National Park, Carmar:  
Historic Environment Desk-Based Assessment



**Figure 1:** Location of development area, showing the proposed development site.

Reproduced from the Ordnance Survey 1:50,000 scale map with the permission of The Controller of Her Majesty's Stationery Office, © Crown Copyright Dyfed Archaeological Trust Ltd., Corner House, 6 Carmarthen Street, Llandeilo, Carmarthenshire SA19 6AE. Licence No 100020930



## **4 DESIGNATED HISTORIC ASSETS (Table 2 and Figure 2)**

### **4.1 General**

- 4.1.1 A search of data held on several databases was made of historic assets within the 1km radius search area. This was subsequently extended to include the proposed site compound area. This included both designated and non-designated assets. Designated assets from a wider area were examined in order to analyse the potential indirect impacts from proposed development, detailed below.

### **4.2 Listed Buildings**

- 4.2.1 There are four Listed Buildings within the search area, all of which have been recently (March 2021) designated as Grade II listed, and are currently afforded interim listing status.
- 4.2.2 **Llyn y Fan Fach Reservoir Dam (LB 87839)** was built by the Llanelli Rural District Council to convert the lake to a reservoir and provide water to the Llanelli area. Work commenced in 1914, using Irish labourers, but subsequent to the Military Service Act of 1916 the work was completed through the use of Conscientious Objectors to the resultant military conscription. The workforce were housed in a camp at the base of the hill, around 150 conscientious objectors were housed in the camp over the course of the construction work. The dam was built of concrete, using sand dredged from the lake. The initial construction phase was completed by 1918, although a date of 1920 is inscribed on an outflow arch. The reservoir continued in use until 1967, maintained as a standby water source since that time. The structure is listed for its special historical interest in the use of conscientious objectors during the First World War.
- 4.2.3 **The Former Filter Beds on the Afon Sawdde (LB 87840)** were built as part of the same project as the Reservoir Dam described above, and lie approximately 1km to the north along the main outflow from the reservoir. Concrete built, the beds were used to filter out stones and grit before the water was piped to a holding reservoir in Llanon. The beds have been used as a Salmon and Trout hatchery since 1994.
- 4.2.4 The associated **Valve House, including the weirs**, are also listed (**LB 87841**). The quarried stone built valve house regulated the flow of water, and stands in the northeast corner of the filter beds.
- 4.2.5 At the base of the hillslope lies the **Bridge over the Nant Melyn (LB 87842)**. It is thought likely that this two-span stone bridge was built as part of the same work undertaken by the conscientious objectors described above, as it appears in a sketch by one of the workers in 1916.
- 4.2.6 There are no further listed buildings within the search area, the next nearest being farmhouses and buildings further down the Sawdde valley.

### **4.3 Scheduled Monuments**

- 4.3.1 There is one Scheduled Monument (SM) adjacent to the trackway access and potential area of works (CM306 – Twyn yr Esgair Settlement), and a further Scheduled Monument within 1km of the main area of development works (CM336 – Picws Du Cairn).
- 4.3.2 **CM306 – Twyn yr Esgair Settlement** represents the remains of an undated settlement close to the confluence of the Nant Melyn tributary

with the Afon Sawdde. The various elements of this site are numbered individually both in the HER and the NMR, and descriptions vary slightly. The site is spread along the stream banks. To the east, on the south side of the Nant Melyn stream, lies the low tumbled wall remains of a rectangular house, or long hut, (PRN 35983 / NPRN 408378) with an adjacent shelter or food store (PRN 35984 / NPRN 408379). The NMR description notes possible former field boundaries extending to the southeast, and a possible sheep fold or animal pen is also noted to the southwest (NPRN 409250). On the opposite side of the stream to the north lies another sheep fold (PRN 35985 / NPRN 408385), although the NMR description suggests this may be a later feature due to the better state of preservation. At the western end of the scheduled area lies a further house/long hut platform (NPRN 408386), with a possible circular sheep fold on the stream bank to the north (PRN 35981 / NPRN 408376). A shelter is also recorded nearby (PRN 35982), although no specific shelter was identified by the RCAHMW inspector (NPRN 408377). On higher ground to the north of the stream another rectangular house platform was noted (NPRN 408387). This is within the Scheduled area, but it is separated from the remainder of the settlement site by the stream, and the NMR notes that it appears different in character, and potentially older. As the site is spread out, the Scheduled area is drawn around a broad area to include the main visible components. However, given the dispersed and denuded condition of these features, it is entirely possible it could cover a larger area, and indeed aerial photographs of the site suggest associated enclosures may straddle the modern pathway defining the western end of the Scheduled area. The site is described as potentially prehistoric, medieval or post-medieval in date.

- 4.3.3 **CM336 – Picws Du Cairn** represents the remains of a burial cairn, typically considered to be Bronze Age in date. It lies on the edge of the prominent Mynydd Du ridge, with extensive northward views. The cairn is circular in plan, approximately 17.5m in diameter, and up to 1.6m high.
- 4.3.4 A further two SM lie within 2km of the proposed development area. Approximately 2km to the east of the reservoir dam lies **BR275 – Two Cairns on Fan Foel**. This pair of cairns is similar to CM336, potentially Bronze Age in date and occupying prominent upland locations. Approximately 2.5km to the north of the reservoir dam (within 1km of the trackway access) lies **CM260 – Stone Setting on Waun Llwyd**. This is an arrangement of one or more standing stones, possible late Neolithic to early Bronze Age in date.

#### **4.4 Registered Historic Landscapes**

- 4.4.1 The proposed development area lies within the registered Historic Landscape of the **Black Mountains and Mynydd Myddfai Landscape of Outstanding Historic Interest (HLW (D) 1)**.
- 4.4.2 The full description of the Black Mountains and Mynydd Myddfai registered landscape is as follows:

The area comprises the foothills and slopes on the north west side of the Black Mountain, bounded by Mynydd Myddfai on the north at 440 m above OD and a ridge of slightly lower hills to the south west, which overlooks the Tywi valley east of Llandeilo. The area is heavily dissected by small, steep-sided valleys and is dominated by the summits along the Black Mountain watershed, the highest of which rise to about 800m above OD in the south east. The area contains rich and diverse evidence of land

use exemplifying the dynamic interrelationship between upland and lowland that is so typical of much of Wales, from the prehistoric period to the recent past. On the lower slopes and narrow valley floors of some, though significantly not all, the steep-sided valleys on the northwest sides of Mynydd Myddfai and the Black Mountain, are small and large agglomerations of ruined, drystone-walled longhouses. These have recently been mapped, planned and studied in detail, but to date none has been excavated. Their date range is uncertain though conjectured, on broadly morphological grounds, to be medieval. Much earlier, Bronze Age use of the uplands is suggested however, during more favourable climatic conditions, by numerous large and prominently sited cairns, more localised standing stones and two groups of stone circles and, in some places, of regularly laid out field systems whose walls are partly sealed by peat. The transitional zone between the open moorland and enclosed fields and woodland is, in some parts of the area, marked by lengths of substantial bank and ditch, sections of which can be shown to be of at least 16th century in date. This boundary is breached by many roads and tracks which are the physical evidence of the dynamic interrelationship between the unenclosed uplands and the landscape of dispersed settlement and small enclosed fields on the lower slopes. In this context, it is uncertain whether the longhouses are permanent settlements or the summer dwellings of a transhumance régime. Although sheep have now replaced cattle as the main stock grazed on the open moorland, seasonal grazing is still part of the farming economy of the adjacent farms. A number of large regular, but now ruinous, drystone-walled sheepfolds are sited both on the edge of the open moorland and deep within it. Although no extensive survey has yet been undertaken, it is highly likely that the present vegetational pattern of the uplands has been heavily influenced by grazing practices and many slight but significant earthwork traces attest to the constant effort to improve that grazing. Whilst the open uplands are now perceived as a barrier to communication, in all earlier periods until the turnpike road era, they were criss-crossed by routes. Roman marching camps within the area at y Pigwn and Arosfa Garreg control two crossmountain roads which served as major routes from the Usk to the Tywi valleys until the 1790s. They focus in the foothills of the Black Mountain and Mynydd Myddfai on two nucleated settlements, Myddfai and Llangadog, whose economic *raison d'être* were seasonal fairs and markets for the surrounding region. (Llangadog is currently outside the area described here). In recent times, the most important impetus for exploitation of the uplands from adjacent areas was lime production, the main fertiliser from the late 17th until the mid-19th centuries. A palimpsest of deeply rutted cart tracks ascend to the quarry and kiln sites. The area contains hundreds of kilns from small, early, sod kilns to large drystone-walled structures. Areas of surviving ancient woodlands within the enclosed foothills suggest that many of the small, irregular fields originate as assarts (private holdings) from a more extensive forest cover. The area lies within the commote of Perfedd which came late under Anglo-Norman political control; Welsh language, tenure, law and social systems were never wholly superseded. Medieval documentation for holdings and land use is sparse, but folklore sources are revealing. The area contains the locus for the famous legends of the Lady of the Lake in Llyn y Fan Fach, ancestress of the hereditary Physicians of Myddfai (Meddygon Myddfai). The farms recorded in the legends still exist and may thus be of 12th century date, since the legends recorded in the 14th century Red Book of Hergest link Rhiwallon the Physician to the court of the Lord Rhys of Deheubarth.

- 4.4.3 In summary, the area offers rich and diverse evidence of the interrelationship of land use between upland and low land areas that is typical of much of Wales from the Prehistoric period to modern era. Medieval remains can be found on the lower slopes whereas evidence of Bronze Age activity can be found on the uplands by the numerous cairns.
- 4.4.4 In order to better characterise the historic environment of the Historic Landscape it has been sub-divided into a number of Historic Landscape Character Areas (HLCA). These areas do not necessarily confine themselves to the illustrated limits of the registered Historic Landscape. The proposed development area lies within HLCA 240 The Black Mountain – Y Mynydd Ddu, a large area of open moorland consisting mostly of rough grazing and blanket peats that extends beyond the limits of the Registered Landscape, and includes the summits of Bannau Sir Gar/Fan Brycheiniog. There is a hard border with enclosed farmland for much of this area, suggesting a long history of open ground, although some encroachments and parliamentary enclosures are visible along the western edge. Although human use does not appear to be intense, five main themes are visible. Areas that have been used as upland pasture which have included woodland removal started during the Mesolithic, areas of prehistoric occupation and partial enclosure with associated funerary and ritual activities, areas of informal occupation with longhuts and partial post-medieval enclosure, and areas of 19th-20th century leisure activities.

#### 4.5 Registered Historic Parks & Gardens

- 4.5.1 There are no registered historic parks and gardens in the study area, the closest being over 7km to the southeast.

#### 4.6 Conservation Areas

- 4.6.1 There are no conservation areas within the study area, the closest being some 11km away.

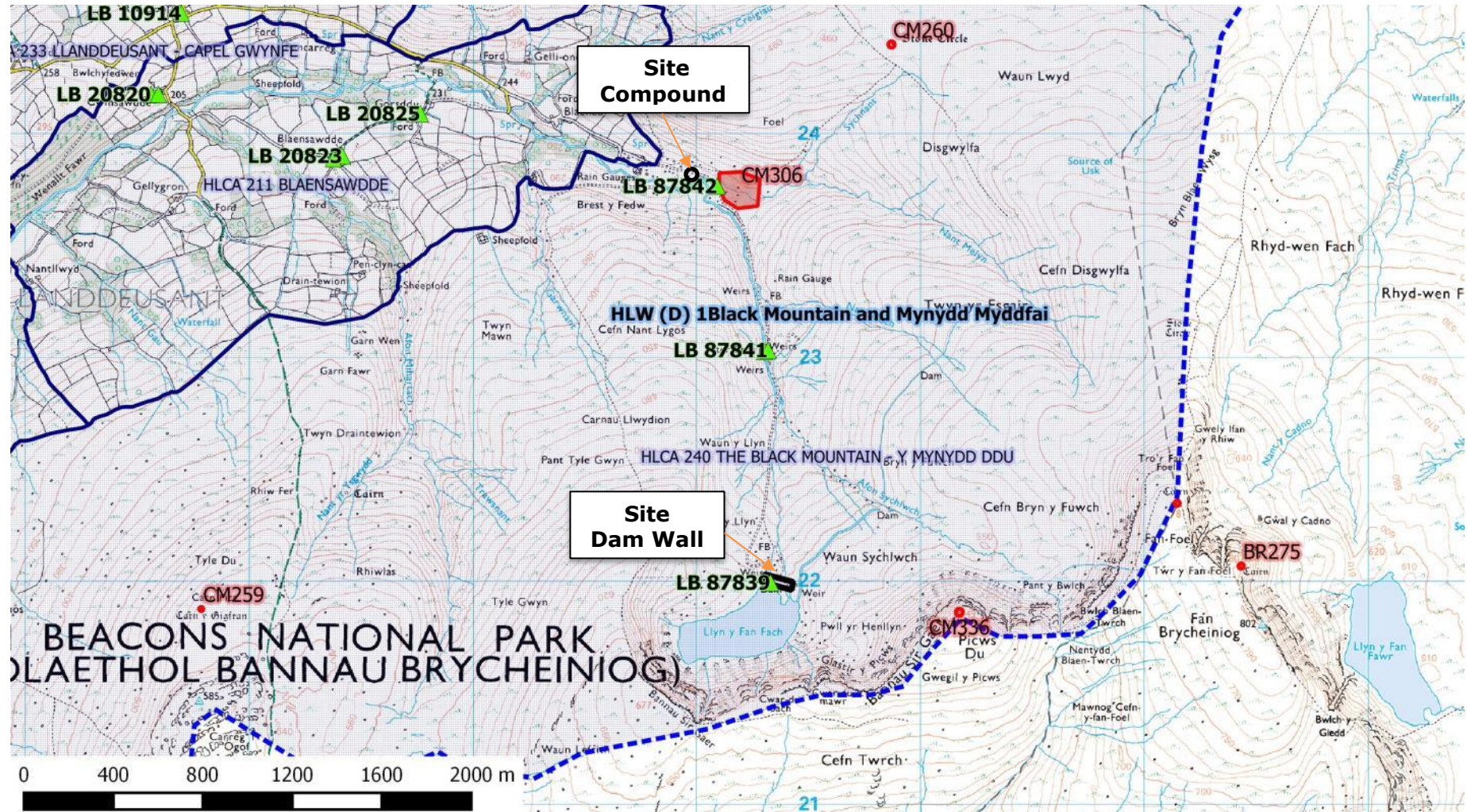
**Table 2:** Designated historic assets within the study area

Site / Building Name	Cadw Ref.	NGR (Eastings / Northings)	Designation
Llyn y Fan Fach Reservoir Dam	LB 87839	280327 221986	Listed Building (Grade II)
The Former Filter Beds on the Afon Sawdde	LB 87840	280301 223019	Listed Building (Grade II)
Valve House, including the weirs	LB 87841	280316 223026	Listed Building (Grade II)
Bridge over the Nant Melyn	LB 87842	280089 223760	Listed Building (Grade II)
Twyn yr Esgair Settlement	CM306	280190 223745	Scheduled Monument
Picws Du Cairn	CM336	281171 221854	Scheduled Monument

Llyn y Fan Fach Reservoir, Brecon Beacons National Park, Carms:  
Historic Environment Desk-Based Assessment

Two Cairns on Fan Foel	BR275	282288 222201	Scheduled Monument
Stone Setting on Waun Llwyd	CM260	280855 224382	Scheduled Monument
Black Mountains and Mynydd Myddfai Landscape of Outstanding Historic Interest	HLW (D) 1	-	Registered Landscape Historic





**Figure 2:** Map showing the proposed development site and surrounding designated assets, including listed buildings (green triangles), scheduled monuments (red outline), and historic landscapes (blue shading, with individual HLCA boundaries in purple).

Reproduced from the Ordnance Survey 1:50,000 scale map with the permission of The Controller of Her Majesty's Stationery Office, © Crown Copyright Dyfed Archaeological Trust Ltd., Corner House, 6 Carmarthen Street, Llandeilo, Carmarthenshire SA19 6AE. Licence No 100020930

## **5 NON-DESIGNATED HISTORIC ASSETS (Table 3 and Figure 3)**

### **5.1 General**

- 5.1.1 A search of data held by the Dyfed Archaeological Trust Historic Environment Record (HER) and other databases was made within a 1km radius area around the proposed development, with an additional 50m search area drawn around the linear catchwater and access track to address any potential impacts in those zones, and an additional 100m search area around the proposed location of the temporary site compound.
- 5.1.2 The HER records 49 assets within the search area. Thirteen assets are also recorded on the NMR record, held and maintained by the RCAHMS, many of which are also recorded in the HER, with the addition of one record relating to the lake of Llyn y Fan Fach itself. The Portable Antiquities Scheme database also records seven findspots from the general area, comprising three Mesolithic flint flakes, and four Neolithic flint and chert flakes.
- 5.1.3 The following information is laid out chronologically to provide a brief archaeological and historical background for the development area and its environs for each period, along with the relevant recorded assets pertaining to that period.

### **5.2 Palaeolithic, Mesolithic & Neolithic**

- 5.2.1 There are no sites of a Palaeolithic date within the search area, or the wider landscape.
- 5.2.2 There are records of three flints being recovered from the lake itself, dating to the Mesolithic period. A possible scraper and flint stone were recovered from the west side of the lake in 1977, and a flint arrowhead was recovered in 1984. Further flints scatters are recorded some 4km to the south on Waun Figwen Felen, close to a former lake, suggesting water sources such as Llyn y Fan Fach would have attracted activity during this broad period.
- 5.2.3 There are perhaps surprisingly no finds dated to the Neolithic period within the study area, and very few in the wider landscape. However, just under 2.5km to the north lies a stone circle (PRN 9997). At least 14 stones mark a small circular approximately 19m in diameter, potentially representing a Neolithic ritual site, although it may also be Bronze Age in date.

### **5.3 Bronze Age**

- 5.3.1 There are four recorded sites of Bronze Age date within the search area. Three of these refer to round barrows (PRNs 6190, 8905 & 8171), burial mounds containing multiple burials or cremations, and potential sites of ritual significance as well. Within this landscape such sites are generally positioned in prominent locations with wide-ranging views, as such two are sited on the Picws Du ridge overlooking the lake, the third site on north-facing slopes to the northwest of the lake.
- 5.3.2 The fourth site relates to a Bronze Age flint arrowhead (PRN 11747), which, like the Mesolithic flints, was recovered from the shores of Llyn y Fan Fach during a period of low water in the 1970s. This cluster of activity around the lake would suggest the site was one of some importance as a focal point during the Bronze Age.



- 5.3.3 Further afield a large number of further round barrows are recorded, suggesting an important and well-used landscape during the Bronze Age.

#### **5.4 Iron Age & Roman**

- 5.4.1 There are no recorded sites of Iron Age date within the search area, and relatively few are recorded within the wider landscape in this area
- 5.4.2 There are no recorded sites of Roman date within the search area. A Roman road, and marching camp, lie on Mynydd y Llan approximately 4km to the north, but there is no indication of associated activity spreading southwards towards Llyn y Fan Fach.

#### **5.5 Early Medieval & Medieval Period**

- 5.5.1 There are no Early Medieval sites recorded in the search area. The church within Llanddeusant may have early medieval origins, with suggestions that it may be linked to the 6<sup>th</sup> century cult of St Paulinus, although this is uncertain. A similar distance to the east lies the possible early medieval chapel of Capel y Fynwent, although general activity in the area appears sparse.
- 5.5.2 There are a number of longhuts, shelters, sheep folds and abandoned field boundaries recorded across this landscape. These features are hard to date on typology alone, but these particular examples are believed to be broadly medieval to post-medieval in date.
- 5.5.3 These features appear to particularly cluster around tributary watercourses of the Afon Sawdde. The closest is a cluster (PRN 35991) around the base of the Afon Sychlwch, around 500m to the north of the reservoir dam. This cluster includes the remains of four longhuts (PRNs 32384, 32385, 32386 & 32387), rectilinear structures 8-10m long, and 4-5m wide, each subdivided into two compartments, and defined by low walls or banks set on artificial platforms. Also included is a smaller artificial platform (PRN 35989), a shelter (PRN 35988) and a sheepfold (PRN 35990).
- 5.5.4 The next cluster (PRN 35987) lies around the base of the Nant Melyn and Synchnant, at the base of the trackway up to the reservoir (1.7km to the north of the reservoir dam), and includes the Scheduled area CM306 described in section 5.3. This cluster includes a similar arrangement of longhuts (PRN 35983), artificial platforms (PRN 35980), shelters (PRN 35982, 35984) and sheepfolds (PRN 35981, 35985), along with the remains of field enclosures (PRN 35986).
- 5.5.5 These features are agricultural in nature, and likely belong to families or communities engaged in livestock farming across the open uplands, potentially seasonal in nature. It is thought that such livestock farming was formerly focused more on cattle, or was more mixed in make-up, during the medieval period, in which case many of the former buildings could be devoted mainly to animals, or a combination of animal and human occupation. This shifted more to a focus on sheep farming during the later medieval and into the post-medieval periods, as can be seen by the more widespread survival of sheepfolds. It is not clear when such livestock farming practices died out in this area, but other than the sheepfolds, these features had been abandoned by the time detailed mapping came in in the mid to late 19<sup>th</sup> century.



## **5.6 Post Medieval Period**

- 5.6.1 The post medieval sites are the same as the medieval sites, due to difficulties in close dating of such structures.

## **5.7 Modern Period**

- 5.7.1 The majority of the sites recorded on the HER are modern in date, and relate to the construction of the reservoir itself and associated features.
- 5.7.2 By the end of the 19<sup>th</sup> century the area around Llanelli was suffering from a lack of clean water. To remedy this the lake of Llyn y Fan Fach was subsequently chosen as the site of a new reservoir to provide this water. An Act of Parliament was obtained in 1912 and contractors appointed to build a concrete dam to raise the water by 10 ft (3m) and lay a new main to take the water 25 miles away to Llannon. Work started in 1914 using largely Irish labourers housed in a camp at the foot of the hill. Work and conditions were harsh however, and retaining the labour became an issue. In 1916 the Military Service Act was passed, imposing conscription on single men aged between 18 and 41. Although a right to refuse conscription for specific reasons was introduced, in practice many who objected were still forced into army regiments. The conscientious objector would then refuse to sign army papers or put on a uniform, and would then be court martialled and imprisoned, the prison sentences getting longer and longer. In July 1916 the Home Office began to introduce schemes to allow these imprisoned objectors to be released from prison to carry out civilian work, usually hard labour (Pyper 2020).
- 5.7.3 The first conscientious objectors arrived at Llyn y Fan Fach in September 1916, between 150 to 200 men were to work on the reservoir. The men were drawn from across England and Wales, many of the original influx from Lancashire and the Midlands. Camp conditions were improved, with new kitchen facilities, laundry and hospital, located at the foot of the hill where cars currently park (PRN 110406). The remains of some of the building platforms are still visible (PRN 112063), but the only remaining standing structure is the former powder magazine (PRN 111180). Other men were billeted in surrounding farms. The lives and activities of these men have been subject to recent study, involving local communities and schools in the research and presentation of the findings (Pyper 2020).
- 5.7.4 This recent study accounts for many of the records in the HER related to this area. The dam wall (PRN 111183), the filter beds and valve house (PRN 111187 & 112067), and bridges (PRNs 111191, 111192 & 112074) clearly show that professional masons were tasked with much of the skilled work in their construction, with the hard labour provided by the navvies and conscientious objectors.
- 5.7.5 A number of features are also recorded surrounding the dam, associated with its construction and operation. The concrete bases of former buildings erected during the construction are still evident (PRN 111186 & 112065), as is both the sand and gravel extraction site on the south side of the lake (PRN 112077), and extended linear spoil heaps to the north (PRN 111182). Nearby water management can be seen in the adjacent catchwater channel (PRN 111185) to the east, and the siphon chambers to the north (PRN 111184). The current shelter (PRN 112069) adjacent to the spillway was added in the 1930s, originally as part of the operational management of the water works.

5.7.6 Other recorded features include an unidentified structure close to the dam wall (PRN 111181), a series of additional buildings surrounding the filter bed complex (PRNs 111184, 112067 & 112068), and various weirs (PRN 111188), stilling basin ponds (PRNs 112070, 112072 & 112076) and revetment (PRN 112079) along the river, and the access track itself (PRN 112078).

**Table 3:** All sites recorded on the HER

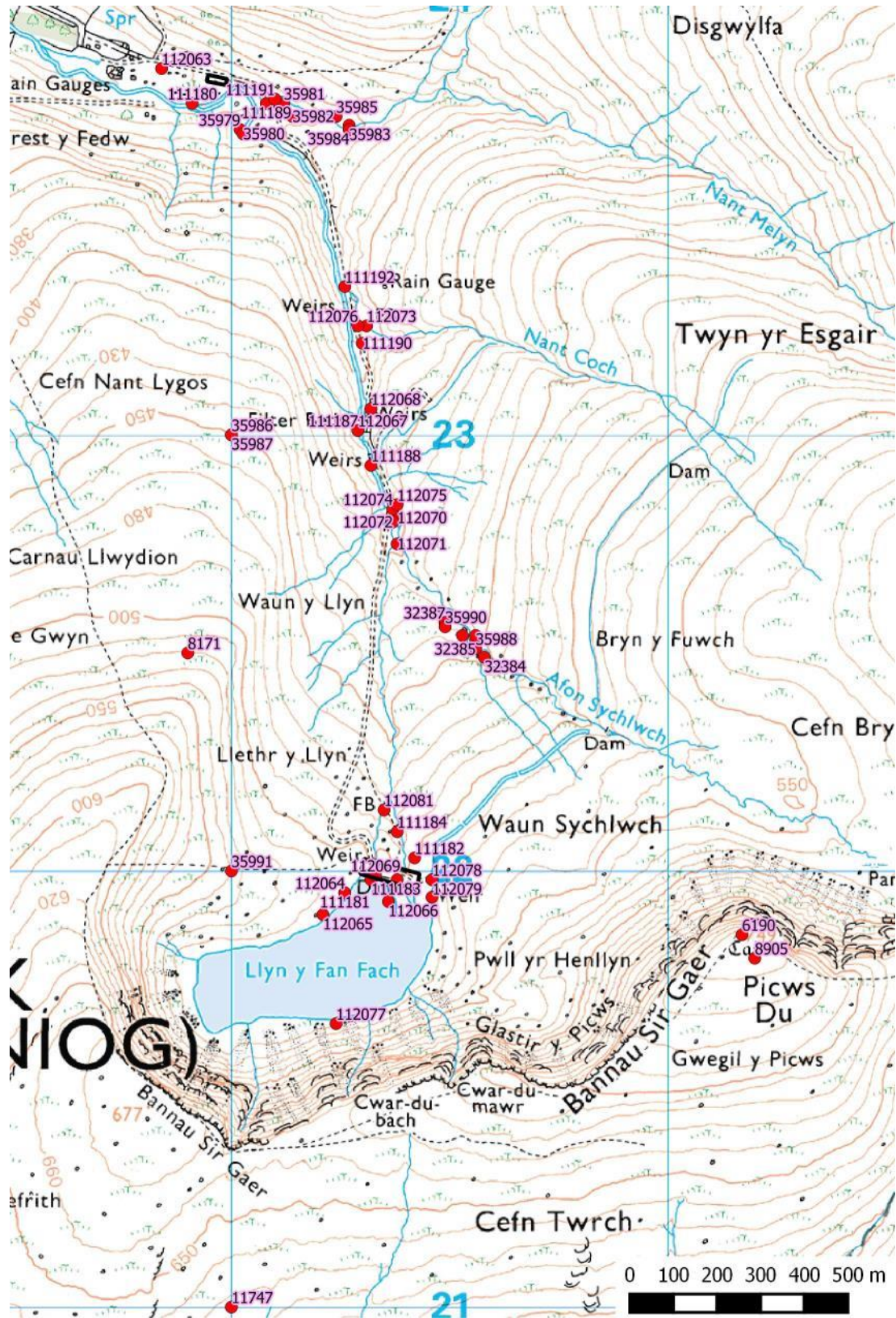
PRN	Site Name	Type	Period	NGR
6190	Picws Du	Round Barrow	Bronze Age	SN8117121854
7740	Llyn-Y-Fan-Fach	Findspot	Mesolithic	SN7921
8171	Carnau Llwydion	Round Barrow	Bronze Age	SN799225
8905	Picws Du	Round Barrow	Bronze Age	SN812218
11747	Llyn-Y-Fan-Fach	Findspot	Bronze Age	SN8021
32384	Cwm Sychlwch Afon	Long Hut	Post Medieval, Medieval	SN80582249
32385	Cwm Sychlwch Afon	Long Hut	Post Medieval, Medieval	SN80562253
32386	Cwm Sychlwch Afon	Long Hut	Post Medieval, Medieval	SN80532254
32387	Cwm Sychlwch Afon	Long Hut	Post Medieval, Medieval	SN80492257
35981	Aber Nant Melyn; Twyn Yr Esgair	Sheep Fold, Hut Circle	Medieval; Post-Medieval	SN80122376
35982	Aber Nant Melyn; Twyn Yr Esgair	Shelter	Post Medieval, Medieval	SN80142373
35983	Glan Nant Melyn Hut; Twyn Yr Esgair	Long Hut	Post Medieval, Medieval	SN80272371
35984	Glan Nant Melyn; Twyn Yr Esgair	Shelter	Post Medieval, Medieval	SN80272370
35985	Glan Nant Melyn; Twyn Yr Esgair	Sheep Fold	Post Medieval, Medieval	SN80242373
35986	Twyn Yr Esgair	Field System	Post Medieval, Medieval	SN8023
35987	Twyn Yr Esgair	Deserted Settlement Rural	Post Medieval, Medieval	SN8023
35988	Dwyrain Sychlwch Cwm	Shelter	Post Medieval, Medieval	SN80562251

Llyn y Fan Fach Reservoir, Brecon Beacons National Park, Carmar: Historic Environment Desk-Based Assessment

35989	Cwm Sychlwch Afon	Platform	Post Medieval, Medieval	SN80562254
35990	Cwm Sychlwch Afon	Sheep Fold	Post Medieval, Medieval	SN80492256
35991	Cwm Sychlwch	Deserted Settlement Rural	Post Medieval, Medieval	SN8022
110406	Llanddeusant Water Works	Internment Camp	Modern	SN79772382
111180	Llyn Y Fan Fach	Powder Magazine	Modern	SN79912376
111181	Llyn Y Fan Fach	Earthwork	Modern	SN80262195
111182	Llyn Y Fan Fach	Spoil Heap	Modern	SN80422203
111183	Llyn Y Fan Fach	Reservoir, Dam	Modern	SN80322198
111184	Llyn Y Fan Fach	Valve House	Modern	SN80382209
111185	Llyn Y Fan Fach	Leat	Modern	SN80462194
111186	Llyn Y Fan Fach	Building	Modern	SN80382198
111187	Llyn Y Fan Fach	Filter Bed	Modern	SN80292301
111188	Llyn Y Fan Fach	Weir	Modern	SN80322293
111189	Llyn Y Fan Fach	Building	Modern	SN80082376
111190	Llyn Y Fan Fach	Spoil Heap	Modern	SN80302321
111191	Llyn Y Fan Fach	Bridge	Modern	SN80102377
111192	Llyn Y Fan Fach	Bridge	Modern	SN80262334
112063	Llyn Y Fan Fach	Building Platform	Modern	SN79842384
112064	Llyn Y Fan Fach	Earthwork	Modern	SN80262195
112065	Llyn Y Fan Fach	Sheep Fold	Modern	SN80212190
112066	Llyn Y Fan Fach	Foundations	Modern	SN80362193
112067	Llyn Y Fan Fach	Building	Modern	SN80292301
112068	Llyn Y Fan Fach	Building	Modern	SN80322306
112069	Llyn Y Fan Fach	Building	Modern	SN80332199
112070	Llyn Y Fan Fach	Water Tank	Modern	SN80382281
112071	Llyn Y Fan Fach	Spoil Tip	Modern	SN80382275
112072	Llyn Y Fan Fach	Pond	Modern	SN80372280

Llyn y Fan Fach Reservoir, Brecon Beacons National Park, Carmarthenshire:  
Historic Environment Desk-Based Assessment

112073	Llyn Y Fan Fach	Footbridge	Modern	SN80312325
112074	Llyn Y Fan Fach	Bridge	Modern	SN80372283
112075	Llyn Y Fan Fach	Hut	Modern	SN80382284
112076	Llyn Y Fan Fach	Stilling Basin	Modern	SN80292325
112077	Llyn Y Fan Fach	Sand And Gravel Extraction Site	Modern	SN80242165
112078	Llyn Y Fan Fach	Trackway	Modern	SN80462198
112079	Llyn Y Fan Fach	Revetment	Modern	SN80462198
112081	Llyn Y Fan Fach	Bridge	Modern	SN80352214



**Figure 3:** Map showing the proposed development sites (in black) and the historic assets (in red) recorded on the regional HER, labelled by PRN.

Reproduced from the Ordnance Survey 1:50,000 scale map with the permission of The Controller of Her Majesty's Stationery Office, © Crown Copyright  
Dyfed Archaeological Trust Ltd., Corner House, 6 Carmarthen Street, Llandeilo, Carmarthenshire SA19 6AE. Licence No 100020930

## **6 ASSESSMENT OF EVIDENCE**

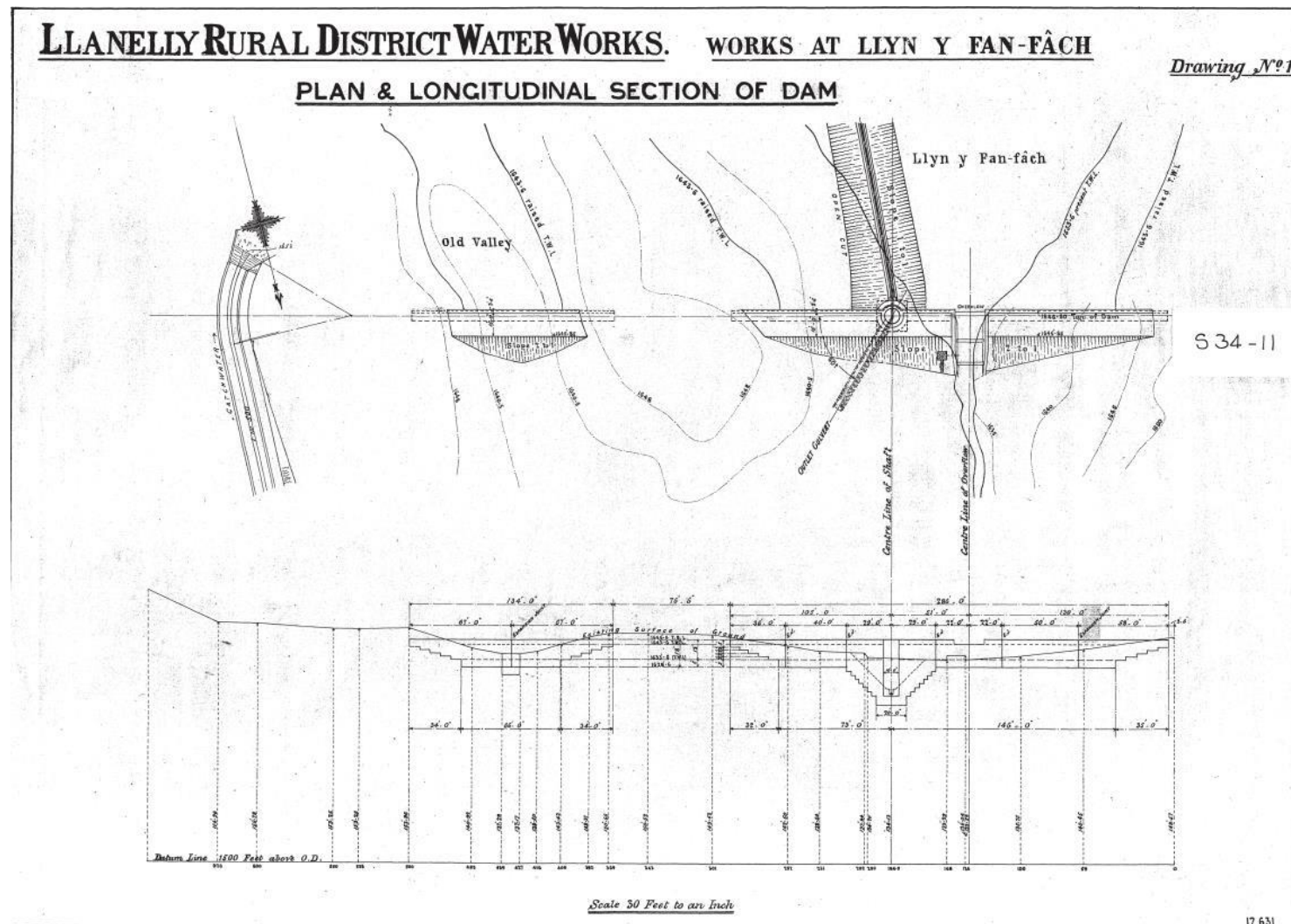
### **6.1 General**

- 6.1.1 Sections 4 and 5 have laid out the known archaeological resource for the area, recorded on the regional databases of historic assets. The following section examines some of the main sources of information that could expand the current understanding of the archaeological resource and highlight previously unrecorded historic assets.

### **6.2 Previous Archaeological Work**

- 6.2.1 No intrusive archaeological investigations (excavations, evaluations or watching briefs) have previously been undertaken within the study area.
- 6.2.2 In 1998/9 Dyfed Archaeological Trust carried out a regional survey of Deserted Rural Settlements (Sambrook & Ramsey 1999), which recorded many of the medieval or post-medieval sites in the area, but these sites have since been incorporated into the regional HER.
- 6.2.3 As mentioned in Section 5.7 a Cadw-funded project was undertaken in 2017 as part of a series of works marking the centenary of the First World War. Included in this work was an examination of the use of conscientious objectors in the construction of the reservoir and associated features (Pyper 2020). This study, and the individual features identified from site visits and research, have since been incorporated into the regional HER.





**Figure 4:** Original plans and section of the reservoir dam wall at Llyn y Fan Fach.

### 6.3 Historic Mapping

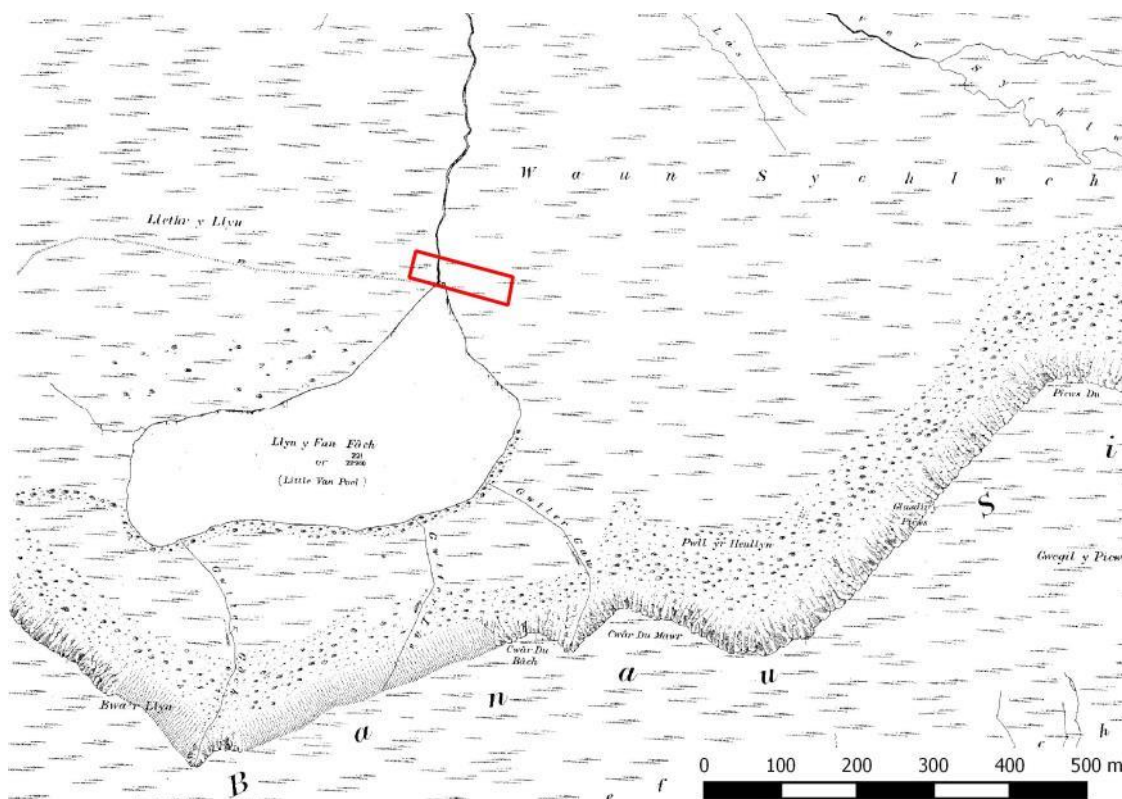
#### Ordnance Survey original surveyors map (T.Budgen) – Llandovery 1813

- 6.3.1 These Ordnance Survey maps from the early 19<sup>th</sup> century provide some of the earliest informative mapped evidence of the area. Little detail is shown, but the general topography is shown, as is the lake and the Afon Sawdde to the north. The surrounding landscape is unenclosed, the only feature visible is the Bronze Age burial mound on Picws Du. The temporary compound area also lies within this unenclosed landscape, with enclosed farmland around Blaenau farm, the boundary between fields and open land appearing similar to the current one.

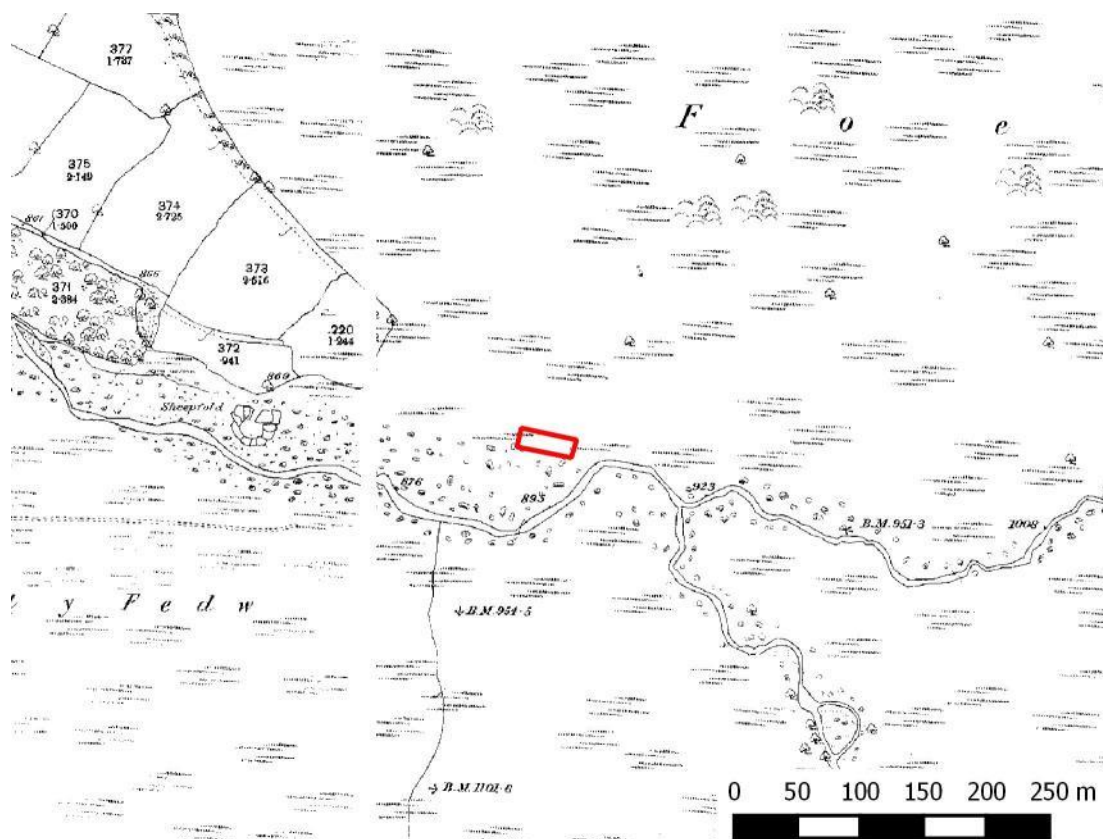
#### Ordnance Survey 1:2500 map 1887 (Fig 4 & 5).

- 6.3.2 As an area of open common land the area is not recorded on the mid-19<sup>th</sup> century parish tithe maps, instead the first detailed mapping of the site comes from the Ordnance Survey maps of the late 19<sup>th</sup> century.
- 6.3.3 The lake is marked in much of its current form, although generally narrowing to a more prominent point at the northern end than is visible now. The lake is fed by a number of streams coming off the ridgeline to the south, Gwtter Gau, Gwtter Las and Gwtter Goch. The southern shore of the lake is depicted as rocky, with dispersed stone around the northern shore. A footpath runs from the northern point of the lake, where the Afon Sawdde emerges, and runs off to the west before presumably climbing on to the ridgeline. To the north a number of watercourses feed into the main valley heading north from the lake, before it meets the Nant Melyn to turn west along the valley bottom. The channel to the north of the lake appears tree-lined along its base.
- 6.3.4 The area around the temporary compound appears unchanged. Within the open land, adjacent to the river, lies a sheepfold that comprises a central circular enclosure surrounded by an irregular series of enclosure around the periphery. Similar complex sheepfolds are shown on the periphery of the unenclosed moorland to the south. The base of the river and stream valleys are marked as stony ground, but otherwise no further features are depicted.





**Figure 5:** Extract from the Ordnance Survey map of 1887. Site boundary shown in red drawn around the reservoir dam wall.



**Figure 6:** Extract from the Ordnance Survey map of 1887. Site boundary shown in red drawn around the temporary site compound.

Ordnance Survey 1:10560 map 1906-7.

- 6.3.5 No significant change is noted.

Ordnance Survey 1:10560 map 1952.

- 6.3.6 This is the first map to catch the site after the establishment of the reservoir earlier in the 20<sup>th</sup> century. The northeast part of the lake has enlarged, with an artificial watercourse coming down from the Afon Sychlwch to the northeast. A trackway now runs up alongside the watercourse to the north of the lake, and the filter beds have been added midway down, much as it appears on current mapping.
- 6.3.7 At the base of the valley the building and enclosure to the west of the temporary compound area is marked, presumably constructed around the time of the early 20<sup>th</sup> century reservoir construction camp. No other features from the camp survive, other than the line of the current trackway and bridge across the stream.

Ordnance Survey 1: 10560 map 1964.

- 6.3.8 The only change visible on this map is an extension of the watercourse to the northeast, which now runs beyond the Afon Sychlwch to draw water from the Nant Coch and Twyn yr Esgair beyond.

Ordnance Survey 1: 10000 map 1978.

- 6.3.9 This is the first map to mark the weirs along the watercourse to the north, along with a footbridge and rain gauge to the north of the filter beds.

## **6.4 Aerial & Historic Photography**

- 6.4.1 A search was made of available historic aerial photographs and modern aerial photographs. As part of the research into the Conscientious Objectors Camp (Pritchard, Pyper & Rees 2017, Pyper 2020) copies of a number of historic photos from the area during the First World War were obtained. These include some photographs of the camp and the work in progress along the route. There are no images of work on the reservoir dam wall itself, although work on the filter beds and trackway are shown (Photo 1). Images of the camp also exist, although the specific area of the proposed temporary compound is not clearly discernible (Photo 2). The photos of the camp indicate that the main cluster of buildings were located along the trackside as it passes through the enclosure around the farmhouse on the approach to the current car park. The buildings are single-storey structures, relatively light-weight in appearance and where discernible constructed of corrugated tin or timber. It is not clear from the angle of the photos how far along the structures extended along the trackway. In the background the powder magazine (PRN 111180) is visible.
- 6.4.2 Historic aerial photographs of this area are limited, although images taken by the RAF in 1942 and 1946 are available (Photos 3 - 5). No further features of archaeological interest are noted in these images around the reservoir dam wall. At the base of the valley features relating to the early 20<sup>th</sup> century constructors camp are difficult to identify, although the sheep

fold complex to the west is clearly visible, and elements of Twyn yr Esgair settlement (CM306) are also visible to the east.

- 6.4.2 Modern satellite imagery from 2005 onwards depict little in terms of notable change around the reservoir wall area or around the proposed compound area, other than modern drainage channels running perpendicular to the trackway. The reservoir site looks as it is visible today, with the reservoir wall, tower, spillway and refuge hut all clearly visible, along with the laid trackway crossing the spillway before heading down the valley, and a worn footpath heading west as a circular route onto the ridge to the south. Two linear earthworks to the north have the appearance of elongated spoil heaps, possibly from the construction of the dam.



**Photo 1:** *The Valve House and Filter Beds under construction. (Peter Davies Collection).*

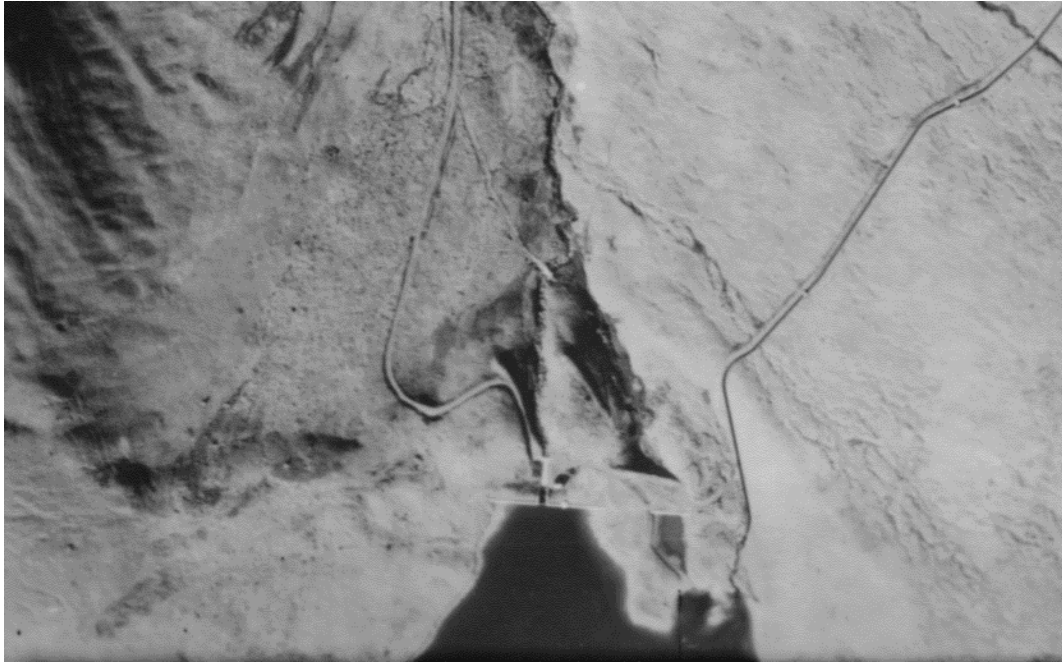




**Photo 2:** Image from 1917 of the Conscientious Objectors Camp, looking east. For reference, the currently extant dwelling is just visible on the left, with its protruding window, the proposed site compound location is located along the track, but just out of site to the rear. Photo courtesy of Llanelli Local Studies Library.



**Photo 3:** Aerial image of the reservoir site taken by the RAF in 1945.



**Photo 4:** Aerial photograph of the reservoir site taken by the RAF in 1948, just picking up the proposed development area at the northern end of the reservoir.



**Photo 5:** Aerial photograph from 1946 showing the area around the proposed site compound (approximate location in red).

## 6.5 LiDAR

- 6.5.1 LiDAR data at 2mDTM/DSM is available for the site area around the reservoir, and at 1mDTM/DSM around the compound area. No new features of note are visible however.



## 6.6 Site Visit (Photos 6-27)

- 6.6.1 A site visit was undertaken in late April 2021. Weather conditions were bright and sunny, with good visibility. There was open access up to the proposed development area, with a steady stream of visitors using the trackway to the reservoir.
- 6.6.2 The proposed compound area lies adjacent to a compacted stone single track road. As it runs past the proposed compound area the south side opens into a wider area of turf-covered ground (photo 6), dropping slightly to demonstrate the track has been partly built up to create a level track. Initially a stone wall lines a grass verge on the northern side, before it opens out onto unenclosed rising ground. A series of rectangular, concrete-lined, drains lie on the north side of the track at the base of the rising ground to aid in drainage off the hillside (photo 7). These then run under the track and into channels running off toward the river, features that are visible on the modern aerial photographs. At the east end the car park area comprises a levelled area of hardstanding, with embanked material around the edge, presumably deposited from the artificial levelling of the car park (photo 8). The ground falls to the river to the east and south, and rises on the north side into a ridge along the northern edge of the adjoining tributary stream. An area of collapse to the east shows this ridge to be unstable and liable to small landslides. Beyond the car park the track continues to cross the river via a 20<sup>th</sup> century stone-built bridge.
- 6.6.3 Only a small number of building remains relating to the former internment camp were visible. Remains of an earlier stone-built sheepfold survive, visible on historic maps and aerial photographs. Adjacent to this lies hut PRN 112062, a rectangular brick-built structure (photo 9). Further along, on the riverside, lies the former magazine PRN 111180 (photo 8), a roofless stone-built structure, as described in the HER. A building platform PRN 112063 closer to the roadside was not readily identifiable at the time of survey. A drovers track crosses the river via a simple ford to the east of the sheepfold. The associated trackway is visible as a cutting on the south side of the river, but becomes more ill-defined on the north side. No features were discernible within the area of the proposed compound.



**Photo 6:** View east along current trackway as it approaches the car park. 1m scale.



**Photo 7:** View north of a modern drainage channel cut under the current track.



**Photo 8:** View southwest looking down on the current car park area, proposed compound area would lie to the right. The former magazine PRN 111180 is marked by the arrow.





**Photo 9:** *View southeast across the former sheepfold (stone walling in foreground), with brick walling and platform beyond, representing remains of the former reservoir constructors camp (all lying outside areas of proposed development).*

- 6.6.4 The laid gravel track continues up to the reservoir, running up a small valley alongside the stream. The track is partly reveted in mortared masonry and carried over the stream on short masonry bridges. The stream itself is partly channelled, with weirs and occasional sluice gates built along the line.
- 6.6.5 Midway up lie the filter beds and associated structures, now used as a fish hatchery. The main building, the former Valve House, has a splayed lower half in coursed roughly dressed masonry, topped by random rubble faced stone with rock faced quoins, concrete window and door dressings and a hipped slate roof with swept eaves. An outshut lies on the north (downslope) side with a corrugated asbestos-cement roof, with a concrete-block outbuilding beyond. A detached random-rubble store lies adjacent to the track to the north. The mortared stone-built filter beds lie on the southwest side of the Valve House, with two main beds either side of a central channel, and surrounded by concrete paths. A series of weirs and ponds lie on the south, upstream, side of the filter beds.





**Photo 10:** *Weir along the Afon Sawdde as it descends the hill. View looking south. 1m scale.*



**Photo 11:** *View looking north along the embanked trackway and bridge crossing on the right, and river on the left.*





**Photo 12:** View looking west across the filter beds (LB 87840, PRN 111187) with Valve House (LB 87841, PRN 112067) on the right.



**Photo 13:** View looking southwest from viewpoint above, looking along the Afon Sawdde with weirs (PRN 111188) and towards the reservoir (out of site).

- 6.6.6 The track crosses a channelled section of the stream to continue towards the reservoir, diverging from the original trackway line to take a slightly more circuitous route as it nears the summit of the ascent.
- 6.6.7 The reservoir lies in a hollow backed by the dramatic ridgeline. The banks of the reservoir slope gently into the water at the northern end, and at the foot of the ridge along the eastern side, rubble strewn around its edges. The southern edge is more dramatic at the foot of the ridge, and the western edge is more pronounced rising into an area of rocky hummocky ground. The reservoir is surrounded by tussocky moorland to the north and west. The occasional circular stone-built shelter, or sheep fold is

Llyn y Fan Fach Reservoir, Brecon Beacons National Park, Carmarthenshire:  
Historic Environment Desk-Based Assessment

visible on the western banks of the reservoir (PRN 112065, with another on at SN 8011 2186), as are some drainage features associated with the reservoir (PRN 111181).



**Photo 14:** View looking southwest across Llyn y Fan Fach.



**Photo 15:** View looking northeast across shelter PRN 112065. 1m scale.

- 6.6.8 The main reservoir dam wall is concrete built, with concrete coping stones. The south face, containing the water, is concave, splaying out at the top. The spillway channel is placed centrally along this wall, the tower lies offset to the east, projecting slightly into the reservoir, but the top at a level with the rest of the reservoir wall. The north face is backed by turf-covered embanked material, with the only exposed section of walling at the central spillway, where dressed-stone blocks are visible.





**Photo 16:** View looking northwest at the reservoir dam wall (LB 87839, PRN 111183).



**Photo 17:** View looking northeast at the reservoir dam wall.



**Photo 18:** View looking southwest at the top of the reservoir dam wall tower.

6.6.9 The spillway has quarried rubble-stone side wall with concrete coping stones. Low dressed-stone walls cross the spillway in front of the dam wall, to form small ponds with a central steel panel. The concrete surface of the spillway is heavily cracked and damaged. The spillway is lined by 'cock and hen' stone walling, narrows slightly and drops away under the track, which is carried across it on concrete and iron girders supported on masonry stacks.



**Photo 19:** View looking SSW at the spillway, placed centrally along the reservoir dam wall.





**Photo 20:** View looking NNE showing the bottom end of the spillway and trackway crossing.

- 6.6.10 A small shelter stands in front of the dam wall, adjacent to the spillway. It is a single-storey structure, built of mortared random rubble, with dressed quoins, a hipped roof of corrugated steel and low brick and stone chimney stack in the southeast corner, and a central doorway on the north side.
- 6.6.11 A secondary dam lies to the east, built in the same manner but with no spillway or tower, and the water channel behind infilled with embanked material. To the east a catchwater channel runs down from the more gentle slope to the northeast. The channel is concrete built, with sloping mortared masonry above, crossed by the occasional concrete slab bridge. The linear spoil tips associated with dam construction are now turf covered and extend to the north.



**Photo 21:** View looking southeast at the building (PRN 112069) adjacent to the spillway.



**Photo 22:** *View northwest showing the secondary dam wall to the east of the main dam.*



**Photo 23:** *View north showing the catchwater (PRN 111185) feeding the reservoir from the northeast.*





**Photo 24:** View north showing one of the reservoir works spoil tips (PRN 111182), the raised area of ground on the left. Also illustrates the general view north from the reservoir.

6.6.12 Around 90m to the northeast of the dam wall lies an outflow under a stone arch, with a splayed opening in mortared masonry, 'cock and hen' coping, and surrounded by wooden fencing. '1920' is carved into the key stone of the arch, partly obscured by a steel gate. A further 50m downslope lies an outflow channel with access chamber, built of mortared masonry, concrete lintels and steel sluice gates. 50m beyond this lies a concrete bridge carrying the original reservoir trackway. Large concrete culverts, surrounded in mortared masonry walling, line the downslope side of the bridge.



**Photo 25:** View southwest of outflow, with dated headstone part hidden by the metal gate.



**Photo 26:** View north of chambered outflow channel.

6.6.13 In terms of views of surrounding designated assets, the Bronze Age burial mound on Picws Du (CM336) occupies a ridge top location with extensive and dramatic views across the landscape, including the proposed development site. The distance to the feature does however make it difficult to pick out from the development site itself (Photo 21).

6.6.14 There are extensive views from the reservoir wall to the north as the land falls away, but the nature of the topography hides any direct inter-visibility with the associated listed buildings around the Valve House (LB 87841) and Filter Beds (LB 87840), or indeed the bridge at the base of the slope (LB 87842) and adjacent Scheduled Monument (CM306), see photos 18 and 7).



**Photo 27:** View ESE from the reservoir spillway, looking at the ridge of Picws Du beyond, surmounted by Scheduled Monument CM336.

## 7 ASSESSMENT OF ARCHAEOLOGICAL POTENTIAL, IMPORTANCE AND SETTING

**Table 4:** Site potential definitions

Archaeological Potential	Definition
<b>High</b>	Known archaeological remains of the period within the site area, or an abundance of remains of the period within the near vicinity
<b>Medium</b>	A number of archaeological remains of the period are present in the vicinity or wider area, and/or the topography or location of the site would be typical for remains of that period
<b>Low</b>	Few sites of a specific period are known in the wider area, or where the topography of the site is unlikely to contain remains of that period. Or where no archaeological records of a certain period are present, but the location of the site is one that would be considered suitable or typical for remains of that period to exist
<b>Negligible</b>	Where there is no evidence for archaeological remains of a certain period to be present and the location/topography is most unlikely to contain remains of that period, or where a site area has already been totally disturbed

**Table 5:** Site importance definitions

Site Importance (SI)	Definition of Site Category
<b>High</b>	Features of national importance - Scheduled Monuments, Listed buildings Grade I and II*, well preserved historic landscapes, registered parks and gardens and historic battlefields
<b>Medium</b>	Non-scheduled sites of regional or county importance. Listed Buildings Grade II, reasonably preserved historic landscapes
<b>Medium / Low</b>	Features of district or local importance but generally common features at a national or regional level
<b>Low</b>	Minor sites or sites so badly damaged that too little now remains to justify their inclusion in a higher grade
<b>Uncertain</b>	Features about which insufficient is known to attribute them to a higher rank, or which cannot be sufficiently accurately located to justify their consideration
<b>Negligible</b>	Where a site area has already been totally disturbed by previous development or natural processes



## **7.1 Potential & importance**

- 7.1.1 The proposed works at the reservoir are focussed on the reservoir dam wall, which is recorded on the regional HER (PRN 111183) and a Grade II listed building (LB 87839). The dam was built between 1914 and 1918, using Irish navvies and Conscientious Objectors as labourers. Given its listed status, the site is of High archaeological importance, and as the works are concentrated on this structure there is a High potential for early 20<sup>th</sup> century reservoir works structures and features to be present on site.
- 7.1.2 A number of other features are recorded in the immediate area related to the reservoir dam construction, such as the shelter (PRN 112069), concrete building foundations (PRN 111186 & 112065), spoil heaps (PRN 111182), catchwater channel (PRN 111185), siphon chambers (PRN 111184), secondary dam wall, outflow tunnel and original trackway. These features are not listed, but given their association with the reservoir dam wall they are of Medium archaeological importance.
- 7.1.3 The proposed temporary constructor's compound is located at the base of the Sawdde valley, as it begins to flow west. This area is the site of a First World War Conscientious Objectors Camp (PRN 110406). The camp was established during the war, with occupants involved in the construction of the nearby reservoir. The current track was established at this point, with a number of light-weight huts built along it and in the area to the south. A detailed study of this camp has taken place, and all visible remains have been identified and recorded on the HER, and include building platforms and a former magazine store. No specific remains have been positively identified within the proposed compound area, but given the temporary and light-weight nature of the structures, and the potentially dispersed nature of activity on the site, there is a medium potential of associated remains throughout this area. The main focus of activity is of Medium archaeological value, but this is likely to have been to the west of the proposed compound area, therefore any associated remains within the proposed compound area are likely to be of a Low archaeological value.
- 7.1.4 A greater number of features are recorded throughout the Afon Sawdde valley as it flows down the valley to the north, before reaching the base of the valley and flowing west, but as proposed development is focussed on the reservoir dam wall and the proposed compound, these features are not considered here.
- 7.1.5 Recorded archaeological sites in the surrounding area suggest three main periods of additional archaeological potential in the area. The recovery of Mesolithic flints from the shore of Llyn y Fan Fach indicates potential for further Mesolithic activity associated with the lake. Similarly, the recovery of Bronze Age flints, and presence of Bronze Age funerary and ritual sites in the landscapes, indicates a potential for further Bronze Age activity associated with the lake. Given the extent of the early 20<sup>th</sup> century construction activity on the site (an indication of the scale of which is visible in Photo 1), it is likely that any such remains in the immediate vicinity could have been disturbed by previous groundworks, but there remains a low to medium potential for archaeological remains associated with this activity. The nature of such sites is unknown at present, but given the possibility that any archaeological evidence in this area may also been submerged and/or waterlogged, the potential for well-preserved archaeology would suggest they would be of Medium archaeological importance or more.
- 7.1.6 The third period of archaeological potential is highlighted by the presence of deserted rural settlement sites, comprising longhuts, building platforms,

shelters and sheepfolds. These sites are thought to be medieval or post-medieval in date. As with the other periods of archaeological potential, the construction of the reservoir is likely to have impacted upon any remains in the immediate vicinity. Similarly, the base of the valley, around the site of the proposed compound, is a good location for such activity, as indicated by the nearby Twyn yr Esgair settlement remains, but the lack of identified remains, previous development and the concentration of proposed development along and alongside the existing trackway, reduces potential to a low to medium potential for archaeological remains associated with this activity in both development areas. Given that better preserved examples of such activity are known in the locality, remains around the proposed development site are likely to be of low archaeological importance.

## 7.2 Setting

- 7.2.1 The guidance stated within the *Setting of Historic Assets in Wales* (Cadw 2017) requires that the setting of the monument(s) in question should be defined and analysed to allow the impact of development to be appropriately assessed.
- 7.2.2 The setting of such monuments includes “the surroundings in which it is understood, experienced and appreciated, embracing present and past relationships to the surrounding landscape. Its extent is not fixed and may change as the asset and its surroundings evolve” (Cadw 2017). As such it often extends beyond the physical boundaries of the monument itself. This may include physical elements in its surroundings, such as boundaries and other monuments, relationships with other historic assets and natural features, or associated agricultural, industrial or other surroundings. Less tangible elements are also included, such as function, sensory perceptions, historical, artistic, literary and scenic associations.
- 7.2.3 The setting of the **reservoir dam wall LB 87839** is closely linked to the contemporary and associated structures that surround the site. The dam wall was built to create a reservoir, but is part of a range of other structures that were created to allow the reservoir to function, therefore the standing structures such as the secondary dam, the shelter, the outflow channels and the catchwater (PRNs 111184, 111185, 112069, 112079 & 112081), and the visible remains of other structures (PRNs 111181, 111186 & 112066) all form part of the immediate setting. The reservoir lake itself is also another important element of the setting, as a clear indication of the function and purpose of the dam wall. Related to this are the contemporary and associated structures that can be found all down the Afon Sawdde valley to the base of the hill, including the filter beds and valve house (PRN 111187 & 112067), and the weirs (PRN 111188), bridges (PRNs 111191, 111192 & 112074), ponds (PRNs 112070, 112072 & 112076), structures (PRN 112068), and the trackway access, which all form part of the setting explaining the function of the dam wall. At the base of the hill, where the current car park lies, was the site of the workers encampment. A crucial part of the importance of the dam wall is the fact it was largely built through labour provided by Conscientious Objectors to the First World War, and the camp site is an important area containing information about the lives of these workers, even though there are few above-ground remains of the camp.
- 7.2.4 The dam wall is a functional piece of architecture, however, it lies in a dramatic location, and the backdrop of the steep ridge overlooking the site, and the extensive views to the north, form part of the current visual

setting. Views from the ridge, and views of the lake, are significant viewpoints, although the dam wall itself is a rarely a feature of these viewpoints, given its modern, functional appearance. Similarly, the lake has strong associations with traditional folklore concerning the lady of the lake, and the physicians of Myddfai, but this is of little relevance to the setting of the reservoir dam wall.

- 7.2.5 The remaining listed buildings, such as the **filter beds LB 87840** and **valve house LB 87841**, and the **bridge over Nant Melyn LB 87842**, all share a similar setting to the reservoir dam wall as they are all part of the creation and functioning of the reservoir. The dramatic topography of the lake and ridge is less of a factor in the setting, but remains part of the general visual setting of these structures.
- 7.2.6 The setting of the Scheduled Monument of **Picws Du Cairn CM336** differs from the Listed Buildings. Upland locations such as this, on the edge of a prominent ridge, are often considered to have been deliberately sited so the monument is both clearly visible from a number of locations, and provides extensive views of the surrounding landscape and other contemporary monuments. This site is likely to have had a number of significant viewpoints of it from around the northern edge of the lake and the upland landscape to the north, and a general view north from the monument is also likely to be significant. Contemporary funerary and burial monuments and are known at Fan Foel to the northeast, Carnau Nant-Menyn to the southwest and Garn Las to the north, and visual links between these monuments are likely to be important factors in the setting. A link to the water of Llyn y Fan Fach would also appear likely, a connection between votive offerings and lakes is documented on a number of Bronze Age sites, such as the Fenlands area of England, and therefore the presence of the lake close to and underneath the cairn site is likely to be an important element in its setting.
- 7.2.7 **Twyn yr Esgair Settlement (CM306)** lies within 120m of the proposed temporary compound. The location would suggest the setting is likely tied into the pastoral agricultural history of the area, as the settlement appears largely to comprise small dwellings, shelters and sheep folds. The location therefore suggests a close link to the surrounding areas of grazing, although some field boundaries have been suggested by RCAHMW inspectors. In terms of location, it has chosen a more sheltered site in the valley bottom, with access to water, although there appears a deliberate choice to choose the smaller stream of Nant Melyn rather than the larger, and presumably more energetic and unpredictable, Afon Sawdde, although easy access to this is still possible. Enclosed agricultural land, with presumably greater frequency of permanent dwellings, may have formed an important element of wider land management, as it does today, and the site maintain relatively easy access along the valley floor. The date of the settlement may have a significant bearing on which elements of the landscape, and which surrounding archaeological features, feature more prominently in the setting of this monument. For example, post-medieval sheep folds and building platforms lie along the lower valley slopes, with settlement areas to the west, whilst prehistoric sites of ritual significance are located in the upland regions to the east. In terms of visual setting, the site is not a prominent one as the features that comprise the site are difficult to see on the ground. Views instead take in the rural upland setting up the Nant Melyn valley, flanked by rising ground on either side. The site itself is best viewed from relatively close up as the valley curves away slightly, or from raised ground to either side. From the site the most extensive views are down along the valley to the west. From the locality

notable views exist up the main river valley to the south with dramatic upland backdrop.

- 7.2.8 No links between the proposed development area and the settings of the remaining Scheduled Monuments in the area have been identified.
- 7.2.9 The proposed development areas lie within the Historic Landscape Character Area of The Black Mountain – Y Mynydd Ddu (HLCA 240), part of the Black Mountains and Mynydd Myddfai Landscape of Outstanding Historic Interest (HLW (D) 1). This is predominantly an open upland area with a hard boundary to enclosed fields. The main themes are described in Section 4.4 and include areas that have been used as upland pasture which have included woodland removal started during the Mesolithic, areas of prehistoric occupation and partial enclosure with associated funerary and ritual activities, areas of informal occupation with longhuts and partial post-medieval enclosure, and areas of 19<sup>th</sup>-20<sup>th</sup> century leisure activities. The proposed development affects an area of modern development, that has become a feature of modern leisure activities, becoming a popular walking destination and stopping point.

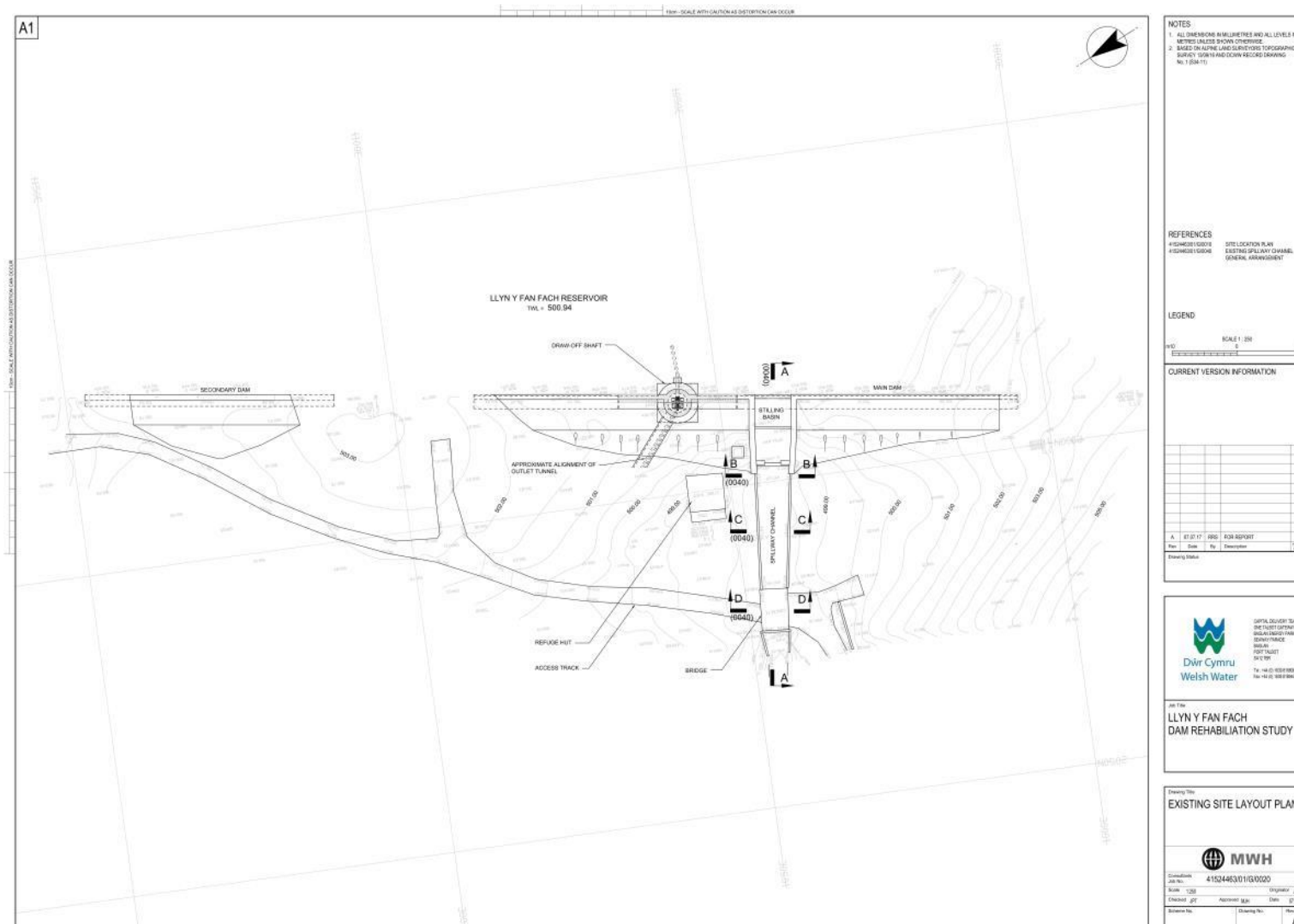


## **8 IMPACT ASSESSMENT**

### **8.1 Development details (Figures 7 – 13)**

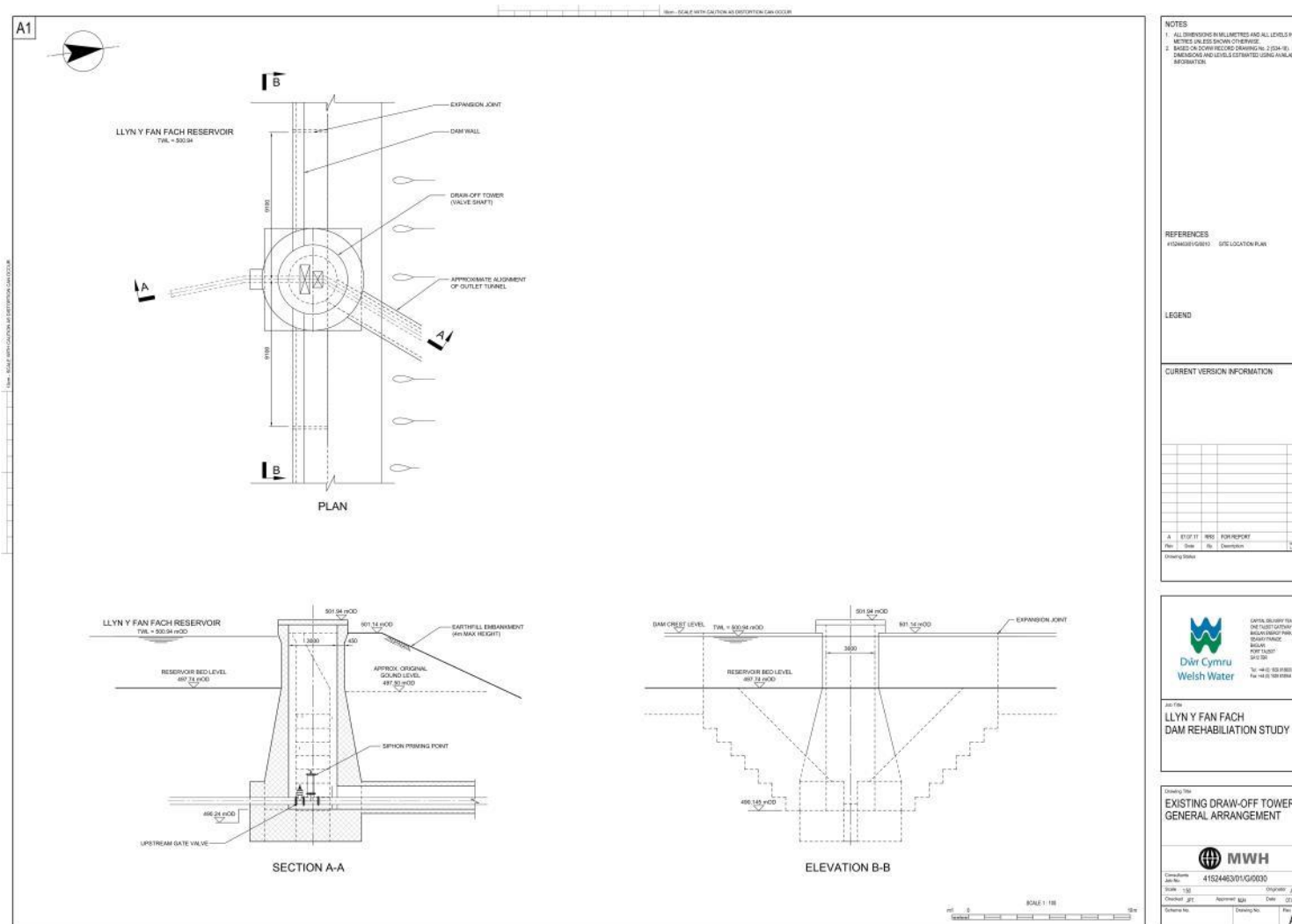
- 8.1.1 The proposed works at the reservoir comprise repair and refurbishment of the reservoir dam wall to ensure it remains safe and operational following visible deterioration in the structure.
- 8.1.2 Deterioration is visible on the face of the reservoir wall, with cracked and spawling concrete across the southern face of the wall (Photos 16 & 17). This face will need to be repaired, and the coping stones repaired and replaced as necessary.
- 8.1.3 Large cracks are present in the dam wall tower, and the steel access ladders have gone. Refurbishment plans would include the demolition of the upper part of the tower to below the reservoir bed level, consisting of approximately 5m of the tower. The tower would be rebuilt to similar dimensions, and capped with a new reinforced concrete cover slab. Internally new access ladder would be installed, along with a new landing platform, rising spindles, gate valve, flange adapter and pipework as necessary. The siphon priming point at the base of the tower will also be slightly relocated.
- 8.1.4 Cracks and deterioration are also visible along the concrete spillway which would require repair (Photo 19). The taper on the spillway would also need to be removed to allow for a better flow of water. Pipework crosses the spillway underneath the current footbridge, which impedes the flow of water (Photo 20). These pipes would need to be reconfigured to improve flow.
- 8.1.5 The proposed temporary compound would be a temporary installation, across an area of approximately 40m by 15m adjacent to the existing trackway. An area of hardstanding would be created, similar to the adjacent car park. It is likely that topsoil will be stripped, and banded around the perimeter, with a membrane overlaid with imported hardcore to create the hardstanding base. The area is likely to contain temporary welfare and storage units, used for the duration of works on the reservoir wall.
- 8.1.6 Generally, any of the following activities that may be associated with the proposed works could have a direct impact upon historic assets by potentially exposing, damaging or destroying archaeological remains:
- Demolition works to elements of the existing reservoir structure
  - Works to enable safe access to the reservoir structure, for example the establishment of external shoring or bunds (if required);
  - Enabling works, such as the construction of access roads, parking and storage areas, associated services;
  - Surface stripping and levelling, foundation excavations (if required);
  - Establishment of construction compound (largely surface stripping);
  - Any other ground disturbing works
- 8.1.7 Development in this area also has the potential to generate indirect impacts upon historic assets, by altering elements of the setting as discussed in section 7.2.

# Llyn y Fan Fach Reservoir, Brecon Beacons National Park, Carm: Historic Environment Desk-Based Assessment



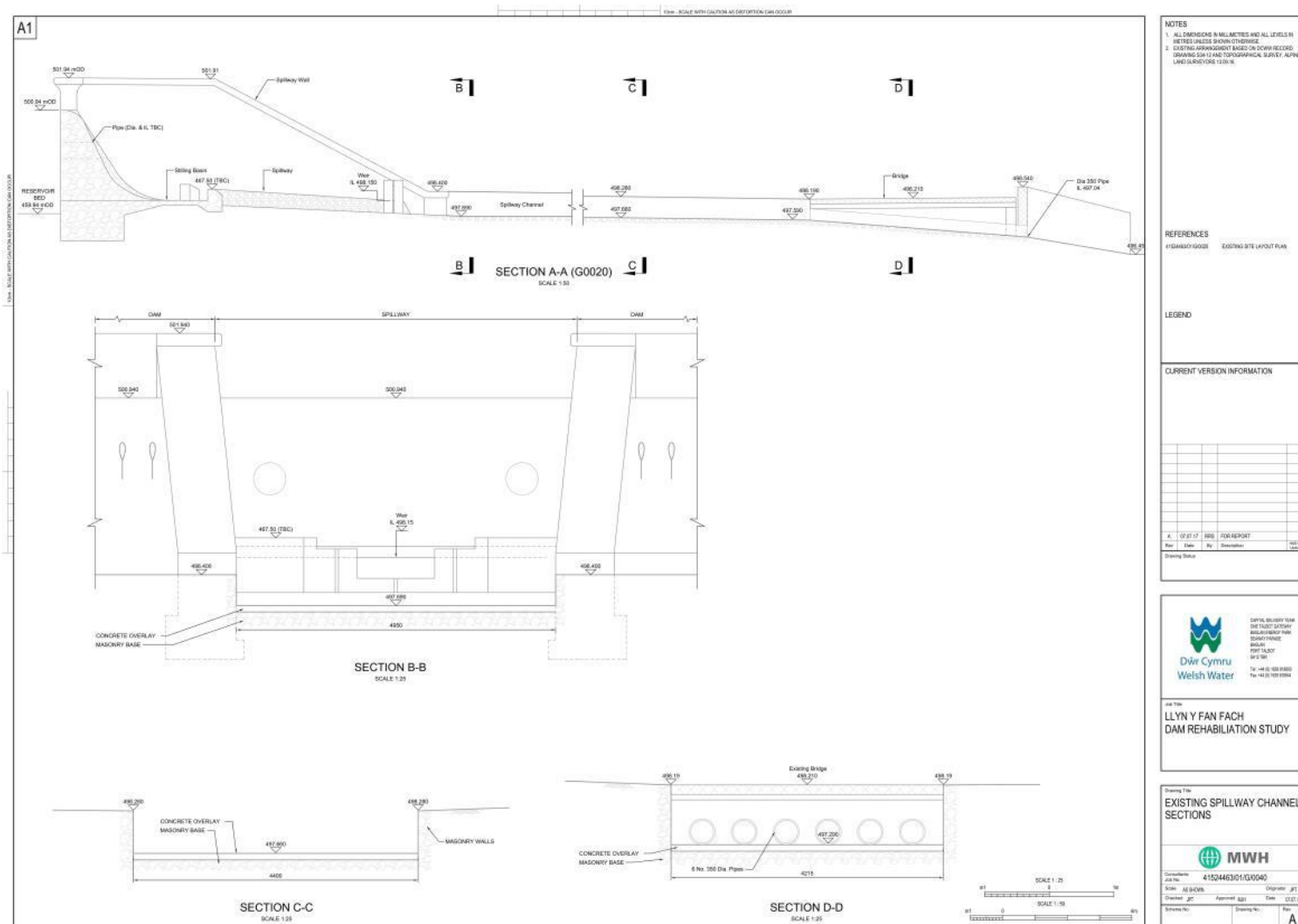
**Figure 7:** Existing site layout plan for the reservoir wall. Plan created by MWH for Dŵr Cymru Welsh Water. Not reproduced to scale.

Llyn y Fan Fach Reservoir, Brecon Beacons National Park, Carm: Historic Environment Desk-Based Assessment



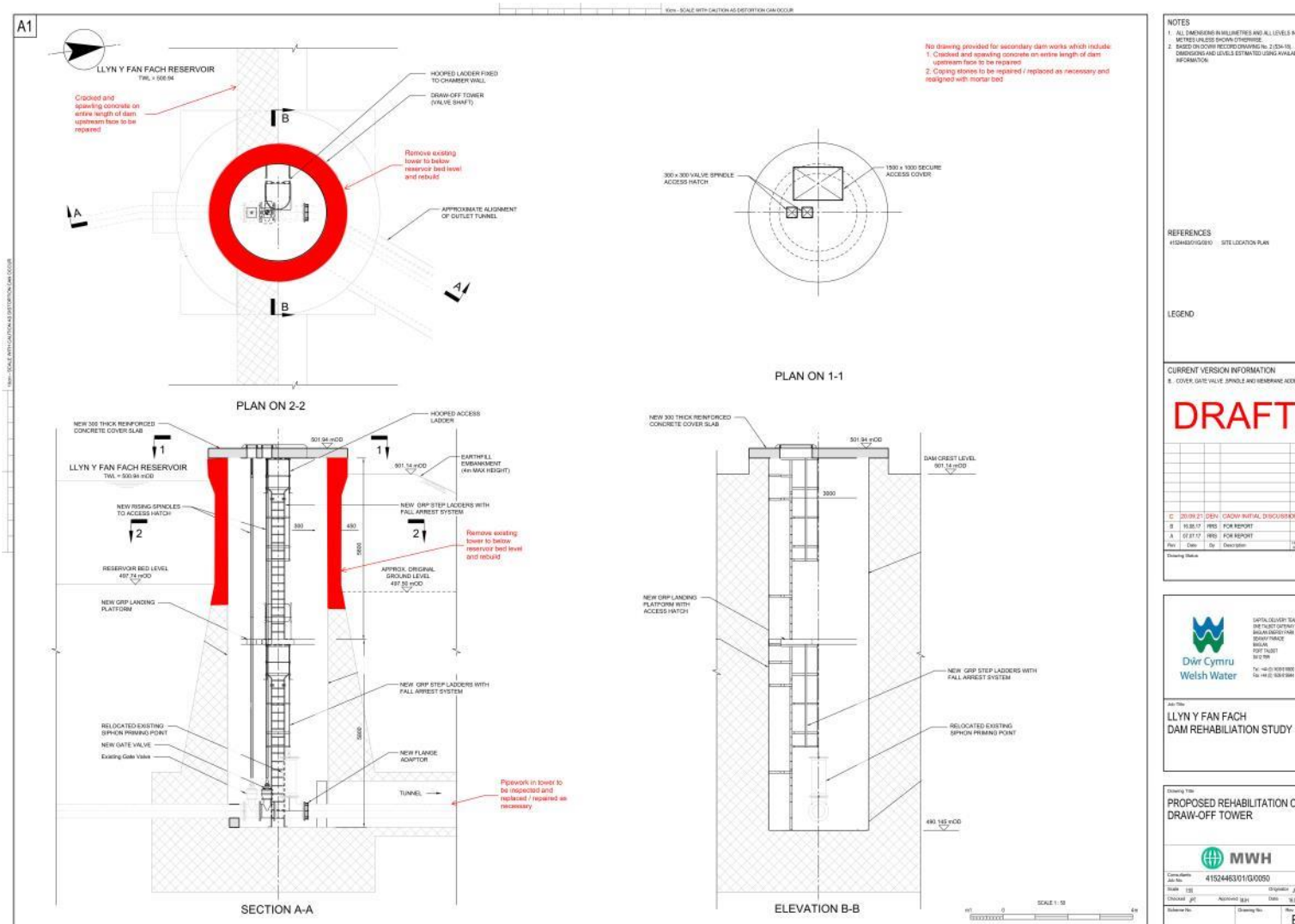
**Figure 8:** Existing plan and section of the reservoir dam tower. Plan created by MWH for Dŵr Cymru Welsh Water. Not reproduced to scale.

Llyn y Fan Fach Reservoir, Brecon Beacons National Park, Carm: Historic Environment Desk-Based Assessment



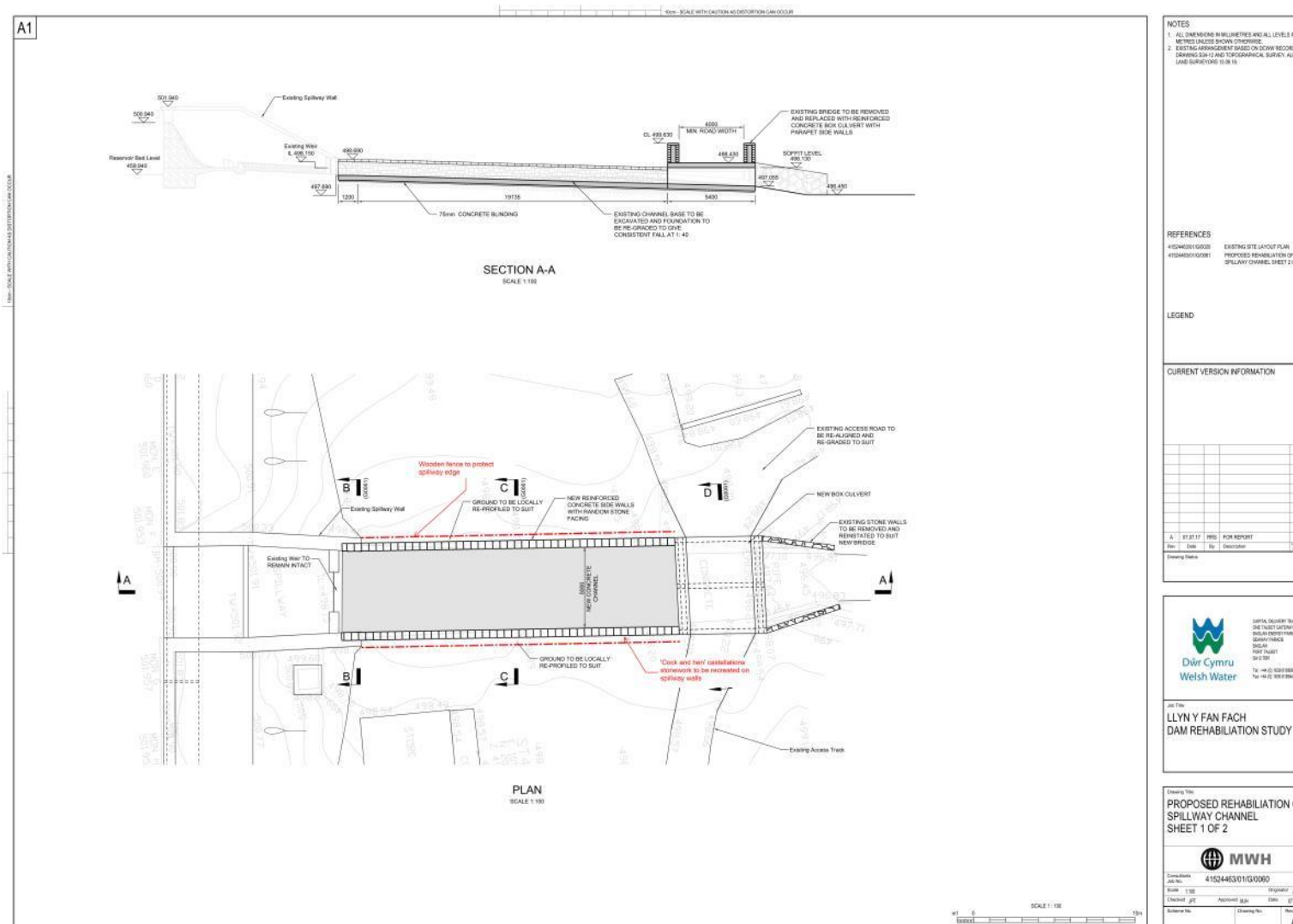
**Figure 9:** Existing section and elevation of the reservoir spillway. Plan created by MWH for Dŵr Cymru Welsh Water. Not reproduced to scale.

# Llyn y Fan Fach Reservoir, Brecon Beacons National Park, Carm: Historic Environment Desk-Based Assessment



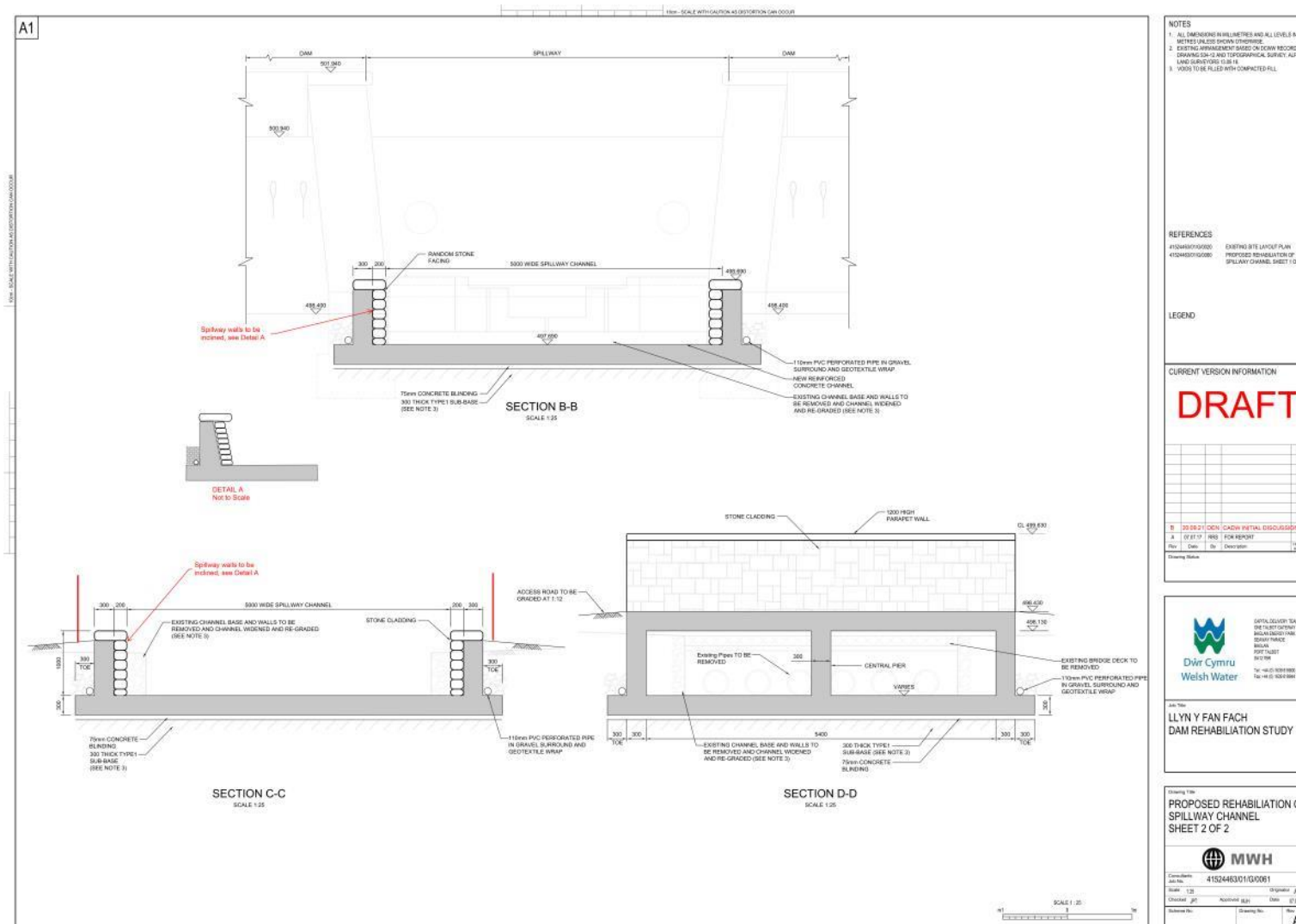
**Figure 10:** Proposed works on the reservoir dam tower. Plan created by MWH for Dŵr Cymru Welsh Water. Not reproduced to scale.

Llyn y Fan Fach Reservoir, Brecon Beacons National Park, Carm: Historic Environment Desk-Based Assessment



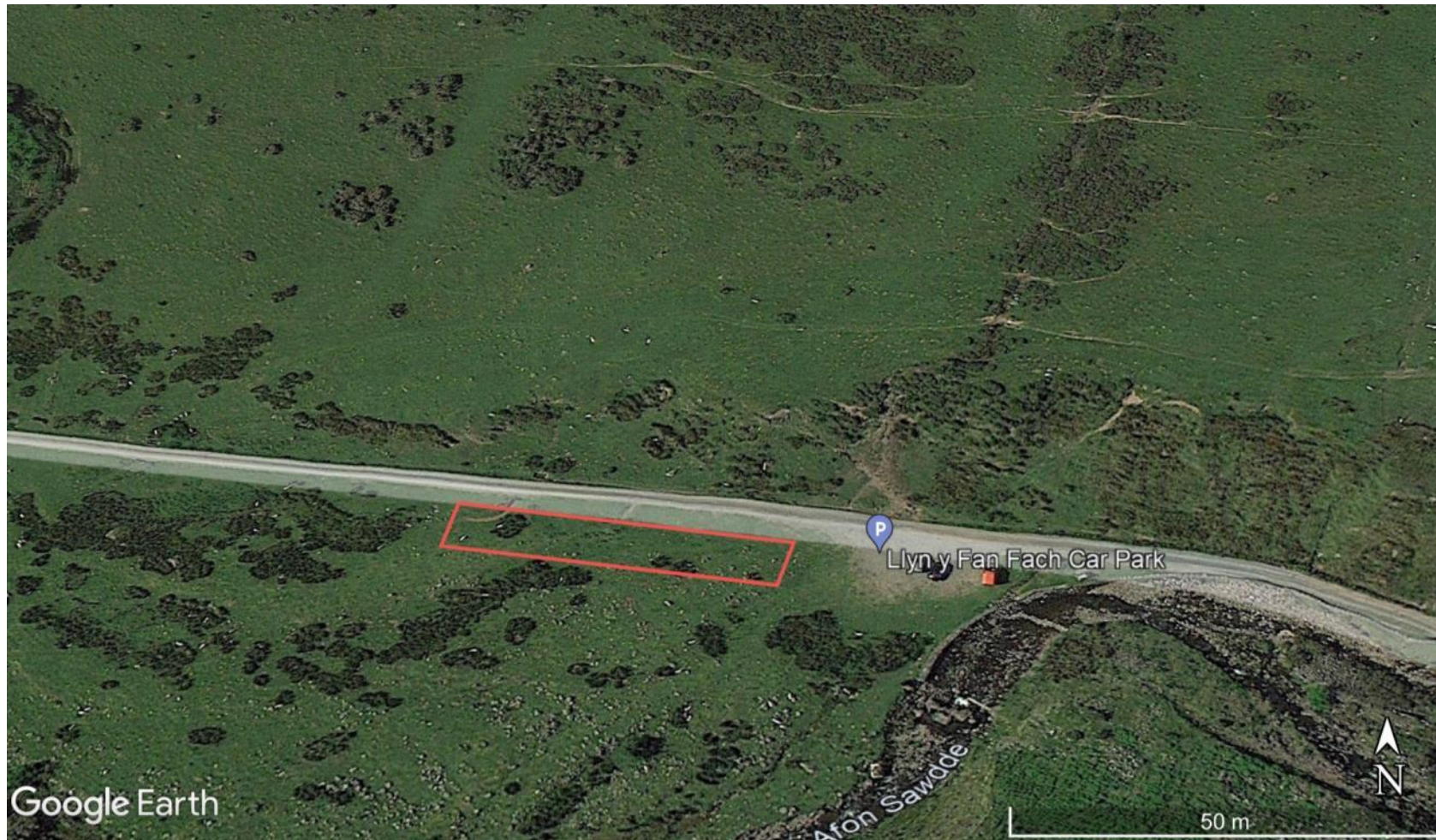
**Figure 11:** Proposed works on the spillway. Plan created by MWH for Dŵr Cymru Welsh Water. Not reproduced to scale.

# Llyn y Fan Fach Reservoir, Brecon Beacons National Park, Carm: Historic Environment Desk-Based Assessment



**Figure 12:** Proposed works on the spillway. Plan created by MWH for Dŵr Cymru Welsh Water. Not reproduced to scale.





**Figure 13:** Proposed temporary constructor's compound adjacent to Llyn y Fan Fach car park. Map Data: Google Earth (2016).

## **8.2 Impact assessment criteria**

- 8.2.1 The criteria for the assessment of impacts on historic assets is based on The Department for Transport 'Transport Analysis Guidance' (TAG), Unit A3 'Environmental Impact Appraisal: Section 8 Impacts on the Historic Environment', of May 2019, with additional information based on professional judgement. In addition however, the guidance offered in the Setting of Historic Assets in Wales (Cadw 2017) has been utilised.
- 8.2.2 The TAG criteria divides the impacts into seven categories, ranging from Large Adverse (negative), Moderate Adverse (negative), Slight Adverse (negative), to Neutral, and then on to Slight Beneficial (positive), Moderate Beneficial (positive) and Large Beneficial (positive).

## **8.3 Physical impacts upon the historic assets**

- 8.3.1 Repair and refurbishment works will unavoidably have a physical impact on the reservoir dam wall (PRN 111183 / LB 87839) as the structure itself is the historic asset. The main impacts being the demolition and rebuilding of much of the dam wall tower, and the removal and rebuilding of much of the spillway channel and trackway bridge crossing of the spillway. Rearrangement of internal features, and general repair works to concrete walling and coping stones will also have a physical impact. Repair works will be limited to the minimum necessary to ensure the continued function and safety of the dam wall, and the size, scale and materials used will be consistent with the current structure, in that concrete and cement will be replaced with concrete and cement, and the design and appearance of the spillway will be retained as much as possible. The depth and extent of foundation excavations for the spillway, and the demolition/construction methodology for the dam wall tower is not fully understood at present. These works are considered to have a Moderate Adverse impact, although the works are required to ensure the continued life of the dam wall.
- 8.3.2 Work will be confined to the dam wall structure, but will require construction activity, use of machinery, storage of materials, and other associated activity in the vicinity, which may have a physical impact upon features in proximity to the dam wall structure. The known features include the adjacent shelter (PRN 112069), nearby concrete foundations (PRN 111186), and original spoil heaps (PRN 111182). There is the potential for construction activity to have a Slight Adverse impact upon these features.
- 8.3.3 Surface stripping for the constructor's compound may impact upon archaeological remains associated with the First World War Conscientious Objectors Camp (PRN 110406). No visible surface remains have been identified in this location, but there is a medium potential for below ground remains, and stripping works may have a Slight Adverse impact.
- 8.3.4 A general archaeological potential for Mesolithic, Bronze Age and medieval/post-medieval archaeological activity has also been identified for the general area. There is the potential for any ground-breaking activity around the reservoir dam wall and constructor's compound to expose, damage and destroy any such remains, should they be present. It is also possible however that previous construction on this site could have already impacted upon any such remains. There is therefore the potential for construction activity to have a Slight Adverse impact upon this potential.
- 8.3.5 The transport of materials to and from the constructors compound to site has the potential to impact upon a number of features along the trackway access

to the site, such as the bridges (PRNs 111191, 111192 & 112074), roadside ponds (PRN 112076), roadside spoil heaps (PRN 111190), roadside buildings (PRN 111189), and even a Scheduled Area (CM306). However, it is understood that the existing trackway and bridges will be used and remain unaltered, which will therefore have a Neutral impact on these sites.

#### **8.4 Impacts to the Settings of Surrounding Designated Features**

- 8.4.1 The definition of setting, how it contributes to the significance of a historic asset, and why it is important are outlined in *Setting of Historic Assets in Wales* (Welsh Government 2017a; available online) as follows:

*The setting of a historic asset includes the surroundings in which it is understood, experienced and appreciated, embracing present and past relationships to the surrounding landscape. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive, negative or neutral contribution to the significance of an asset.*

- 8.4.2 The main elements of the setting of potentially affected sites are described in section 7.2.
- 8.4.3 Construction activity will have an adverse impact upon the setting of the reservoir dam wall (LB 87839), restricting access to and visibility of the reservoir dam wall, but this will be a temporary impact for the duration of the construction works only. The proposed development does not seek to greatly alter the visual appearance of the reservoir dam wall, with the only visible change upon completion being a thickened concrete cap for the tower (but remaining at the current visible level), and a widened spillway. The main elements of the setting, including its association with contemporary reservoir features, its functional relationship with the reservoir, and its visual appearance and viewpoints, will remain unaltered. These temporary impacts, and minor change to appearance are therefore considered to have a Slight Adverse impact upon the setting of the reservoir dam wall (LB 87839).
- 8.4.4 The constructor's compound lies *circa* 120m from Twyn yr Esgair Settlement (CM306). There is the potential that temporary units within the compound could be visible from the Scheduled Area, these however will be temporary features, and the compound should not restrict views of, or access to the monument, or an appreciation and understanding of the monument in its setting. No further impacts upon the setting of this monument have been identified, and overall the impact is considered to be Neutral.
- 8.4.5 Given that construction activity is limited to the reservoir dam wall and constructor's compound, and that permanent changes in appearances to the reservoir wall will be minimal, with access and understanding unaltered, the proposed development is not considered to bring about any change that will alter the setting of any of the other designated historic assets identified within this assessment.

## 9 CONCLUSIONS

### 9.1 Archaeological potential and impact assessment

- 9.1.1 Proposed development will have a direct physical impact upon the historic asset of the reservoir dam wall (PRN 111183), a Grade II listed building (LB 87839). Given its listed status this is a site of High archaeological value, and proposed repair and refurbishment of the structure will have a Moderate Adverse impact, but work on the dam wall is unavoidable. Work on this structure will ensure its continued function and maintenance, and will retain it as a visible and understandable historic asset.
- 9.1.2 The assessment has identified a potential physical impact upon surrounding associated features, including a shelter (PRN 112069), concrete foundations (PRN 111186), and original spoil heaps (PRN 111182), all of Medium archaeological importance, considered to be a Slight Adverse impact.
- 9.1.3 The establishment of the temporary constructor's compound may have a physical impact upon buried remains associated with the First World War Conscientious Objectors Camp (PRN 110406). Remains in this specific area are considered to be of Low archaeological importance, and the development is considered to have a Slight Adverse impact.
- 9.1.4 A general archaeological potential for Mesolithic and Bronze Age archaeological remains have been identified, of Medium archaeological importance, and a general potential for medieval/post-medieval archaeological remains of Low archaeological importance. There is considered to be a Slight Adverse impact upon this potential.
- 9.1.5 Impacts to setting of surrounding designated historic assets were examined. A Slight Adverse impact to the setting of the reservoir dam wall (LB 87839) was identified.

**Table 6:** Assessment of impacts

Site Name	Ref. No.	Potential	Value	Site status	Physical impact	Setting impact
Llyn y Fan Fach Reservoir dam wall	PRN 111183 LB 87839	High	High	Grade II listed building	Moderate Adverse	Slight Adverse
Llyn y Fan Fach Shelter	PRN 112069	High	Medium	-	Slight Adverse	-
Llyn y Fan Fach concrete foundations	PRN 111186	High	Medium	-	Slight Adverse	-
Llyn y Fan Fach spoil heaps	PRN 111182	High	Medium	-	Slight Adverse	-
Llanddeusant Water Works WWI Internment Camp	PRN 110406	Medium	Low	-	Slight Adverse	-
Mesolithic/Bronze Age potential	-	Low to medium	Medium	-	Slight Adverse	-

Medieval/Post-medieval potential	-	Low to medium	Low	-	Slight Adverse	-
----------------------------------	---	---------------	-----	---	----------------	---

## 9.2 Mitigation

- 10.2.1 An impact upon the physical remains and setting of the reservoir dam wall (PRN 111183 / LB 87839) has been identified. Work on the wall is however unavoidable, and therefore mitigation options to reduce the impact are limited. Some of the main factors have also been designed in, but it is important to emphasise that maintaining the current appearance and design of the wall, and the use of like-for-like material in the repair, will help to keep the potential impact to a minimum. Detailed original and current plans, sections and elevations exist for the reservoir dam wall, but work on the structure could allow for an extensive photographic record of the structure, internal and external, to be created, which could be compiled into an appropriate level of historic building record.
- 10.2.2 The degree to which construction works could affect surrounding features of archaeological importance is not closely defined at this stage. Therefore, potential impacts on known historic assets in the vicinity could be avoided if they are factored into design plans to exclude these areas from potential construction activity.
- 10.2.3 Similarly, any construction works which require ground-breaking activity could be undertaken with an archaeological watching brief, in order to mitigate against the potential disturbance of the general archaeological potential of this area. This mitigation would also apply to the establishment of the constructor's compound.



## 10 SOURCES

### Published

Cadw. 1998. *Register of Landscapes of Outstanding Historic Interest in Wales*. Cardiff: Cadw

Cadw. 1998. *Register of Landscapes of Outstanding Historic Interest in Wales*. Cardiff: Cadw

Cadw. 2017. *Setting of Historic Assets in Wales*. Cardiff: Cadw

CIfA. 2014. *Standard and guidance for historic environment desk-based assessment*. Available at:  
[http://www.archaeologists.net/sites/default/files/CIfAS%26GDBA\\_3.pdf](http://www.archaeologists.net/sites/default/files/CIfAS%26GDBA_3.pdf)

Pyper, A. 2020. 'Refusing to Fight - The Legacy of Dissent on the Black Mountain' in *Carmarthenshire Antiquary* Vol.56, pp110-118

Welsh Government. 2017. *Planning Policy Wales: Technical Advice Note 24: The Historic Environment*. Cardiff: Cadw. Available at:  
<http://gov.wales/docs/desh/policy/170531tan-24-the-historic-environment-en.pdf>  
[Accessed 14.10.2021]

### Unpublished

Pritchard, H, Pyper, A & Rees, S, 2017 *Conscientious objectors 1916-1919, Llyn y Fan water works: Fieldwork 2017*. Dyfed Archaeological Trust Report No. 2017/75

RAF. 1942-8 Vertical aerial photographs in the Dyfed HER.

### Database

Dyfed Archaeological Trust Historic Environment Record, housed with Dyfed Archaeological Trust at Corner House, 6 Carmarthen Street, Llandeilo, Carmarthenshire, SA19 6AE

National Monument Records for Wales, housed with the Royal Commission on the Ancient and Historical Monuments of Wales, Aberystwyth

### Websites

British Geological Survey mapping portal. Available at:  
<http://mapapps.bgs.ac.uk/geologyofbritain/home.html> [Accessed 12/10/2021]

Google Earth Maps satellite imagery

Natural Resources Wales LiDAR Composite Dataset. Available at:  
<http://lle.gov.wales/Catalogue/Item/LidarCompositeDataset/?lang=en> [Accessed 12/10/2021]

Natural Resources Wales LANDMAP interactive mapping. Available at:  
<http://landmap-maps.naturalresources.wales/> [Accessed 12/10/2021]

Portable Antiquities Scheme. Available at: <https://finds.org.uk/> [Accessed 12/10/2021]

Welsh Tithe Map. Available at: <https://places.library.wales/> [Accessed 12/10/2021]

**Cartographic**

Budgen, T. 1813      Ordnance Survey Original Surveyors Drawings

Ordnance Survey, 1<sup>st</sup> edition 1:2500 map published in 1887.

Ordnance Survey, 2<sup>nd</sup> edition 1:2500 map published in 1906.

Ordnance Survey, 1:2500 Carmarthenshire map published in 1952

Llyn y Fan Fach Reservoir, Brecon Beacons National Park, Carmarthenshire:  
Historic Environment Desk-Based Assessment