

Harbwr Y Felinheli Archaeological Assessment November 2001

Archaeological Assessment Commissioned by Sedgwick Associates

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Harbwr Y Felinheli Desk Top and Assessment - Introduction:

1 Introduction:

Harbwr y Felinheli is known to have been used as a harbour from at least the late 18th century AD. It is perhaps best known for its role in the export of slate from the Dinorwic quarry between the late 18th and early 20th centuries AD (Chambers Jones 1992, p42-54).

Y Felinheli takes its name from a mill, thought probably to have occurred on or close to an early quay side (Chambers Jones 1992, p9).

The harbour has not been used commercially, for some time, and parts have previously been developed for use as a marina and for housing.

A recent planning application (ref. CO1A/0278/20/LL) is currently at appeal. An archaeological assessment has been commissioned by Sedgwick Associates, agents for NWS Dock Management Ltd to assess the archaeological potential of the development site.

1.1 Summary

Much of the harbour and its facilities, within the study area, date to the very beginning of the 20th century AD and form a good example of a dock system of that date.

All that remains of a once extensive range of quay side structures and facilities associated with the last phase of industrial use are two buildings. The locks, dry dock, gates, bridge and associated mechanisms remain intact.

Associated rail and tramways date to the 19th century AD.

Parts of the outer tidal quay side also date to the 19th century AD.

No features which might pre date the 19th century AD remains were identified during the field assessment.

Harbwr Y Felinheli Desk Top and Assessment - Sources:

Ground works are to be expected as part of the proposal on the quay side to the south of the inner lock. It is likely that the AD 1900 infilling of the earlier harbour would be encountered in this area.

Surviving remains, when considered individually, are of local importance. When considered as a whole the surviving lock system is of regional importance.

2 Location

Harbwr y Felinheli is located in the village of Y Felinheli to the south-west of Bangor (Figure 1). The habour lies within the natural inlet of the Afon Heilyn.

The study area is centred on SH 52500 67800 and includes the outer tidal quay side, the outer lock, the enclosed lock basin, the dry dock, the associated quay sides and the harbour offices (Figure 2).

3 Methodology

A desktop study was carried out including cartographic, documentary and photographic materials held at the County Record Office, Caernarfon, the Archive Office, Llangefni, the National Library of Wales, Aberystwyth, the Royal Commission for Ancient and Historical Monuments in Wales, Aberystwyth, University of Wales Bangor Archive Office, and documents made available by NWS Dock Management Ltd.. Copies of plans and scanned copies of pictorial or photographic evidence have been included, where practical, and all sources have been fully listed including accession numbers.

Wherever possible primary sources were consulted. The wealth of documentary material which might be consulted on the various aspects of this project made it necessary to look to secondary sources for some of the background information. A site visit was carried out on the 20th November AD 2001 to identify and confirm the locations of features noted during the desk-based assessment. Surviving features were recorded with considerations to form, size, extent, condition and vulnerability, and to obtain any additional information.

Features were located using a Garmin Etrex Summit hand held GPS and a 1:2500 plan produced.

A basic archive photographic record of sites was made using 35 mm colour slide film and a metric scale. Digital images were also taken for use in the report.

4 List of Sources Consulted

4.1 Written Sources

4.1.1 Primary Records

Gwynedd Archive Office

x/Dinorwic 506 (1788) Lease.

x/Vaynol 2980 (1829) Accounts.

x/Vaynol 2562 (1792) Letter.

x/Vaynol 3380 - 3422 (1894 - 1954) Plans and documents relating to dock alterations.

University of Wales, Bangor Archive Office

Lligwy papers 300 - 313 Railway Developments.

4.1.2 Secondary Sources

Cadw: Welsh Historic Monuments, 1998. Register of Landscapes of Outstanding Historic Interest in Wales.

Carrington, D.C., 1994. Delving in Dinorwig. Gwasg Carreg Gwalch, Llanwrst.

Chambers Jones, R., 1992. Felinheli - A Personal History of the Port of Dinorwic. Bridge Books, Wrexham.

Harbwr Y Felinheli Desk Top and Assessment - Desk Top:

Lindsay, J., 1974. A History of the North Wales Slate Industry. David and Charles Limited, London.

Muckle, P., 1996. The Penscoin Drumhouse and Associated Buildings, Y Felinheli in Industrial Gwynedd, Vol. 1.

Richards, A.J., 1991. A Gazeteer of the Welsh Slate Industry. Gwasg Carreg Gwalch, Llanwrst.

Williams, L.V., 1998. Y Felinheli 1890 -1998: A pictoral history.

4.2 Cartographic Sources

- Ordnance Survey 1816 two inch survey original drawing of part of Caernarvonshire.
- Ordnance Survey 1st Edition Map 1889, Caernarvonshire Sheet XI.6. NW Scale 1:2500.
- Ordnance Survey 2nd Edition Map 1900, Caernarvonshire Sheet XI.6. NW Scale 1:2500.
- Ordnance Survey 3rd Edition Map 1916, Caernarvonshire Sheet XI.6 NW. Scale 1:2500.
- Ordnance Survey 1999 Explorer Map no 263, Anglesey East. Scale 1:25000
- c.1900 Port Dinorwig Engineering Plan. NWS Dock Management Ltd.
- 1840 Tithe Map and Schedule for Bangor, Caernarvonshire. National Library of Wales, Aberystwyth. Accession number A/C 1185.
- 1777 Survey: Volume 1 Plans and references of the Vaynol Estate, surveyed by WW and WJ Landsuveyors. Caernarvonshire County Record Office. Accession number Faynol 4055.

- 1737-38 Lewis Morris' Cambria's Coastal Pilot, part 1, cart no. 10. Llangefni Archive Office. Accession number WM/1905/12.
- 1695 Captain Collins' Sea Chart of the Menai Straits. Gwynedd Archive Office. Accession number XM/MAPS/2592.

4.3 Photographic Sources

Aerial Photographs (Royal Commission on the Ancient and Historical Monuments of Wales):

RAF 106G/UK/655, frames 4021 and 4022 (Aug 1945).

RAF CPE/UK/1939, frames 4173 and 4174 (Jan 1947).

Ordnance Survey 66/104, frames 287, 288, 351 and 352 (May 1966).

Ordnance Survey 78/72/199 (Aug 1972).

Photographs held at the Caernarvonshire County Record Office:

XS2221/11/8-24 - 1897 alterations

XS2239/1-17- View before alterations

XS1072/121- Dry dock with steamer

XS1072/131- Dry dock when empty

Photographs held at the National Library of Wales, Aberystwyth:

> *The Geoff Charles collection - M43, M946, M1253, R1538, R8999, Y1927.*

4.4 Other Sources Consulted

Llangefni Archive Office

Harbwr Y Felinheli Desk Top and Assessment - Desk Top:

WM Maps 49 1795 John Evans' Map of North Wales

WCD/364 1819 Thomas Telfords' Map of the Menai Strait.

WR/300 1626 Camdens' Map of Caernarfonshire and Anglesey

WR/297 1578 (1963 reprint) Saxtons' Map of Caernarvonshire and Anglesey

5 Desk Top Study

A map surveyed by Captain Collins and dated to AD 1695 shows the Afon Heilyn inlet and a structure on the Caernarfon side of the mouth of the inlet which may represent the tidal mill after which Y Felinheli is named (Figure 3).

A Lewis Morris chart of AD 1737 - 38 again shows the inlet and the mill. In this example it is positioned more towards the Bangor side of the inlet, but once again at it's very mouth (Figure 4).

A survey of the Vaynol Estate carried out in AD 1777 by W.W. and W.J. Landsurveyors shows the mill in a similar position (Figure 5). Here the inlet would appear to be acting as a mill pool. The key which accompanies the survey map describes the part of the survey (E1) associated with the mill as "Mill. Kiln, Barik (barracks) and Pool". The field alongside the inlet or pool (E2) where the present quay side is located is described as "Cae Pen y Llynn" (field at the end of the lake or pool). This survey indicates that the inlet was enclosed as a mill pond and thus not used as a harbour at this point in time. The mill and its associated features would appear to have been of some significance.

A Port Dinorwig engineering plan of c. AD 1900 locates the position of the "site of the old mill" on the south side of the present harbour close to the inner lock gate.

Modern texts (Richards 1991, Carrington 1994) suggest a date of AD 1787 for the establishment of organised quarrying activities in the Dinorwig quarry. Indeed a Vaynol Estate lease agreement dated AD 1788 between Thomas Assheton Smith Esquire and Thomas Wright gives permission for "the removal and sale of slate and flagg in the Manor of Dinorwig and for the construction of sheds, cabins, stables, smithies, houses, roads, open casts, drains, and quays. Substantial use of the inlet as a harbour for the shipment of slate probably began about the same time. Previously it may have been used in a limited way for small craft.

A letter dating AD 1792 refers to "part of Lord Bostons' property near the salt mill given for use of the slate quarries". Lord Boston of the Lligwy Estate owned land in Llanfairisgaer, bordering the parish boundary. It is likely that the lands given for the use of the slate quarries were those where the outer tidal dock occurs today.

An early Ordnance Survey map of AD 1816 names the inlet as Porth Aberpwll (port at the mouth of the pool) (Figure 6).

It is clear that by the early 19th century AD the harbour was very active. Detailed accounts for AD 1829 include a pay list for "19 cart men, 24 rock men, 22 boatmen and 19 whimsey men".

The Tithe map of AD 1840 for the parish of Bangor shows the harbour which at that time appeared to extend only to a point approximately where the bridge across the harbour occurs today. Access to the harbour would appear to run roughly where the modern footpath lies along the northern edge of the harbour, then the bank of the river. It is possible that this is the route of the early tramway to the harbour from the Dinorwig quarry. The early tramway is known to have been in existence by AD1824 (Richards 1991, p27) (Figure 7).

Harbwr Y Felinheli Desk Top and Assessment - Assessment:

The early tramway was superseded by the Padarn railway in AD 1843 (Muckle 1996, p5). This line entered the harbour through a tunnel beneath Bangor Street as seen on the AD 1889 Ordnance Survey map (Figure 8). Wagons would, in the early period of use, have been pulled by horses.

A number of buildings situated at the mouth of the tunnel are identified on a late 19th century AD engineers plan of Port Dinorwig as stables and offices. It seems likely that the harbour was extended up the inlet and a substantial quay side built in the mid 1800's possibly around the same time that the Bangor to Caernarfon railway line was built with a branch running directly to the quay side. An official letter to Lord Boston, of the Lligwy Estate which borders the Vaynol Estate, dated AD 1850, gives notice of the requirement of lands for the construction of the railway. Further notice of the widening of the line was sent out in AD 1872.

The shape of the harbour, the positions of railway lines and tramways and other features are all clearly seen on the AD 1889 Ordnance Survey map (Figure 8).

By the end of the 19th century AD the Dinorwic quarry was operating on a huge scale producing in the region of 100,000 tons per year. In AD 1897 plans (Gwynedd Archives) were being laid to create a non tidal lock, dry dock and quay side maintenance workshops. The entrance to the harbour was to be narrowed and a pair of lock gates inserted leading to a large enclosed non tidal lock with associated quay. Parts of the AD 1800's tidal harbour were filled in along its southern edge and built up to provide a more substantial quay side area. Engineering works are documented by a series of photographs dating between AD 1896 and AD 1900 (Gwynedd Archives).

By AD 1900 much of the new system was already in place as seen on the AD 1900 Ordnance Survey map (Figure 9) with the

dry dock and associated quay side workshops being completed in AD 1902. The complete system can be seen on the AD 1916 Ordnance Survey map (Figure 10). Workshop plans dating to the late AD 1800's (Gwynedd Archives) and an engineering plan dating to c. AD 1900 (NWS Dock Management Ltd) indicate they comprised a boiler room, an engine room, a plating shop, a fitting shop, two joiners shops, a smithy, a plate furnace and various stores. Quotes for the construction which was to be of an iron girder framework with corrugated iron facing range between £665 and £724. Engineering plans and old photographs (Gwynedd Archives) show the dry dock to be constructed of brick and to have stepped sides.

It seems that with time the range of workshops was extended as AD 1945 aerial photographs show an extensive range of buildings extending close to the edge of the dry dock.

Commercial activities continued in some form into the AD 1960's. Aerial photographs dating to the AD 1960's show the workshops adjacent to the dry dock still in evidence. The Padarn railway operated until AD 1961 (Muckle 1996, p5).

The Geoff Charles collection of photographs contains images dating from the mid AD 1960's to the early AD 1970's showing cargo being loaded into boats and quay side boat repair activities taking place in the workshops.

In July AD 1970 the harbour was featured on the front page of the North Wales Chronicle with the following report:

"Strike Smugglers At Port Dinorwic. Portdinorwic, the port which has been almost dormant since the slate industry slump, sprang back to life yesterday when cargo ships in a bid to break the national dock strike, unloaded foodstuffs. Mobile

Harbwr Y Felinheli Desk Top and Assessment - Discussion:

cranes were brought to the port and about three dozen lorries moved in to take away the cargoes from three ships believed to come from Northern Ireland".

Aerial photographs dating to AD 1972, however, show the workshop buildings adjacent to the dry dock significantly diminished, much as they are today while the buildings at the mouth of the Padarn Railway tunnel have been replaced to form the modern offices.

Geoff Charles photographs of a similar date document the conversion of the remaining mid 19th century AD outer tidal dock to a modern marina.

Today, the harbour is essentially used for pleasure craft. The only commercial activity is that of small fishing boats. The dry dock is currently inaccessible to large vessels due to silting.

6 Field Assessment

It was possible during the field evaluation to identify a number, but not all of the features identified during the desk top survey.

A detailed gazetteer of sites identified is to be found in Appendix 1 while Figure 11 provides a location plan of the structures and features recorded.

To assist in comparing features observed today on the ground with cartographic evidence Figure 11 has also been superimposed onto the AD 1840 Tithe map (Figure 12), the AD 1889 Ordnance Survey map (Figure 13), the AD 1900 Ordnance Survey map (Figure 14) and the AD 1916 Ordnance Survey map (Figure 15).

A measured sketch plan was complete for one of the structures, PRN 15893 (Figure 16).

Figures 17 to 39 constitute a basic photographic record which is cross referenced in the gazetteer.

The gazetteer includes a basic description of each feature and an assessment of its condition and vulnerability.

Features were also assigned a category as follows:

Category A: Archaeological monuments of national importance. This category may include sites which might meet the criteria for scheduling. Criteria for selection will usually be the rarity, condition and potential of the site.

Category B: Archaeological monuments and landscape features of regional or local importance. This category may include sites which whilst not meeting the criteria for scheduling may still be seen as of regional or local importance eg a type of site unique to a particular locality but common elsewhere, or severely degraded examples of commonly occurring types.

Category C: Archaeological monuments of lesser significance. This category comprises sites which are of local archaeological or historical interest.

7 Discussion

The mill after which Y Felinheli is named was situated close to the mouth of the inlet now occupied by the harbour. Its precise location remains inconclusive. Variations in position may be indicating successive mill or associated buildings. Cartographic evidence indicates that it was already in use mid way through the 17th century AD and was still evident towards the end of the 18th century AD. It is likely that for at least some of this time the inlet was enclosed to form a mill pool. The mill wheel would thus be powered by the incoming tide but also by water collected in the pool on its way back out to sea. Thus operation could continue for longer periods of time.

Harbwr Y Felinheli Desk Top and Assessment - Discussion:

It is unlikely that while acting as a mill pool the inlet could have been used as a harbour as boats would not be able to enter. This does not preclude the inlet from having been used by small boats prior to the establishment of the mill. Its sheltered position makes for a natural harbour.

It is not possible to locate the position of the mill on the ground today. It is more than likely that any early structures close to the inlet mouth would have been completely removed during successive harbour developments. The proposed development does not include any ground works near areas where the mill may have occurred.

Any quays associated with the mill are likely to have been situated either side of the inlet mouth. A tidal dock and an outer tidal quay exist to the south, on the Caernarfon side of the inlet today. In their current form these elements probably date to the mid 1800's but documents suggest that quays were being built in this position for the use of the Dinorwic quarry at the end of the 18th century AD.

Only the outer quay, mentioned above, lies within the development footprint. It is unlikely to be affected by the proposal. This quay was originally part of a tidal harbour system which had been extended up the inlet, post AD 1840. The quay sides were furnished with a tramway system which brought slate wagons alongside the quay ready for loading onto ships. Buildings at this time were fairly sparse, boat houses, stores, offices and stables.

With the exception of the outer tidal quay much of the 19th century AD system was replaced c. 1900 by a non tidal lock system. To achieve this the harbour was completely remodelled by infilling parts of the old harbour to create a narrower channel. This allowed for the incorporation of lock gates and to provide larger quay side areas for storage and other activities.

The new system must, in its day, have been of some merit. Dry dock facilities and extensive workshops were included in the plans pointing to a period of enhanced activity associated with boat maintenance and building alongside the continued slate export activities.

With commercial activities ceasing in the 1960's the harbour has subsequently had to adjust to the role of a marina for pleasure craft and has thus been altered accordingly. Most of the quay side workshops have been removed and modern services have been brought in.

While the quay side adjacent to the inner lock and the dry dock is still being used to store and repair boats the quay alongside the outer lock is now a car park and that beside the outer tidal quay is taken up with modern housing.

A timely reminder of the harbours past can be seen in the use of roofing slates to construct a revetting wall adjacent to one of the modern housing developments (Figure 39).

Any ground work activities on the modern quay sides are unlikely to disturb little more than 1900's infill.

The surviving 1900's system is still of merit both as an industrial survival and as an operating modern harbour. The surviving remains as a whole must be classed as of regional importance, they have grade two listed status and also fall within a landscape, surrounding Dinorwic, identified as being of outstanding historic interest (CADW, 1998, p88). The system, however is no longer complete from a historical perspective as most of the associated tramways, workshops and other buildings are no longer evident. In most cases individual surviving features are

Harbwr Y Felinheli Desk Top and Assessment - Recommendations:

classified as being of local importance. Due care taken while carrying out any development work would safeguard the integrity of features remaining today.

8 Recommendations

Care should be taken to minimise disruption to historical dockside features such as bollards, mooring rings, ladders, lamp posts, gate mechanisms etc.

Repair works should, as far as possible, be carried out in keeping with existing features and in such a way that associated features and details are not lost.

Should 19th century AD harbour features or undisturbed sediments be encountered during ground work activities, these should be recorded to a suitable level.



Figure 1: Location map. Extract taken from 1:25000 Ordnance Survey Explorer Map number 263, Anglesey East.

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Figure 2: Map outlining study area 1:2500



Figure 3: Extract from Captain Collins' map 1695 Gwynedd Archives



Figure 4 : Extract from Lewis Morris Chart of 1737 -38 Llangefni Archive Office Reproduced by permission of the United Kingdom Hydrological Office

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Figure 5: Extract traced from 1777 Vaynol Estate Survey (Gwynedd Archives)



Figure 6 : Extract from early Ordnance Survey map of 1816 National Library of Wales, Aberystwyth



Figure 7. Harbwr Y Felinheli. Extract from Tithe Map AD1840. Printed at 1:2500 (approx.)



Figure 8 : Extract from the Ordnance Survey map of 1889 Scale 1:2500



Figure 9: Extract from Ordnance Survey map of 1900 Scale 1:2500



Figure 10: Extract from Ordnance Survey map of 1916 Scale 1:2500









Figure 13. Harbwr Y Felinheli Comparison between surviving remains and 1889 Ordinance Survey Map. Scale 1:2500





- Extract from 1916 Ordinance Survey Map





Figure 17. Outer tidal quay. (PRN 15880)



Figure 18. Outer tidal quay (PRN 15880) and outer lock gate (PRN 15883)





Figure 19. Iron bollard adjacent to PRN 15880

Figure 21. Iron Lamp post adjacent to PRN 15883



Figure 20. Iron mooring ring adjacent to PRN 15880



Figure 22. Outer lock. (PRN 15884)



Figure 23. Outer lock mechanism. (PRN 15881)



Figure 24. Inner lock gate. (PRN 15885)



Figure 25. Inner lock. (PRN 15887)



Figure 26. Sluice gate - inner lock.



Figure 27. Swing Bridge. (PRN 15888)



Figure 28. General view of dry dock. (PRN 15889)



Figure 29. Detail of drain in dry dock.



Figure 30. Detail of timber slide in dry dock



Figure 31. Crane (PRN 15891) and sail makers loft (PRN 15890)



Figure 32. Dry dock gate mechanism hut. (PRN 15892)



Figure 33. Electricity supply building. (PRN 15893)



Figure 34. Internal detail of electricity supply building.



Figure 35. Electricity supply building showing double doors



Figure 36. Iron bearing in roof of electricity supply building



Figure 37. Brick edging. (PRN 15895)



Figure 38. Dredging bucket. (PRN 15894)



Figure 39. Re-used slates in revetting wall

Please note that the first five primary record (PRN) numbers described below refer to features previously noted on the Gwynedd Sites and Monuments Record but also considered as part of this report.

PRN: 20740

NGR: Centered on SH52500 67800 Type: Slate Quay and its facilities Date: Mid 1800's / 1900 Description: Encompasses elements described below (PRN nos. 20742 - 20744 and 15879 -15894). Grade II listing. Condition: Varied, see separate elements. Vulnerability: Varied, see separate elements. Category: B Figure nos: 17 - 39

PRN: 20742

NGR: SH 52747 67834 Type: Padarn railway

Date: 1843 - 1961

Description: Based on early Ordnance Survey map evidence this originally entered the quay through a tunnel beneath Bangor Street at a position behind the current marina offices and adjoining restaurant.

Condition: No longer evident within the quay.

Vulnerability: None from the current development.

Category: Not applicable.

Figure nos: -

PRN: 20743

NGR: Uncertain Type: Early Dinorwic tramway

Date: 1824 - 1843

Description: Based on the 1840 Tithe map the early tramway possibly entered the quay beside the river and ran along the northern most perimeter of the quay side. A modern footpath runs roughly along this route today.

Condition: No longer visible on the ground. Probably removed when the dock was rebuilt c. 1900.

Vulnerability: None from the current development.

Category: Not applicable

Figure nos: -

PRN: 20744

NGR: SH 52898 67926

Type: Branch of Bangor to Caernarfon railway

Date: Mid 1850's - 1968

Description: The route of this is still visible where it approaches the quay side of the inner lock. The track bed measuring approximately 8m wide in total is clearly visible and is used as a track way today. The track bed is scarped into the natural slope down to the quay side. Stone revetment walls are evident both up slope and down slope of the track bed. Quay side workshops were built abutting the down slope revetment wall.

Condition: Good.

Vulnerability: None from the current development.

Category: C

Figure nos: -

PRN: 15879 NGR: Uncertain Type: Tidal mill Date: Pre 1695 Description: Tidal mill Condition: No longer evident, probably removed during subsequent quay developments. Vulnerability: None from the current development. Category: Not applicable Figure nos: -

PRN: 15880

NGR: SH 52491 67819

Type: Outer tidal quay side

Date: Mid 1800's

Description: A stretch, 140m long, of tidal quay side which runs between the outer tidal dock and the 1900 non tidal quay. It appears to be on the whole very much of the same build as the outer tidal dock. Built of large limestone blocks with some slate slabs filling smaller spaces. The quay side has more recently been capped with concrete and large sawn slate slab copings. Attached to the wall are a number of iron ladders and fixings. About half way along the quay side are two iron mooring bollards. At intervals of approximately 11m along the quay side are a number of iron mooring rings. Towards the outer lock gate (PRN 15883) the build of the wall is more regular, with larger more square blocks, and more recently pointed. This may represent a repaired portion or may represent a separate building phase. The quay side was once furnished with an extensive tramway system. Much of this area now contains modern housing apart from a narrow strip directly alongside the quay which is being used as a footpath. A modern landing pontoon is situated alongside the quay.

Condition: Moderate. In places the wall is bulging. Slumps in the ground surface above coincide with bulges in the wall. The mortar is being eroded due to wave action. Action has been taken to stabilise the wall at the most seaward point where concrete and wire meshing have been applied to the wall face. Iron mooring points on the quay side are in good condition. Iron ladders and fixings attached to the wall face are corroding.

Vulnerability: None from the current development.

Category: C

Figure nos: 17,18,19,20

PRN: 15881

NGR: SH 52565 67846

Type: Lock gate control mechanism (outer lock)

Date: c. 1900

Description: A pair of iron lock gate controls are situated either side of the outer lock gate. Probably originally manually operated, these have clearly been converted for electrical power and have now gone out of use.

Condition: Intact but no longer in use. Subsequent coats of paint obscure the makers stamp. **Vulnerability:** None due to current development.

Category: B Figure nos: 23

PRN: 15882

NGR: SH 52555 67845 Type: Lamp post

Date: c.1900

Description: A cast iron lamp post set in a square concrete base. The lower stand exhibits a decorative Acanthus leaf design above a mock Corinthian column while the upper shaft which accommodated two lamps is much plainer and is probably a replacement. It is possible that this was originally powered by gas and subsequently converted to electrical power. **Condition:** Moderate, showing signs of corrosion.

Vulnerability: None due to current development.

Category: C

Figure nos: 21

PRN: 15883

NGR: SH 52560 67850 Type: Outer lock gate

Date: c1900

Description: Essentially wooden in construction with walkway over the top supported by iron brackets. Walkway has iron post and chain fence. The original chain pulley system for opening the gate paddles to release water prior to opening the gate is still in use. The gate is now electrically powered from a modern control box on the quay side.

Condition: Working order.

Vulnerability: None due to current development.

Category: B

Figure nos: 18

PRN: 15884 **NGR:** SH 52590 67854 **Type:** Outer lock **Date:** c.1900

Description: The outer lock is essentially a straight sided channel facilitating access to the enclosed inner lock. It is 60m long and 10m wide. It is constructed of large limestone blocks and has the outer and inner lock gates situated at either end. A depth gauge close to the outer lock gate records a maximum depth of 21 ft, a second depth gauge close to the inner lock gate records a maximum depth of 22 ft. Access to the lock is via two iron ladders, one on the south side close to the outer lock gate, the other on the north side close to the inner lock gate. Seven iron mooring points are situated at regular intervals, *c*. 9m, down each side.

Condition: Working order.

Vulnerability: None due to current development.

Category: B Figure nos: 22

PRN: 15885

NGR: SH 52616 67855 Type: Inner lock gate Date: c.1900 Description: As for PRN 15883 Condition: Working order. Vulnerability: None due to current development. Category: B Figure nos: 24

PRN: 15886

NGR: SH 52619 67848 Type: Lock gate control mechanism (inner lock). Date: c.1900 Description: As for PRN 15881 Condition: Intact but no longer in use. Vulnerability: None due to current development, Category: C Figure nos: -

PRN: 15887 **NGR:** SH 52780 67921 **Type:** Inner lock **Date:** c. 1900

Description: The inner enclosed lock has curving sides and is crossed about a quarter of the way along its length by a swing bridge (PRN 15888). It is 340m in length and varies in width from 20m to 30m. From a point just inside the inner lock gate the construction is of purple machine made brick in English bond with a stone coping. The exception to this is the north side of the lock between the bridge (PRN 15888) and the dry dock (PRN 15889) where the coping is of concrete. The lock is well appointed with iron mooring bollards and rings and with iron ladders both against the side and set into recesses in the brickwork. Occasional mooring bars are noted inset into the tops of the stone copings. A post and chain fence is around most of the perimeter of the lock. On either side of the bridge on the north side of the lock the fence posts are notably larger and grander with the possibility of an emblem being embossed on or attached to their rounded heads. At a point just inside the lock gate on the north side a sluice gate is noted. The quay sides associated with this lock once had an extensive tramway system for delivering slates to different points along the quay. They are now used for car parking and boat maintenance and have been surfaced with tarmac or gravel in recent years. Modern services have been brought in to the quay side.

Condition: Working order.

Vulnerability: Quay side features on the southern side such as bollards and mooring rings may be affected due to the current development.

Category: B Figure nos: 25, 26

PRN: 15888
NGR: SH 52709 67871
Type: Swing bridge
Date: c. 1900
Description: Iron swing bridge, 20m in length, pivots at the southern end. The original manually powered mechanism is still in place but now powered electrically. The bridge is raised to vertical position by means of a below ground cog system.
Condition: Working order
Vulnerability: Non due to current development.
Category: B
Figure nos: 27

PRN: 15889 NGR: SH 52971 67983 Type: Dry dock Date: c. 1902

Description: Situated at the far end of the inner enclosed lock the dry dock is constructed of purple machine made bricks using an English bond. There are limestone quoins and coping stones. The sides are stepped to allow for scaffolding and access to the hulls of vessels being repaired. The dock measures 60m in length and is 15m wide There are four steps down to the base of the dock Plans suggest that when not in use the gate is concealed in a pit in the floor of the inner lock just outside the entrance to the dry dock. On either side of the entrance an iron chain mechanism is evident for raising and lowering the gate. High up within the entranceway circular holes in the brick work have pipes behind them and iron cross grills over the hole. These are probably some form of drain. At the opposite end to the entrance an access point into the dry dock is represented by slate capped steps either side of a worn stone ramp. This is described on plans as a timber slide. It was clearly used for lowering materials into the dry dock and is worn smooth and slightly dished through use. A depth gauge just inside the gateway indicates a maximum depth of 18m. A second depth gauge is marked in Roman numerals and is inscribed with the letters K.B.

Condition: Has unused and unmaintained appearance. Silting is preventing use for large vessels. Brickwork appears sound, gate not evident, metalwork not up to same standard as the rest of the lock system.

Vulnerability: Due to be brought into working condition as part of current development Category: B

Figure nos: 28,29,30

PRN: 15890

NGR: SH 52994 67968

Type: Sail makers workshop (originally joiners workshop)

Date: c.1902

Description: Adjacent to the dry dock this building is the remaining usable building of a suit of workshops which once operated here. A machine made brick built structure, using English bond this building has clearly been much altered. The building is 13m long and 6.4m wide. It originally had one central door at ground level, 2.4m square, with a wooden lintel and moulded brick jambs. This door is still in use but a second has been added at a first floor level, accessed by an external wooden staircase. Four windows now exist, two at ground level, two at first floor level. These replace the two original windows which can be seen blocked at a level part way between todays ground and first floor levels. The added door and the windows all have concrete lintels. Galvanised guttering is also probably a more recent addition The roof is of slate with ceramic ridge tiles and sky lights. A cast iron chimney vents at one end. Both gable ends show the remnants of previously attached buildings. The western gable has iron girders attached a reminder of a large girder constructed workshop which once stood here. The eastern gables have the roof lines of at least two attached structures. A small hole with an iron lintel, now bricked up, and iron fixings sunk into the ground are suggestive of a link between the buildings, perhaps a power source for machinery.

Condition: Moderate, in need of some repair work. Four cast iron tie beams suggest that the building has suffered from subsidence in the past.

Vulnerability: Due to be repaired as part of the current development. Category: C

Figure nos: 31

PRN: 15891 NGR: SH 52993 67871 Type: Dock side crane Date: Post 1900. Description: Cast iron stationary pivoting crane. Manual winch system based on an "A" frame with lowerable jib. Condition: Reasonable. Modern winching wire suggest that it may have been working recently. Does not appear to be in use currently. Vulnerability: May be affected due to current development. Category: C Figure nos: 31 PRN: 15892 NGR: SH 52941 67969 Type: Dry dock gate mechanism hut Date: c. 1902 Description: Small hut situated to the south of the dry dock entrance probably contained the controls for the dry dock gates. The hut is 4.7m wide and 3.2m wide. The walls of the hut were possibly originally constructed with wood but are now of modern brick. The roof is of wooden planks covered with roofing felt with a skirt of riveted iron sheet between the roof and brick wall. A small staircase near the hut leads to a small door directly below it which is presumed to give access to the gate mechanism itself. Condition: Good, recently repaired. Vulnerability: May be affected due to current development. Category: C

Figure nos: 32

PRN: 15893

NGR: SH 52935 67945

Type: Electricity supply house (previously running shed and ash pit)

Date: c.1902

Description: Situated close to the entrance to the dry dock this structure is built of red machine made brick with a brushed finish and using Flemish bond. Originally a running shed and ash pit it was situated at the end of the quay side tramway and was presumably the area where engines were taken for cleaning out and maintenance. Two bearings present in the roof, above the positions the tramways, suggest vertical shafts for a wire pulley system for bringing wagons into the building. The building is essentially rectangular in shape with double doors at the western end into which two tramways ran. The outside face of the walls have a moulded brick plinth at close to ground level, brick arches over the iron framed windows and the main doorway. The floor at the western end of the building is of plate metal above a pit. At the eastern end the building has been subsequently altered for use as an electricity supply house. Walls have been added internally to make a smaller room but the upper floor appears to have been raised and the roof replaced. Within this room electrical switching boards of at least two different dates are present. One, the older is attached to an end wall, the other is free standing. Another small room has been added onto the front of the building probably at the same time as the internal alterations. Rafters protruding from the gable end indicate that it was connected to an adjoining building. A large beam attached to the eastern gable may have some connection to the attached building or may have been a form of tie beam in an attempt to address subsidence problems. The roof is of slate with small windows in a "clerestory" on the central portion of the ridge. The ridge tiles are ceramic.

Condition: Derelict, unstable. Concrete butresses and a possible tie beam indicate long term stability problems with this structure possibly as a result of it being partly constructed on top of the infilled 1800's harbour. Internal features are in a poor condition.

Vulnerability: Due to be removed as part of the current development.

Category: C Figure nos: 33,35,35,36

PRN: 15894
NGR: SH 52725 67862
Type: Dredging bucket (decorative feature)
Date: Post 1900
Description: Old iron dredging bucket which has been salvaged and positioned close to the bridge (PRN 15888). Painted black.
Condition: Reasonable.
Vulnerability: None due to current development.
Category: C
Figure nos: 38

PRN: 15895
NGR: SH 52787 67888 - 52820 67904
Type: Brick edging line
Date: Uncertain
Description: A line of purply red moulded bricks with a diamond pattern presumably for grip on the upper surfaces may represent the edge of the Carnarfon to Bangor branch line where it ran along the quay side.
Condition: Only visible intermittently, bricks dislodged in places.
Vulnerability: Likely to be affected by development.
Category: C
Figure nos: 37

Appendix 2: Specification - Harbwr Y Felinheli Assessment

1 Background

- 1.1 Sedgwick Associates, agents for NWS Dock Management Ltd, are currently preparing evidence for a planning appeal in Y Felinheli. An archaeological assessment is required to inform the Inspector of the archaeological potential of the site.
- 1.2 Harbwr Y Felinheli (Port Dinorwic or Moel y Don) is commonly known for the role it played in the export of slate from the Dinorwic Quarries in the late 18th and the 19th centuries AD, but is likely to have been used as a harbour for longer.
- 1.3 This specification has been provided following a site visit made on 29th October 2001 and with guidance from a brief provided by the Gwynedd Archaeological Planning Service (ref. D480).

2 Objectives

The principal objectives of the proposed archaeological assessment are as follows:

- 2.1 To identify and map, primarily by desktop survey, sites and features within the area of study as outlined.
- 2.2 To confirm, by field survey, the site locations, to add detail, to compile a basic photographic record, and to identify and plot any sites not located by desk top survey.
- 2.3 To compile a gazetteer of the sites including records of their nature, date, function and condition.
- 2.4 To categorize the sites according to their archaeological importance.

3 Methodology

3.1 Desktop study:

The following sources will be consulted

- 3.1.1 The County Record Office, Caernarfon will be consulted for relevant map and documentary records.
- 3.1.2 The National Library of Wales, Aberystwyth will be consulted for appropriate map and documentary records.
- 3.1.3 Gwynedd Sites and Monuments Record, Bangor will be consulted for appropriate records.
- 3.1.4 Aerial photographs belonging to the collections the RCAHM(W), and other bodies as relevant.
- 3.1.5 Records held by NWS Dock Management Ltd.
- 3.1.6 Any other relevant sources as available i.e. records held by the University of Wales at Bangor.
- 3.1.7 Copies of plans and scanned copies of pictorial or photographic evidence will be included.
- 3.1.8 All sources will be fully listed and shall include accession numbers.
- 3.2 Field Survey:
- 3.2.1 All sites identified during the desk-based assessment will be visited.
- 3.2.2 Sites will be visited to check the site location, to record form, size, extent and condition, and to obtain any additional information.

Appendix 2: Specification - Harbwr Y Felinheli Assessment

- 3.2.3 The project officer will liaise with Sedgwick Associates and NWS Dock Management Ltd to make arrangements for access for site visits.
- 3.2.4 Where practical a basic photographic record of sites will be made:
 - 3.2.4.1 35 mm colour transparency film will be utilized for the photographic record.
 - 3.2.4.2 All photographs will include a metric scale.
 - 3.2.4.3 Colour copies of the photographs will be presented as an appendix at the rear of the report and cross referenced to the main text.

4 Report and Archive

- 4.1 On completion of the desktop study and the field survey a report shall be produced which will contain:
- 4.1.1 A summary of the sources used with a commentary on their usefulness.
- 4.1.2 A summary of the methodology and its effectiveness.
- 4.1.3 A general description of the structures and features recorded and their condition.
- 4.1.4 A location plan of an appropriate scale plotting all located sites.
- 4.1.5 An assessment of the vulnerability of each site arising from the proposed development.
- 4.1.6 Recommendations for further work if appropriate.
- 4.1.7 A gazetteer of all sites recorded.
- 4.1.8 An appendix of photographs.
- 4.1.9 A bibliography.
- 4.2 A full archive including plans, photographs, written material and any other relevant findings will be lodged in an appropriate place and in appropriate order within six months of the completion of the project.

5 Liaison

- 5.1 *EAS* Ltd. aims to conform to the conditions set out in "General Conditions for Archaeological Contractors in Gwynedd".
- 5.2 Project staff will liaise with Sedgwick Associates and NWS Dock Management Ltd. regarding access for the proposed site visit.

6 Staff

- 6.1 The project will be directed by Kathy Laws.
- 6.2 Project staff will include Dr. Ian Brooks, Kathy Laws.
- 6.3 It is proposed that one member of staff should carry out the desk top phase of the evaluation and also complete the final report and archive.
- 6.4 EAS Ltd. has undertaken similar projects as follows: Contract 12 Archaeological Assessment: Report for Forest Enterprise, I.P. Brooks and J. Price June 1999; Dyfi Forest Archaeological Assessment: Report for Forest Enterprise, J. Price and I.P. Brooks 1999; Dinorwig Quarry Access Track, Archaeological Evaluation, K. Laws 2000; Nantle Quarry Archaeological Assessment, I.P. Brooks 2001.

Appendix 2: Specification - Harbwr Y Felinheli Assessment

7 General

- 7.1 IFA Code of Conduct
- 7.1.1 All staff will abide by, and all procedures be carried out in accordance with the Institute of Field Archaeologists' Code of Conduct.
- 7.1.2 *EAS* Ltd. will abide by the Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology.

7.2 Health and Safety

7.2.1 EAS Ltd. adopt and adhere to safe working practices at all times.

7.3 Insurance

- 7.3.1 EAS Ltd. carries all necessary Public and Employee Liability Insurances.
- 7.3.2 EAS Ltd. carries Professional Indemnity Insurance.

7.4 Copyright

- 7.4.1 EAS Ltd. shall retain full copyright of any commissioned reports, tender documents or other project documentation, under the Copyrights, Designs and Patents Act 1988 with all rights reserved: excepting that it hereby provides an exclusive license to the client for the use of such documents by the client in all matters directly relating to the project as described in the Project Specification.
- 7.4.2 EAS Ltd. is prepared to assign copyright at the request of the client.

8 Timetable

- 8.1 Should the project be awarded to EAS Ltd., work can start immediately.
- 8.2 A draft report will be made available by the third week in November with a final report following as soon as possible.
- 8.3 Timetabling would break down as follows:
- 8.3.1 Desktop visit to County Records Office in Caernarfon 1 man day
- 8.3.2 Desktop visit to Gwynedd SMR and University of Wales, College of Bangor 1 man day
- 8.3.3 Desktop visit to National Library and Royal Commission in Aberystwyth 1 man day
 - 8.3.3.1 If telephone enquires determine that there are no relevant records this item will not be charged.
- 8.3.4 Desktop consulting NWS Dock Management Ltd and other appropriate sources 1 man day
- 8.3.5 Field survey visit to check and photograph sites 2 man days (2 people for 1 day).
- 8.3.6 Report and archive- 3 man days

Desktop / Offsite Surveys



Evaluations and Appraisals



Watching Briefs



Geophysical Surveys



Topographic Surveys

Building Surveys



Archaeological Conservation



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