

Llyn Fuches Las Reservoir, Llanrwst Gwynedd

Arolwg Mesuredig/ Measured Survey



LLYN FUCHES LAS RESERVOIR GWYNEDD

Arolwg Mesuredig/ Measured Survey

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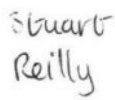

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01	Inclusion of wider location plan to show relationship within mining landscape Amended historic OS Maps and Lidar Map	Figure 01 Figures 03, 04, 05 & 07	Approval by Heneb Planning

CRYNHODEB ANHECHNEGOL

Gafwyd Heneb: Archaeoleg Gwynedd (gynt Ymddiriedolaeth Archeolegol Gwynedd) ei gomisiynu gan Binnies UK ar ran Cyfoeth Naturiol Cymru i ymgymryd â lliniariad archeolegol ar ffurf arolwg mesurol yng nghronfa dŵr Llyn Fuches Las, Llanrwst. Bwriad yr asesiad oedd cynorthwyo Binnies i ffurfio dealltwriaeth o safon y safle cloddio ac i ganfod a chofnodi unrhyw ased sydd wedi'u leoli mewn llefydd bydd yn cael ei effeithio gan waith diogelu ar gronfa dŵr Llyn Fuches Las.

Darganfuwyd 20 ased y tŷ fewn i neu yn agos i'r ardaloedd bydd yn cael ei effeithio gan y gwaith gan yr arolwg penodol. Roedd dystiolaeth yno o'r adeiladwaith yn gysylltiedig â'r gloddfa, ond roedd y dystiolaeth fwyaf yn perthyn i'r gronfa dwr ei hun, a oedd yn cynnwys gwrthgloddiau a oedd wedi'u haddasu yn yr 1960au. Roedd y gwrthglawdd ar ymyl gogledd y gronfa, y prif arglawdd sydd wedi'u ordyfu gan goed, a'r llifddor a gorlifan fodern wedi'u haddasu yn ystod y 1960au fel rhan o'r gweithgareddau tarfu. Ni chafwyd lawer o wybodaeth newydd o'r gronfa a'r arglawdd ei hun, ond cofnodir tystiolaeth arwyddocaol o isadeiledd gloddio yn agos i'r gwrthgloddiau ei hun.

Gafwyd hyd i, a chofnodwyd, naw siafft oedd yn perthyn i weithgareddau gloddio. Hefyd, darganfuwyd dwy lîd (sianel i reoli rhediad dŵr), ac un geuffordd (sianel gloddfa lorweddol). Yr oedd y rhain i gyd yn perthyn i weithgareddau gloddio, felly maent o'r 19eg ganrif neu'n hwyrach, heblaw am Ased 12, wall gerrig sychion sydd i'w weld yn dyddio i gyn y gwaith gloddio, ac sydd i'w weld yn perthyn i gyfundrefn caeau a fferm fechan a oedd yno cyn i'r gloddfa, ac a ddechreuwyd yn yr oes ol-canoloesol.

NON-TECHNICAL SUMMARY

Heneb: Gwynedd Archaeology, formerly Gwynedd Archaeological Trust, was commissioned by Binnies UK Limited on behalf of Natural Resources Wales to undertake an archaeological mitigation in the form of a measured survey at Llyn Fuchel Las reservoir, Llanrwst. The aim of the assessment was to assist Binnies in forming an understanding of the mine sites' condition and to identify and record assets located in and close to areas affected by safety work required on Fuchel Las Reservoir.

The targeted measured survey identified 20 assets within or close to the areas affected by the proposed works. In addition to mine buildings, the main evidence encountered related to the reservoir itself, which consisted of earthworks that had been significantly modified in the 1960s. The embankment on the northern edge of the reservoir, the tree covered main dam bank, and the modern sluice and spillway had all undergone modification in the 1960s as part of discontinuance measures. Little new information was uncovered at the reservoir and dam itself, however significant evidence of mining infrastructure was noted close by to the embankments themselves.

Nine shafts, relating to actual mining activity, were encountered and recorded. Two leets (channels to control water flow), and one adit (horizontal mine channel) were located, identified and recorded. The assets recorded all related to mining activity so are of 19th century date or later, with the single exception of Asset 12, a drystone wall that appears to pre-date the mining activity and would seem to be related to a former field system and associated smallholding that existed prior to the presence of the mine, whose origins lay in the post-medieval period.

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1 INTRODUCTION

Heneb: Gwynedd Archaeology (formerly known as Gwynedd Archaeological Trust (GAT)), was commissioned by Binnies UK Limited on behalf of Natural Resources Wales to undertake an archaeological mitigation in the form of a measured survey of Llyn Fuches Las reservoir, Llanrwst, LL27 0HX (NGR SH7848659872) ([Figure 01](#) and [11](#)) in advance of safety works at the reservoir. The safety works is required to enable Fuches Las Reservoir to safely pass the design and safety check for floods to meet the requirements of the *ICE Floods and Reservoir Safety 4th. Ed.*

The archaeological mitigation was defined in consultation with Binnies UK Limited and Heneb: Gwynedd Archaeology Planning (formerly Gwynedd Archaeological Planning Service (GAPS)). The mitigation consisted of a measured survey at the Llyn Fuches Las Reservoir (PRN 97,015) and focused on (see [Figure 08](#)):

- 1) the wooded area to the immediate east of the reservoir;
- 2) the proposed material storage area, positioned off the forest track, west of the reservoir;
- 3) features associated with the reservoir that will be altered or removed as part of the improvement works, such as (but not limited to) the embankments along the northern and eastern side of the reservoir, the spillway and outlet culvert at the eastern end of Llyn Fuches Las;
- 4) known mine shafts along the northern edge of the reservoir, for example, PRN 95,865.

The aim of the measured survey was to update the record for the known sites and add any new information not previously recorded. This included any additional assets not previously identified in the study area.

The archaeological mitigation was monitored by Gwynedd Archaeology Planning and undertaken in accordance with an approved Written Scheme of Investigation (cf. [Appendix I](#)) and was completed in accordance with the following standards and guidance:

- Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs) Version 2 (The Welsh Archaeological Trusts, 2022);
- Guidelines for digital archives (Royal Commission on Ancient and Historical Monuments of Wales, 2015).

- Management of Archaeological Projects (English Heritage, 1991);
- Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide (Historic England, 2015);
- Standard and Guidance for the Archaeological Investigation and Recording of Standing Buildings or Structures (Chartered Institute for Archaeologists, 2020);
- Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives (Chartered Institute for Archaeologists, 2020); and
- Understanding Historic Buildings: A Guide to Good Recording Practice (Historic England, 2016).

In line with the regional Historic Environment Record (HER) requirements, the HER was contacted at the onset of the project to ensure that any data arising is formatted in a manner suitable for accession to the HER and follows the guidance set out in *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (The Welsh Archaeological Trusts, 2020). The HER was informed of the project start date, location, grid reference and estimated timescale; the project was assigned HER Enquiry Number GATHER1997 and the event Primary Reference Number (PRN) is **46753**.

2 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

2.1 Introduction

Heneb: Gwynedd Archaeology has completed two assessments relating to Parc Mine:

- Evans, R., & Ryan Young, C., 2021, Parc Mine, Trefriw, Conwy: Asesiad wrth Ddesg / Desk Based Assessment. GAT Report 1573; and
- Ryan Young, C., 2022, Pandora Reservoir, Llyn Fuches Las, Trefriw, Conwy: Archaeological Watching Brief. GAT Report 1608.

These reports are directly relevant to the measured survey work in this report, and the discussion from both reports are reproduced in para.[2.3](#) and [2.4](#).

The most recent assessment was carried out by Gwynedd Archaeological Trust in 2022, and consisted of a desk-based assessment that included the study area of Llyn Fuches Las reservoir (Ryan Young 2022; GAT Report 1608). The aim of the report was to provide a baseline assessment of the historic landscape of the Pandora reservoir and Llyn Fuches Las and their immediate environs in advance of ground investigation works. The desktop study reviewed information from the regional Historic Environment Record; and included tithe and estate maps, early Ordnance Survey maps, as well as reference works and secondary sources). Three features were identified and recorded during the survey; an earth embankment, a stonework sluice and a brick structure.

In 2021, Gwynedd Archaeological Trust completed an archaeological assessment of Parc Mine site (Evans and Ryan Young 2021; GAT Report 1573). The aim of the report was to provide a baseline assessment of the historic landscape of Parc Mine and its immediate environment in advance of construction of flow monitoring structures. The report included a detailed discussion of the historical and archaeological background of Parc Mine site and its relation to the wider industrial landscape. The desktop study reviewed information from the regional Historic Environment Record; and included tithe and estate maps, early Ordnance Survey maps, aerial photographs, LiDAR data obtained from *Data Map Wales*, as well as reference works and secondary sources). The report included a discussion of the archaeological and historical background of the study area from prehistory to present day. A total of 13 features were recorded and the mine itself is considered to be of regional importance as representing the significant lead mining industry in the Gwydir Forest. Llyn Fuches Las was not visited as part of the walkover survey.

2.2 Previous historic and archaeological work

A number of previous works have been completed with reference to Llyn Fuchus Las reservoir site. A description and survey of the mine is included in Volume 3 of the Mines of the Gwydyr Forest (Bennett & Vernon 1991, Figures 13-22 in that volume). This survey was carried out by Bennet and Vernon between 1989 and 1991, and this includes a very detailed analysis of the 19th and 20th-century phases of the mine's operation and the surviving standing evidence for this, as is depicted in plan form.

Dafydd Gwyn carried out the Gwynedd Metal Mines Survey in 1998 (GAT Report No. 291) and Frost, P. & Thomas, D. published Forest Enterprise Welsh Heritage Assets Survey in 1998. Both reports cover metalliferous mining in the Gwydir Forest area, and the latter includes the identification of features at the mine that were subsequently included in the Heneb Gwynedd HER.

2.3 Mining Activity at Llyn Fuches Las Reservoir

The first clear evidence of lead workings in the Gwydir Forest can be dated to the early 17th century, when Sir John Wynn of Gwydyr Castle (1553-1627), the major landowner in the area, sought advice from expert metallurgists and had 'arguments of metals' (Bennett and Vernon 1991, 8). He then set about obtaining a lease for the lead mines 'on the wastes and commons' around Llanrwst until his death in 1627, and later Sir Maurice and Sir Owen Wynn maintained a sporadic interest until the death of the latter in 1666. In 1678, following the marriage of the Gwydir heiress Mary Wynn to Lord Willoughby D'Eresby, the Gwydir ore-field became part of the wider Ancaster Estate, and sporadic mining continued into the 18th century.

Gwynedd was an important producer of lead at various points from the late 18th century onwards, and this was focussed on the Gwydir Forest. In the Gwydir ore-field the hillsides are dotted with lead mines, which in their heyday were sunk into open moorlands, but are now surrounded by forestry. In the 1750s and 1760s a mining consultant, Dr. Linden, was employed by the Ancaster estate to assist in the mining ventures. However, during the 18th and first half of the 19th century lead mining was carried out only on a very piecemeal basis, although some of the ore extracted probably came from the Parc Mine area, with increased activity commencing in the 1840s (*ibid.* 10). The vast majority of the evidence for mining activity at Parc Mine dates from the years after 1860.

Parc Mine was located near Nant Gwydyr, about one mile south-west of Llanrwst. Estate records date the first output from the mine from 1860, the mine being operated by the D'Ersby and Gwydyr Co. though there is some evidence of much earlier exploitation of the lodes, with the Kneebone Cutting (Feature 03; Bennet & Vernon Figure 27 in that volume) possibly dating back to the 17th century. There were also minor workings on the pipe of galena on the Gors Lode before 1860. Between 1860 and 1888 working was confined to the Gors pipe, with at least 10 adit levels off it (*ibid.* 64, Figure 14 in that volume). The mine and others in the surrounding area were run by a number of companies, often with similar names, that were formed and re-formed throughout the 19th century; these include Gwydyr Park Consols from 1853-1874, Clementina Mining Company 1876-1883, The D'Eresby Consols Lead Mining Company 1878-1881, Gwydsyr Amalgamated Mining Company 1881-1883, D'Eresby Mountain Mining Company 1877-1884, D'Eresby Mining Company 1884-1889; D'Eresby and Gwydir Mines Limited 1890-1891 and The Parc Lead and Zinc Mining Company 1893-1897 (*ibid.* 38-68). These repeated re-incorporations, all during the time of Gwydir/Ancaster Estate ownership suggest that the mines were frequently not profitable, and that regular restructurings were required.

There is a main lode running east to west, known as the Parc No. 3 Principal Lode, which may have been created by Brunner Mend & Co. in about 1900, who had taken over the running of the mine in 1898. They were followed in 1905 by Mr C.R. Holmes, an American from Montana, who took on the lease of the mine, at a rent of £35 per annum on an area of 207 acres (Bayles 1969). In 1930 a slump in the lead industry and the mine ceased production. Then in 1936 Watende Ltd (previously Watende Mining (Kenya) Ltd), took over the mine, until in 1940 Llanrwst Lead Mines Ltd erected a new mill due to the amount of lead still present and productive. With future success the site and mine became involved in all the processes of extraction, crushing, grinding, froth flotation, thickening and filtration, using the latest equipment, including air pressure drills and steam power (ibid.). However, the mine subsequently closed during the Second World War in 1942.

Parc Mine was re-opened by Johannesburg Consolidated Investment in 1948, with its concrete adit portal and its well-laid roadway secured with rock-bolting and steel arches, indicating the use of what were then modern mining techniques (Gwyn 2006, 82). Locomotives running on railed tracks were only used at five metalliferous mines, of which Parc Mine was one, although it did not connect to external transport routes in any way (ibid, 88). Production continued, with various lengthy interludes, until 27th February 1963, when the mine was finally closed, after having been run by a number of concerns for a short period of time. American involvement in the mining operations at Parc has been one of its defining characteristics.

The report concludes that Llyn Fuchus Las has undergone many changes over time, both during and after its use as a reservoir for the mining activities at Parc Mine. Built around 1872, the reservoir footprint was extended at least twice as shown by the mapping evidence. The original stonework of the sluice gate is still extent with concrete bags and sandbags added to reinforce the sluice run. Large trees are present along the crest of the original embankments which the ground investigation works revealed to be constructed from a mid-dark brown sandy silt overlying natural clay. A large new embankment running NE – SW has been constructed from blackish brown sand reinforced periodically with terram and netting. None of the embankments appear to have and stone revetment.

2.4 Cartographic Evidence and History of Land Ownership

As the mine was, until the 20th century, the property of the Gwydir Estate, centred at Gwydir Park in Llanrwst, it is possible that cartographic and other material relating to the operations at the mine survive in the estate archive. These records are located at Gwynedd Archives, Caernarfon and Lincolnshire Record Office. An online search of their catalogues has not revealed references to any cartographic representations of the mine (although Parc Mine Plans are believed to exist at Gwynedd Archives (Bennett & Vernon 1991, 138). A 1785 Gwydir Estate map, *Gwydir Demesne and Park* is known to exist, but is not thought to show the mine as an active entity, although the area is shown (Gwynedd Archives XM/Maps/5663).

The footprint of Parc Mine is spread over two tithe maps, the 1840-45 Trewydir, Llanrwst and Trefriw Tithe award map and the Bettws-Y-Coed Tithe award map (National Archives). These maps do not show the area of Parc Mine in any detail, as modern mining has not commenced by this time, and did not until 1860. Therefore, the area is shown as in agricultural use and as wood and parkland. The Fuches Las Reservoir is depicted on the map as a wooded area (Field 2 on the Bettws-Y-Coed tithe map of 1840) ([Figure 02](#)).

The apportionment for these areas is given below:

Landowner	Occupier	Numbers Referring to the Plan	Name and Description of Lands and Premises	Areas in Statute measure		
				A	R	P
Willoughby de Eresby, The Right Honourable Lord	In Hand	37	Plantation	117	3	1
	William Jones	1	Tyddyn y Nant Pella	2	3	8
	Thomas Williams	2	Plantation	728	2	12

An examination of the First to Third Edition 25-inch to 1-mile Ordnance Survey Caernarvonshire County Series Map Sheets XIX.5 (published 1889, 1900 and 1914 respectively; cf. [Figures 03](#), [04](#) and [05](#)) shows the evolution of the mine infrastructure within that timeframe. On the First Edition OS map, the mine is listed as the *De Eresby Lead Mine*, visible as a shafts, waste tips, buildings and interlinked tracks. On the Second Edition OS Map, published eleven years later, it is now referred to as the *Parc Lead Mine* and the visible infrastructure is more extensive, including tramways and larger buildings. The Third Edition

OS Map is similar to the Second Edition, but there are more waste tips present. The construction of a reservoir at Parc Mine was suggested by the Mine Captain for Gwydyr Park Consols in 1873 as a way of reducing costs and the reliance on expensive steam power (Bennet & Vernon, 1991). This means the man-made reservoir appears on all historic Ordnance Survey maps (1st to 3rd). In addition to this, the expansion of the reservoir can be seen through time, being much larger on the Third Edition Ordnance Survey Map.

2.5 Aerial Photographs and LiDAR

2.5.1 Aerial Photographs

Royal Air Force (RAF) aerial photographs dating from the end of the war in 1945 until 1993 were examined on the Welsh Government's *Lle Portal*. These showed some evidence of the 20th century mine workings, being heavily wooded and the reservoir in various states. A total of 11 aerial photographs were sourced from the Welsh Government, covering a 43-year period between 1954 and 1997, as follows:

- 1954 5417 58_RAF_1452 F21 0216
- 1964 6426 543_2889 F64 0275 ([Figure 06](#))
- 1964 6426 543_2889 F65 0274
- 1964 6426 543_2889 F65 0276
- 1971 7172 OS 71_211 049
- 1972 7264 OS 72_270 129
- 1985 8510 RAF1PRU0734 131
- 1986 Oct Nov 8606 JAS 54_86_0139
- 1986 Oct Nov 8606 JAS 54_86_0169
- 1990 9001 ADAS 452 067
- 1997 9741 Geonex 1697 197

RAF 1964 6426 543_2889 F64 image 0275 taken on the 27th May 1964 shows some buildings and other activity in the vicinity along with Llyn Fuchus Las reservoir clearly ([Figure 06](#))

2.5.2 *LiDAR*

Digital LiDAR data (Digital Terrain Model 1m) was obtained from the **Data Map Wales** for sheet SH7860, which covered the area of the former Parc Mine ([Figure 07](#)). The data showed the location of Kneebone Cutting very clearly towards the southern part of the image and the landscaped tailings to the north. No. 3 and No. 4 adit portals can be seen on the image but aren't as clearly defined. The drainage channels can also be seen running to the east and west of the tailings. No new assets were identified from the LiDAR imagery within the measured survey area.

3 METHODOLOGY

3.1 Introduction

The measured survey was undertaken in March 2024 within the immediate vicinity of Llyn Fuches Las reservoir (PRN 97,015). The survey targeted (see [Figure 08](#)):

- 1) the wooded area to the immediate east of the reservoir;
- 2) the proposed material storage area, positioned off the forest track, west of the reservoir;
- 3) features associated with the reservoir that will be altered or removed as part of the improvement works, such as (but not limited to) the embankments along the northern and eastern side of the reservoir, the spillway and outlet culvert at the eastern end of Llyn Fuches Las;
- 4) known mine shafts along the northern edge of the reservoir, for example, PRN 95,865.

The aim of the survey was to update the record for known sites and add new information not previously recorded; this included any new sites that have not been previously recorded. The survey was undertaken within the guidelines of *Standard and Guidance for the Archaeological Investigation and Recording of Standing Buildings or Structures* (Chartered Institute for Archaeologists, 2020) and included a desktop review to inform the scope of the measured survey and to contextualise its results. Information from the regional Historic Environment Record was utilised, this included examination of the core HER data and the 25 inch to 1-mile County Series Ordnance Survey maps (Caernarvonshire (sic) Sheet XIX.5 (published: 1st edition 1889, 2nd edition 1900 and 3rd edition 1914).

A range of secondary sources were consulted and have provided the baseline data for the measured survey and mitigation report. This included the following reports which identified and described the known historical activity within the study area:

- Bennett, J. & Vernon, R., 1991, Mines of the Gwydyr Forest Part 3
- Evans, R., & Ryan Young, C., 2021, Parc Mine, Trefriw, Conwy: Asesiad wrth Ddesg / Desk Based Assessment GAT Report 1573.
- Frost, P. & Thomas, D., 1998, Forest Enterprise Welsh Heritage Assets Survey.
- Gwyn, D., 1998, Gwynedd Metal Mines Survey.

- Ryan Young, C., 2022, Pandora Reservoir, Llyn Fuchses Las, Trefriw, Conwy: Archaeological Watching Brief GAT Report 1608.

3.2 Measured Survey

3.2.1 Introduction

The measured survey was split into two areas: Area 1 included Llyn Fuches Las reservoir and features in the immediate vicinity while Area 2 encompassed the proposed location of the material storage area in the vicinity of the former Bryn Eisteddfod mine buildings (cf. [Figure 08](#)).

3.2.2 Area 1: Llyn Fuches Las Reservoir & Woodland East of Reservoir

The reservoir consists of an earthen embanked dam, with a bank on the northern side placed there in the 1960s as part of the discontinuation process, along with a modern sluice and slipway ([Figure 01](#)). East of the reservoir the land consists of an area of gently rising ground to the east and south of scrub and mature trees, known as Coed Fuches Las, within which a number of assets were located. It is divided to the south by the forest track beyond which are located the main mine buildings. To the north-east a drystone boundary wall divides the woodland from an area of improved farmland surrounding the smallholding of Nant Villa and Llecyn Coediog, which is thought to predate the mining activity in origin. The wooded area included assets that were integral to the mining with the presence of leats and shafts and adits. Much of the woodland must have grown up since the abandonment of mining in the area. South of the track the ground rises again to the south where the main mine buildings are located, where a track passes the main buildings displayed to the public.

3.2.3 Area 2: Material Storage Area West of Reservoir

The proposed storage area ([Figure 01](#)) at present consists of a plateau of land adjacent to the former Bryn Eisteddfod mine buildings, south of the forest track. A number of these, including the mill, mine office and associated structures, are presented for public display, and information boards are present. This is set within an open area, however the surrounding area is dense woodland.

3.2.4 Post-medieval mining features

The measured survey targeted known and unknown assets close to the work areas at Llyn Fuches Las, liable to be affected by the works. Some of these were identified in GAT Reports 1573 and 1608. The site is part of the wider industrial landscape that includes the scheduled Hafna and Vale of Conwy mines, which are Scheduled Monument Statutory Designations Cn326 and Cn327 respectively. Llyn Fuches Las, Parc Mine is recorded in the regional Historic Environment Record as non-statutory designation Primary Reference Number (PRN) 97015. There are nine non-statutory designated assets within the study area:

PRN	NPRN	Sitename	NGR
8812		Parc Mine Office, Betws-y-Coed	SH78605984
8850		Bryn Eisteddfod Mill, Trefriw	SH78205985
8851		Bryn Eisteddfod/Vale of Conway Mine Building, Betws-y-Coed	SH78165981
9047		Bryn Eisteddfa Mine Building, Betws-y-Coed	SH78175982
92868		Adit No.2, Trefriw	SH7865759844
92869		Capped Mine Shaft, Trefriw	SH7862059876
95849		Structure, Trefriw	SH7809959895
95865		Capped mine shaft, Trefriw	SH7842559898
97015		Llyn Fuches Las, Parc Mine	SH78565994

Assets were mapped and located in advance as part of the archaeological mitigation, using a combination of historic and GIS based data; this information was then used to prepare a list of known assets; these lists include the Primary Reference Number (PRN), Site Name, Site Type and National Grid Reference co-ordinate for each asset.

The measured survey was completed using Heneb: Gwynedd Archaeology pro-forma and included a description, measurements (if practical) and a photographic record. The photographs were taken in RAW format using a digital SLR set to maximum resolution (Nikon D3000; resolution: 3,872 × 2,592 [10.2 effective megapixels]) and archived in TIFF format; a total of 29 images were taken (G2827_001 to G2827_029; cf. [Appendix II](#); for the location and orientation of images taken cf. [Figure 09](#) and [10](#)).

3.3 Gazetteer of Assets

A gazetteer will be compiled for any existing and newly identified sites, based on information sourced from the measured survey; the gazetteer has been prepared in the following format and includes:

Assets Number	
Site name	
PRN number	
Grid reference	
Designation	
Period	
Site type	
Assessment category	
Description	
Impact	
Recommendation	
Photographic Archive	

The following categories will be used to define the assessment category of each archaeological asset:

Category A - Sites of National Importance.

Scheduled Monuments, Listed Buildings of grade II* and above, as well as those that would meet the requirements for scheduling (ancient monuments) or listing (buildings) or both. Sites that are scheduled or listed have legal protection, and it is recommended that all Category A sites remain preserved and protected *in situ*.

Category B - Sites of regional or county importance.

Grade II listed buildings and sites which would not fulfil the criteria for scheduling or listing, but which are nevertheless of particular importance within the region. Preservation *in situ* is the preferred option for Category B sites, but if damage or destruction cannot be avoided, appropriate detailed recording might be an acceptable alternative.

Category C - Sites of district or local importance.

Sites which are not of sufficient importance to justify a recommendation for preservation if threatened. Category C sites nevertheless merit adequate recording in advance of damage or destruction.

Category D - Minor and damaged sites.

Sites that are of minor importance or are so badly damaged that too little remains to justify their inclusion in a higher category. For Category D sites, rapid recording, either in advance of or during destruction, should be sufficient.

Category E - Sites needing further investigation.

Sites, the importance of which is as yet undetermined and which will require further work before they can be allocated to categories A - D are temporarily placed in this category, with specific recommendations for further evaluation.

The impact of the proposed works on any asset will be identified using the following impact criteria, defined either as *none, slight, unlikely, likely, significant, considerable or unknown* as follows:

None:

There is no construction impact on this asset.

Slight:

This has generally been used where the impact is marginal and would not by the nature of the site cause irreversible damage to the remainder of the asset, e.g. part of a trackway or field bank.

Unlikely:

This category indicates sites that fall within the band of interest but are unlikely to be directly affected. This includes sites such as standing and occupied buildings at the margins of the band of interest.

Likely:

Sites towards the edges of the study area, which may not be directly affected, but are likely to be damaged in some way by the construction activity.

Significant:

The partial removal of an asset affecting its overall integrity. Assets falling into this category may be linear features such as roads or tramways where the removal of part of the feature could make overall interpretation problematic.

Considerable:

The total removal of an asset or its partial removal which would effectively destroy the remainder of the site.

Unknown:

This is used when the location of the asset is unknown but thought to be in the vicinity of the proposed works.

3.4 Data Management Plan

Upon completion of the measured survey, a programme of fieldwork archiving has been completed based on the following task list:

1. Pro-formas: all cross referenced and complete;
2. Photographic images: archived in TIFF format; and
3. Photographic metadata: completed in *Microsoft Excel* for internal archiving and *Microsoft Access* for external archiving.

The fieldwork data has been used as the basis for the physical and digital dataset archives and used to compile the project report. The physical archive has been stored in a designated project folder and the location confirmed in the Trust project database; the digital dataset has been stored on a dedicated Trust server, with the location confirmed in the Trust project database via a specific hyperlink. There is no de-selected digital data.

External datasets for the regional HER and RCAHMW are as follows:

- HER: digital report (PDF format) and Event PRN summary (Microsoft Excel format); the report and dataset have been prepared in accordance with the required standards set out in *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Version 2); and
- RCAHMW: a digital report (PDF format) and digital archive dataset have been prepared in accordance with the *RCAHMW Guidelines for Digital Archives Version 1*.

The dataset includes:

- Photographic metadata (Microsoft Access);
- Photographic archive (TIFF format);
- Project Information form (Microsoft Excel);
- File Information form (Microsoft Excel) – Microsoft Word report text final;
- File Information form (Microsoft Excel) – Photographic metadata (general);
- File Information form (Microsoft Excel) – Adobe PDF report final; and
- File Information form (Microsoft Excel) - Photographic metadata (detail).

3.5 Selection Strategy

As defined in *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* (Chartered Institute for Archaeologists, 2020) section 3.3.1, a project specific selection strategy and data management plan should be prepared. In support of this, the Chartered Institute for Archaeologist (CIfA), have stated that it is “widely accepted that not all the records and materials collected or created during the course of an Archaeological Project require preservation in perpetuity. These records and materials constitute the Working Project Archive which will be subject to Selection, in order to establish what will be retained for long-term curation”. The aim of selection is to ensure that all the elements retained from the Working Project Archive for inclusion in the Archaeological Archive are appropriate to establish the significance of the project and support “future research, outreach, engagement, display and learning activities”. Selection should be “focused on selecting what is to be retained to support these future needs, rather than deciding what can be dispersed” and can be qualified by a selection strategy, which details the project-specific selection process, agreed by all parties (including Heneb: Gwynedd Archaeology Planning, client and/or landowner), which will be applied to a Working Project Archive prior to its transfer into curatorial care as the Archaeological Archive.

The selection strategy is summarised in [Appendix III](#) and take into account:

- The aims and objectives of the project.
- The brief and/or Written Scheme of Investigation (WSI).
- The Collecting Institution’s collection policy and/or deposition guidelines.
- Local and regional research frameworks.
- Relevant thematic or period specific research frameworks.
- The project’s Data Management Plan (DMP).
- Internal recording and reporting policies.
- Material-specific guidance documents.

4 RESULTS

4.1 Measured Survey

The measured survey was conducted on the 12th of March 2024. A total of nineteen assets were fully recorded and 29 images taken (Archive reference number G2827_01 to G2827_29) with a descriptive record compiled on Heneb: Gwynedd Archaeology proformas. For a full descriptive record of all assets recorded cf. [4.2.3](#).

4.1.1 Area 1: Llyn Fuches Las Reservoir & Woodland East of Reservoir

Area 1 ([Figure 08](#) and [09](#)) included Llyn Fuches Las reservoir and land to the immediate east which consists of gently rising ground to the east and south of scrub and mature trees, known as Coed Fuches Las. It is divided to the south by the forest track beyond which are located the main mine buildings. To the north-east a drystone boundary wall divides the woodland from an area of improved farmland surrounding the smallholding of Nant Villa and Llecyn Coediog, which is thought to predate the mining activity in origin. A number of shafts, leats and adits were recorded in this area and include main mine buildings, shafts and adits (Asset 1, Parc Mine HQ, Assets 5 – 6, adit and mine shaft, Asset 8 mine shaft Assets 10 – 16 shafts and leats); Assets 17 – 20 were not recorded due to uneven ground and overgrowth, which obscured mining activity in the area.

4.1.2 Area 2: Material Storage Area West of Reservoir

The storage area ([Figure 08](#) and [10](#)) consisted of a plateau of land adjacent to the former Bryn Eisteddfod mine buildings, south of the forest track. A number of these, including the mill, mine office and associated structures (Assets 2 - 4; PRN 8850, 8851, 9047) are for public display. The surrounding area is dense woodland, within which was difficult to observe any archaeological remains that may be present. As a result, Assets 7 and 17 to 20 (PRN 95,849 and 103,710 respectively) were not accessible on the day.

4.2 Gazetteer of Assets

4.2.1 Introduction

All recommendations are based on the current understanding of the works proposals and their impact on the assets and may have to be revised if information about the scheme impacts changes. In the event of alterations to the scheme, the recommendations might have to be revisited. A 'C' after the grid reference indicates the central point of a larger assets, and 'A' after the reference indicates the central point of a wider group of assets.

4.2.2 Assessment Category

The sites recorded in the archaeological assessment have been divided into five categories (A to E), based on national (Category A), regional (Category B) or district/local importance (Category C), or whether they are minor sites (Category D) or sites needing further investigation (Category E). These categories are generally comparable to those used for the 1998 assessment, particularly Categories A (National Importance), B (Regional Importance) and C (lesser significance), with Category E from the 2024 assessment comparable to the *Not Yet Evaluated* category from the 1998; the *No Physical Presence* category from the 1998 assessment has not been duplicated in the current report.

A key consideration for the current assessment has been whether the assessment categories used in 1998 assessment are applicable and equivalent to the 2024 assessment and this is analysed and discussed in each gazetteer entry.

The current assessment has also considered the appearance and condition of the identified sites, comparing information from the 2024 survey with the 1998 survey. It was found in most cases that whilst the location of the sites identified in 1998 were often visible, a number were inaccessible due to vegetation overgrowth and/or safety limitations. Where necessary, the gazetteer entries have used the site descriptions from the 1998 survey; it is stated in the gazetteer where original descriptions have been used.

4.2.3 Llyn Fuches Las Reservoir Gazetteer list

Asset Number	1
Site name	Parc Mine Office, Betws-y-Coed
PRN number	8812
Grid reference	SH78605984
Period	Modern
Site type	Mine Office
Statutory Designation	None
Assessment category	B
Description	A rubblestone building, 13.1m by 8.1m standing roofless, passed by the footpath on its north side (Plate 1). It is believed to have formerly been the mine manager's house and the mine office. There is evidence that it had formerly been rendered. The walls stand to full height.
Impact	None
Recommendation	Avoidance
Archive Reference	Image G2827_025



Plate 1: Oblique view of Parc Mine headquarters building; scale 1x1m; view from NE (archive reference: G2827_025).

Asset Number	2
Site name	Bryn Eisteddfod Mill, Trefriw
PRN number	8850
Grid reference	SH78205985
Period	Post Medieval
Site type	Mill
Statutory Designation	None
Assessment category	B
Description	Substantial remains of a mill building, 8.9m by 7.6m with a wheel pit and associated structures associated with Bry Eisteddfod/Vale of Conwy Mine (Plate 2 and 3).
Impact	None
Recommendation	Avoidance
Archive Reference	Image G2827_027 to G2827_029



Plate 2: View of Bryn Eisteddfod mill; scale n/a; view from S (archive reference: G2827_027).



Plate 3: Oblique view of building 8851; scale 1x1m; view from S (archive reference: G2827_026).

Asset Number	3
Site name	Bryn Eisteddfod/Vale of Conway Mine Building, Betws-y-Coed
PRN number	8851
Grid reference	SH78165981
Period	Post Medieval
Site type	Building
Statutory Designation	None
Assessment category	B
Description	A one roomed building survives with a partial room off, with a fireplace to the south east side. This consists of single light openings in the gable ends and a doorway and threshold on the northern side The structure is constructed with local fieldstone rubble and mortar. Associated building PRN 9047 Vale of Conwy mine office. Part of PRN 8850 complex It consists of remains up to 1.7m high including a building and yard.
Impact	None
Recommendation	Avoidance
Archive Reference	Image G2827_026

Asset Number	4
Site name	Bryn Eisteddfa Mine Building, Betws-y-Coed
PRN number	9047
Grid reference	SH78175982
Period	Post Medieval
Site type	Building
Statutory Designation	None
Assessment category	B
Description	There is a threshold in the doorway of the main room and no roof left, but the remains of the building stand to a height of 1.45m in places.
Impact	None
Recommendation	Avoidance
Archive Reference	Image G2827_026

Asset Number	5
Site name	Adit No.2, Trefriw
PRN number	92868
Grid reference	SH7865759844
Period	Post Medieval
Site type	Adit
Statutory Designation	None
Assessment category	B
Description	Fenced off adit adjacent to the location of the Parc Mine Office (Asset 02). Believed to be entrance to adit No:2 from old maps of the mine site featured in Bennet & Vernon, 1991. An area of tailings is visible adjacent to the adit entrance. It is not within location of the proposed works and no further recommendations are given beyond avoidance (Evans & Ryan Young, 2021).
Impact	None
Recommendation	Avoidance
Archive Reference	Image N/A

Asset Number	6
Site name	Capped Mine Shaft, Trefriw
PRN number	92869
Grid reference	SH7862059876
Period	Post Medieval
Site type	Mine shaft
Statutory Designation	None
Assessment category	B
Description	<p>Capped shaft near the Parc Mine Office (Asset 02; Plate 4). Concrete capping structure over an old shaft. Could be an air shaft as one is mentioned in Frost and Thomas, 1998 as being in the area of adit No:2.</p> <p>The mine shaft itself likely dates to the Victorian period, however, the cap (250 mm thick) was possibly placed around the 1970's. It measures 3.8m diameter circular and 1.5m high. It is constructed of local rubble stone with a concrete cap.</p> <p>There are opposing openings on the east and western sides; blocked with metal grills. The interior of the structure is a large concrete cylinder, and it is at least 5m deep. Flowing water from a stream can be heard from the entrance with a modern interpretation board present next to the mine.</p>
Impact	None
Recommendation	Avoidance
Archive Reference Image	G2827_023



Plate 4: View of capped mineshaft; scale 1x1m; view from E (archive reference: G2827_023).

Asset Number	7
Site name	Structure, Trefriw
PRN number	95849
Grid reference	SH7809959895
Period	Unknown
Site type	Structure
Statutory Designation	None
Assessment category	E
Description	NRW record last updated in 2012. This site was not located or identified during the measured survey
Impact	Unknown
Recommendation	Avoidance
Archive Reference	Image N/A

Asset Number	8
Site name	Structure, Trefriw
PRN number	95865
Grid reference	SH7842559898
Period	Unknown
Site type	Mine Shaft
Statutory Designation	None
Assessment category	B
Description	<p>The mine shaft itself likely dates to the Victorian period, however, the cap (250 mm thick) was possibly placed around the 1970's. It measures 3.8m square and 1.5m high. It is constructed of local rubble stone with a concrete cap (Plate 12). Visible on the exterior of the mine was concrete mortar which could be seen to be cracking. However, a subsistence monitor strip was present to ensure the mine was sufficiently monitored.</p> <p>There are opposing openings on the east and western sides; blocked with metal grills. The western side has a small gate which is locked with a small sign indicating that 'This structure was made so bats can have access to the tunnels below'. The interior of the structure is a large concrete cylinder, and it is at least 5m deep. Flowing water from a stream can be heard from the entrance.</p>
Impact	None
Recommendation	Avoidance
Archive Reference	Image G2827_012 to G2827_015



Plate 12: View of capped mineshaft; scale 1x1m; view from SW (archive reference: G2827_014).

Asset Number	9
Site name	Llyn Fuches Las, Parc Mine
PRN number	97015
Grid reference	SH78565994
Period	Post Medieval
Site type	Reservoir
Statutory Designation	None
Assessment category	B
Description	<p>Llyn Fuches Las in contrast has undergone many changes over time, both during and after its use as a reservoir for the mining activities at Parc Mine. Built around 1872, the reservoir footprint was extended at least twice as shown by the mapping evidence. The brick and concrete superstructure of the sluice and outlet is present, although inaccessible, in the very wet ground behind the main reservoir embankment (Plate 11). The stonework of the overspill slipway is still extent, cut through the main reservoir dam bank (Plates 5 -6) with concrete bags and sandbags added to reinforce the overspill run at the eastern end. The slipway was 1.45m wide and 0.9m high at the highest point through the bank. It was cut through the bank 1.1m from its southern end, and extended eastwards for 44m to meet a watercourse. Large trees are present along the crest of the original reservoir embankments which the ground investigation works revealed to be constructed from a mid-dark brown sandy silt overlying natural clay (Plate 7). This dam embankment was 39.5m long, 5.3m wide and up to 1.5m high, and had a rounded profile, perhaps due in part to erosion before consolidation measures had been put in place. A large new embankment running NE – SW was constructed from blackish brown sand reinforced periodically with terram and netting (Plates 7 – 10), which was 170m long, 4.2m wide and up to 1.6m high, running along the north western long side of the reservoir, at its western end it merged into the surrounding landscape rather than having a formal end. It's more squared profile is an indicator of less erosion, and therefore its more modern date.</p> <p>Neither of the embankments appears to have a stone revetment. The trees on the main reservoir dam bank of 1872 were permitted on the embankment from the 1960s as a site consolidation measure, and the NE-SW embankment was entirely constructed at that time as part of flooding control and safety measures put in place in the 1960s after the abandonment of the reservoir.</p>
Impact	Considerable
Recommendation	Watching brief during construction works

Archive Reference	Image	G2827_001 to 012, G2827_017
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Plate 5: View of spillway in corner of reservoir; scale 1x1m; view from SW (archive reference: G2827_002).



Plate 6: View down main embankment; scale 1x1m; view from SE (archive reference: G2827_005).



Plate 7: View down main embankment; scale 1x1 m; view from NW (archive reference: G2827_006).



Plate 8: View down side embankment; scale 1x1 m; view from NE (archive reference: G2827_007).



Plate 9: View down side embankment towards main embankment; scale 1x1m; view from W (archive reference: G2827_010).



Plate 10: View down side embankment towards main embankment; scale 1x1m; view from SW (archive reference: G2827_012).



Plate 11: View of outlet in reservoir from main embankment; scale 1x1m; view from NE (archive reference: G2827_017).



Plate 12: View of capped mineshaft; scale 1x1m; view from SW (archive reference: G2827_014).



Plate 13: View of two shafts at corner of reservoir; scale 1x1m; view from NW (archive reference: G2827_016).

Asset Number	10
Site name	Shaft 1, Llyn Fuches Las, Parc Mine
PRN number	103693
Grid reference	SH7849859967
Period	Post Medieval
Site type	Shaft
Statutory Designation	None
Assessment category	B
Description	A heavily overgrown mine shaft, difficult of close access, but about 3.7m wide (Plate 13). It is not surrounded by any form of protective barrier, but seems somewhat backfilled by natural silting, with significant undulations surrounding it that may be the remains of tailings, on which seeded tree saplings have grown. It forms a pair with shaft 2 which is almost adjacent to the north of it. Their closeness suggests that they were not in use at the same time.
Impact	Likely
Recommendation	Avoidance
Archive Reference Image	G2827_016

Asset Number	11
Site name	Shaft 2, Llyn Fuchus Las, Parc Mine
PRN number	103694
Grid reference	SH7848659960
Period	Post Medieval
Site type	Shaft
Statutory Designation	None
Assessment category	B
Description	A heavily overgrown mine shaft, difficult of close access, but about 3.7m wide (Plate 13). It is not surrounded by any form of protective barrier, but seems somewhat backfilled by natural silting, with significant undulations surrounding it that may be the remains of tailings. It forms a pair with shaft 1 which is almost adjacent to the south of it. Their closeness suggests that they were not in use at the same time.
Impact	Likely
Recommendation	Avoidance
Archive Reference	Image G2827_016

Asset Number	12
Site name	Wall, Llyn Fuches Las, Parc Mine
PRN number	103695
Grid reference	SH7858559944
Period	Post Medieval
Site type	Wall
Statutory Designation	None
Assessment category	C
Description	A drystone field boundary wall, up to 0.5m high, made of rough local fieldstone boulders, up to 0.6m by 0.35m (Plate 14). It extends north-eastwards beyond the survey area for a length of at least 250m. At its western end it appears cut by the reservoir dam embankment. It would appear to be a relict element of the field systems present prior to the construction of the dam and reservoir and relates to the former smallholding of Llecyn Coediog to the north east.
Impact	Likely
Recommendation	Avoidance, or basic recording
Archive Reference Image	G2827_018



Plate 14: View of stone wall next to the spillway, predates dam, possible mine?; scale 1x1m; view from S (archive reference: G2827_018).

Asset Number	13
Site name	Leat 1, Llyn Fuches Las, Parc Mine
PRN number	103696
Grid reference	SH7862559912
Period	Post Medieval
Site type	Watercourse
Statutory Designation	None
Assessment category	C
Description	A steep cut running northeast southwest through the woodland to the southeast of the reservoir spillway (Plate 15). The channel is about 0.2m wide and is clearly cut through the natural topography, creating a steep bank up to 0.6m in places, and had been maintained for some time, although it has not been cleared recently. It is visible for a length of about 55m. The leat channels water from the higher ground adjacent to the mine buildings to the south of the road.
Impact	Likely
Recommendation	Avoidance
Archive Reference Image	G2827_019



Plate 15: View of leat conjoining with spillway; scale 1x1 m; view from NW (archive reference: G2827_019).

Asset Number	14
Site name	Leat 2, Llyn Fuches Las, Parc Mine
PRN number	103697
Grid reference	SH7865659924
Period	Post Medieval
Site type	Watercourse
Statutory Designation	None
Assessment category	C
Description	A moderate cut running south north through the woodland to the southeast of the reservoir spillway, and noted for a length of about 46m (Plate 16). The channel is about 0.35m wide and is clearly cut through the natural topography however it was heavily silted up and therefore clearly not in use for some time. It was on a slightly different alignment to Leat 1, but still drained the higher ground to the south, under the drack to the south.
Impact	Likely
Recommendation	Avoidance
Archive Reference Image	G2827_020



Plate 16: View of second leat in woodland; scale 1x1m; view from N (archive reference: G2827_020).

Asset Number	15
Site name	Mine Shaft, Llyn Fuches Las, Parc Mine
PRN number	103698
Grid reference	SH7860659959
Period	Post Medieval
Site type	Shaft
Statutory Designation	None
Assessment category	C
Description	Mine shaft heavily overgrown and very difficult to see in its current conditions, but appears to be about 3.5m wide. However the edges of it are hard to define (Plate 17).
Impact	Likely
Recommendation	Avoidance
Archive Reference	Image G2827_021



Plate 17: View of mine shaft in woodland; scale 1x1m; view from SE (archive reference: G2827_021).

Asset Number	16
Site name	Uncapped Shaft, Llyn Fuches Las, Parc Mine
PRN number	103699
Grid reference	SH7859859868
Period	Post Medieval
Site type	Shaft
Statutory Designation	None
Assessment category	C
Description	The shaft is visible as a 0.85m wide depression in the ground but is otherwise heavily overgrown and fenced off from public access. It was difficult to make out any detail of shaft (Plate 18).
Impact	None
Recommendation	Avoidance
Archive Reference Image	G2827_024



Plate 18: View of uncapped shaft; scale 1x1 m; view from SE (archive reference: G2827_024).

Asset Number	17
Site name	Shaft, Llyn Fuches Las, Parc Mine
PRN number	103700
Grid reference	SH7860760007
Period	Post Medieval
Site type	Shaft
Statutory Designation	None
Assessment category	C
Description	This shaft was in thick woodland and not identified located during the measured survey
Impact	None
Recommendation	Avoidance
Archive Reference	Image N/A

Asset Number	18
Site name	Shaft, Llyn Fuches Las, Parc Mine
PRN number	103701
Grid reference	SH7861659973
Period	Post Medieval
Site type	Shaft
Statutory Designation	None
Assessment category	C
Description	This shaft was in thick woodland and not identified located during the measured survey
Impact	None
Recommendation	Avoidance
Archive Reference	Image N/A

Asset Number	19
Site name	Shaft, Llyn Fuches Las, Parc Mine
PRN number	103709
Grid reference	SH7869759895
Period	Post Medieval
Site type	Shaft
Statutory Designation	None
Assessment category	C
Description	This shaft was in thick woodland and not identified located during the measured survey
Impact	None
Recommendation	Avoidance
Archive Reference	Image N/A

Asset Number	20
Site name	Shaft, Llyn Fuches Las, Parc Mine
PRN number	103710
Grid reference	SH7818959758
Period	Post Medieval
Site type	Shaft
Statutory Designation	None
Assessment category	C
Description	This shaft was in thick woodland and not identified located during the measured survey
Impact	None
Recommendation	Avoidance
Archive Reference	Image N/A

5 CONCLUSION

Heneb: Gwynedd Archaeology (formerly known as Gwynedd Archaeological Trust) was commissioned by Binnies UK Limited on behalf of Natural Resources Wales to undertake an archaeological mitigation in the form of a measured survey at Llyn Fuchus Las reservoir, Llanrwst. The aim of the survey was to assist *Binnies* in forming an understanding of the mine sites' condition and to identify and record assets located in and close to areas affected by the safety work required on Fuchus Las Reservoir.

Previous studies have revealed the layout and workings of the mine activity in the wider area, and that work has not been repeated here. The targeted measured survey identified 20 assets within or close to the areas affected by the proposed works. Nine of these had been previously recorded and were noted on the Gwynedd HER, and the remaining eleven, although some were noted in descriptive and cartographic evidence, had only been recorded in terms of the wider mine infrastructure. These were identified, recorded and given new PRNs.

In addition to mine buildings, the main evidence encountered related to the reservoir itself, constructed in 1872, which consisted of earthworks that had been extended during its period of operation, and significantly modified in the 1960s. The embankment on the northern edge of the reservoir, the tree covered main dam bank, and the modern sluice and spillway had all undergone modification and construction in the 1960s as part of discontinuance measures. The embankment along the northern edge of the reservoir was constructed at this time, and the planting of evergreen trees along with stabilisation works and the cutting of the spillway were carried out on the reservoir dam embankment. Little new information was uncovered at the reservoir and dam however, evidence of mining infrastructure was noted close by to the embankments themselves, and this mining evidence may predate the reservoir construction.

Nine shafts, relating to actual mining activity, were encountered and recorded. Two of these had modern concrete caps, three were clearly identified as depressions in the ground with the possible remnants of tailings around them. The remaining four were hard to identify on the ground. Two leats (channels to control water flow), and one adit (horizontal mine channel) were located, identified and recorded. The assets recorded all related to mining activity and so are of 19th century date or later, with the single exception of Asset 12, a drystone wall that appears to pre-date the mining activity and would seem to be related to a former field system and associated smallholding that existed prior to the mine, and whose origins lay in the post-medieval period.

The results from the archaeological mitigation at Llyn Fuchus Las site has provided insight into the impact of mining activity to the area. Changes in the landscape as evident by the

historic maps, is characterised by the predominance of agriculture in the form of field systems and woodland pre-dating the construction of the Llyn Fuchel Las site, with the encroachment of mining activity into the area beginning in the late nineteenth century. The site of the reservoir had once been that of wooded area, with evidence of field systems and associated smallholding, that turned within half a century, to a mine characterised by shafts, waste tips, buildings and interlinked tracks. Mining activity at this site became more extensive at the turn of the century and carried on into the twentieth century before lapsing into disuse in the 1960s. The Llyn Fuchel Las site is a clear example of how the process of industrialisation and upscaling of the mining industry in the nineteenth century and its decline in the twentieth century has affected the landscape and continues to do so. In leaving behind a legacy of shafts, adits and buildings scattered across the landscape, the site of Llyn Fuchel Las is now mostly inaccessible and dangerous to travel through, although some assets have been cleared and are presented to the public. Some mine shafts are capped, but others are not.

In light of the results, the themes covered in this report can be considered in the wider research framework for the *Post Medieval and Industrial Wales*, of which the evolution of the mining site at Llyn Fuchel Las reservoir would contribute to our understanding of the significance and scale of technical change within the industry of lead and the impact of that change within the landscape, including that of the lives of individuals and society in general (Gerrard and Bailey 2017, 1).

It is therefore considered appropriate that an **archaeological watching brief** should be carried out during the groundworks associated with the on-site safety works, so that as much as possible of this mining infrastructure is recorded and its context understood.

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FIGURE 01

Location map showing Llyn Fuches Las reservoir in relation to it's surrounding landscape. Scale: 1 to 6000 @A4. © Crown copyright and database rights 2024 OS 100020895. Contains National Statistics data © Crown copyright and database right 2024.

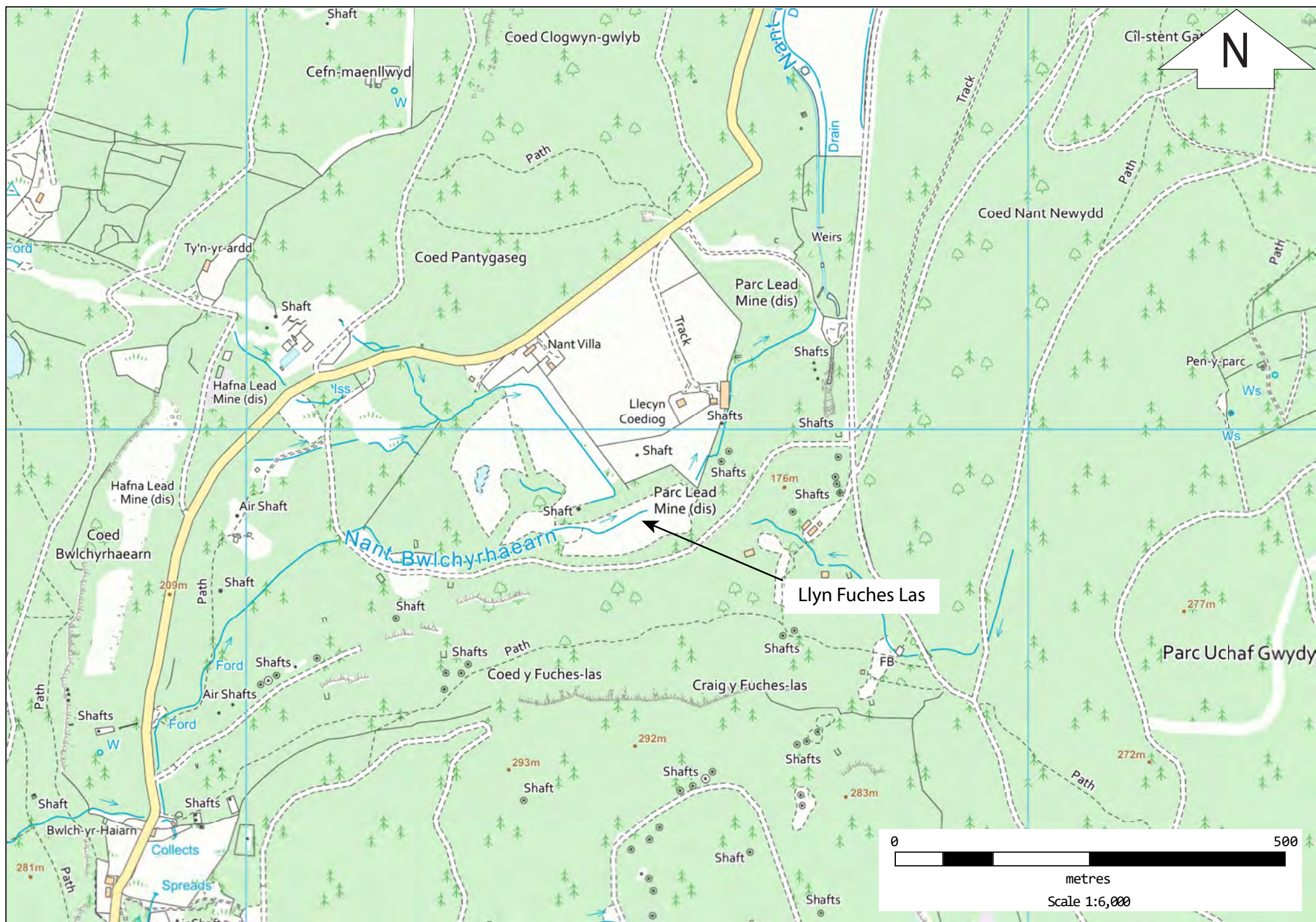


Figure 01: Location map showing Llyn Fuchus Las reservoir in relation to it's surrounding landscape. Scale: 1 to 6000 @A4. © Crown copyright and database rights 2024 OS 100020895. Contains National Statistics data © Crown copyright and database right 2024.

FIGURE 02

Reproduction of the 1840 Bettws-y-Coed (sic) Parish Tithe Map showing general assessment area highlighted in red. (Source: NLW).



General location
of assessment area

Figure 02: Reproduction of the 1840 Bettws-y-Coed (sic) Parish Tithe Map showing general assessment area highlighted in red. (Source: NLW)

FIGURE 03

First Edition Caernarvonshire Ordnance Survey 25-inch to 1-mile County Series Map Sheet XIX.5, published 1889. Scale: 1 to 2500@A3.

FIGURE 04

Second Edition Caernarvonshire Ordnance Survey 25-inch to 1-mile County Series Map Sheet XIX.5, published 1900. Scale: 1 to 1250@A3.

FIGURE 05

Third Edition Caernarvonshire Ordnance Survey 25-inch to 1-mile County Series Map Sheet XIX.5, published 1914. Scale: 1 to 1250@A4.

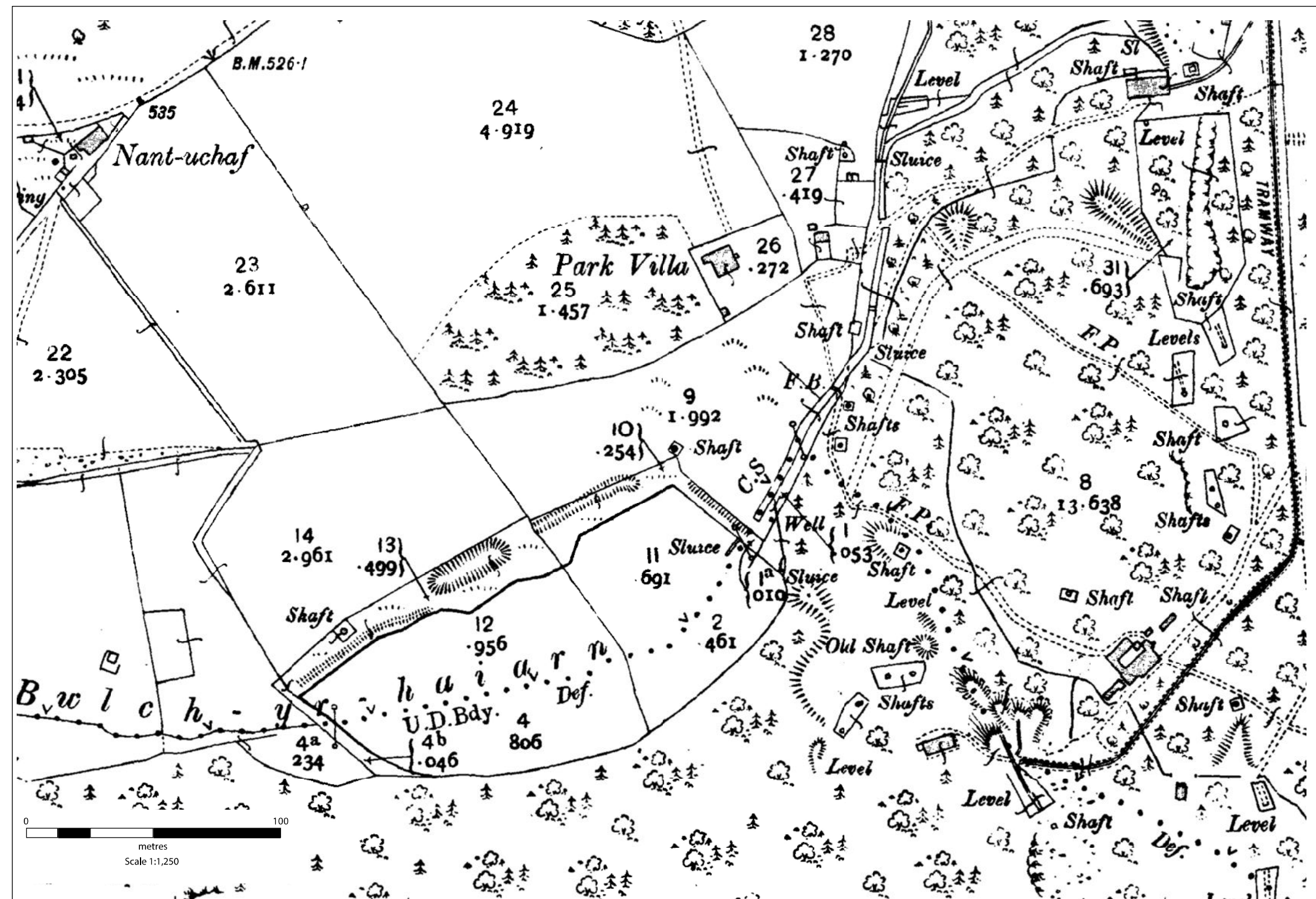
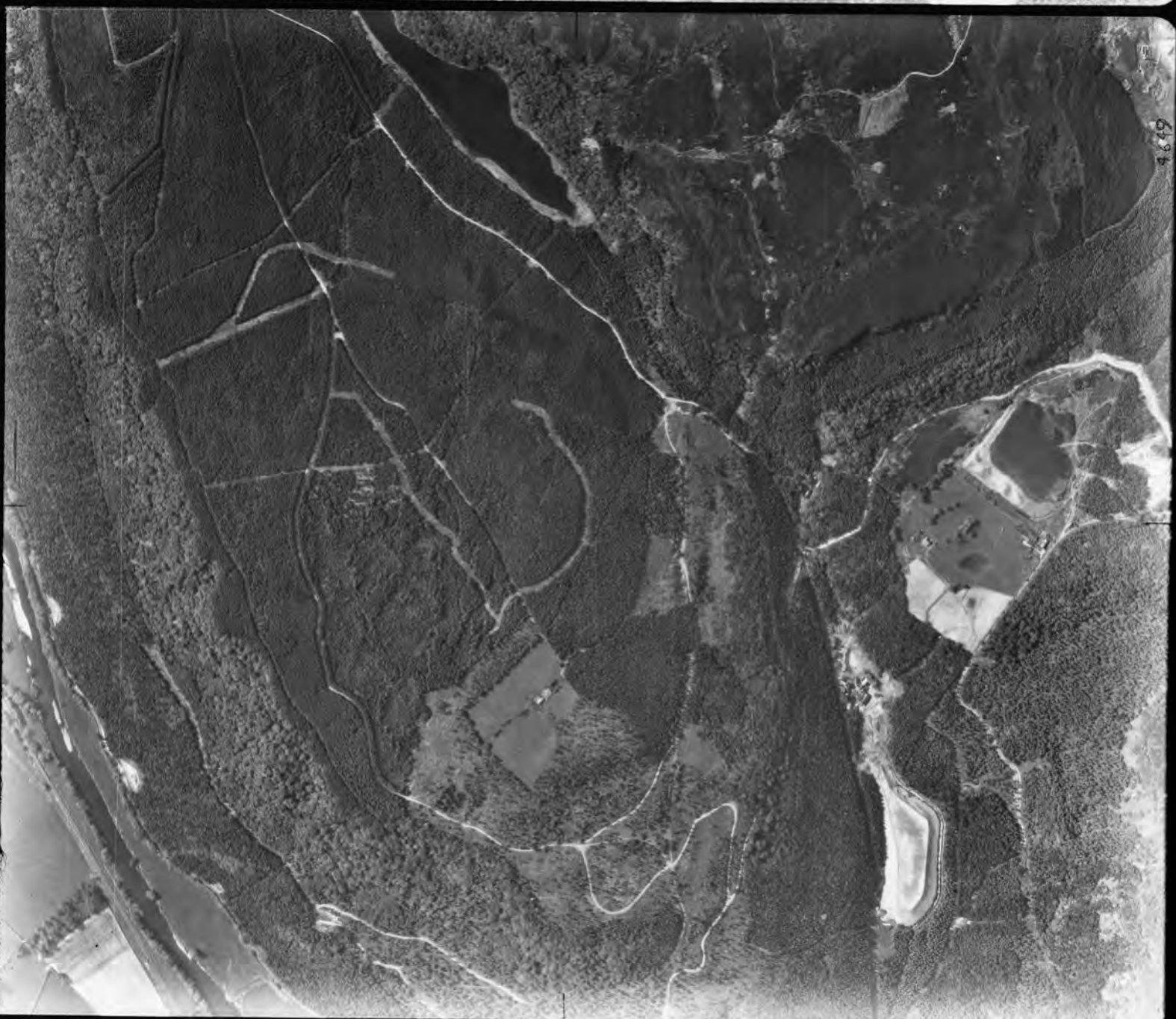


Figure 05: Third Edition Caernarvonshire Ordnance Survey 25-inch to 1-mile County Series Map Sheet XIX.5, published 1914. Scale 1:1250@A4.

FIGURE 06

RAF Aerial Photograph 1964 No. 6426 543_2889 F64 0275.

4484



0275

543 RAF 2889 F64 27 MAY 1964

FIGURE 07

Reproduction of 1m DTM LiDAR dataset for SH7858 sourced from *Data Map Wales*. No Scale. Assessment area highlighted in red.

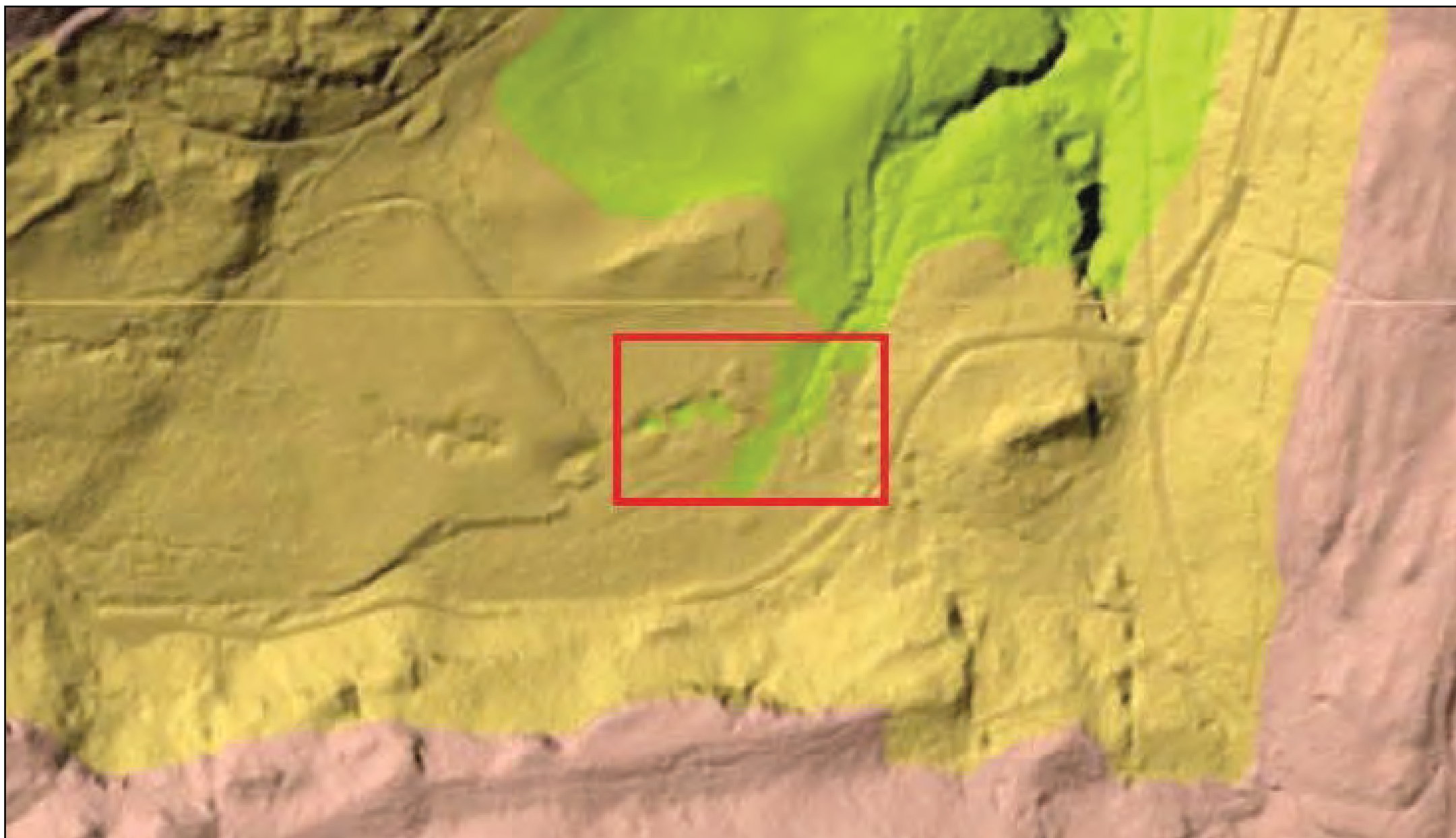


Figure 07: 1m LiDar DTM dataset for SH7858 sourced from Dataset Map Wales. Assesment area highlighted in red

FIGURE 08

Location of historic assets within the study area. Drawing No. DBA/01. Scale 1:5,000@ A3

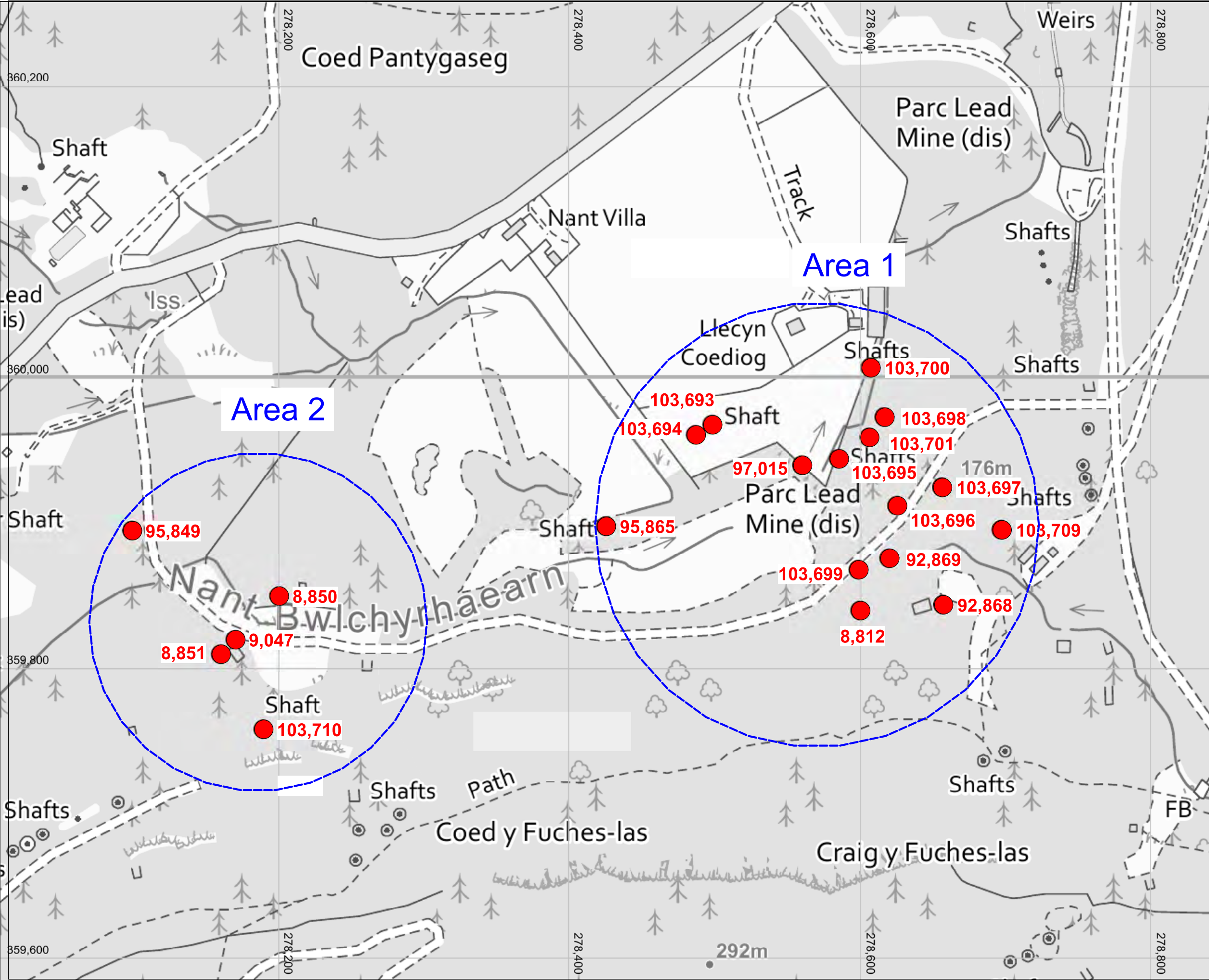


Figure 08: Historic Assets in the Study Area

1

Historic Asset with GAT HER PRN

Measured survey assesment zone

Co-ordinate System OSGB 1936 / British National Grid EPSG:27700

Background mapping reproduced from Ordnance Survey VectorMap Local with the permission of H.M.S.O © Crown Copyright and database right 2024. License AL100020577

N

0100m

Scale 1:2,500

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CLIENT: Binnies UK Limited

SITE: Llyn Fuches Las Reservoir, Trefriw, Conwy

SCALE AT A3: 1:2,500	DATE: 30/01/24	DRAWN: NMC/CF	CHECKED: JR
PROJECT NO: G2827	DRAWING NO: DBA/01	REVISION: B	

FIGURE 09

Location and orientation of photographic images of Assets 8812, 20680, 97015, 95865, 92868 – 92869, 103694 – 103701, 103709 and 103710:. Drawing No. DBA/02. Scale 1:1,250@ A3

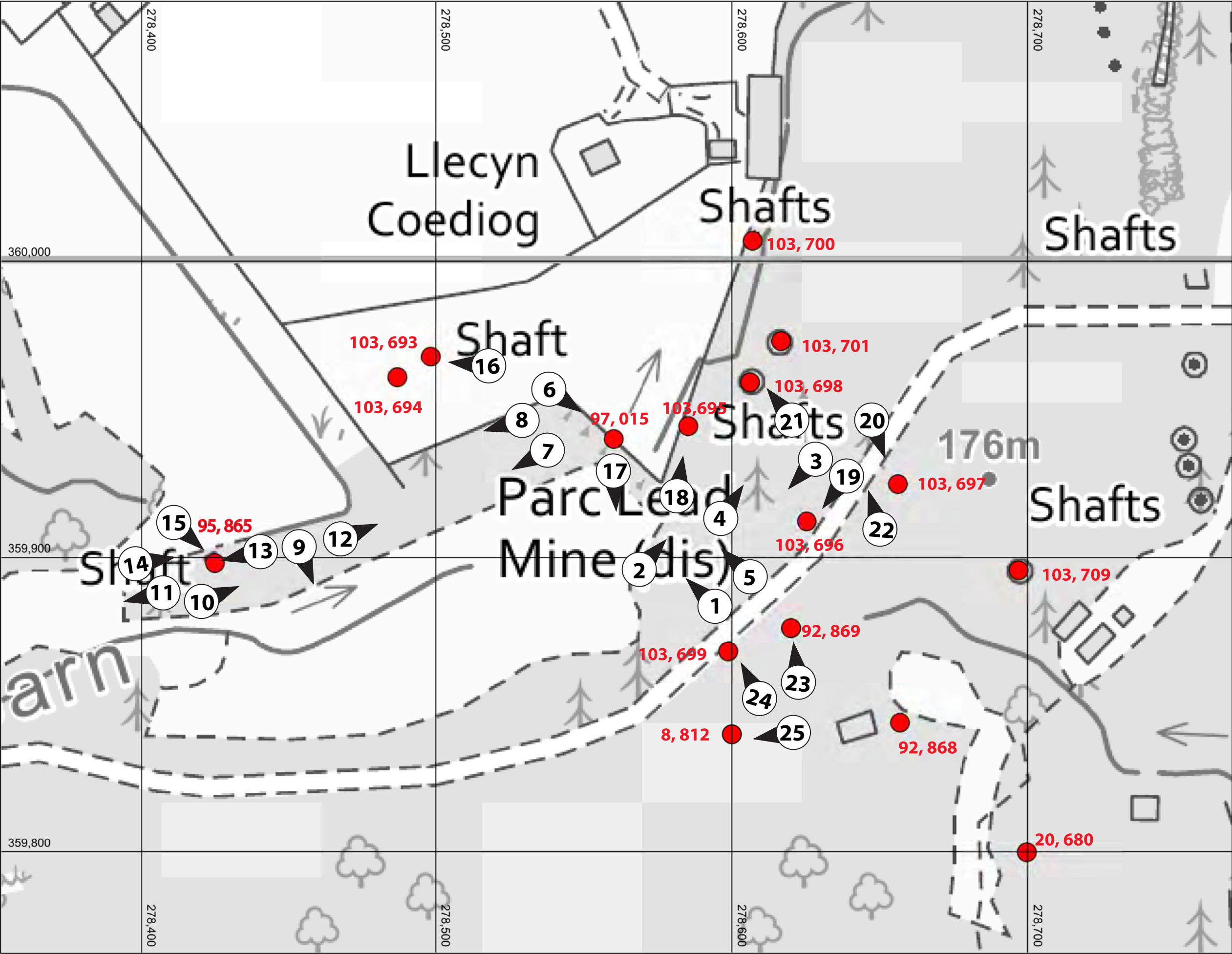
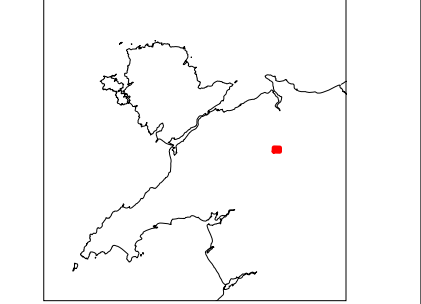


Figure 09: Location and orientation of photographic images of Assets 8812, 20680, 97015, 95865, 92868 – 92869, 103694 – 103701, 103709 and 103710.

● Historic Asset with Heneb Gwynedd Archaeology HER PRN

27 Photograph orientation and image number



Co-ordinate System OSGB 1936 / British National Grid EPSG:27700

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0 50 metres

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e-bost / e-mail: gat@heneb.uk

CLIENT: Binnies UK Limited

SITE: Llyn Fuchus Las Reservoir, Trefriw, Conwy

SCALE AT A3: 1:1,250	DATE: 11/04/24	DRAWN: CF	CHECKED: JR
PROJECT NO: G2827	DRAWING NO: DBA/02		REVISION: B

FIGURE 10

Location and orientation of photographic images of Assets 8850, 8851, 9047, 9048 and 103710. Drawing No. DBA/03. Scale 1:1,250@ A3

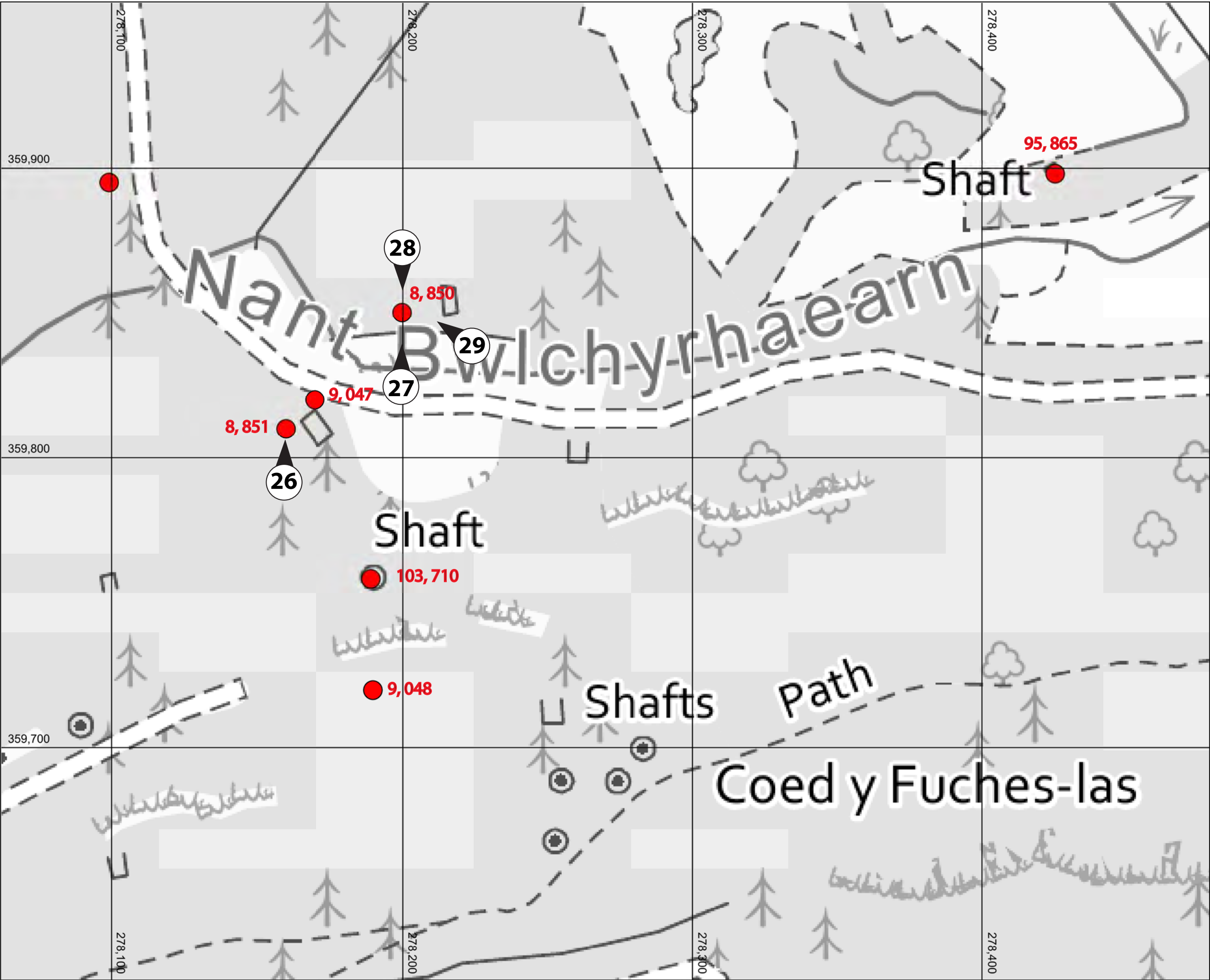


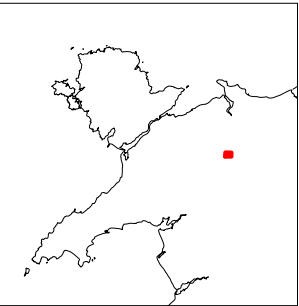
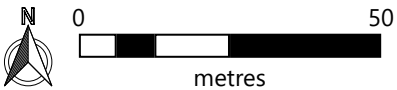


Figure 10: Location and orientation of photographic images of Assets 8850, 8851, 9047, 9048 and 103710.

-  Historic Asset with Heneb Gwynedd Archaeology HER PRN
-  Photographic orientation and image number



Co-ordinate System OSGB 1936 / British National Grid EPSG:27700
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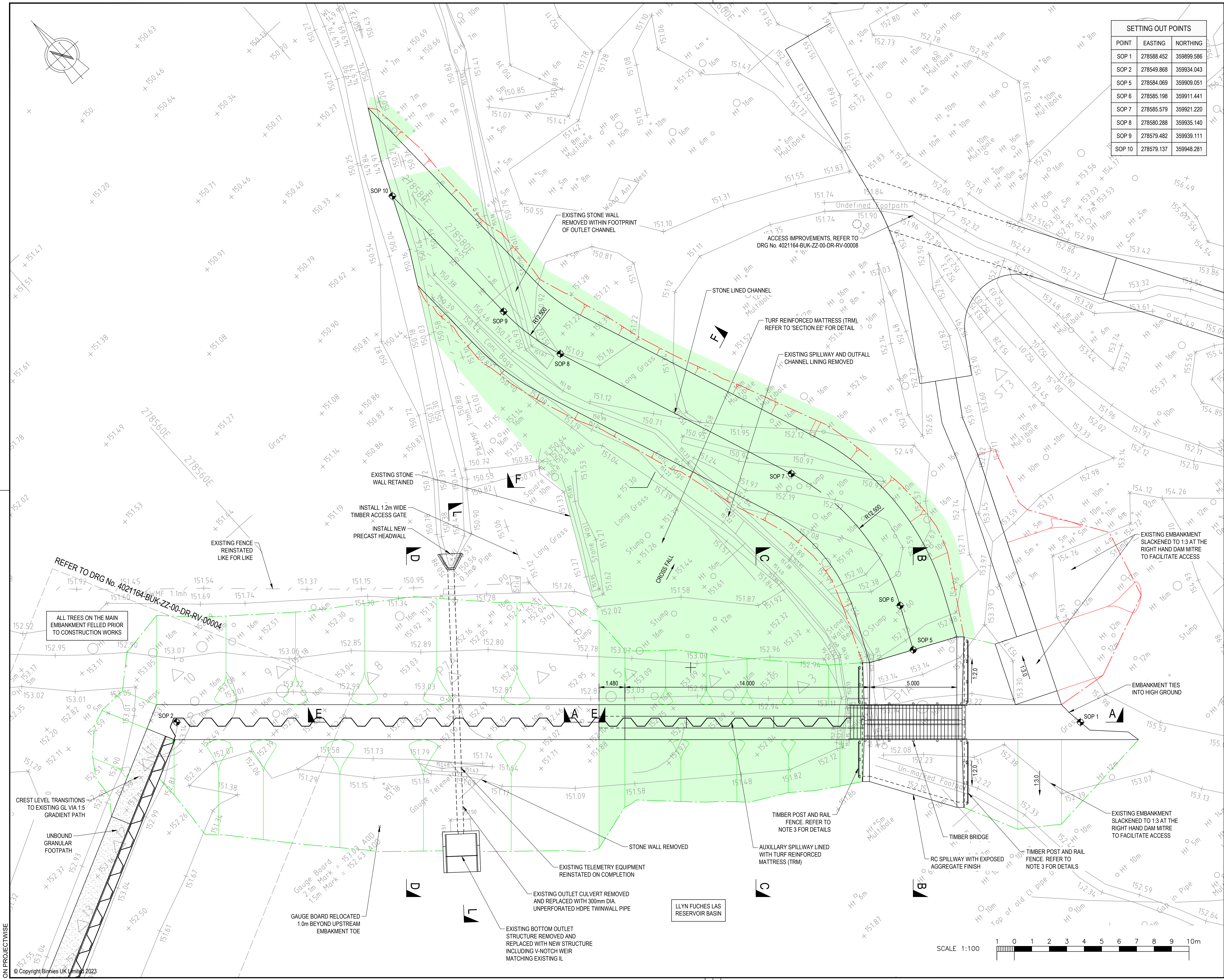
CLIENT: Binnies UK Limited

SITE: Llyn Fuches Las Reservoir, Trefriw, Conwy

SCALE AT A3: 1:1,250	DATE: 11/04/24	DRAWN: CF	CHECKED: JR
PROJECT NO: G2827	DRAWING NO: DBA/03	REVISION: B	

FIGURE 11

**Reproduction of client location plan showing Llyn Fuches Las Reservoir
Safety Improvement Scheme. Plan No. 4021164-BUK-ZZ-00-DR-RV-00003.P03-
S3. Scale 1:100@A1**



SETTING OUT POINTS		
POINT	EASTING	NORTHING
SOP 1	278588.452	359899.586
SOP 2	278549.868	359934.043
SOP 5	278584.069	359909.051
SOP 6	278585.198	359911.441
SOP 7	278585.579	359921.220
SOP 8	278580.288	359935.140
SOP 9	278579.482	359939.111
SOP 10	278579.137	359948.281

Note: The limits, including the height and depths of the Works, shown in this drawing are not to be taken as limiting the obligations of the contractor under Contract.

NOTES:

- ALL DIMENSIONS IN METRES AND ALL LEVELS IN METRES RELATIVE TO ORDNANCE DATUM (OD), UNLESS NOTED OTHERWISE.
- THE INSTALLATION CONTACTOR SHALL SATISFY THEMSELVES THAT THE PILE SECTION IS SUITABLE FOR DRIVING WITH THE PROPOSED INSTALLATION PLANT.
- POST AND 3 RAIL FENCE TYPE SPR 11/3) CONSTRUCTED IN ACCORDANCE WITH BS 1722-7.

REFERENCES:

4021164-BUK-ZZ-00-DR-RV-00001 LOCATION PLAN
4021164-BUK-ZZ-00-DR-RV-00002 HAZARD & CONSTRAINTS PLAN
4021164-BUK-ZZ-00-DR-RV-00004 SUBSIDIARY EMBANKMENT GENERAL ARRANGEMENT
4021164-BUK-ZZ-00-DR-RV-00005 SPILLWAY DETAILS
4021164-BUK-ZZ-00-DR-RV-00006 MAIN EMBANKMENT SECTIONS
4021164-BUK-ZZ-00-DR-RV-00007 SUBSIDIARY EMBANKMENT SECTIONS
4021164-BUK-ZZ-00-DR-RV-00008 ACCESS IMPROVEMENTS
4021164-BUK-ZZ-00-DR-RV-00010 SITE BOUNDARY

GENERAL LEGEND:

TURF REINFORCED MATTRESS

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS OR RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, THE FOLLOWING SIGNIFICANT RESIDUAL RISKS SHOULD BE NOTED. FURTHER DETAILS ARE INCLUDED IN THE CDM DESIGN RISK MANAGEMENT REGISTER

CONSTRUCTION:

S.1 WORKING NEAR HISTORICAL MINE WORKS.

MAINTENANCE, CLEANING AND OPERATION:

S.1 WORKING NEAR HISTORICAL MINE WORKS.

DECOMMISSIONING OR DEMOLITION:

S.1 WORKING NEAR HISTORICAL MINE WORKS.

P01	SPJ	MC	RJT	RJT	28/04/23	For Client Comment and Review
P02	SPJ	MC	MC	RJT	27/07/23	For Consultation
P03	SPJ	MC	RJT	RJT	21/08/23	For Client Comment and Review
Rev	Drawn	Chkd	Rwd	Apprd	Date	Description

Designed by: GLe Date: 09/01/23

Status S3 Suitable for Review and Comment

Client



Client Project No. Revision



Binnies UK Limited
Spring Lodge, 172 Chester Road, Helsby, Cheshire, WA6 0AR, UK.
Tel: +44(0)1737 774155

Project LLYN FUCHUS LAS RESERVOIR

SAFETY IMPROVEMENTS

Drawing title

MAIN EMBANKMENT
GENERAL ARRANGEMENT

Drawing scale: 1:100

Sheet size: A1

Drawing no. 4021164-BUK-ZZ-00-DR-RV-00003
Revision P03

ON PROJECTWISE

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APPENDIX I

HENEB: Gwynedd Archaeology Written Scheme of Investigation

LLYN FUCHES LAS, LLANRWST (G2827)

WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL MITIGATION


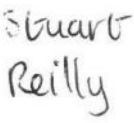

Prepared for

Binnies UK Limited

March 2024



Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

Approvals Table				
	Role	Printed Name	Signature	Date
Originated by	Document Author	Michael Lynes		06/03/2024
Reviewed by	Document Reviewer	Stuart Reilly		08/03/2024
Approved by	Principal Archaeologist	John Roberts		08/03/2024

Revision History			
Rev No.	Summary of Changes	Ref Section	Purpose of Issue
01	Removed references to DBA. Removed reference to Historic Environment Register Clearer definition of measured survey & output	Throughout 1.3 2.2	Approval by Jenny Emmett

All GAT staff should sign their copy to confirm the project specification is read and understood and retain a copy of the specification for the duration of their involvement with the project. On completion, the specification should be retained with the project archive:

Name

Signature

Date

DRAFT

LLYN FUCHES LAS, LLANRWST (G2827)

WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL MITIGATION

Prepared for Binnies UK Limited, March 2024

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DRAFT

1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) has been commissioned by Binnies UK Limited to undertake an archaeological mitigation (measured survey) of Llyn Fuchus Las, Llanrwst, LL27 0HX (NGR SH7848659872) ([Figure 01](#)) ahead of the safety works at the reservoir. The safety work is required to enable Fuchus Las Reservoir to safely pass the design and safety check for floods to meet the requirements of the *ICE Floods and Reservoir Safety 4th. Ed.* The construction work to the reservoir has been commissioned by Natural Resources Wales and will include the following:

- Vegetation work in the form of tree felling with removal of tree balls and topsoil stripping from the main embankment ([Figure 02](#)).
- Main embankment works will require widening, raising along with the installation of sheet piling.
- The existing outlet culvert for the reservoir will be replaced.
- The existing auxiliary spillway will be removed and replaced with a new wider primary spillway and outfall channel.
- Subsidiary embankment improvements will be undertaken to raise the embankment using sheet steel piling. Also, a stone pathway will be built along the sheet pile line.
- A new access track will be built from the existing forestry track to enable the works and allow access for future maintenance.

The groundworks are scheduled to commence in 2025.

The archaeological mitigation has been defined in consultation with *Binnies UK Limited* and *Gwynedd Archaeological Planning Service (GAPS)*. It will comprise a measured survey at the Llyn Fuchus Las Reservoir (PRN 97,015) and will focus on (see Figures [01](#) & [02](#)):

- 1) the wooded area to the immediate east of the reservoir;
- 2) the proposed material storage area, positioned off the forest track, west of the reservoir;
- 3) features associated with the reservoir that will be altered or removed as part of the improvement works, such as (but not limited to) the embankments along the northern

and eastern side of the reservoir, the spillway and outlet culvert at the eastern end of Llyn Fuchses Las;

- 4) known mine shafts along the northern edge of the reservoir, for example, PRN 95,865.

The aim of the measured survey is to update the record for the known sites and add any new information not previously recorded. This may include any additional features not previously identified in the study area.

The archaeological mitigation will be undertaken during March 2024. It will be completed in accordance with the following guidance:

- Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs) Version 2 (The Welsh Archaeological Trusts, 2020);
- Guidelines for digital archives (Royal Commission on Ancient and Historical Monuments of Wales, 2015).
- Management of Archaeological Projects (English Heritage, 1991);
- Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide (Historic England, 2015);
- Standard and Guidance for the Archaeological Investigation and Recording of Standing Buildings or Structures (Chartered Institute for Archaeologists, 2020);
- Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives (Chartered Institute for Archaeologists, 2020); and
- Understanding Historic Buildings: A Guide to Good Recording Practice (Historic England, 2016).

Gwynedd Archaeological Trust is certified to ISO 9001:2015 and ISO 14001:2015 (Cert. No. 74180/A/0001/UK/En), a Registered Organisation with the Chartered Institute for Archaeologists (CIfA).

1.1 Aims and Objectives

The archaeological mitigation will comprise a measured survey at Llyn Fuchus Las Reservoir (PRN 97,015) with the primary focus being on the wooded area to the immediate east of the reservoir and the proposed material storage area, positioned off the forest track, west of the reservoir. The survey will document the current condition of the reservoir and associated features such as the embankments and spillway. It will also determine the potential for presently unknown sub-surface assets.

The objectives are to include:

- a record of the known archaeological assets at the reservoir.
- determine the presence/absence of unknown archaeological assets and provide recommendations, if necessary, to preserve or record said assets in advance of the groundworks at the reservoir.

1.2 Monitoring Arrangements

The archaeological assessment will be monitored by the Development Control Archaeologist Gwynedd Archaeological Planning Service (GAPS); both the written scheme of investigation and all subsequent reporting must be approved by GAPS before final issue.

Jenny Emmett | jenny.emmett@heneb.co.uk | 01248 370926 / 07824 481052

DRAFT

1.3 Historic Environment Record

In line with the regional Historic Environment Record (HER) requirements, the HER will be contacted at the onset of the project to ensure that any data arising is formatted in a manner suitable for accession to the HER and follows the guidance set out in *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (The Welsh Archaeological Trusts, 2020). In line with this guidance, all submitted reporting will need to include the equivalent of a non-technical summary in Welsh and English at the front of the report combined with short bilingual summaries of the principal Historic Assets recorded during the event. These requirements are mandatory.

The GAT HER enquiry number for this project is **GATHER1997** and the event Primary Reference Number (PRN) is **46753**.

The GAT HER will also be responsible for supplying PRNs for any new assets (if identified) during the measured survey.

DRAFT

2 METHODOLOGY

2.1 Desktop Review

This will include an examination of the regional Historic Environment Record (HER) Gwynedd Archaeological Trust, Craig Beuno, Ffordd y Garth, Bangor, Gwynedd LL57 2RT). This will include an examination of the measured survey area as detailed in [Figure 01](#).

Secondary information held within the HER will include the following reports:

- Bennett, J. & Vernon, R., 1991, Mines of the Gwydyr Forest Part 3.
- Evans, R., & Ryan Young, C., 2021, Parc Mine, Trefriw, Conwy: Asesiad wrth Ddesg / Desk Based Assessment.
- Frost, P. & Thomas, D., 1998, Forest Enterprise Welsh Heritage Assets Survey.
- Gwyn, D., 1998, Gwynedd Metal Mines Survey.
- Ryan Young, C., 2022, Pandora Reservoir, Llyn Fuchus Las, Trefriw, Conwy: Archaeological Watching Brief.

All identified features will be mapped, described and added to a gazetteer of sites and their relative importance defined.

2.2 Measured Survey

A measured survey will be undertaken within the immediate vicinity of Llyn Fuchus Las reservoir (PRN 97,015). The aim will be to visit known assets and add any new information not previously recorded. The assets will be mapped and located in advance as part of the archaeological mitigation, using a combination of historic and GIS based data; this information will then be used to prepare a list of known assets; these lists will include the Primary Reference Number (PRN), Site Name, Site Type and National Grid Reference co-ordinate for each asset.

It will comprise a measured survey at the Llyn Fuchus Las Reservoir (PRN 97,015) and will focus on (see Figures [01](#) & [02](#)):

- 1) the wooded area to the immediate east of the reservoir;
- 2) the proposed material storage area, positioned off the forest track, west of the reservoir;
- 3) features associated with the reservoir that will be altered or removed as part of the improvement works, such as (but not limited to) the embankments along the northern and eastern side of the reservoir, the spillway and outlet culvert at the eastern end of Llyn Fuchus Las;
- 4) known mine shafts along the northern edge of the reservoir, for example, PRN 95,865.

Output for the measured survey will include:

- written description on GAT pro-formas; ([Appendix I](#));
- supplemented with hand measurements (if practical) in the field and measurements taken off existing plans/surveys; and
- a photographic record.

The photographs will be taken in RAW format using a digital SLR set to maximum resolution (Nikon D3000; resolution: 3,872 × 2,592 [10.2 effective megapixels]) and a photographic metadata table will be completed using a GAT pro-forma ([Appendix II](#)) and a copy included in the report. Photographic images will be archived in TIFF format; the archive numbering system will start from **G2827_001**. A handheld GPS unit will also be used.

2.3 Gazetteer of Features

A gazetteer will be compiled for any existing and newly identified sites, based on information sourced from measured survey; the gazetteer will be prepared in the following format and include:

Feature Number	
Site name	
PRN number	
Grid reference	
Designation	
Period	
Site type	
Assessment category	
Description	
Impact	
Recommendation	
Photographic Archive	

The following categories will be used to define the assessment category of each archaeological asset:

Category A - Sites of National Importance.

Scheduled Monuments, Listed Buildings of grade II* and above, as well as those that would meet the requirements for scheduling (ancient monuments) or listing (buildings) or both. Sites that are scheduled or listed have legal protection, and it is recommended that all Category A sites remain preserved and protected *in situ*.

Category B - Sites of regional or county importance.

Grade II listed buildings and sites which would not fulfil the criteria for scheduling or listing, but which are nevertheless of particular importance within the region. Preservation *in situ* is the preferred option for Category B sites, but if damage or destruction cannot be avoided, appropriate detailed recording might be an acceptable alternative.

Category C - Sites of district or local importance.

Sites which are not of sufficient importance to justify a recommendation for preservation if threatened. Category C sites nevertheless merit adequate recording in advance of damage or destruction.

Category D - Minor and damaged sites.

Sites that are of minor importance or are so badly damaged that too little remains to justify their inclusion in a higher category. For Category D sites, rapid recording, either in advance of or during destruction, should be sufficient.

Category E - Sites needing further investigation.

Sites, the importance of which is as yet undetermined and which will require further work before they can be allocated to categories A - D are temporarily placed in this category, with specific recommendations for further evaluation.

The impact of the proposed works on any asset will be identified using the following impact criteria, defined either as *none, slight, unlikely, likely, significant, considerable or unknown* as follows:

None:

There is no construction impact on this asset.

Slight:

This has generally been used where the impact is marginal and would not by the nature of the site cause irreversible damage to the remainder of the asset, e.g. part of a trackway or field bank.

Unlikely:

This category indicates sites that fall within the band of interest but are unlikely to be directly affected. This includes sites such as standing and occupied buildings at the margins of the band of interest.

Likely:

Sites towards the edges of the study area, which may not be directly affected, but are likely to be damaged in some way by the construction activity.

Significant:

The partial removal of an asset affecting its overall integrity. Assets falling into this category may be linear features such as roads or tramways where the removal of part of the feature could make overall interpretation problematic.

Considerable:

The total removal of an asset or its partial removal which would effectively destroy the remainder of the site.

Unknown:

This is used when the location of the asset is unknown, but thought to be in the vicinity of the proposed works.

2.4 Working Project Archive and Data Management Plan

As stated in *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* (Chartered Institute for Archaeologists, 2020), para. 3.3.1, “Project specifications, research designs or similar documents should include a project- specific Selection Strategy and a Data Management Plan. The Chartered Institute for Archaeologists states that “(I)t is widely accepted that not all the records and materials collected or created during the course of an Archaeological Project require preservation in perpetuity. These records and materials constitute the Working Project Archive that will be subject to Selection, in order to establish what will be retained for long-term curation” (<https://www.archaeologists.net/selection-toolkit>). The working project archive in this instance will comprise digital data including photographic data, documentation and written data, as well as paper records, including project pro-formas. The Data Management Plan will be stored on a project specific form in the GAT project database (format: *Microsoft Access*) and the Selection Strategy will be based on a GAT pro-forma (format *Microsoft Word*) that will be appended to the final report.

This working project archive data will be processed as follows:

1. Pro-formas: all cross referenced and scanned for digital archiving;
2. Photographic Metadata: cross-referenced with all pro-formas and completed in *Microsoft Excel*;

Information from these will be used to compile the project report. The physical archive will be stored in a designated project folder and the location confirmed in the Data Management Plan; the digital dataset will be stored on a dedicated Trust server, with the location confirmed in the Data Management Plan via a specific hyperlink. External datasets for the HER and RCAHMW are as defined in the dissemination strategy below.

The project report will include the following:

1. Front cover;
 2. Inner cover;
 3. Figures and Plates List;
 4. Non-technical summary (Welsh/English);
 5. Introduction;
 6. Methodology;
 7. Results;
 8. Conclusions
 9. Acknowledgements;
 10. Bibliography;
 - a. Primary sources;
 - b. Secondary sources;
 11. Figures; inc.:
 - location plan;
 - historic mapping;
 - location plan with identified features.
 12. Plates; inc.
 - Illustrative examples from the measured survey
 13. Appendix I (approved specification);
 14. Appendix II (Photographic metadata - measured survey);
 15. Appendix III (Selection Strategy)
- Back cover.

Illustrations will include plans of the location of the assessment areas and known/possible archaeological assets. Historical maps, when appropriate and if copyright permissions allow, will be included.

The following dissemination and archiving of the report and digital dataset will be applied:

- A digital report will be provided to the client and GAPS (draft report then final report);
- A digital report will be provided to the regional Historic Environment Record; this will be submitted within six months of project completion (final report only), along with a digital dataset comprising an Event PRN summary. The report and dataset will be submitted in accordance with the required standards set out in *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Version 2); and
- A digital report and digital archive dataset will be provided to Royal Commission on Ancient and Historic Monuments, Wales (final report only), in accordance with the *RCAHMW Guidelines for Digital Archives Version 1*. The dataset will be prepared in the format required by RCAHMW and will include:
 - Photographic metadata (Microsoft Access);
 - Photographic archive (TIFF format);
 - Project Information form (Excel);
 - File Information form (Excel) – Microsoft Word report text final;
 - File Information form (Excel) – Photographic metadata (general);
 - File Information form (Excel) – Adobe PDF report final; and
 - File Information form (Excel) - Photographic metadata (detail).

2.5 Selection Strategy

As defined in *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* (Chartered Institute for Archaeologists, 2020) section 3.3.1, a project specific selection strategy and data management plan should be prepared. In support of this, the Chartered Institute for Archaeologist (CIfA), have stated that it is “widely accepted that not all the records and materials collected or created during the course of an Archaeological Project require preservation in perpetuity. These records and materials constitute the Working Project Archive which will be subject to Selection, in order to establish what will be retained for long-term curation”. The aim of selection is to ensure that all the elements retained from the Working Project Archive for inclusion in the Archaeological Archive are appropriate to establish the significance of the project and support “future research, outreach, engagement, display and learning activities”. Selection should be “focused on selecting what is to be retained to support these future needs, rather than deciding what can be dispersed” and can be qualified by a selection strategy, which details the project-specific selection process, agreed by all parties (including GAPS, client and/or landowner), which will be applied to a Working Project Archive prior to its transfer into curatorial care as the Archaeological Archive.

The selection strategy will be confirmed in the mitigation report and will take into account:

- The aims and objectives of the project.
- The brief and/or Written Scheme of Investigation (WSI).
- The Collecting Institution's collection policy and/or deposition guidelines.
- Local and regional research frameworks.
- Relevant thematic or period specific research frameworks.
- The project's Data Management Plan (DMP).
- Internal recording and reporting policies.
- Material-specific guidance documents.

The selection strategy pro-forma is included as [Appendix III](#).

3 PERSONNEL

The project will be managed by John Roberts, Principal Archaeologist GAT Contracts Section with attendances on-site undertaken by a GAT Project Archaeologist(s). The Project Archaeologist will be responsible for following:

- Client liaison;
- GAPS liaison;
- Completing all on site pro-formas and the fieldwork archive itemised above;
- Sourcing Primary Reference Numbers (PRN) from the GAT HER for any new assets identified (if applicable);
- Completing an event summary and creating or updating PRN data, dependent on results; and
- For submitting a draft final report for project manager review and approval, to then be submitted as per the arrangements defined above.

4 HEALTH AND SAFETY

A project specific risk assessment will be prepared ahead of the walkover survey, identifying any expected risks and suitable control measures. Copies of the site-specific risk assessment will be supplied to the client prior to the start of the walkover survey.

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5 SOCIAL MEDIA

One of the key aims in the GAT mission statement is to improve the understanding, conservation and promotion of the historic environment in our area and inform and educate the wider public. To help achieve this, GAT maintains an active social media presence and seeks all opportunities to promote our projects and results. With permission, GAT would like the opportunity to promote our work on this scheme through our social media platforms. This could include social media postings during our attendance on site as well as any postings to highlight results. In all instances, approval will be sought from client prior to any postings.

DRAFT

6 INSURANCE

6.1 Public/Products Liability

Limit of Indemnity- £5,000,000 any one event in respect of Public Liability

INSURER Ecclesiastical Insurance Office Plc.

POLICY TYPE Public Liability

POLICY NUMBER 000375

EXPIRY DATE 22/08/2024

6.2 Employers Liability

Limit of Indemnity- £10,000,000 any one occurrence.

INSURER Ecclesiastical Insurance Office Plc.

POLICY TYPE Public Liability

POLICY NUMBER 000375

EXPIRY DATE 22/08/2024

6.3 Professional Indemnity

Limit of Indemnity- £5,000,000 in respect of each and every claim

INSURER AXA Insurance UK Plc

POLICY TYPE Professional Indemnity

POLICY NUMBER TG0275

EXPIRY DATE 22/08/2024

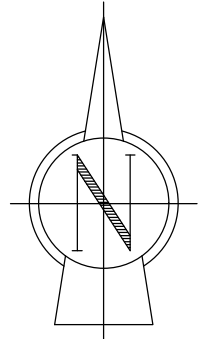
7 SOURCES CONSULTED

1. Bennett, J. & Vernon, R., 1991, Mines of the Gwydyr Forest Part 3.
2. Chartered Institute for Archaeologists, 2020, Standard and Guidance for the Archaeological Investigation and Recording of Standing Buildings or Structures.
3. Chartered Institute for Archaeologists, 2020, Standard and guidance for the collection, documentation, conservation and research of archaeological materials.
4. English Heritage, 1991, Management of Archaeological Projects (MAP2).
5. Evans, R., & Ryan Young, C., 2021, Parc Mine, Trefriw, Conwy: Asesiad wrth Ddesg / Desk Based Assessment.
6. Frost, P. & Thomas, D., 1998, Forest Enterprise Welsh Heritage Assets Survey.
7. Gwyn, D., 1998, Gwynedd Metal Mines Survey.
8. Historic England, 2015, Management of Research Projects in the Historic Environment (MoRPHE).
9. Historic England, 2016. *Understanding Historic Buildings: A Guide to Good Recording Practice*.
10. Royal Commission on Ancient and Historic Monuments of Wales, 2015, Guidelines for digital archives.
11. Ryan Young, C., 2022, Pandora Reservoir, Llyn Fuchus Las, Trefriw, Conwy: Archaeological Watching Brief.
12. The Welsh Archaeological Trusts, 2020. *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* Version 2.

FIGURE 01

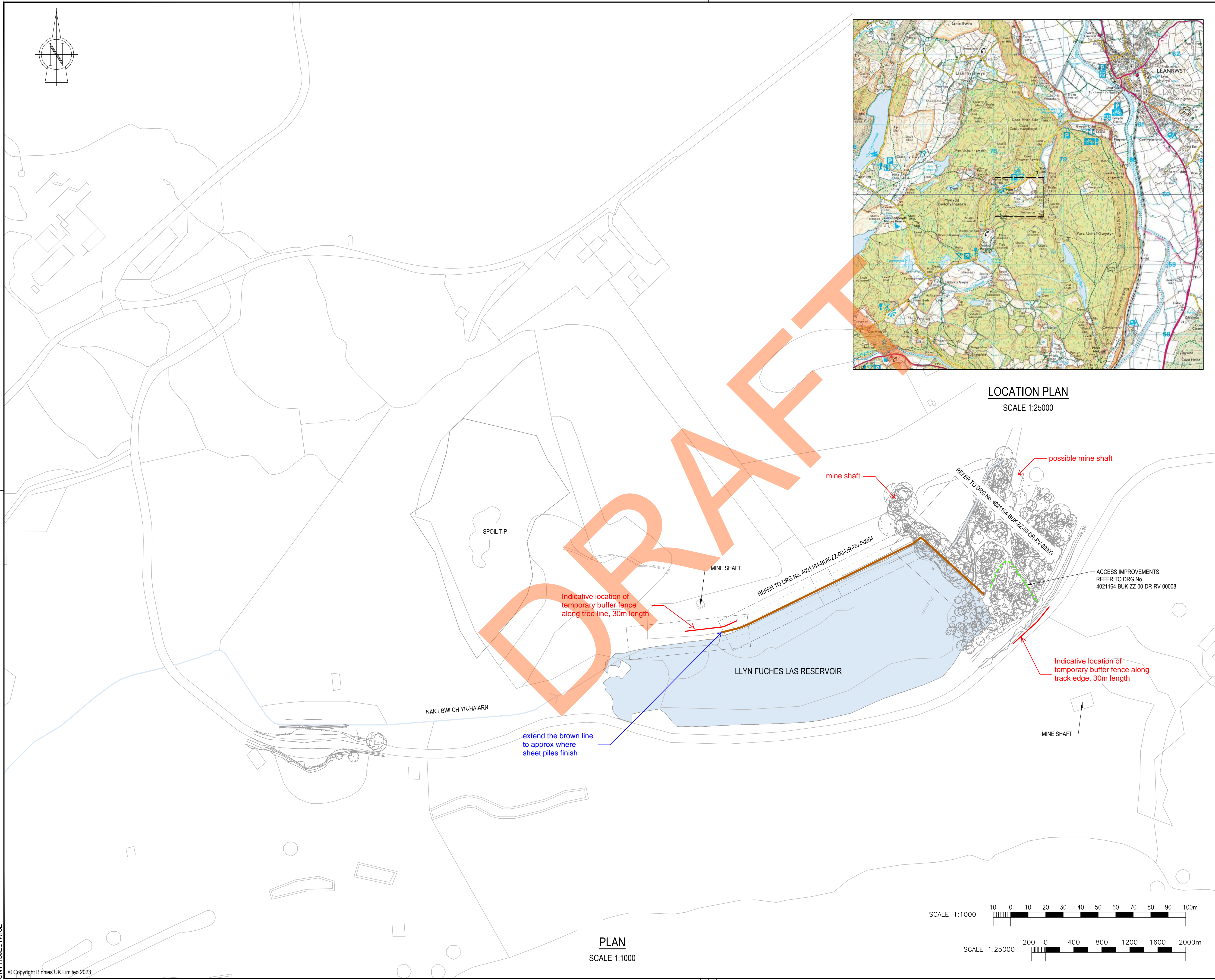
Client produced location plan showing Llyn Fuches Las Reservoir Safety Improvement Scheme. Plan No. 4021164-BUK-ZZ-00-DR-RV-00001.P02-S3. Scale 1:25000@A1.

DRAFT



LOCATION PLAN

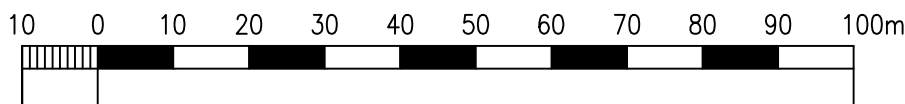
SCALE 1:25000



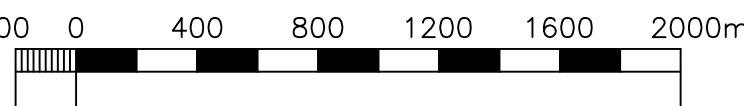
PLAN

SCALE 1:1000

SCALE 1:1000



SCALE 1:25000



Note: The limits, including the height and depths of the Works, shown in this drawing are not to be taken as limiting the obligations of the contractor under Contract.

THIS MAP IS REPRODUCED FROM THE ORDNANCE SURVEY MAP BY NATURAL RESOURCES WALES WITH PERMISSION OF HER MAJESTY'S STATIONERY OFFICE CROWN COPYRIGHT ©. UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT AND MAY LEAD TO CIVIL PROCEEDINGS. LICENCE NUMBER 100019741.

NOTES:

1. ALL DIMENSIONS IN METRES AND ALL LEVELS IN METRES RELATIVE TO ORDNANCE DATUM (OD), UNLESS NOTED OTHERWISE.

GENERAL LEGEND:

- ACCESS IMPROVEMENTS
--- INDICATIVE RESERVOIR EMBANKMENT
--- INDICATIVE RESERVOIR IMPOUNDMENTS AREA
--- Temporary Buffer fence

REFERENCES:

- 4021164-BUK-ZZ-00-DR-RV-00002 HAZARD & CONSTRAINTS PLAN
4021164-BUK-ZZ-00-DR-RV-00003 MAIN EMBANKMENT GENERAL ARRANGEMENT
4021164-BUK-ZZ-00-DR-RV-00004 SUBSIDIARY EMBANKMENT GENERAL ARRANGEMENT
4021164-BUK-ZZ-00-DR-RV-00005 SPILLWAY DETAILS
4021164-BUK-ZZ-00-DR-RV-00006 MAIN EMBANKMENT SECTIONS
4021164-BUK-ZZ-00-DR-RV-00007 SUBSIDIARY EMBANKMENT SECTIONS
4021164-BUK-ZZ-00-DR-RV-00008 ACCESS IMPROVEMENTS
4021164-BUK-ZZ-00-DR-RV-00010 SITE BOUNDARY

Add ref to tree clearance plans

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS OR RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, THE FOLLOWING SIGNIFICANT RESIDUAL RISKS SHOULD BE NOTED. FURTHER DETAILS ARE INCLUDED IN THE CDM DESIGN RISK MANAGEMENT REGISTER

CONSTRUCTION :

- S.1 WORKING NEAR HISTORIC MINING FEATURES.
~~S.2 WORKING WITHIN BASIN OF A FLOOD STORAGE RESERVOIR.~~
~~S.3 WORKING WITH POTENTIALLY CONTAMINATED GROUND.~~

MAINTENANCE, CLEANING AND OPERATION :

- S.1 WORKING NEAR HISTORIC MINING FEATURES.
~~S.2 WORKING WITHIN BASIN OF A FLOOD STORAGE RESERVOIR.~~

DECOMMISSIONING OR DEMOLITION :

RISKS ARE LIKELY TO BE SIMILAR TO THE CONSTRUCTION STAGE BUT SHOULD BE RECONSIDERED IN ADVANCE OF DECOMMISSIONING, DEMOLITION, FUTURE REFURBISHMENT OR REPLACEMENT.

Rev	Drawn	Chkd	Rwd	Apprvd	Date	Description
P01	SPJ	MC	RJT	RJT	28/04/23	For Client Comment and Review
P02	SPJ	MC	RJT	RJT	27/07/23	For Consultation

Designed by: GLe Date: 09/01/23

Status S3 Suitable for Review and Comment

Client



Client Project No.

Revision



Binnies UK Limited
Spring Lodge, 172 Chester Road, Helsby, Cheshire, WA6 0AR, UK.
Tel: +44(0)1737 774155

Project

LLYN FUCHES LAS RESERVOIR
SAFETY IMPROVEMENTS

Drawing title

LOCATION PLAN

Drawing scale: AS SHOWN

Sheet size: A1

Drawing no.

4021164-BUK-ZZ-00-DR-RV-00001

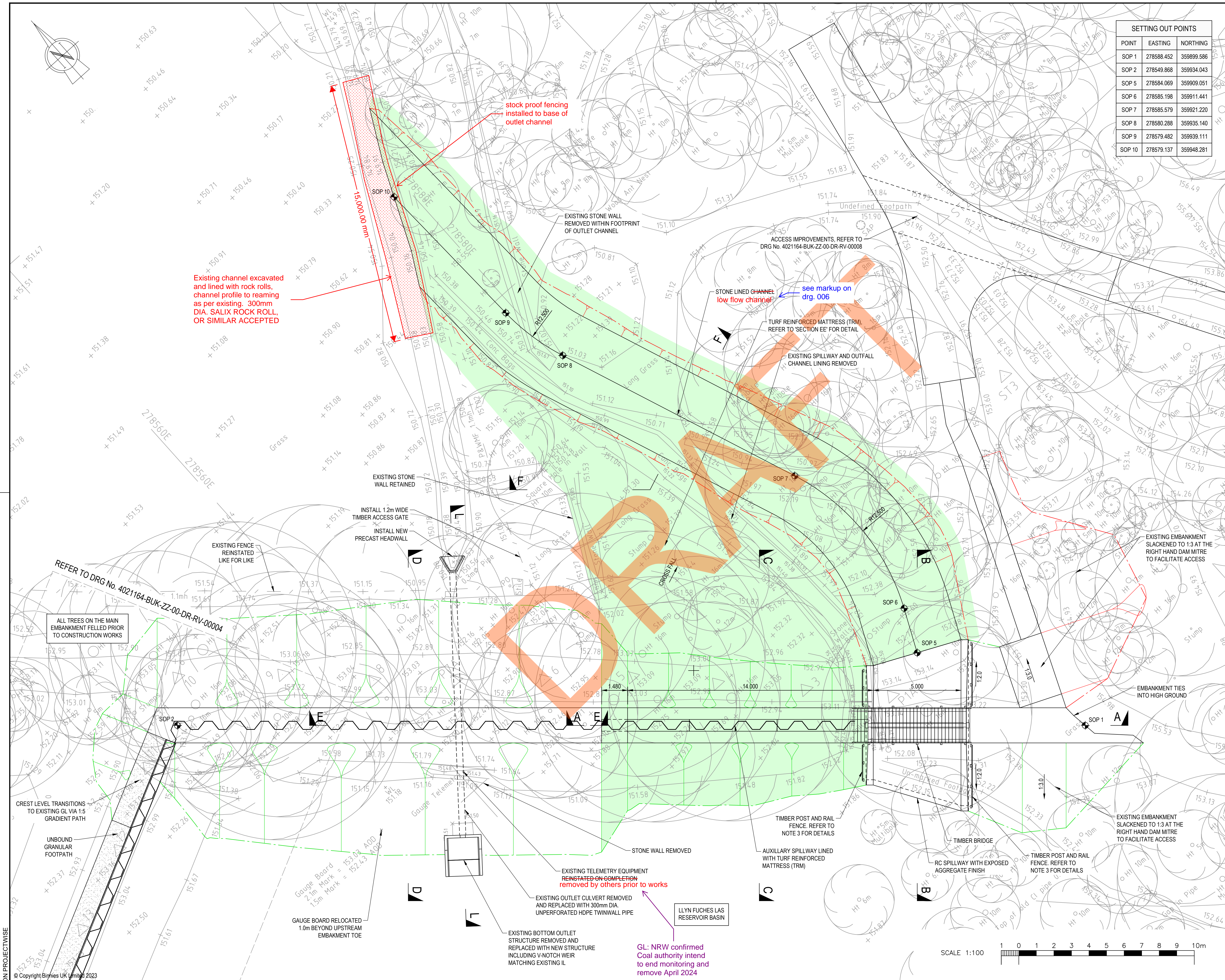
Revision

P02

FIGURE 02

Client produced drawing: Main Embankment Sections. Drawing No. 4021164-BUK-ZZ-00-DR-RV-00003.P03-S3. Scale: 1:50@A1.

DRAFT



SETTING OUT POINTS		
POINT	EASTING	NORTHING
SOP 1	278588.452	359899.586
SOP 2	278549.868	359934.043
SOP 5	278584.069	359909.051
SOP 6	278585.198	359911.441
SOP 7	278585.579	359921.220
SOP 8	278580.288	359935.140
SOP 9	278579.482	359939.111
SOP 10	278579.137	359948.281

Note: The limits, including the height and depths of the Works, shown in this drawing are not to be taken as limiting the obligations of the contractor under Contract.

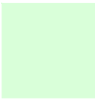
NOTES:

- ALL DIMENSIONS IN METRES AND ALL LEVELS IN METRES RELATIVE TO ORDINANCE DATUM (OD), UNLESS NOTED OTHERWISE.
- THE INSTALLATION CONTACTOR SHALL SATISFY THEMSELVES THAT THE PILE SECTION IS SUITABLE FOR DRIVING WITH THE PROPOSED INSTALLATION PLANT.
- POST AND 3 RAIL FENCE TYPE SFR 11/3) CONSTRUCTED IN ACCORDANCE WITH BS 1722-7.

REFERENCES:

4021164-BUK-ZZ-00-DR-RV-00001 LOCATION PLAN
4021164-BUK-ZZ-00-DR-RV-00002 HAZARD & CONSTRAINTS PLAN
4021164-BUK-ZZ-00-DR-RV-00004 SUBSIDIARY EMBANKMENT GENERAL ARRANGEMENT
4021164-BUK-ZZ-00-DR-RV-00005 SPILLWAY DETAILS
4021164-BUK-ZZ-00-DR-RV-00006 MAIN EMBANKMENT SECTIONS
4021164-BUK-ZZ-00-DR-RV-00007 SUBSIDIARY EMBANKMENT SECTIONS
4021164-BUK-ZZ-00-DR-RV-00008 ACCESS IMPROVEMENTS
4021164-BUK-ZZ-00-DR-RV-00010 SITE BOUNDARY

GENERAL LEGEND:



TURF REINFORCED MATTRESS

Add ref to tree clearance plans

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS OR RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, THE FOLLOWING SIGNIFICANT RESIDUAL RISKS SHOULD BE NOTED. FURTHER DETAILS ARE INCLUDED IN THE CDM DESIGN RISK MANAGEMENT REGISTER

CONSTRUCTION:

S.1 WORKING NEAR HISTORICAL MINE WORKS.

MAINTENANCE, CLEANING AND OPERATION:

S.1 WORKING NEAR HISTORICAL MINE WORKS.

DECOMMISSIONING OR DEMOLITION:

S.1 WORKING NEAR HISTORICAL MINE WORKS.

P01	SPJ	MC	RJT	RJT	28/04/23	For Client Comment and Review
P02	SPJ	MC	MC	RJT	27/07/23	For Consultation
P03	SPJ	MC	RJT	RJT	21/08/23	For Client Comment and Review
Rev	Drawn	Chkd	Rwd	Apprvd	Date	Description

Designed by: GLe Date: 09/01/23

Status S3 Suitable for Review and Comment

Client



Client Project No. Revision



Binnies UK Limited
Spring Lodge, 172 Chester Road, Helsby, Cheshire, WA6 0AR, UK.
Tel: +44(0)1737 774155

Project

LLYN FUCHUS LAS RESERVOIR
SAFETY IMPROVEMENTS

Drawing title

MAIN EMBANKMENT
GENERAL ARRANGEMENT

Drawing scale: 1:100

Sheet size: A1

Drawing no. 4021164-BUK-ZZ-00-DR-RV-00003
Revision P03

GL: NRW confirmed
Coal authority intend
to end monitoring and
remove April 2024

APPENDIX I

Gwynedd Archaeological Trust Basic Recording Pro-Forma

DRAFT

YMDDIRIEDOLAETH ARCHAEOLEGOL GWYNEDD ARCHAEOLOGICAL TRUST		
BASIC RECORDING FORM	Project name	Project number
Feature name		Feature Number
NGR		
Description		
<div>DRAFT</div>		
Recommendations for further assessment		
Photographic record numbers		
Digital		
	Visit date	Visit by

APPENDIX II

Gwynedd Archaeological Trust Photographic Metadata Pro-Forma

DRAFT

Digital Photographic Record

Include main context numbers for each shot, drawing numbers for sections and any other relevant numbers for cross referencing.

Delete any unwanted photos **immediately** from the camera.

Regularly upload photographs to computer.

[illegible]

APPENDIX III

Gwynedd Archaeological Trust Selection Strategy

DRAFT

G2827_Llyn_Fuches_Las_Reservoir_Assessment

08/03/2024 v1.1

Selection Strategy

Project Information

Project Management

Project Manager	John Roberts john.roberts@heneb.co.uk	
Archaeological Archive Manager	John Roberts john.roberts@heneb.co.uk	
Organisation	Gwynedd Archaeological Trust	
Stakeholders		Date Contacted
Collecting Institution(s)	GAT Historic Environment Record	07/02/2024
	RCAHMW	On completion of Project Archive
Project Lead / Project Assurance	Jenny Emmett Gwynedd archaeological Planning Service	07/02/2024
Landowner / Developer	Natural Resources Wales	tbc
Other	Binnies	n/a

Resources

Resources required Describe the resources required to implement this Selection Strategy, particularly if unusual resources are required.	No unusual resources required outside of GAT normal operating equipment and personnel.
--	--

Context

Describe below the context of this Selection Strategy. You should refer to:

- The aims and objectives of the project;
- Local Authority guidance (including the brief);
- Research Frameworks;

- The repository collection development policy and/or deposition policy;
- Material-specific guidance documents.

Note: This section may be copied from your Project Design/WSI to ensure all Stakeholders receive this context information.

Gwynedd Archaeological Trust (GAT) has been commissioned by Binnies UK Limited to undertake an archaeological mitigation (measured survey) of Llyn Fuchas Las, Llanrwst, LL27 0HX (NGR SH7848659872) ([Figure 01](#)) ahead of the safety works at the reservoir. The safety work is required to enable Fuchas Las Reservoir to safely pass the design and safety check for floods to meet the requirements of the *ICE Floods and Reservoir Safety 4th. Ed.* The construction work to the reservoir has been commissioned by Natural Resources Wales and will include the following:

- Vegetation work in the form of tree felling with removal of tree balls and topsoil stripping from the main embankment ([Figure 02](#)).
- Main embankment works will require widening, raising along with the installation of sheet piling.
- The existing outlet culvert for the reservoir will be replaced.
- The existing auxiliary spillway will be removed and replaced with a new wider primary spillway and outfall channel.
- Subsidiary embankment improvements will be undertaken to raise the embankment using sheet steel piling. Also, a stone pathway will be built along the sheet pile line.
- A new access track will be built from the existing forestry track to enable the works and allow access for future maintenance.

The groundworks are scheduled to commence in 2025.

The archaeological mitigation has been defined in consultation with *Binnies UK Limited* and *Gwynedd Archaeological Planning Service* (GAPS). It will comprise a measured survey at the Llyn Fuchas Las Reservoir (PRN 97,015) and will focus on (see [Figures 01 & 02](#)):

- 1) the wooded area to the immediate east of the reservoir;
- 2) the proposed material storage area, positioned off the forest track, west of the reservoir;
- 3) features associated with the reservoir that will be altered or removed as part of the improvement works, such as (but not limited to) the embankments along the northern and eastern side of the reservoir, the spillway and outlet culvert at the eastern end of Llyn Fuchas Las;
- 4) known mine shafts along the northern edge of the reservoir, for example, PRN 95,865.

The aim of the measured survey is to update the record for the known sites and add any new information not previously recorded. This may include any additional features not previously identified in the study area.

Gwynedd Archaeological Trust. 2024. Llyn Fuchas Las: *Written Scheme of Investigation*. Project G2827.

1 – Digital Data

Stakeholders

Name the individual(s) responsible for the Digital Data Selection decisions (i.e. Archaeological Archive Manager, Project Manager, Collections Curator).

John Roberts (GAT Principal Archaeologist)

Selection

Location of Data Management Plan (DMP)

Selection of digital data elements should be considered in your project's DMP. For the purpose of the Selection Strategy, you can either copy the selection section of your DMP below, or attach it as an appendix to this document. Please indicate here if the DMP is attached.

All digital data was collected and stored in line with the Gwynedd Archaeological Trust (GAT) Data Management Plan located on GAT's servers (available on request).

The selection strategy in your DMP should:

- 1.1 Define what digital data was selected for inclusion in the archaeological archive, how this was done, and why. Do not forget to consider that specialists may have digital data that should be included in the archaeological archive.
- 1.2 Identify the selection review points during the project (i.e. project planning, data gathering, analysis and reporting and archive compilation).
- 1.3 Reference all relevant standards, policies or guidelines (e.g. digital repository deposition requirements) and specialist advice sought.
- 1.4 Identify any selection decisions that differ from standard guidelines and explain why.

Following the completion of the fieldwork, a working project archive will be created based on following task list;

1. Pro-formas: all cross referenced and complete;
2. Photographic Metadata: completed in *Microsoft Excel* and cross-referenced with all pro-formas;
3. Survey data: downloaded using a Computer Aided Design package;
4. Sections (if relevant): all cross referenced and complete;
5. Plans (if relevant): all cross referenced and complete;
6. Artefacts (if relevant): quantified and identified; register completed;
7. Context register (if relevant): quantified and register completed.

All relevant site archive data will be added to a digital project register specific to this project, which will be prepared in *Microsoft Excel*.

The site archive data will then be processed, final illustrations will be compiled and a report will be produced which will detail and synthesise the results.

The physical paper archive will be stored in a designated project folder and the location confirmed in the Trust project database; the digital dataset will be stored on a dedicated Trust server, with the location confirmed in the Trust project database via a specific hyperlink.

External datasets will be provided to the regional HER and RCAHMW within six months of project completion.

Archiving was undertaken in accordance with the following standards and guidance:

- *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs) Version 2 (The Welsh Archaeological Trusts, 2022);*
- *Guidelines for digital archives (Royal Commission on Ancient and Historic Monuments of Wales, 2015);*

- *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (Chartered Institute for Archaeologists, 2020); and
- *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* (Chartered Institute for Archaeologists, 2020).

A selection review point will be completed during processing of the working project archive and again during final project archiving. There are no selection decisions that differ from standard guidelines.

De-Selected Digital Data

The procedure for dealing with De-selected digital data and what specialist advice informed this process should be recorded in your DMP. Please copy this information here or attach your DMP as an appendix to this document.

There is no de-selected digital data

DRAFT

2 – Documents

Stakeholders

Name the individual(s) responsible for the Documents Selection decisions (i.e. Archaeological Archive Manager, Project Manager, Repository Representative).

John Roberts – Principal Archaeologist, Gwynedd Archaeological Trust;
Sean Derby – Historic Environment Record, Gwynedd Archaeological Trust;
Gareth Edwards, *Head of Knowledge and Understanding, RCAHMW*

Selection

Describe your Selection Strategy for the Documents elements of the archaeological archive. To do this you must:

- 2.1 Define which documents was selected for inclusion in the archaeological archive, how this was done, and why. Do not forget to consider that specialists may have documents that should be included in the archaeological archive.
- 2.2 Identify the selection review points during the project (e.g. project planning, data gathering, analysis and reporting and archive compilation).
- 2.3 Reference all relevant standards, policies or guidelines (e.g. digital repository deposition requirements) and specialist advice sought.
- 2.4 Identify any selection decisions that differ from standard guidelines and explain why.

- A digital report will be provided to the regional Historic Environment Record; this will be submitted within six months of project completion (final report only), along with a digital dataset comprising an Event PRN summary. The report and dataset will be submitted in accordance with the required standards set out in Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs) (Version 2); and
- A digital report and digital archive dataset will be provided to Royal Commission on Ancient and Historic Monuments, Wales (final report only), in accordance with the RCAHMW Guidelines for Digital Archives Version 1. The dataset will be prepared in the format required by RCAHMW and will include:
 - Photographic metadata (Excel);
 - Photographic archive (TIFF format);
 - Project Information form (Excel);
 - File Information form (Excel) – Microsoft Word report text final;
 - File Information form (Excel) – Photographic metadata (general);
 - File Information form (Excel) – Adobe PDF report final; and
 - File Information form (Excel) - Photographic metadata (detail).

De-Selected Documents

Describe the procedure for dealing with De-selected material and what specialist advice has informed this procedure.

Material de-selected from inclusion in the preserved archive are likely to be duplicates and reproductions created during the project. De-selected material was retained to supplement GAT's research files or recycled.

3 – Materials

Note: This step should be completed for each material component of the archaeological archive. Copy this table for the various materials as required, providing the 'Material Type' and a section identifier (eg. '3.1') for each.

Material type

None

Section 3.

Stakeholders

Name the individual(s) responsible for the Materials Selection decisions (i.e. Archaeological Archive Manager, Project Manager, Repository Representative).

Selection

Describe your Selection Strategy for each material type and or object type. To do this you must:

- 3.1 State the Selection Strategy you are applying to each category of material, how this was done, and why.
- 3.2 Identify the selection review points during the project (e.g. project planning, data gathering, analysis and reporting and archive compilation).
- 3.3 Reference all relevant standards, policies or guidelines (e.g. thematic, period, and regional, Research Frameworks, repository deposition policies) and specialist advice sought.
- 3.4 Identify any selection decisions that differ from standard guidelines and explain why.

The Materials Selection Template may be useful in structuring this section.

Uncollected Material

If you are practising selection in the field, describe the process that was applied. To do this you must:

- Detail how you will characterise, quantify and record all uncollected material on site.
- Explain how you will dispose of, or re-distribute, uncollected material.

None

De-Selected Material

Describe what you will do with the de-selected material. All processed material should have been adequately recorded before de-selection.

N/A

Amendments

Detail any amendments to the above selection strategy here.

Date

Amendment

Rationale

Stakeholders

Materials Selection Template

This table may be inserted into Section 3 of the main [Selection Strategy Template](#) to help present differing selection strategies for different material types

Find Type	Selection Strategy	Stakeholders	Review Points

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APPENDIX II

Heneb: Gwynedd Archaeology Photographic Metadata

PHOTO RECORD NUMBER*	DESCRIPTION*	CONTEXT NUMBER (S)	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR OF DIGITAL PHOTO*	DATE OF CREATION OF DIGITAL PHOTO*	Plates
G2827_001	View of reservoir showing dam and main embankment		E	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	
G2827_002	View of spillway in corner of reservoir		SW	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	5
G2827_003	View up spillway towards reservoir		N	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	
G2827_004	View down spillway away from reservoir		SW	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	
G2827_005	View down main embankment		SE	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	6
G2827_006	View down main embankment		NW	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	7
G2827_007	View down side embankment		NE	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	8
G2827_008	Oblique view of side embankment		E	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	
G2827_009	View into reservoir from side embankment		NW	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	

PHOTO RECORD NUMBER*	DESCRIPTION*	CONTEXT NUMBER (S)	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR OF DIGITAL PHOTO*	DATE OF CREATION OF DIGITAL PHOTO*	Plates
G2827_010	View down side embankment towards main embankment		W	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	9
G2827_011	View down side embankment away from main embankment		NE	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	
G2827_012	View down side embankment towards main embankment		SW	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	10
G2827_013	View of capped mine shaft	95865	E	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	
G2827_014	View of capped mine shaft	95865	SW	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	12
G2827_015	Oblique view of capped mine shaft showing crack monitors	95865	NW	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	
G2827_016	View of two shafts at corner of reservoir	103693 and 103694	NW	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	13
G2827_017	View of outlet in reservoir from main embankment	97015	NE	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	11
G2827_018	View of stone wall next to the spillway, predates dam, possibly the mine	103695	S	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	14

PHOTO RECORD NUMBER*	DESCRIPTION*	CONTEXT NUMBER (S)	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR OF DIGITAL PHOTO*	DATE OF CREATION OF DIGITAL PHOTO*	Plates
G2827_019	View of leat conjoining with spillway	103696	NW	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	15
G2827_020	View of second leat in woodland	103697	N	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	16
G2827_021	View of mine shaft in woodland	103698	SE	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	17
G2827_022	View of access into woodland		SE	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	
G2827_023	View of capped mine shaft	92869	E	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	4
G2827_024	View of uncapped shaft	103699	SE	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	18
G2827_025	Oblique view of Parc Mine headquarters building	8812	NE	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	1
G2827_026	Oblique view of building 8851	8851	S	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	3
G2827_027	View of Bryn Eisteddfod mill	8850	S	n/a	Photographic record of measured survey	Rob Evans	12/03/2024	2

PHOTO RECORD NUMBER*	DESCRIPTION*	CONTEXT NUMBER (S)	VIEW FROM	SCALE(S)	REASON FOR PHOTO*	CREATOR OF DIGITAL PHOTO*	DATE OF CREATION OF DIGITAL PHOTO*	Plates
G2827_028	View of Bryn Eisteddfod mill	8850	N	1x1m	Photographic record of measured survey	Rob Evans	12/03/2024	
G2827_029	View of wheel pit in Bryn Eisteddfod mill	8850	SW	n/a	Photographic record of measured survey	Rob Evans	12/03/2024	

APPENDIX III

Heneb: Gwynedd Archaeology Selection Strategy Final

Llyn_Fuches_Las_Reservoir Assessment (HD24-022) 18/04/2024 v2.0 Selection Strategy

Project Information

Project Management

Project Manager	John Roberts john.roberts@heneb.co.uk	
Archaeological Archive Manager	John Roberts john.roberts@heneb.co.uk	
Organisation	Heneb: Gwynedd Archaeology (Archaeological Services)	
Stakeholders		Date Contacted
Collecting Institution(s)	GAT Historic Environment Record	07/02/2024
	RCAHMW	On completion of Project Archive
Project Lead / Project Assurance	Jenny Emmett Heneb: Gwynedd Archaeology Planning (Archaeological Services)	07/02/2024
Landowner / Developer	Natural Resources Wales	tbc
Other	Binnies	n/a

Resources

Resources required

Describe the resources required to implement this Selection Strategy, particularly if unusual resources are required.

No unusual resources required outside of GAT normal operating equipment and personnel.

Context

Heneb: Gwynedd Archaeology (Archaeological Services) (formerly known as Gwynedd Archaeological Trust (GAT)), was commissioned by Binnies UK Limited on behalf of Natural Resources Wales to undertake an archaeological mitigation in the form of a measured survey of Llyn Fuches Las reservoir,

Llanrwst, LL27 0HX (NGR SH7848659872; Figure 01 and 11) in advance of safety works at the reservoir. The safety works is required to enable Fuches Las Reservoir to safely pass the design and safety check for floods to meet the requirements of the ICE Floods and Reservoir Safety 4th. Ed.

The archaeological mitigation was defined in consultation with Binnies UK Limited and Heneb: Gwynedd Archaeology Planning (formerly Gwynedd Archaeological Planning Service (GAPS)). The mitigation consisted of a measured survey at the Llyn Fuches Las Reservoir (PRN 97,015) and focused on (see Figure 08):

- the wooded area to the immediate east of the reservoir;
- the proposed material storage area, positioned off the forest track, west of the reservoir;
- features associated with the reservoir that will be altered or removed as part of the improvement works, such as (but not limited to) the embankments along the northern and eastern side of the reservoir, the spillway and outlet culvert at the eastern end of Llyn Fuches Las;
- known mine shafts along the northern edge of the reservoir, for example, PRN 95,865.

The aim of the measured survey was to update the record for the known sites and add any new information not previously recorded. This included any additional assets not previously identified in the study area.

The archaeological mitigation was monitored by Gwynedd Archaeology Planning and undertaken in accordance with an approved Written Scheme of Investigation (cf. Appendix I)

Evans, R., Lynes, M.S. and Ferreira, C. 2024. *Llyn Fuches Las: Measured Survey*. Heneb Report No. 1757.

Gwynedd Archaeological Trust. 2024. *Llyn Fuches Las: Written Scheme of Investigation*. Project G2827.

1 – Digital Data

Stakeholders

John Roberts - Principal Archaeologist, Heneb: Gwynedd Archaeology (Archaeological Services)

Selection

Location of Data Management Plan (DMP)

Selection of digital data elements should be considered in your project's DMP. For the purpose of the Selection Strategy, you can either copy the selection section of your DMP below, or attach it as an appendix to this document. Please indicate here if the DMP is attached.

All digital data was collected and stored in line with the Gwynedd Archaeological Trust (GAT) Data Management Plan located on GAT's servers (available on request).

The final version of all born digital documents have been selected for inclusion in the Preserved Archive; these comprise:

- G2827_Llyn_Fuches_Las Method Statement For Archaeological Mitigation (RAMS) (Microsoft Word and Adobe PDF);
- G2827_Photographic_Metadata (Microsoft Access);
- GAT_1757 (Microsoft Word and Adobe PDF);
- Photographic archive (29 images in TIFF format);
- Photographic archive (29 images in RAW format);
- Photographic archive (29 images in JPEG format);

A digital archive dataset has been created for the Royal Commission on Ancient and Historic Monuments Wales, in accordance with the *RCAHMW Guidelines for Digital Archives Version 1*. The dataset has been prepared in the format required by RCAHMW and comprise:

- Photographic metadata (Microsoft Access);
- Photographic archive (TIFF format);
- Project Information form (Excel);
- File Information form (Excel) – Microsoft Word report text final;
- File Information form (Excel) – Photographic metadata (general);
- File Information form (Excel) – Adobe PDF report final; and
- File Information form (Excel) - Photographic metadata (detail).

The digital archive has been stored on a dedicated Trust server, with the location confirmed in the GAT project database via a specific hyperlink.

All digital data has been collected, stored and selected in lines with the Gwynedd Archaeological Trust (GAT) Data Management Plan located on GAT's servers.

De-Selected Digital Data

The following client data will not form part of the preserved archive and have been deselected:

- G2827 archaeological mitigation areas maps supplied by client

The following GAT data generated for the report will not form part of the preserved archive and have been deselected:

- G2827_combined_figures.pdf
- G2827_combined_plates.pdf

- G2827_Figures_and_Plates_List.docx
- G2827_Appendix_I.pdf
- G2827_Appendix_II.docx
- G2827_Appendix_III.pdf
- G2827_front_cover.pdf
- G2827_inner_cover.pdf
- G2827_rear_cover.pdf
- Plates01 - 02.pdf
- Plates03 - 04.pdf
- Plates05 - 06.pdf
- Plates07 - 08.pdf
- Plates09 - 10.pdf
- Plates11 - 12.pdf
- Plates13 -14.pdf
- Plates15 - 16.pdf
- Plates17 - 18.pdf

2 – Documents

Stakeholders

John Roberts – Principal Archaeologist, Heneb: Gwynedd Archaeology (Archaeological Services)
Sean Derby – Historic Environment Record, Heneb: Gwynedd Archaeology
Gareth Edwards, *Head of Knowledge and Understanding, RCAHMW*

Selection

A digital report will be provided to the regional Historic Environment Record, along with a digital dataset comprising an Event PRN summary. The report and dataset will be submitted in accordance with the required standards set out in *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Version 1.1); and

A digital report and digital archive dataset will be provided to Royal Commission on Ancient and Historic Monuments, Wales (final report only), in accordance with the *RCAHMW Guidelines for Digital Archives Version 1*. The dataset was prepared in the format required by RCAHMW and included:

- Photographic metadata (Microsoft Access);
- Photographic archive (TIFF format);
- Project Information form (Excel);
- File Information form (Excel) – Microsoft Word report text final;
- File Information form (Excel) – Photographic metadata (general);
- File Information form (Excel) – Adobe PDF report final; and
- File Information form (Excel) - Photographic metadata (detail).

Following the completion of the fieldwork, all documentary material created, generated and/or annotated during data gathering and fieldwork has been selected for inclusion in the preserved archive, and comprises:

- G2827 watching brief day sheets x 1
- G2827 photographic register sheets x 3
- G2827 measured survey x 1

The physical archive has been stored in a designated project folder and the location confirmed in the GAT project database

De-Selected Documents

Material de-selected from inclusion in the preserved archive are likely to be duplicates and reproductions created during the project. De-selected material was retained to supplement GAT's research files or recycled.



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