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Engineering Archaeological Services Ltd.

Rhydlanfair Weir
Archaeological Recording



Commissioned by
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North Wales Rivers Trust

Analysis by
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Engineering Archaeological Services Ltd
EAS Client Report 2024/15

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Registered in England No 286978

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NGR

Centred on: SH 82872 52988

Status

NT HBSMR ref 47390

Location and Topography (Figures 1 and 2)

The North Wales Rivers Trust are planning to remove a weir on the Afon Iwrch, in order to improve the passage for migratory fish. It is approximately 500 m upstream from the confluence with the Afon Conwy, on a National Trust tenanted farm called Rhydlanfair. It occupies a marked “S” bend in the river, which at this point serves as the boundary to the Ysbyty Estate. This bend also marks a series of natural rock outcrops (Plate 1) which cross the river forming a series of shallow “waterfalls” with the weir occupying the upper level of the outcrops.

Archaeological Background

The weir has been previously, briefly recorded in a walk-over survey carried out by Engineering Archaeological Services Ltd in 2008 as part of a much wider survey of the archaeological assets of the Ysbyty Estate, for the Trust National (Laws and Brooks, 2008). This survey was not intended, however, to record the weir in any detail, giving only a brief description.

The North Wales Rivers Trust are planning to remove the weir in order to improve migratory fish passage along the river. It was therefore recommended by K. Laws, National Trust Archaeologist for North Wales, that the weir be recorded before any works take place.

Aims of Survey

To allow an adequate analytical record of the building to be made, before it is removed, to ensure that the structures origins, use and development are understood and the main features, character and state of preservation are recorded

SUMMARY

The North Wales Rivers Trust wish to remove the weir across the Afon Iwrch and have commissioned Engineering Archaeological Services Ltd to record the structure before it is demolished. The weir was constructed in the 1890's to feed an aqueduct which leads to the south west, crossing the river and stopping near to a quarry. It is possible that this aqueduct may have extended to the south to link in with the aqueduct leading to the sawmill (NT HBSMR MNA156786 / MNA156786). The fieldwork took place on 6/11/2024.

Mae Ymddiriedolaeth Afonydd Gogledd Cymru yn dymuno cael gwared ar y gored ar draws Afon Iwrch ac wedi comisiynu Engineering Archaeological Services Ltd i gofnodi'r strwythur cyn iddo gael ei ddymchwel. Adeiladwyd y gored yn y 1890au i fwydo traphont ddŵr sy'n arwain i'r de orllewin, gan groesi'r afon a stopio ger chwarel. Mae'n bosibl bod y draphont ddŵr hon wedi ymestyn i'r de i gysylltu â'r draphont ddŵr sy'n arwain at y felin lifio (NT HBSMR MNA156786 / MNA156786). Gwnaed y gwaith maes ar 6/11/2024

Methods

References were sought from The National Library of Wales the University of Bangor Archives and the National Trust Heritage Records Online.

The recording of the weir was based on a site visit 06/11.2024. Photographs were taken with a Nikon V5 Digital Camera at a resolution of 24.2 MP with the photographs recorded in RAW format, which were converted to .TIFF for the archive. Where possible the photographs included a metric scale. Further photographs were taken with a Akaso Brave 6 Plus, with a resolution of 20.1 MP, on an extendable pole which were processed with Agisoft Metascape v. 2.0.2 to produce a photogrammetric model from which a rough plan could be extracted.

Desk Top Study

The National Library of Wales, and The Bangor University Archives were visited for relevant records.

List of Sources

National Library of Wales

Sales Catalogue, Denbighshire 182. North Wales, County of Denbigh, Portions of the Voelas Estate in the Parish of Llanwrst (Rural), Conway Valley 1920.

Tithe Map of Llanwrst parish in the County of Denbigh 1839 (<https://places.library.wales/viewer/4644087#?cv=&h=2752&xywh=27241%2C8635%2C5111%2C1971>)

Voelas 286. Map of a part of Voelas Estate in the Parish of Llanwrst. Voelas Map 2. 1813

North Wales Gazette 20th February 1823

The North Wales Chronicle and Advertiser for the Principality 6th August 1852

The North Wales Chronicle and Advertiser for the Principality 10th April 1886

Carnarvon and Denbigh Herald and North and South Wales Independent 19th October 1888

Carnarvon and Denbigh Herald and North and South Wales Independent 29th September 1893

Carnarvon and Denbigh Herald and North and South Wales Independent 22nd June 1894

Bangor University Archive

PENRA/2634. Conveyance of the Rhydlanfair Estate 2 May 1867

PFA/6/182b. Particulars of Freehold Estates situate in the Counties of Carnarvon and Denbigh, Purchased by the Right Honourable Edward Gordon, Lord Penrhyn 1886.

PFA/14/665. Account of receipts and expenditure of the Penrhyn Estate 1888-1906

PFA/14/667. Abstract Accounts for 1883

SC/564. Particulars, Plan and Condition of Sale of a portion of the Voelas Estate in the parish of Llanwrst. 1 June 1920

Other Sources

Laws, K. and Brooks, I.P. 2008. *Ysbyty Estate, Gwynedd Archaeological Survey*. EAS Client Report 2008/5

The Muckle Partnership. 1994 -1999. Vernacular Buildings Survey, Wales.

Ordnance Survey Mapping

Denbighshire XXIII, published in 1880

Caernarvonshire XXIV SE, published in 1888

Denbighshire XXIII NE, published in 1900

Caernarvonshire XXIV SE, published in 1901

Caernarvonshire XXIV.11, published in 1913

Denbighshire XXIII NE, published in 1915

Caernarvonshire XXIV SE, published in 1920

Caernarvonshire XXIV SE, published in 1954

Denbighshire XXIII NE, published in 1954

SH85SW A, published in 1964

Discussion

The earliest map evidence located is the 1813 Voelas Estate map (Figure 3) (National Library Voelas 287). Although Rhydlanfair is outside the Voelas Estate it has a common border along the Afon Iwrch. The weir is not marked, although the bend in the river is clearly marked. This is a feature, however, is not shown on either the Tithe map of 1839 (Figure 3), nor the 1867 map from a conveyance document (Figure 4). At the time of the tithe map the land was owned by John Jones and occupied by his daughter Anne, although by the time of the conveyance, to the Penrhyn Estate in 1867 (Bangor University, PENRA/2634) it was owned by Anne Jones herself. Rhydlanfair was bought for £6250,

From 1871 Rhydlanfair was occupied by Elias. J Williams who was also the land agent for the Penrhyn Estate (Carnarvon and Denbigh Herald and North and South Wales Independent 22nd June 1894). It may be in this context that the weir and other developments on the farm were made.

The Ordnance Survey mapping published between 1880 and 1888 (Figure 5) does not mark the weir or any associated features. However, the map published in 1900 (surveyed in 1899) is the earliest map to mark the weir and an associated aqueduct. This aqueduct runs to the south west, where it crosses the Afon Iwrch, ending in a small copse. Since the 1888 map was surveyed between 1875 to 1887 it is likely that the weir was constructed in the 1890's.

There is remarkably little change in the Ordnance Survey mapping published between 1900 and 1964 (Figures 5 and 6). With both the weir and its associated aqueduct being shown. It is not clear what the aqueduct is leading to. The mapping suggests the aqueduct stops at a point approximately 75 m south west of the weir in an area that is known to contain a quarry (NT

HBSMR 47395) and it is possible that there was some sort of water-powered machinery used in this quarry. Another possibility is that it continued and linked in to the aqueduct shown leading to a sawmill (NT HBSMR MNA156786 / MNA156786) approximately 112 m south of the western end of the aqueduct from the weir.

Field Visit (Figure 7)

The weir was visited on 6/11/2025 to record the structure. The weir sits at the top of a cascade (Plate 1) with relatively smooth water above (Plate 2) caused by the damming effect of the weir. The weir, itself is a concrete block with a shaped top (Plates 3 and 4) running largely across the river, but with a gap, approximately 1.5 m wide at its southern end. This gap was occupied by a sluice, as is shown by the slot in the stone block marking the southern bank (Plate 5). The weir is at least 1 m high and 0.60 m thick, whilst the cascade, below is in the region of 1.85 m high.

The block with the slot for the sluice forms the western end of a revetting wall along the river bank (Plate 6). For about 2 m this wall is of mortared stone, however, beyond this point, for approximately 2.8 m to the north east, this is replaced with a dry-stone wall with a concrete outer facing. The block containing the slot for the sluice (Plate 7) is well built of stone slabs and has a slate cap.

Also on the southern bank of the river is the end of the aqueduct, consisting of a concrete pipe (Plate 8) buried within an earthen bank with a drystone revetting along its north western face (Plate 9). The pipe is 570 mm in diameter (internal diameter 450 mm) and is buried within a linear bank which is 1.3 m wide and up to 4.5 m wide. Nearby there is a cut platform on the river bank (Plate 10) which has a concrete floor, at least along the edge nearest to the river. This platform is roughly “D” shaped and is 3.4 x 3.4 m in size.

On the northern bank, the edge of the river is marked by a concrete head wall (Plate 11) which runs for 3.90 m and is 0.30 m thick (Plate 14). This is offset from the line of the weir with only 0.30 m of the wall protruding on the eastern side of the weir, whilst downstream it runs for approximately 3.0 m. There are two eye bolts fixed into the concrete wall (Plate 12) and a metal flange (Plate 11), all at the relatively high level on the wall. It is uncertain what the function of these fittings was. There are also at least two iron plates on top of the wall (Plate 13) whose function is also unknown. Behind the concrete wall is a wide, dry-stone bank, which is approximately 0.80 m thick and runs for approximately 8.1 m along the bank of the river (Plate 15). Filling the gap between the end of the concrete wall and the point where the stone bank meets the river bank is a short length of mortared stone walling approximately 2 m long and 0.50 m thick (Plate 16).

Approximately 45 m downstream from the weir a modern bridge crosses the Afon Iwrch. This appears to be sitting on at least part of a pier which originally held the aqueduct from the weir (Plates 17 and 18). The northern end of the central pier supporting the bridge is marked by much larger stone blocks which are unlike the structure of both the rest of the central pier and the abutments for the bridge. It would, therefore, seem likely that these were originally the central support for the aqueduct shown on the historic mapping.

Conclusions

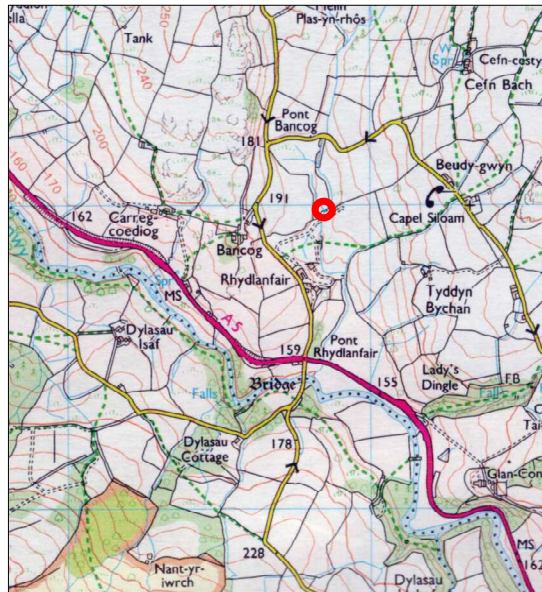
The weir across the Afon Iwrch at Rhydlanfair would appear to have been originally constructed in the 1890's as part of the Penrhyn Estate's investment in the Yspty Estate. The level of this investment can be indicated by the account abstract for the Yspty Estate for 1893, which showed that £497.7.0 had been spent on improvements (Bangor University PFA/14/667). Although after the point when the weir had been constructed, the investment in the Yspty Estate continued into the early twentieth century. £1,631.10.7 was being spent between August and September 1901 on additions, drainage and water supply and a further £2038.15.9 in March 1902 (Bangor University PFA/14/665).

The weir was constructed to raise the river level such that the water could be diverted into an aqueduct. This ran to the south west, crossing the river and lead towards a small copse shown on the historic Ordnance Survey mapping. Fieldwork shows there is a linear hollow, south west of the bridge across the river which might mark the line of the aqueduct (Plate 19) and there is a quarry (NT HBSMR 47395) near to the mapped, south western, end of the aqueduct (Plate 20). It is therefore possible that the aqueduct fed some sort of water powered machinery associated with the quarry. Another possibility is that the aqueduct curved to the south and linked in to the aqueduct feeding the sawmill within the farm complex (NT HBSMR MNA156786 / MNA156786), however, none of the mapping shows this link.

It can be argued that the weir is a multi-phased structure with the concrete weir and northern headwall replacing an earlier structure, constructed of stone. Laws and Brooks (2008) assumed that the weir fed the turbine house (NT HSMR 47393) (Plate 22), approximately 85 m downstream, and it is possible that the weir was repurposed to supply the turbine house. If so, a channel observed, to the south of the current bridge (Plate 21) may mark part of the link between the weir and the turbine house.

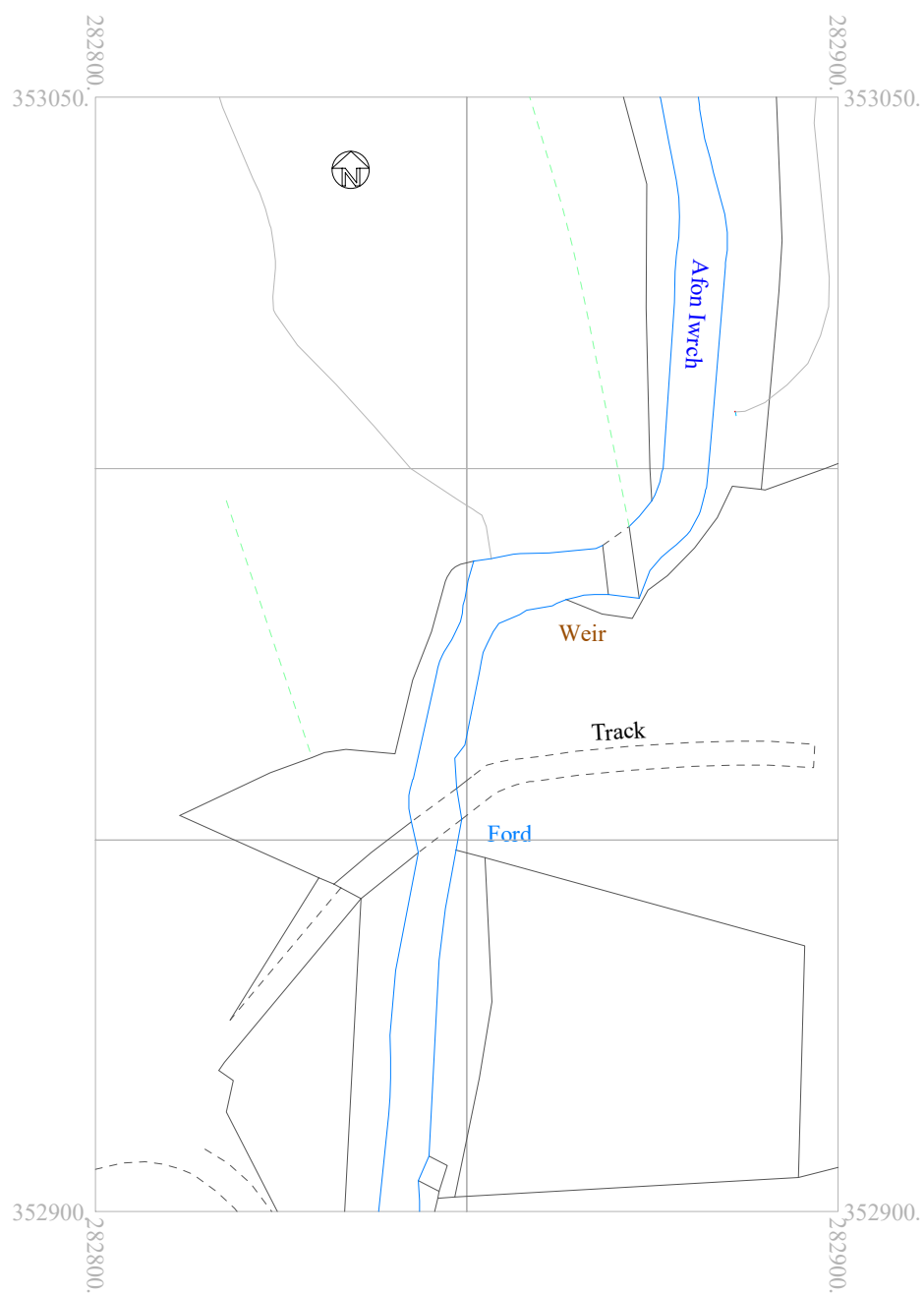
Acknowledgements

The project was commissioned by Dr Liam Whitmore for the North Wales River Trust. Thanks are due to Kathy Laws, National Trust Archaeologist for providing details from the National Trust HSMR and to Tom William, the tenant at Rhydlanfair, for allowing access to the weir.



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Figure 1: Location
 Scale 1:25,000



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Figure 2: Location of the Weir
Scale 1:1,000

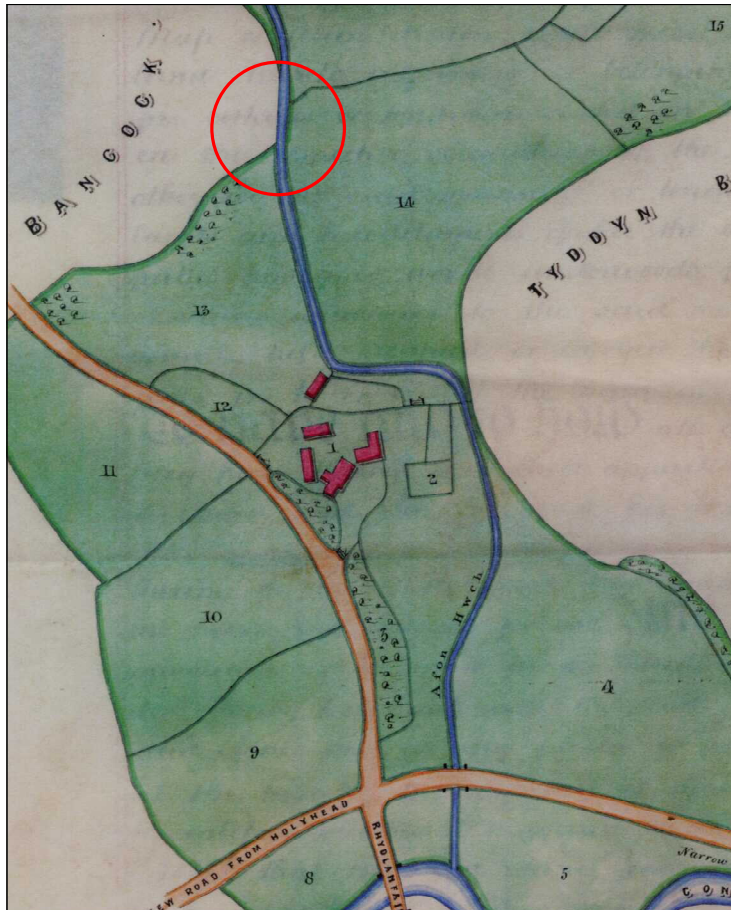


Map of Voelas Estate in the Parish of Llanwrst, Voelas Map 2 1813
(National Library of Wales, Voelas 287)

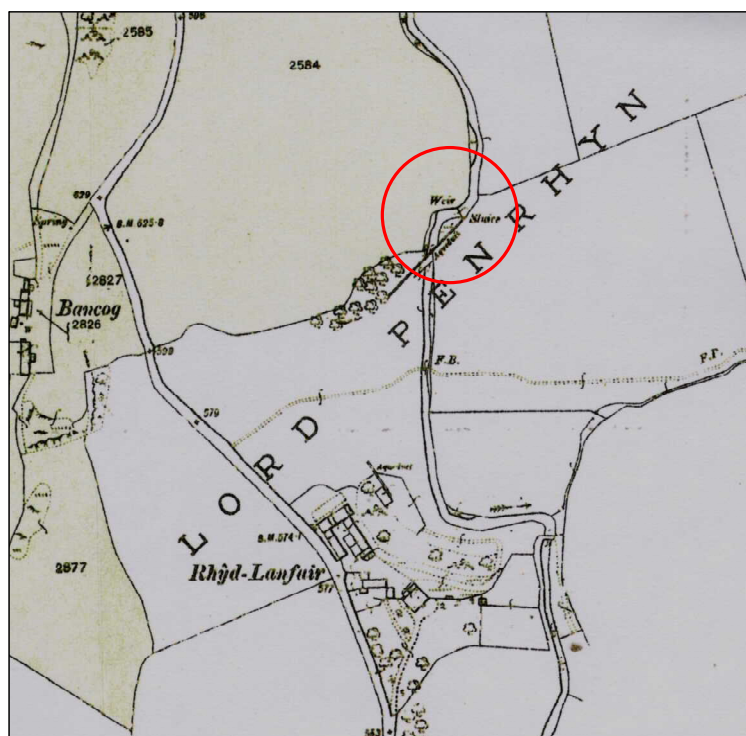


1839 Tithe Map of Llanrwst parish
in the County of Denbigh
Re-scaled to approximately 1:5000

Figure 3: Historic Mapping
Rescaled to 1:5,000 (approximately)



Conveyance of Rhydlanfair Estate Map 1867
(Bangor University, PENRA/2634.)



1920 Sales Catalogue
(National Library Sales Catalogue, Denbighshire 182)

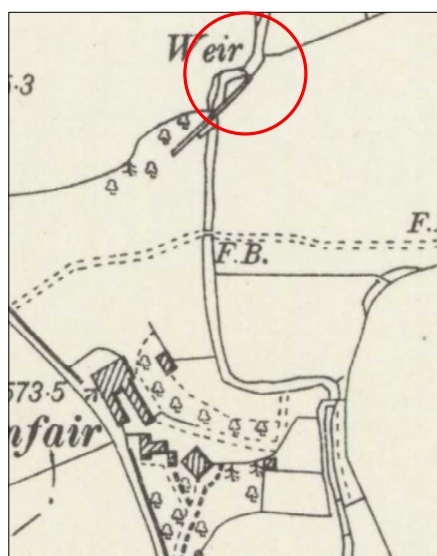
Figure 4: Historic Mapping
Rescaled to 1:5,000 (approximately)



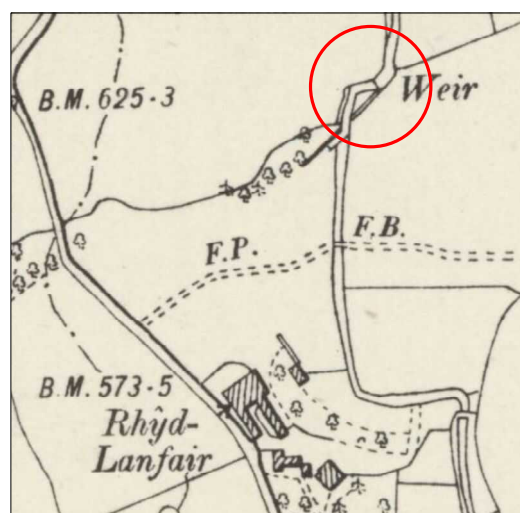
Denbighshire XXIII 1880



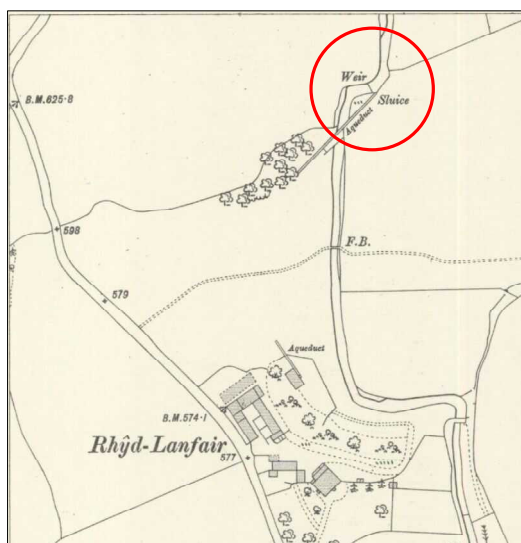
Caernarvonshire XXIV SE 1888



Denbighshire XXIII NE 1900



Caernarvonshire XXIV SE 1901



Caernarvonshire XXIV. 11 1913



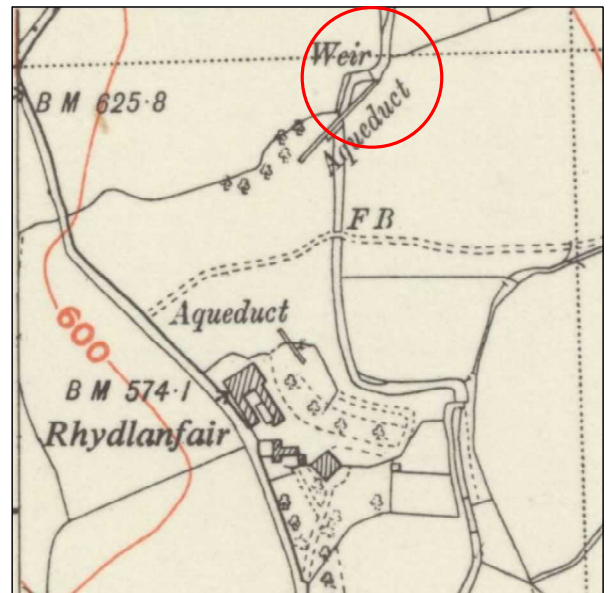
Denbighshire XXIII NE 1915

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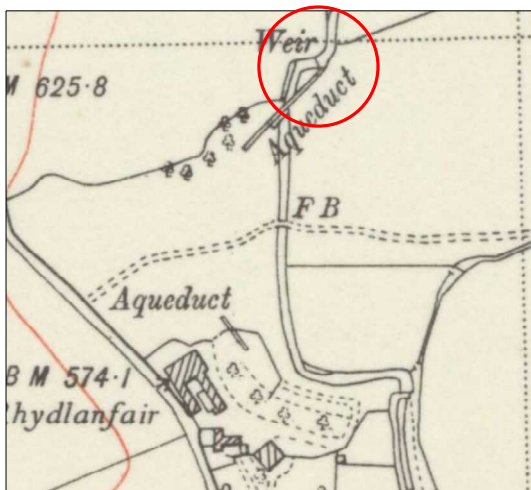
Figure 5: Historic Ordnance Survey Maps 1880 - 1915
Re-scaled to approximately 1:5,000



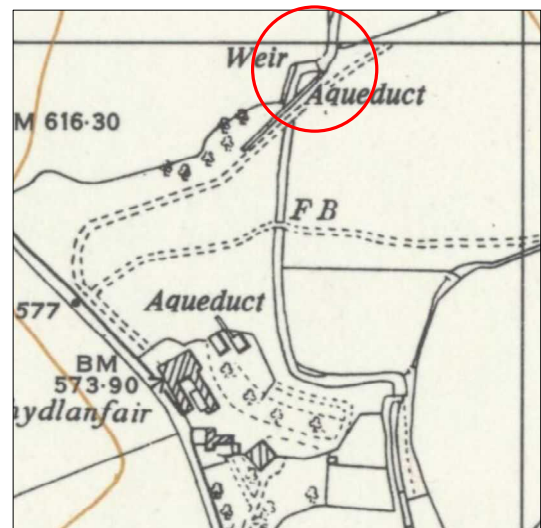
Caernarvonshire XXIV SE 1920



Caernarvonshire XXIV SE 1954



Denbighshire XXIII NE 1954



SH 85SW A 1964

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Figure 6: Historic Ordnance Survey Maps 1920 - 1964
Re-scaled to approximately 1:5,000

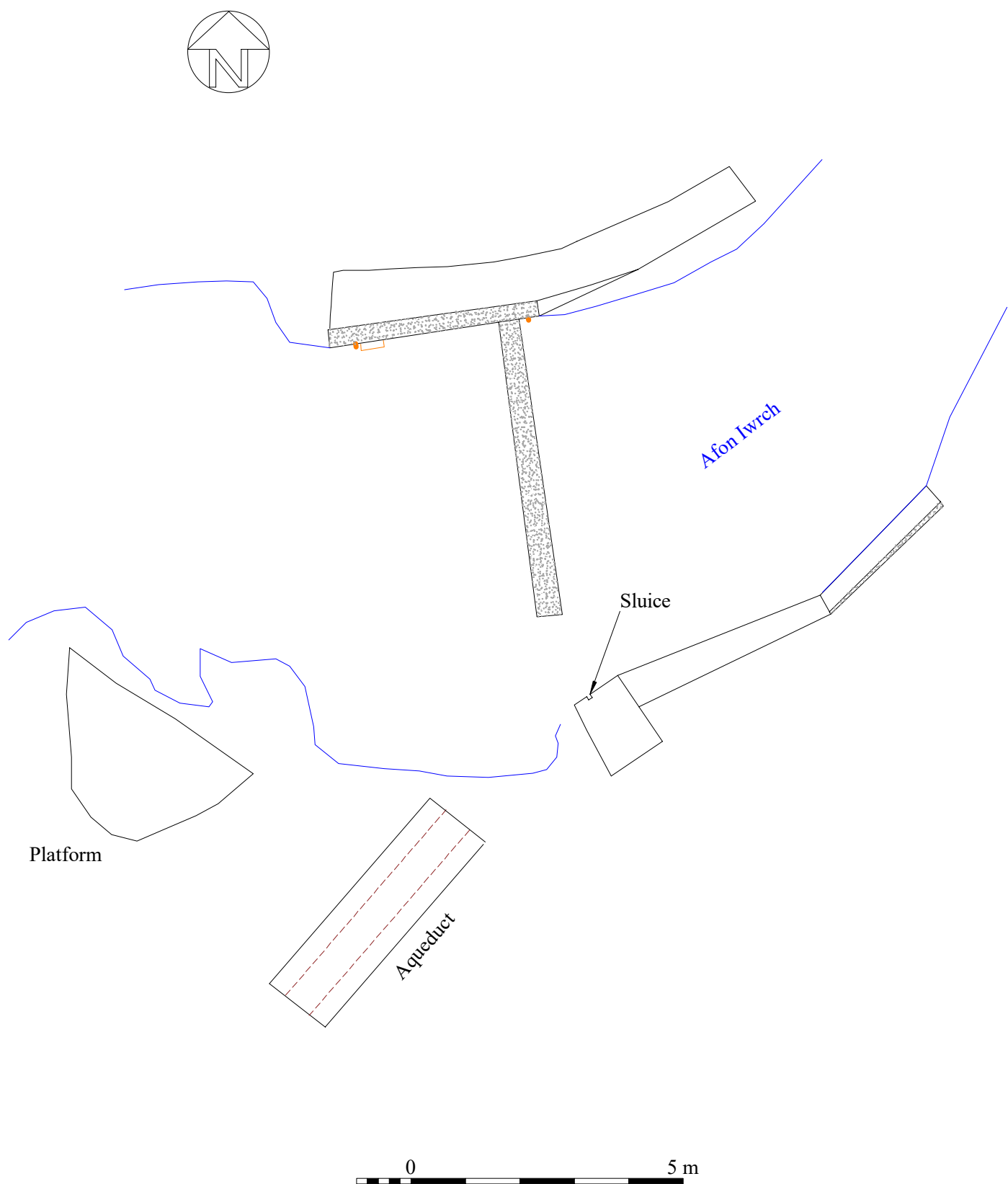


Figure 7: Sketch Plan
Scale 1:100 (approx.)

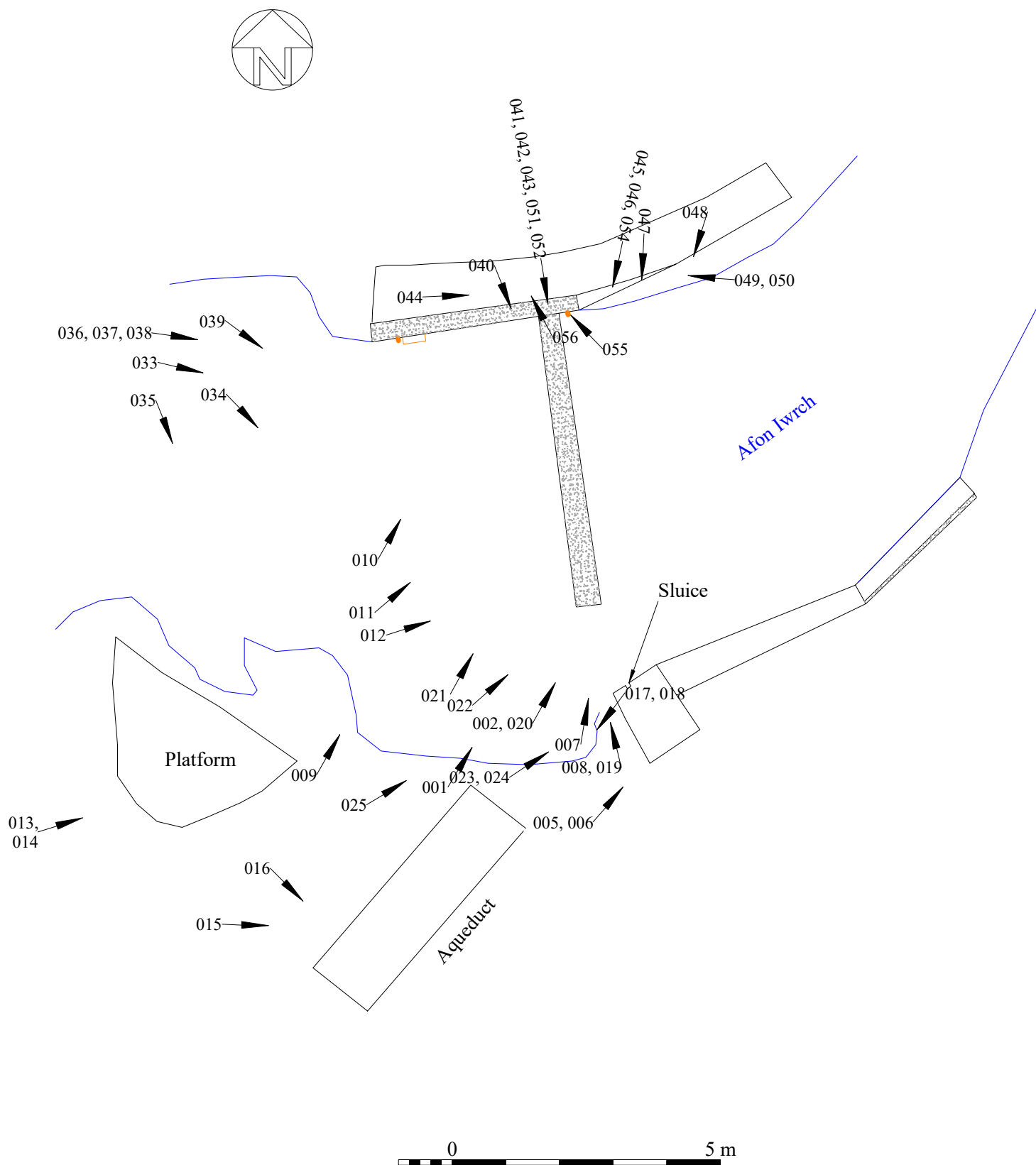
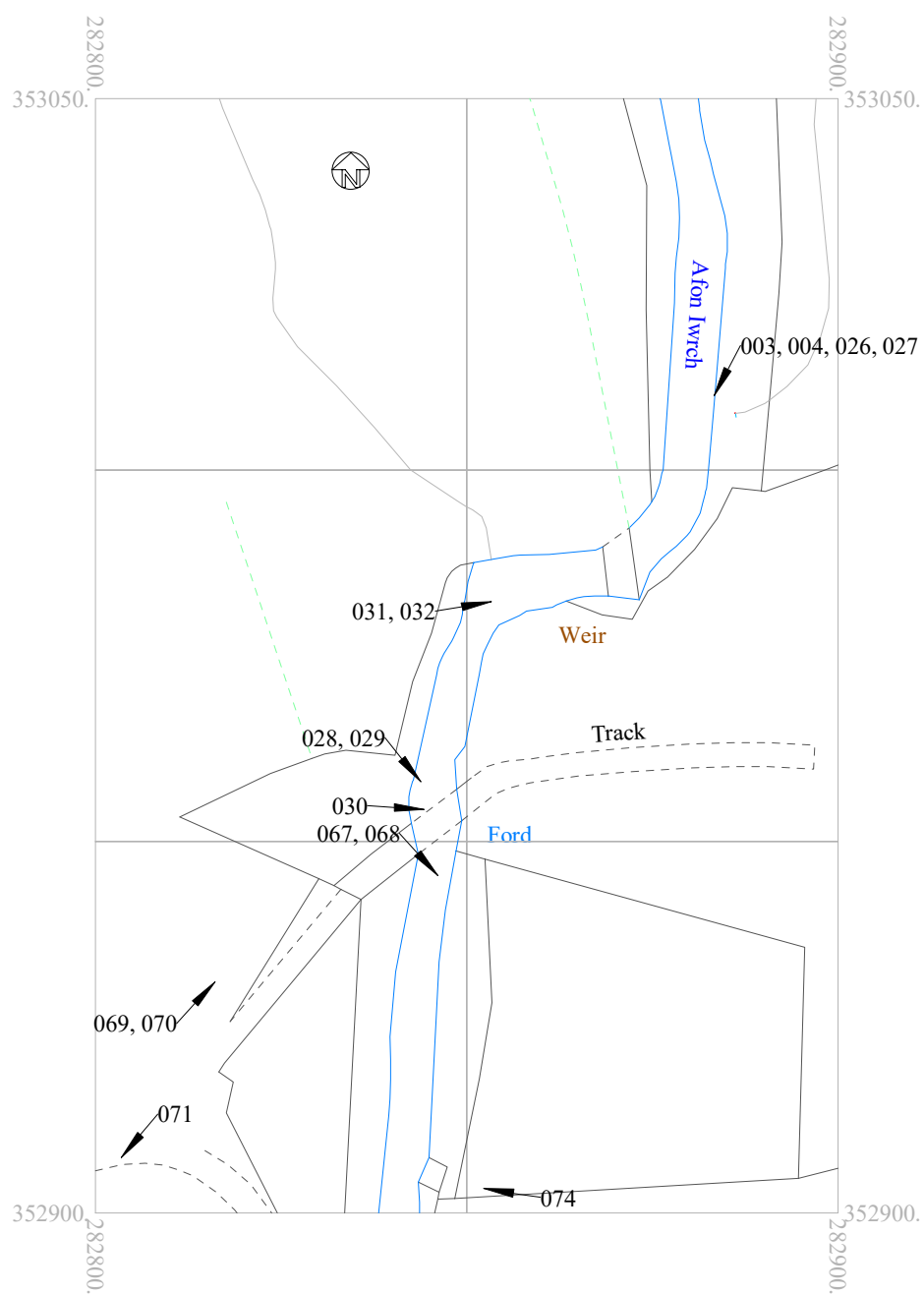


Figure 8: Location of the Photographs in the Archive
Scale 1:1,000



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Figure 9: Location of the Photographs in the Archive
Scale 1:100 (Approximately)



Plate 1: The weir, looking east

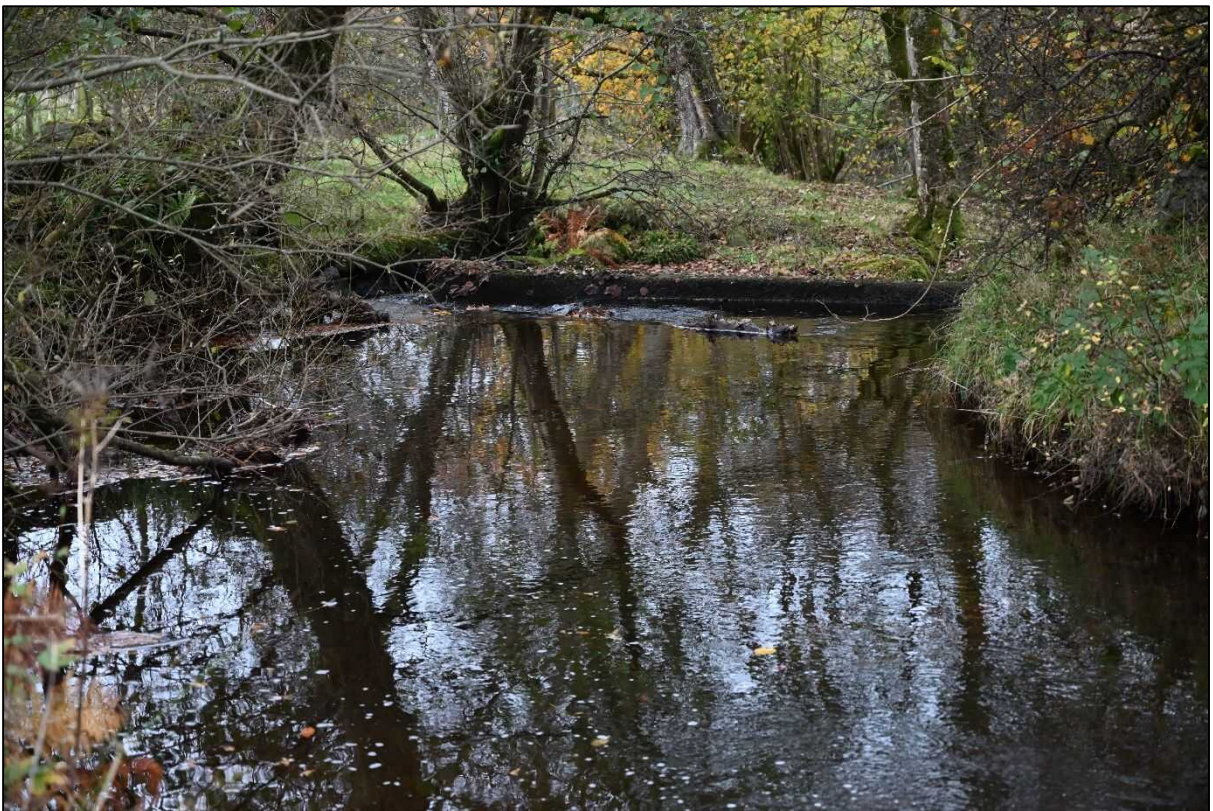


Plate 2: The weir looking south



Plate 3: Weir, looking north



Plate 4: Weir looking north



Plate 5: Sluice, looking south



Plate 6: Southern head wall, looking NE



Plate 7: Side of the block holding the sluice, looking NE



Plate 8: End of the pipe in the aqueduct, looking SW



Plate 9: Revetted face of the aqueduct, looking east



Plate 10: Possible building platform, looking east



Plate 11: Northern concrete head wall



Plate 12: Eye bolt in the eastern end of the northern head wall



Plate 13: Iron plate on top of the northern head wall



Plate 14: End of the concrete head wall on the northern side of the river



Plate 15: Stone bank behind the concrete head wall on the northern side of the river



Plate 16: Junction between the stone bank and mortared stone wall on the northern bank



Plate 17: Probable support for the aqueduct, looking south east



Plate 18: Probable support for the aqueduct, looking east



Plate 19: Possible line of the aqueduct to the south west of the bridge, looking north east



Plate 20: Quarry, looking south west



Plate 21: Possible channel on the eastern bank of the Afon Iwrch



Plate 22: Power house

Appendix 1: List of Photographs in the Archive

File	Scale	Description	Plate in the Report
RW_001.TIF		View of the weir, looking north	
RW_002.TIF		Detail of the weir, looking north	
RW_003.TIF		Upstream of the weir, looking SW	
RW_004.TIF		Upstream of the weir, looking SW	2
RW_005.TIF	1 m	Wall along the southern bank of the river, looking NNE	
RW_006.TIF	1 m	Wall along the southern bank of the river, looking NNE	6
RW_007.TIF		Detail of the weir, looking north	
RW_008.TIF		Northern concrete wall of the weir structure, looking north	11
RW_009.TIF		Weir looking NE	
RW_010.TIF		Concrete headwall, looking NE	
RW_011.TIF		Weir looking NE	
RW_012.TIF		Weir looking NE	
RW_013.TIF	1 m	Platform at the side of the river, looking ENE	
RW_014.TIF	1 m	Platform at the side of the river, looking ENE	10
RW_015.TIF	1 m	Revetting on the northern side of the aqueduct, looking SE	9
RW_016.TIF	1 m	Revetting on the northern side of the aqueduct, looking SE	
RW_017.TIF	1 m	Concrete pipe at the end of the aqueduct, looking SW	8
RW_018.TIF	1 m	Concrete pipe at the end of the aqueduct, looking SW	
RW_019.TIF		Detail of the weir, looking north	
RW_020.TIF		The weir, looking north	
RW_021.TIF		Northern half of the weir, looking north	
RW_022.TIF		The weir, looking north	3
RW_023.TIF	1 m	South western face of the sluice block, looking NE	
RW_024.TIF	1 m	South western face of the sluice block, looking NE	7
RW_025.TIF	1 m	Position of the sluice, looking NE	
RW_026.TIF		Upstream from the weir, looking SW	
RW_027.TIF		Upstream from the weir, looking SW	
RW_028.TIF	2 m	Possible aqueduct support, looking SE	
RW_029.TIF	2 m	Possible aqueduct support, looking SE	17
RW_030.TIF	2 m	Possible aqueduct support, looking east	18
RW_031.TIF		Downstream from the weir, looking ENE	
RW_032.TIF		Downstream from the weir, looking ENE	1
RW_033.TIF		The weir from the east	

File	Scale	Description	Plate in the Report
RW_034.TIF		The platform, looking SE	
RW_035.TIF		The platform, looking SE	
RW_036.TIF	2 m	Northern end of the weir and concrete head wall, looking east	
RW_037.TIF	2 m	Northern end of the weir and concrete head wall, looking east	
RW_038.TIF	2 m	Northern end of the weir and concrete head wall, looking east	14
RW_039.TIF	2 m	The weir, looking SE	
RW_040.TIF		The weir and sluice, looking south	
RW_041.TIF		The weir and sluice, looking south	
RW_042.TIF		The weir and sluice, looking south	
RW_043.TIF		The weir and sluice, looking south	4
RW_044.TIF	2 m	Stone bank behind the northern concrete head wall, looking east	15
RW_045.TIF		The southern end of the weir, looking south	
RW_046.TIF		Concrete pipe at the end of the aqueduct, looking south	
RW_047.TIF		The southern end of the weir, looking south	
RW_048.TIF		The southern end of the weir, looking SSW	
RW_049.TIF	1 m	Joint between the concrete northern head wall and cemented stone wall, looking west	
RW_050.TIF	1 m	Joint between the concrete northern head wall and cemented stone wall, looking west	16
RW_051.TIF		Slot for the sluice, looking south	5
RW_052.TIF		Slot for the sluice, looking south	
RW_053.TIF		The weir, looking south	
RW_054.TIF		Concrete pipe at the end of the aqueduct, looking south	
RW_055.TIF		Ring bolt in the concrete, northern head wall, looking north	12
RW_056.TIF		Iron plate on top of the northern head wall, looking NNW	13
RW_067.TIF		Channel on the banks of the Afon Iwrch, south of the bridge, looking south	
RW_068.TIF		Channel on the banks of the Afon Iwrch, south of the bridge, looking south	21
RW_069.TIF		Possible course of the aqueduct, looking north east	19
RW_070.TIF		Possible course of the aqueduct, looking north east	
RW_071.TIF		Quarry, looking SW	20
RW_074.TIF		Turbine house, looking west.	22

