

PORTHGAIN

Settlement morphology, topography and archaeology.

to accompany

CONSERVATION AREA STATEMENTS

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for Pembrokeshire Coast National Park

as part of a service level agreement with Cambria Archaeology

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Purpose of Study

The 'brief' for the study has developed following consultations with S. Brown and C. Mathieson, of Pembrokeshire Coast National Park Authority. The main purpose is to identify and evaluate the principal existing sources, surveys and reports on Porthgain's industrial archaeology and to summarize them in a form suitable for use in an overall Site Management Plan. This summary will include information that enables Porthgain's importance to be assessed in a wider context. Also included are summaries of current aims, guidelines and best practice in the conservation and management of industrial sites and landscapes. At a later stage, C. Mathieson also indicated that he would like to see some proposals and ideas on interpretation that could serve as the basis for bids for resources.

Methodology

Discussion with Park Officers refined the original suggested purpose and work programme for the study. Work began by consultation of the SMR, and rapid familiarization with information therein and easily accessible secondary works on Porthgain. This was followed by consultation of PCNPA's files, over a one and a half day period at PCNPA's offices. This led to a more extended final definition of the scope of the work and structure of the Report. A visit to the National Monuments Record at Aberystwyth to check on information there was combined with a consultation with Stephen Hughes, Head of Industrial Archaeology Branch RCAHMW and Secretary of the Welsh Industrial Archaeology Panel on current guidelines and best practice. A consultation by telephone was made with Rick Turner, Regional Inspector of Ancient Monuments, Cadw. A telephone consultation was also made with Dr E. Plunkett-Dillon, National Trust archaeologist, co-author of the National Trust's *Archaeological Survey* of Ynys Barri/Barry Island Farm. The Report was then compiled. Two days of field inspections were necessary rather than the anticipated one, although part of the site visit included inspection of the Coast Path for archaeological input to D. McLachlan. It was found that the 5 days estimate of time required was insufficient and 7 working days were spent on the project.

Scope of Study

Because Porthgain is not just an industrial archaeological **site** but a relict industrial archaeological **landscape**, the area under discussion also includes Abereiddy and part of the area between the two sites. It is recognized that this is not be under the direct management of the Park, but partnership arrangements and common aims with the National Trust who own Ynys Barri are clearly essential. The component areas into which the site and its hinterland is broken down have been principally defined with reference to industrial archaeological working and processing areas, although other divisions (Scheduled and non-Scheduled areas and Listed Buildings, Conservation Areas, also areas delineated in the Porthgain Enhancement Study exist.

Site Description.

Overall:

Porthgain is a settlement on the North Pembrokeshire Coast, occupying the valley sides and valley floor at the mouth of a former stream now culverted down to its harbour. The name may derive from the now lost name of the stream (*cain*). The harbour and a slip occupy the whole of the rocky bay that is dominated on its western side by ruined brick and concrete hoppers cut back into the steeply sloping sides. At the top of the slope are the remains of the stone crushing and grading works. Between top and bottom of the steep valley side are high brick stacks that supported the chutes that delivered stone from the crushers to the hoppers and to the ships' holds. Much of these present industrial ruins and the harbour are of early 20th century date but the stone quarrying and crushing for export as roadstone were the latest in a sequence of industries - slate quarrying - brick making, that exploited the mix of geological resources in the immediate area.

The settlement still bears some traces of its industrial origins (flourishing between 1840 and 1914), in a row of quarrymen's cottages (Y Stryd) and a single surviving industrial building - the large brick making workshop of Ty Mawr. Removal of the mass of industrial structures around Ty Mawr of which it was but one part, have created an open 'green' and parking area over the valley floor. Before industrial quarrying began in the 1840s, Porthgain was a small fishing and coastal trading harbour. The Sloop Inn (1740s) and a limekiln (18th century) survive from this early phase. The clearance of much of the industrial workshops around Ty-Mawr and the removal of rail lines has to some extent returned Porthgain to this earlier era. The 20th century harbour side brick ruins are now a kind of backcloth. Porthgain is no second-home, seasonally-occupied settlement and the harbour and foreshore are in active use by local fishermen. It is a popular place for tourists, due to easy parking and availability of refreshments.

Individual Components:

The Stone Crushing Works and Hoppers, west side of the harbour.

The storage bins or hoppers built against the steep slopes of the west side of Porthgain Harbour, immediately alongside the West Quay, are dominant and impressive ruins. Recent improvements for safety and operation of the harbour as a small fishing harbour for the local crab and lobster fisheries have given the main central line of hoppers (nos 1-11) a smooth facade with all entries blocked. This differs from their appearance when they were working structures with projecting chutes. Most of what is to be seen is of early 20th century build, of Porthgain produced bricks and relates to roadstone, the last and biggest industry of the Porthgain trinity of slate, brick and stone quarrying. From south to north, there is a free standing hopper with a brick stack to its rear. Between it and the main bank of hoppers is what appears as a rocky path up the steep slope now formly fenced off. This is the site of an incline transporting slate down from workshops on the cliff top adjacent to the 'St Bride's' quarries and thus relates to the 19th century slate-quarrying phase. (see Fig. 2). It is now fenced off.

As the quarry deepened, the incline was replaced by a tunnel from the base of the quarry to the West Quay for transport of slate. This is shown in the 1906 1:2500 map. It later had a hopper built over it, thus extending the 6 shown on the 1906 1:2500 OS map to the 11 that survive today. Nos 12-14 seem to have been in place by 1906 but have been remodelled into 3 larger bins. Recent improvements for the on-going use of the harbour by local fishermen (tarmacing of the west quay surface, renewal of lintels, grillage of openings) have resulted in a smooth facade to the hoppers that is far removed from their original appearance. Between the hoppers and the crushing plant at the top of the slope (supplied by rail from Porthgain Quarry on the sea cliffs between Porthgain and Abereddy) are brick stacks that supported the chutes to charge the hoppers.

Current Condition and Influencing Factors

Hoppers and Stone crushers

These exist today as ruins, protected as Scheduled Ancient Monuments.

The principal influencing factor is public safety in that there is the danger of falling bricks or masonry from the facade onto the working and Coast Path Access area of the West Quay. The steep slopes to the sides and rear of the hoppers, as well as their interior and the bases of the brick stacks are also considered to be potentially unstable and dangerous. This has been dealt with in two ways:

Refurbishment and consolidation of the facade of the hoppers alongside West Quay and prevention of access by means of grills over all openings.

Fencing off access to the rear sides and top of the crusher house and allowing a dense undergrowth to develop that further deters visitors' access, accompanied by warning signage.

Harbour etc.

The principal influencing factor here is to maintain the harbour for use by the local fishermen. This involves:

consolidation of the harbour and quay walls

Repair of the culverted drain to avoid flooding of the Green and to serve as a scouring sluice for the harbour.

surfacing of the quays and piers

provision and maintenance of mooring and storage facilities

creation of a slip for getting boats in and out.

Not actively encouraging yachtsmen and pleasure boats.

Ty Mawr and environs.

The principal influencing factor for the building is the wish to find a use in order to maintain it. For the environs the main factor is to provide car parking and a safe play/congregating area for visitors and local people.

The building has been repaired and re-roofed. The floors need to be completed and then acceptable uses found.

Clifftop areas and Coast Path

Principal influencing factors are the need for path maintenance and safety, for visitor access and for farming uses by the Ynys Barri NT estate.

The Harbour, Pilot's Office & Navigation Beacons.

The present harbour is intimately associated with the roadstone crushing and storage structures on the West Quay since it was expanded and remodelled in 1904-6 when more hoppers were built. The late 19th century harbour consisted of two piers sheltering a drying beach. The east pier survives unaltered from the earliest harbour. The west pier was extended and remodelled in 1904-6, a new centre pier and south Quay wall built. Modern resurfacing for present day uses has covered traces of earlier rail lines, apart from on the West Pier.

The Pilots Office (sometimes mistakenly called the Harbourmaster's office) is a simple single roomed building, Listed, together with the steps at its rear. Old photographs show that there was a flight of steps up to a gable end wall with opening in it that functioned as a lookout (See Fig 3). New steps with a hand rail perpetuate this interesting feature but the lookout has gone. All these harbour and navigation elements give a picture of the maritime history of Porthgain.

Ty Mawr, its environs and ruined buildings to the west.

Ty Mawr, now re-roofed, stands alone in an open area once densely packed by industrial buildings of which it was a part. It is a two storey height rectangular stone building, internally 16 m x 11.6m. It is the principal remains of the Porthgain brickmaking industry and served as the machinery shop for brick manufacture. A lean-to at the north end once housed a boiler and perhaps engine house. The roof line of former brick drying sheds can be seen on the south side of the building.

To the west are overgrown low ruined walls of the former water powered pugging mill and crushing works to prepare the clay. Modern uses, including the fenced compound for Porthgain Village Industries, have taken over most of this area. The engineering work to culvert the stream that flows down the valley, (recently repaired as part of village enhancement works) was contemporary with the rebuilding of the harbour. The role of water power in earlier industrial processes is no longer evident. The area still has considerable buried archaeological content and potential.

Top of the Cliff above Porthgain - Quarries, rail lines and ruins of Pentop Terrace and locomotive sheds.

All this area lies within the National Trust estate of Ynys Barri. Its content is described in the NT's Archaeological Survey by J. Latham and E. Plunkett-Dillon that was reproduced in its entirety in the Porthgain Enhancement Survey. Much is overgrown and visitors are discouraged for obvious safety reasons, especially to the Porthgain Quarry. Nevertheless the whole area contains the evidence for the sources of Porthgain's mineral wealth and how it was extracted and transported to the processing and shipping areas.

List & Summary of existing archaeological & historical information on Porthgain.

This is not exhaustive but takes the most important general and site studies. Information is presented either as extracts, or summaries of content.

1. General works on the mineral resources:

SLATE

F. W. North, National Museum of Wales booklet: *The Slates of Wales* 1925. (principally about North Wales):

A third important group of quarries in slate of Ordovician age occurs in the neighbourhood of the Prescelly Mountains, Pembrokeshire and the adjacent parts of Carmarthenshire and Cardiganshire . . Cleavage has been developed in other Ordovician strata and in some of the Cambrian strata near Abereddy in Northern Pembrokeshire, but the rocks either weather very readily, or have so many hard grit-bands associated with them as to be of no commercial value and although numerous quarries have been opened, none has proved successful.

CLAY FOR BRICKS.

The harder doleritic rocks that were quarried for roadstone and as building stone are from a central igneous intrusion into softer, earlier Ordovician shales. At the junction between the intrusion and the shales the latter were softened, and it was these beds that were quarried and crushed down to a clay for making bricks. Brickworks were a common, on-site product from other mineral workings, both to make use of the softer shales and clays encountered and for on-site building material.

CRUSHED GRANITE ROADSTONE

Trevor M. Thomas, 1961. *the Mineral Wealth of Wales and its Exploitation*

Despite the ready availability of large reserves of high-grade stone in close proximity to the coastline, there have been no quarrying developments in North Pembrokeshire on the scale of those undertaken in Caernarvonshire. This is due primarily to the abundance of local roadstone and building materials of sedimentary origin in the more populated southern half of the county and in the industrial areas of the South Wales coalfield to the east . . the natural outlet for any marketed stone. Until about 1928 a quarry at Porthgain, working dolerite rock of rare quality, carried out a fairly extensive export trade by means of small coasting vessels . .

D. Morgan Rees, 1975. *The Industrial Archaeology of Wales* D & Charles, Industrial Archaeology of Britain series.

In North Pembrokeshire there has always been a plentiful supply of high-grade stone, but quarrying has never approached the scale achieved in Caernarvonshire. . Among the most interesting ventures in this area was one which has developed from the workings of the Porthgain quarries, one on high ground (SM812325) immediately to the west of the village and another about ½ mile to the N.W. on the Penclegyr headland (SM 806327). A third quarry which is shown on the 6" map as Porthgain Slate Quarries (Disused) was on the coast (SM795315) a short distance north of the village of Abereiddi.

Igneous rock from the three quarries was brought to a crushing and grading plant, operated by traction engines, above Porthgain harbour. The crushed rock was charged into large hoppers from which it was discharged as cargo into vessels moored alongside. The stone was a regular export after 1878, much of it carried by the quarry company's six steam coasters of about 350 tons each. The harbour was enlarged during 1902-4 to meet a growing trade which reached its peak before the 1914-1918 War. Subsequently it did not recover and the plant closed in 1931.

Site Specific Studies.

About Porthgain, Tony Roberts. 4 issue (revised). 1991. Abercastle Publications. £1.50.

At present, the only available 'local' history is Tony Robert's *About Porthgain*, Abercastle Publications, now in its 4th revised issue of 1991. This is a widely available, reasonably priced and a very informative and attractive booklet. It is based on local knowledge of the former industries and expresses a number of personal views, but does not contain any references.

The Railways of Porthgain and Abereiddi, R.C.Jermy, Locomotion Papers 159, The Oakwood Press. £3.95

This is an excellent, authoritative, well researched account that gives a good description of the Porthgain industries as well as the railway history. It is well illustrated with maps, plans and photographs. In his Foreword, Jermy explains that the book is based on much 'first-hand study of both the sites and much of the well scattered documentary evidence'. He provides a good description of the whole site from Abereiddi to Porthgain, which, incidentally, permits an assessment of how site conditions, visibility and access have altered since the early 1980s. In his Conclusion he advises:

Those wishing to know more would do well to avail themselves of the excellent guided walks organised by the Pembrokeshire Coast National Park Authorities which are well advertised locally. These walks are conducted by Iuean Griffiths and Roger Worsley, distinguished local residents and historians, whose knowledge of the area, its industries and shipping is extensive and detailed. It is hoped though that the appetite of the reader has been whetted and that personal visits to the sites will enable him or her to make the same walks of discovery that the present author has made. Much scope remains for detailed observation, investigation and recording. The jigsaw puzzle history of the railway and tramway systems is still far from complete . .

National Park Site Cards: Pembrokeshire's Sea Trading: PORTHGAIN.

These laminated 'blue cards' are now being withdrawn but contain a useful description of the industry and the site, with two old photographs and an aerial view.

In the 1970s there was an active and pioneering group of fieldworkers under the guidance of R A Kennedy, Curator, Pembrokeshire Museums - the Industrial Archaeology Group of the Friends of Pembrokeshire County Museum. PCNP staff were involved. This co-incided nationally of course with the rise of 'Industrial Archaeology' as a serious discipline in its own right. The higher profile given to industrial remains is evidenced in a separate essay in the 1973 HMSO Park Guide : 'Industrial Archaeology', by R.A. Kennedy, ch. 8 in *Pembrokeshire Coast National Park*, ed. D. Miles.

Members of the group included Roger Worsley, who has an important collection of photographs relating to the site. A copy is provided of his essay on the site from his bok *Open Secrets*.

Brian John has written many local guides and studies, underpinned by his geological and geomorphological knowledge. A photocopied extract covering Porthgain, in his latest book *Pembrokeshire: Past and Present* (1995) is given below.

Finally the booklet a National Museum of Wales, *Maritime Heritage of Dyfed* has useful summary of Porthgain in the context of coastal shipping.

Archival material.

There is a rich archive for the quarries at Porthgain, principally deposited at Pembrokeshire Record Office. This is collection DB/7 available for inspection only with the written permission of Mr H Salmon, Sunny Bank, Porthgain. These mainly concern the 20th century quarry working, but constitute a major research resource for all aspects of the works. There are complete runs of time sheets, pay sheets, order books, lists of ships, bills of lading, machinery, specialist catalogues and so on. This source has yet to be systematically exploited to produce a full history, but they were extensively used by Jermy, for his railway history.

National Trust Archaeological Survey - Ynys Barri

The Survey is reproduced in the Porthgain Enhancement Report by 1990. It is to the standard format of the on-going National Trust Archaeological Surveys of the Trust's estate in Wales. Its principal purpose is "as an outline of archaeological features relevant to management". It contains brief site by site descriptions, evalautions of their relative importance, a land use history, recommendations for further reserach and field survey. It also contains a summary of Management Recommendations.

It should be noted that there is no comparable survey for Porthgain itself, for PCNP's estate. This present Report was not intended or commissioned as such a Survey.

Archaeological Work at Ty Mawr.

This was commissioned by PCNP from Dyfed Archaeological Trust in 1992 and 1993, in advance of repair and re-roofing of the building, preparatory, it was then thought, to a new use as a shellfish processing plant. The work was specified as part of the Scheduled Monument Consent for the consolidation and conversion.

The first stage of the work was an archaeological assesement of what the impact of the proposed works would be on the floor surface and below floor deposits. The building housed the brick making moulds and presses. Evidence was found for a machine base and a wheel pit. In addition a description and interpretation of the environs of the site and the brick making industry of Porthgain was provided. Rescue recording of the structure of the culvert alongside the building was also carried out, since this was under repair at the time of the excavation. A contractor's trench had also been cut through the site of the brick kilns. Roger Worsley kindly gave permission for some of his collection of photographs showing Ty Mawr and associated brickworks to be reproduced in the Report. The principal recommendation was for the

complex archaeological deposits below floor level to be preserved *in situ*.

Further excavation took place in December 1993 in advance of work to cut down into the subfloor levels for the supports for the steel frame on which the new roof of the building is supported. No less than 5 phase of use and operation were identified. It proved possible to link machine and wheel pits to detailed descriptions (especially in a document of 1919) of machinery and equipment within the building).

One of the main conclusions to be drawn from the excavations is the potential of the archaeological deposits in and around these buildings for elucidating the history and development of the site.

Conclusion:

Much general descriptive work has been written and gives a good picture. There is an unusually rich archival resource for the site in records and old photographs, in various hands. There is scope for academic research and publication, just as the site itself provides scope for detailed survey and recording. This should be borne in mind as a suggestion to any interested universities or colleges looking for an industrial archaeological project. It would also provide a suitable subject for a series of Adult Education classes and workshops, provided that a suitable tutor could be found.

List and Summary of the Management, Structural and Enhancement Surveys and Previous Work with regard to Industrial Archaeological Interests.

Porthgain Improvements.

This term is used to describe the recent works carried out at Porthgain over the last decade and they are considered here only for their impact on the industrial archaeology. Information source : PCNP's Porthgain files assembled by S. Brown and read through by HJ.

Harbour Repairs & Improvements:

In 1994 G Mouchel and Partners, Consulting Engineers, carried out a Harbour & Hoppers Study for the Park. (with Phil Roach, final Report not seen by HJ).

Important points are that plans and elevations were drawn which could serve as a basis for archaeological recording of the structures. It is great pity that archaeological survey was not carried out at the same time - a missed opportunity. See Fig. 4 for details that could be added to Mouchel's elevations of the hopper facades. Similarly for the harbour, the different methods of construction and different materials were noted by the engineers also that 'the interfaces between the various stages of construction are very apparent.'. If any detailed drawings were made these too could serve as a basis for archaeological annotation.

The repairs and improvements to the harbour have given new concrete cappings to the harbour walls, a new wall and bench at the inner end and new bollards on the 1904 harbour pier. It seems that the tarmac surfacing of the west quay at the base of the hoppers has covered the remains and seating for earlier rails (Jermy p. 44). Was any record made ?

Mouchel were glad to report that following consultation with Cadw, there appear to be 'no undue constraints for conservation requirements' and 'in summary, Cadw accept that any money available for repair at this stage should be concentrated on providing a robust repair of the main facade in materials which would have been appropriate had the structure still been in use - i.e. lintels in concrete or steel.'.

The facade has been consolidated - the hopper chutes and entries have all been grouted and in some cases adapted to local fishermen's use. Electric lighting has been installed (the SMC from Cadw required some archaeological observation and records of any details revealed during this work. I haven't seen any, and we don't have any information in the Archaeological Trust's SMR.

Porthgain Enhancement Survey

This contains an excellent Report *The Industrial Heritage of Porthgain* by Judith Alfrey, sub-consultant to Peter Holden. This provides a good overview by a recognized and respected practitioner in the field. This present Report complements Ms Alfrey's. (A recent publication of hers with C. Clark *The Landscape of Industry: patterns of Change in the Ironbridge Gorge* Routledge 1993 is well regarded.

Status and Interest of the Site

Statutory Protection.

Ancient Monuments and Archaeological Areas Act 1979.

The west side of the harbour, the hoppers and remains of the stone crushing works, the harbour master's office and the tunnel and tramway from the quarry to the works are all designated as Scheduled Ancient Monument Pe 382. Following the roofing of Ty Mawr the boundaries of the scheduled area were redrawn to exclude the building, now designated a Listed Building, Grade II. The Scheduling indicates that the complex is considered to be of national importance and the latest assessment of importance on the 1989 Cadw AM107 forms states:

An important and imposing industrial complex, little changed and dramatically sited in what has become a beauty spot on the Pembrokeshire coast.

Also scheduled is the limekiln Pe 388, NW of The Sloop Inn, scheduled in 1976 as 'a good example' and thought to be of late 18th/early 19th century date. In 1991, Cadw descheduled the monument and considered it was better protected as a Listed Building Grade II :

this limekiln is typical in date and form to a large number of limekilns in Pembrokeshire subject to a recent study . It cannot now be viewed as an exceptional example , and is therefore better protected as a listed building Grade II.

Planning (Listed Buildings and Conservation Areas) Act 1990

In addition to Ty Mawr and the limekiln, now Listed, the following have also been Listed within Porthgain.:
(photocopies of the full listing descriptions were reproduced in the Porthgain Enhancement Study.)

Y Stryd/The Terrace: Grade II.

The reason for listing is because they are considered: 'a rare survival of industrial workers' housing in rural south Wales' The buildings were extensively renovated for modern uses in 1985.- BUT were any records, plans and photos made or taken of the buildings prior to modernisation ? DAT don't have any, The National Monuments Record hasn't and I saw none in the Porthgain files at PCNP.

The Pilot House

The reason for listing is 'Group value with other listed and scheduled items at Porthgain harbour. This seems to get called The Harbourmaster's office but it wasn't. It is important to get right because its an important part of the maritime history of Porthgain that there was a pilot. Note that the steps are included in the listing. Not mentioned, but clear from earlier photographs, is that there was a gable end shaped wall with a window in it at the top of the steps providing a sheltered look out point, for incoming vessels in the offing which might need the pilot's services to enter the narrow and difficult harbour. Future research (which I haven't had time to do) could be directed at looking at 19th and early 20th century Pilotage and Sailing Directions handbooks, which would give details of the Porthgain Pilot. Could be useful to get some names and characters if there were to be any Interpretative facility at The Pilot's House.

Other items listed - the telephone kiosk and the eastern navigation beacon .

Porthgain's place in the Park

Conservation Area:

An 'official', or planning recognition of Porthgain is in the proposed Conservation Area statement: 'Porthgain has a unique character which it is considered deserves conservation and enhancement'.

Comment: the architectural descriptions and characterisation as an 'estate' village is perhaps a little misleading in that it was an industrial village - the present day 'open' feel is of course due to the near wholesale removal of the former industrial buildings from the valley floor. In another project within the 1997/1998 Service level Agreement for provision of specified archaeological services, between Cambria Archaeology and PCNPA, information on settlement typology and morphology will be forwarded to Park Officers preparing Conservation Area Statements and the information gathered for Porthgain will be recast for this separate need.

Industrial and Maritime Archaeology.

Porthgain is one of a group of small harbours on the north Pembrokeshire coast - Porthclais, Abercastle, that have made the transition from coastal trading to modern fishing/leisure use without losing their character. This is principally due to the difficult weather, lee shore, tidal and other navigation difficulties of the cliff coastline - these constraints give the harbours an even greater interest and appeal. This has discouraged any 'marina' type projects.

Porthgain has a **unique position** in Pembrokeshire's industrial archaeological heritage - there are or were other slate quarries, there were brickworks, there were stone crushing and grading plants, there were tramways and railways for industrial use, there were harbours for export of bulk cargoes from inaccessible locations by road - but Porthgain combines all these aspects.

Fishing.

Porthgain today is portrayed as a living community that does not dwell overmuch on its industrial past, but relies on the crab and lobster fishery and tourism. There was coastal fishing before the intense, but relatively short-lived industrial phase, to which the local community has now returned and for which the harbour has been utilised. Continuity then rather than discontinuity. Recent work by former National Museum Director, Dr. Geraint Jenkins, on the history and heritage of the Welsh fishing industries has useful information on the Pembrokeshire Crab and Lobster fisheries that provides a past and present context for the Porthgain fishery.

Summary of current guidelines and 'best practice' in conservation, management and display of industrial archaeological sites.

In 1991, the **Association for Industrial Archaeology** produced in 1991 a policy document *Industrial Archaeology: Working for the Future*, offered as "a preliminary policy statement for industrial archaeology in the 1990s with recommendations for their implementation".

Relevant to Porthgain are recommendations for storage and dissemination of records on sites in the regional *Sites and Monuments Record*. PCNPA has adopted the relevant sections of Dyfed Archaeological Trust's regional SMR as its record for archaeological planning purposes. Programmes of Typological Research are recommended "to establish the significance of individual buildings and sites in relation to others of similar function". The impact of industrialisation on a landscape has been little studied and this is strikingly demonstrated at Porthgain. It is recognized that in the Policy Statement that not all industrial structures and buildings can be maintained; even if not demolished, they will continue to deteriorate. Surveys and plans are therefore very important. Perhaps more controversially The Association recommended that the statutory bodies (i.e in our case Cadw) should "be prepared to undertake emergency repair and consolidation work on Scheduled structures . . . subject to Management Agreements".

As a very much larger body than Cadw, it is not surprising that **English Heritage** are able to produce a series of policy statements and then provide resources to implement them. EH's 1995 policy statement on Industrial Archaeology is reproduced here. Cadw have been criticised for not making strategy and policy statements:

23. Many witnesses argued that Cadw was still too cautiously reactive to events while it should do more to promote awareness of the heritage and to develop a strategy for its protection. It is suggested that Cadw should do more to communicate information to other professionals; and in this it is compared unfavourably with both English Heritage and the Countryside Council for Wales. In our view, **Cadw should take a more proactive role in forging a strategy for the protection of the heritage of Wales.** (Third Report from the Welsh Affairs Committee 'The Preservation of Historic Buildings and Ancient Monuments: Follow Up. 1996).

It would be unfair and irresponsible therefore to take explorations in a phone conversation between HJ and Rick Turner, Regional Inspector Cadw as representing Cadw's Official Policy to the Industrial Archaeology of Porthgain. However, he stressed that grants for repair and consolidation of monuments (such as the Porthgain hoppers and crushing works) were hard to get and that a public benefit in terms of access and visitors would need to be produced. In my personal opinion therefore, an approach to Cadw for financial assistance for consolidation might be best advanced if a policy of provision of vantage points for the public to get a better view of the monument were an integral part of a consolidation programme.

North Wales. I have not been able to fully explore what other National Parks in Wales' policy is towards their industrial sites. Obviously the remains of slate quarrying are a very much more dominant feature of Snowdonia National Park. Cadw has funded the Gwynedd Archaeological Trust to carry out surveys and assessments of the remains of this industry and put forward recommendations for conservation and management. The relevance of all this to PCNP and Porthgain is not so much that Park policies differ or fall short of those of other Park authorities, but rather that PCNPA might find it helpful in seeking funds for monument consolidation to have precedents for other, similar monuments being grant-aided in other areas.

I have obtained information from E Plunkett-Dillon, NT archaeologist, who attended a recent **Industrial Buildings Conservation meeting** in Cornwall (summer 1997). The Cornwall Archaeological Unit have long been involved in advising Cornwall County Council on the county's industrial sites. Special attention was paid at the meeting to the coastal remains of tin-mines, several of which have been repaired and consolidated and are seen as a significant heritage resource for the County's tourist industry. There is a growing awareness that so much has already been lost of once plentiful industrial archaeological sites and remains that action needed to be taken to preserve what was left. I have ordered two publications, *A Guide to Conserving Historic Tin Mines* and *Conservation Value of Metalliferous sites in Cornwall*. I can of course be argued that tin mines are an integral part of Cornwall's heritage and that there is nothing comparable in Pembrokeshire that is so typical. Porthgain however is a unique resource both as a coastal industrial site and a coastal industrial archaeological landscape.

Industrial archaeology: a policy statement

- 1 English Heritage recognises the unique international significance of the country's industrial heritage and will complete theme studies of industrial buildings and monuments under the Monuments Protection Programme and List Review in order to identify important sites and structures which deserve to be retained and recorded. We will encourage the government to provide appropriate statutory protection for the industrial heritage and we will offer planning guidance where necessary for the management of significant sites in their landscape context; we will also seek urgent action where needed to safeguard important threatened industrial sites which are suitable for long-term preservation.
- 2 Encouragement will be given to the identification and repair of industrial buildings and monuments which are at risk, through commissioning example feasibility studies, targeting repair grants in accordance with financial need, and promoting the suitable and flexible reuse of former industrial buildings.
- 3 Responding to a period of rapid economic and technological change, English Heritage will work with RCHME, local authorities, and the Science Museum to encourage the timely identification and recording of significant industrial landscapes, sites, buildings, structures, machines, and processes, and to help with their effective management. Where the option of retention cannot realistically be achieved, a record of last resort is essential.
- 4 Public appreciation of the industrial heritage will continue to be promoted through education and publication and through access to, and the interpretation of, our historic properties.
- 5 English Heritage will explore with the national agencies – particularly the Museums and Galleries Commission and the Science Museum – the suitability of existing arrangements for management of the country's most important preserved industrial sites and monuments.
- 6 We will review the adequacy of existing resources to sustain the special needs of display and demonstration for industrial archaeology where appropriate and will cooperate with government agencies and others, including the National Trust, to preserve important industrial sites.
- 7 Our commitment to education and training in industrial archaeology and conservation of the industrial heritage will be maintained through relevant publications and lectures by English Heritage staff.

Conservation Objectives

1. It should be recognized that there are still many aspects of the site that are not precisely understood - exactly how all the surviving structures and features, however slight, relate to the industrial and transport processes known to have been carried out at the site. A full survey with a plan, profiles and measured drawings and elevations should be seen as an urgent and important conservation objective for the following reasons:

to record details that are likely to collapse or erode, thus removing and destroying evidence for the site.

to better understand and appreciate the whole site which should be seen as a long term asset and resource for PCNPA not a problem and a liability.

a survey and record would be required for Scheduled Monument Consent for any extensive or intensive works.

2. A strategy for the hoppers and crushing works needs to be developed to, ideally, 'conserve as found'. This strategy needs a detailed structural survey and assessment as its basis. R. Turner of Cadw thought that WS Atkins had carried out such a survey but I have not seen this. If not, and if a fresh survey were to be commissioned, any dedicated archaeological survey and record should form part of the engineering survey. This would be much more cost-effective than a stand-alone archaeological survey.

3. The strategy (likely to be delivered through a long-term repair/consolidation programme because of cost) should be shaped by decisions on an Interpretation and Display strategy (see next section). If, for example, a decision is made to provide access to a secure vantage point on the Crushing Works to look down on the hoppers, any clearance, consolidation and safety fencing programme will be determined by this objective.

Interpretation Objectives.

These divide into site and access-based and static, undercover interpretation ideas.

On-site and Coast Path-based.

1. At a basic level the industrial structures at Porthgain are appreciated as striking ruins in a landscape (Piranesian is the over-worked adjective!). Other visitors may welcome an opportunity to see more of the site. Both purposes would be answered by the provision of one or more **vantage points**. It has to be recognized that at present, and for the foreseeable future, Porthgain hoppers and cliff top works are unsafe for free access by visitors. Two possible positions - one at the top of the flight of steps up from the Pilot House and the other on top of the Crushing Works are marked on Fig. 5.

2. It is recognized that it may not accord with Coast Path philosophy to provide a number of **Interpretation Boards or Panels** on the site. But equally so-many alterations have been made to the facade of the hoppers by the West Quay that a single plan-type panel would not be intrusive. An Appendix to this section summarizes possible Panel location and content either as a line of Panels on a facade or on plinths at specific locations. The latter may be seen as intruding onto the wildness of the location, and also be technically difficult in harsh wind, weather and cliff top locations. A single, basic information board might be necessary to direct the visitor to specific vantage points and warn them off other areas. A panorama type display with names and functions of buildings and structures labelled could be designed to be incorporated into the secure railing demarcating the vantage points.

3. Possibilities for an **Industrial Archaeology Porthgain and Abereiddy Trail and Trail Leaflet** should be explored with the National Trust, promoted by production of a simple, robust Trail leaflet widely available and grafted onto any suitable series of Park, or NT walks leaflets or pamphlets currently produced. Decisions on the Conservation and Interpretation Strategies would need to be taken first in order to sort out where access could and could not be provided. This would also function as a circular walk.

4. Undercover Interpretation/Heritage facility.

It is assumed that this would be in Ty Mawr. This could be produced in many ways; to give a few examples:

As **Backcloth** (perhaps simply with a series of old photographs) to permanent, changing or temporary displays, exhibitions, events or activities.

Using the Industrial Archaeology as a **link subject** to the **geology** of the area - or the Park by stressing the source materials for the industry. Using the maritime history of the area as a link to today's maritime and fishing activities, either locally, Pembrokeshire - wide or covering the Irish Sea. - or even as a 'twinning' exhibition featuring similar subjects from *Parc Armorique* - twinned of course with a similar heritage promotion in Brittany on Pembrokeshire?!

(see photocopy from *Earth Heritage* attached)

Fig. 4: Part of Mouchel's drawing of Hoppers showing specimen additional detail

(HOPPERS, facade W. Quay. Porthgauri)

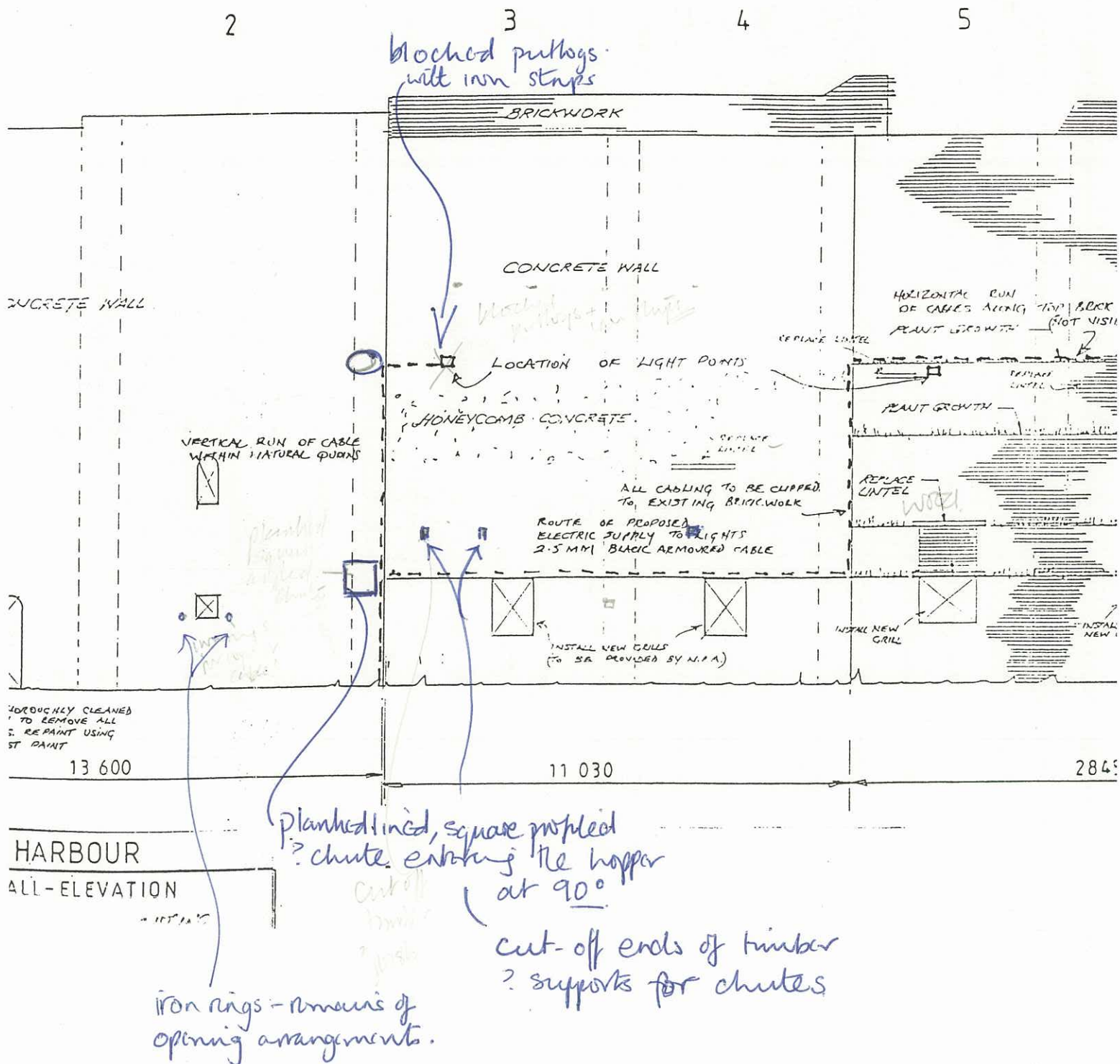


Fig. 4. Annotated section of Mouchel's Elevations of the Hoppers to show the kind of additional detail required for a fuller record.

RIGHTS OF WAY

PORTHGAIN

Byeways NONE

Bridleways NONE

County Road

Footpaths 000000

(Numbers refer to definitive m

Scale 1:2500

Map No. SM.8132... Date

Copied by permission

329

328

wyn Porth gain

327

Rocks

2764
154ha
38

326

arries

Works
(disused)

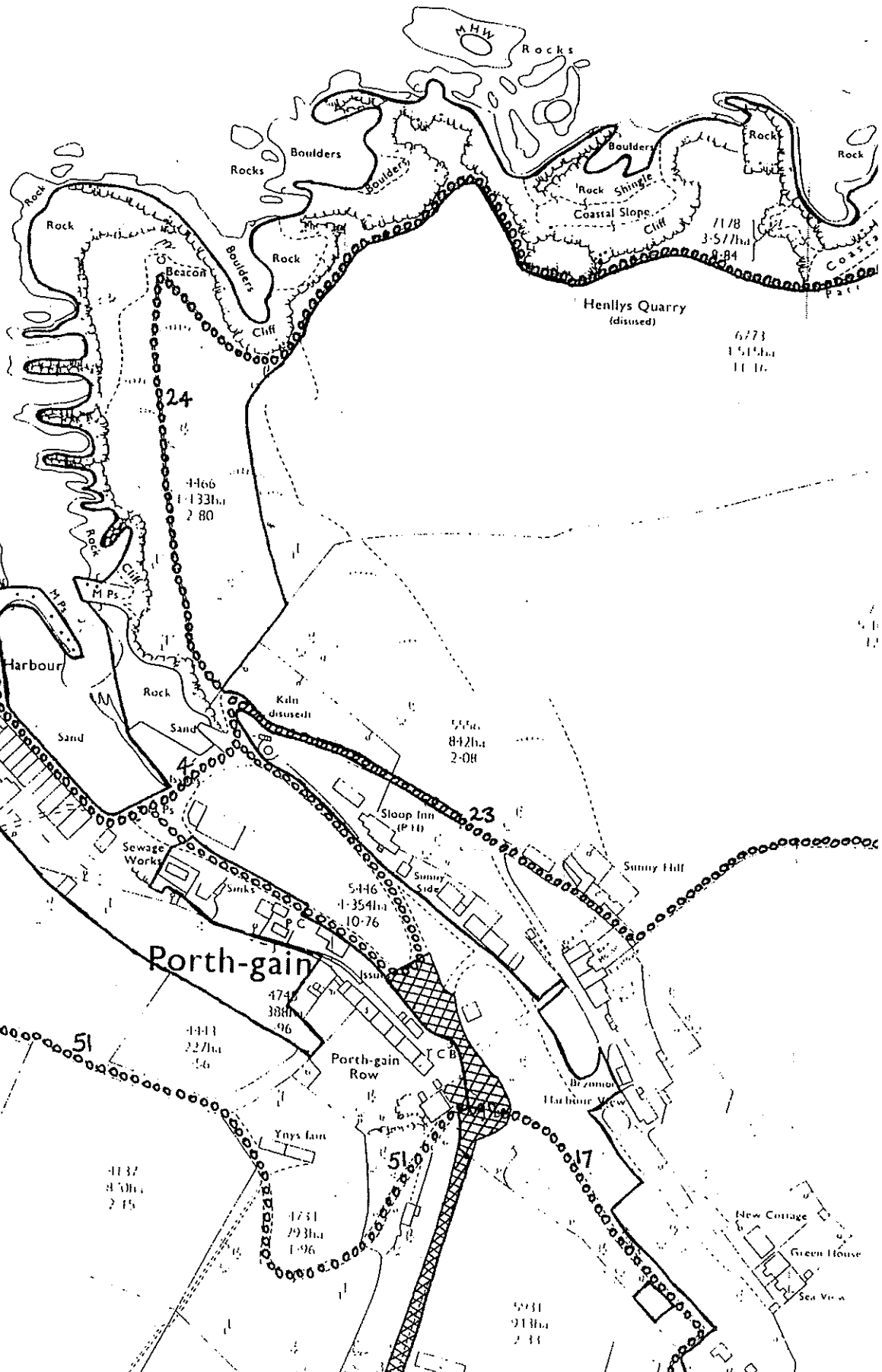
Tunnel
Drain

324

4030
209ha
1.70

3

Porth-gain



Henllys Quarry
(disused)

6773
151ha
11.16

24

4466
1433ha
2.80

5446
842ha
2.08

23

5446
1354ha
10.76

Porth-gain

4441
227ha
5.6

51

4137
870ha
2.15

4731
293ha
1.96

5931
913ha
2.33

RIGHTS OF WAY PORTHGAIN.....
 Byeways NONE
 Bridleways NONE County Road
 Footpaths 000000
 (Numbers refer to definitive
 Scale 1:2500
 Map No. SM.8132... Date
 Copied by permission

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wyn Porth gain

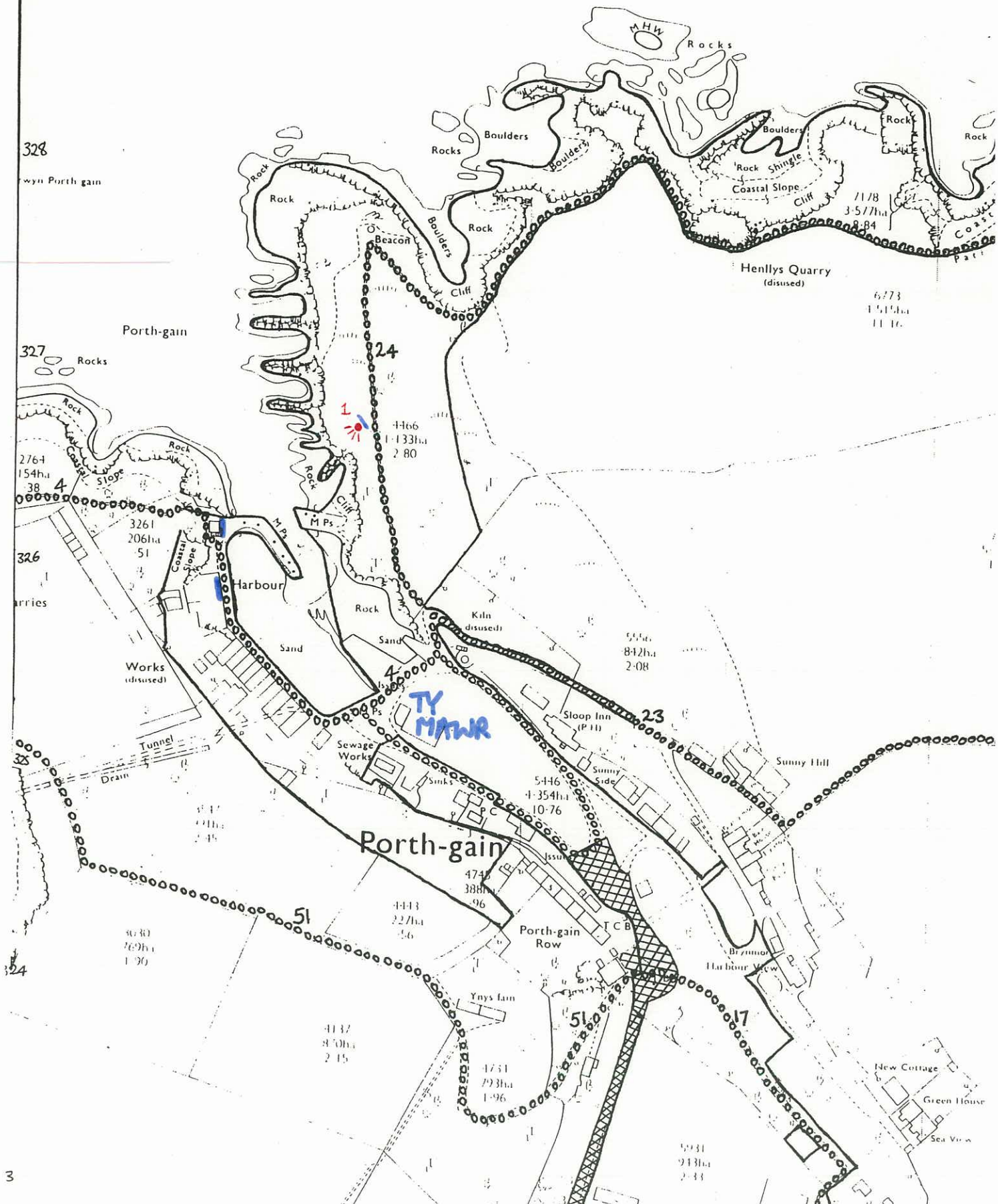
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324

3



Possible location of vantage points 2 & 3 to be secure platforms surrounded by railings on or over which outline interpretation (panorama type) could be provided.

Locations for interpretation:

- 1: integral with vantage point railings
2. panels affixed to walls of hoppers or pilot house
3. stone plinth type panel site, with or without seating.

Vantage Point 3 suitable for concentrating on navigation - sailing ships and coasters entered the harbour - dangers of the sea etc. Porthgain as harbour and port.

Panels or boards could be on - or inside the Pilot's House ??

PORTHGAIN.

Introduction.

This Report to PCNP builds on work recently carried out in 1997 and reported on to PCNP as 'Porthgain: A Summary and Assessment of its Industrial Archaeology with Recommendations for Conservation and Interpretation' prepared by Heather James as part of a Service Level Agreement between the Authority and Cambria Archaeology. (SMR Project No: 35410). The main purpose of this Report is to provide an explanation of the topography of the settlement as background information to The Conservation Area Statement. (Conservation Area Map - Appendix 1)

Name and Tenurial History:

According to B.G.Charles (*The Place-Names of Pembrokeshire*) the name is made up of two elements - the common form *porth* or bay and *cain*, either the lost name of the stream which flows down through the village or a personal name. An early record of the name as 'Porth Gaen' is on Emmanuel Bowen's Map of South Wales of 1729. Depiction on this map suggests that it was a small landing place in the 18th century if not earlier, but Porthgain is not included in a 1566 list of ports and creeks in Pembrokeshire. Porthgain is within the parish of Llanrhian, the parish church being 1 kilometre south of the harbour. The Tithe Map of 1842 (see Appendix 2) shows Porthgain before any major industrial development. Landownership was divided between the Bishop of St David's on the eastern side of the harbour, whose tenant was Thomas Roch (occupying the 'cottage' in plot 367 - undoubtedly today's 'Sloop Inn') and George le Hunte on the western site, whose tenant was James Morgans of Barry Island Farm.

George le Hunte had leased land to a group of local landowners and entrepreneurs in 1837 to extract slates, flags and stone, but little was done. Development got underway with le Hunte's new lease of 1841 to a London consortium (Messrs Barclay and Co) of the Llanrhian Slate Quarries and John Harries's lease to the same company of Trwyn Quarry on the cliffs east of Porthgain (not in Conservation Area). This company withdrew from Porthgain in the mid 1850s. In 1860 a new company, the Saint Bride's Slate and Slab Company, purchased the mineral rights. The quarries were known as St Bride's Quarries and managed by one John Fraser. After a successful period of operation, there was a down-turn in business and by 1880 the company was bankrupt and in the hands of the liquidator. A new company, the United Welsh Slate Company, purchased the quarrying interests in 1883. One partner was the local John Davies of Velindre, but it was not successful and was wound up by September 1894. Another company with grandiose schemes, the Porthgain Granite, Slate and Brick Company, lasted barely 2 years. Although lasting barely 5 years, from 1897 to 1904, Porthgain Harbour Ltd made improvements to the Harbour before they sold out to Porthgain Quarries Ltd in 1904. The Forest of Dean Stone Firms took over the harbour and mining concerns until 1909, when, until 1922, its interests were managed by United Stone Firms. An associated company, United Stone Firms (1926) lasted until 1931 when the Receiver was called in. From 1939 the Porthgain interests have been vested in Porthgain Village Industries, now owned by the villagers themselves.

Economic History.

The rather dry outline of changing ownership at least demonstrates the rather ‘boom and bust’ economic history of Porthgain between 1841 and 1931. Its unique geology (see below) allowed a mixture of industries - slate quarrying, brick making, and stone and crushed stone production on the site. Nothing would have been possible however without the small harbour for moving such bulk cargoes, albeit on the rather isolated and exposed North Pembrokeshire Coast. This account concentrates on the chronology of the main industries and the processes involved. Any features, structures or buildings mentioned which still survive, even if ruined or altered, are in bold type. (See Appendix 3 for an annotated Conservation Area Map and the Gazetteer below of individual SMR entries).

Slate Quarrying and Processing.

Slates had been quarried at Abereiddi before 1850, for local use. Messrs Barclay and Co. developed the coastal quarry there, **Abereiddy Slate Quarry** and also the **Llanrhian Quarry** (later known as the St Brides Quarry) on the cliff tops above the western side of Porthgain harbour, where the slates were of better quality. Abereiddi Bay was unsuitable for shipping, so the major undertaking of linking the **Abereiddy Quarries** with a newly constructed **Porthgain Harbour** by means of a 2 km long **railroad** or **tramway** was carried out by the company. This is marked as ‘disused’ by 1887. As more and more slate was quarried from the Porthgain quarry, its floor level dropped lower and lower. For a period, the slate was raised to the cliff top level on a **double incline** at the northwest side of the quarry, whose **engine sheds** survive as ruins. Another **double incline** across the steep cliff side of Porthgain Harbour (predating the crushed stone hoppers) took the slate down to the Harbour for storage and shipping. These too became unusable as the quarry deepened the inclines were replaced by an **overhead transport systems of wire-hauled trucks (blondins)**. This was on the east side of the quarry and is clearly depicted on the first edition OS 1:2500 of 1887. The final solution to the problem of extraction was the construction of a **tunnel** between the floor of the quarry and the harbour, with a tramway in it.. Dressing the slate was done on the cliff top and long **finger tip spoil tips** of quarry waste leading to tipping points over the cliffs and into the sea indicate the volume of material processed. All working areas were linked by **tramways**. By 1887 a terraced line of **quarrymens’ cottages** at **Pentop** with yards and gardens had been built.

Brickmaking.

A fine blue clay encountered during quarrying the slate was soon recognised as suitable for brickmaking, which started at Porthgain in 1878. The industry was in decline by the 1920s and brickmaking ceased in 1931 when the quarries went out of use. But in the forty or so years of brickmaking, its buildings, kiln and high chimneys dominated the centre of Porthgain. Today only ‘**Ty Mawr**’ the former **brickmaking building**, survives, shorn of almost all its ancillary and lean-to structures. However, archaeological work during the roofing and part conversion of Ty Mawr and an archaeological watching brief on repairs to the water culvert on the west side of the building (DAT 1992) show that much evidence to complement the historic photographic and documentary record is preserved below ground. Water-power was used for the initial stages of processing the clay and a leat was

constructed and led in a **slate slabbed culvert** in front of Porthgain Row cottages and thence turned sharply to power the water wheel of the pugging mill set across the gable end of the building. It has all now been piped and discharges as a storm water drain into the harbour and also services the small sewage works built on the former mill site. The clay and granite waste was floated to allow the stone to settle out and then mixed or 'pugged' with lime. Archaeological investigations in 1992 and 1993 showed that at an early stage in Ty Mawr's use, the 'pugged' clay was stored in tanks on the west side of the building which also housed brick making moulds and presses. These were powered by an engine and boiler house on the northside of the building, with a large brick chimney all now gone. East of Ty Mawr was a 'state of the art' continuous firing or 'hoffman' kiln for firing the bricks. This was fuelled by powdered anthracite coal from Pembrokeshire pits brought in by steamer. The kiln and its huge chimney seems to have been demolished soon after closure of the works in 1931. Finally, the fired bricks went into long, drying sheds extending out from the southern end of Ty Mawr. All were serviced by narrow gauge tramways for small steam locos and trucks.

Granite stone and crushed stone quarrying and processing.

This was the latest of the 'trinity' of Porthgain industries, and its remains still dominate the harbourside today and are the principal element of the Scheduled parts of the Porthgain industrial complex. The **granite quarries** were on the cliff top and edge at **Penclegyr Point** north-west of Porthgain. A **tramway ('The Jerusalem Road')** linked the quarries to '**Pen-top**' above Porthgain harbour. The stone was brought up out of the ever deepening quarry floor by an incline and moved in tipper waggons. Banks of high sided **storage hoppers** were built against the cliff sides on the west of the Harbour in the early years of the 20th century. There is a main block of 11 hoppers with a continuous facade, a separate, lower pair to the north with the late date of 1931 on an internal datestone, and a single hopper at the southern end. Above and behind the shutes are brick **and stone towers and piers**, the remains of the **stone crushing mills**. Stone was taken to the mills by **tramway** and crushed stone taken out and then shunted along the track to be tipped via shutes into the different hoppers according to its grading as roadstone. From there other shutes could load directly into ships' holds alongside the west quay of the harbour or into waggons for transport out by road.

Porthgain Harbour.

This, of all the legacies of the brief but intense period of industrial activity at Porthgain was the most essential and has survived and continues in use for the local village fishing industry (mainly the North Pembrokeshire crab and lobster fishery). Porthgain was in origin a deep drying inlet in which the occasional coastal trading sailing vessel could beach and unload supplies and coal and limestone for the limekiln.

The first act of Messrs Barclay and Co. in the 1850s, following release of land for a harbour, breakwater and piers on 25th February 1851 by the Commissioners of HM Lands, Forests and Land Reserves was to cut back and level a **quayside area** on the west side of the inlet along which a single tramline was constructed to carry slate from the Abereiddy quarries and (via incline and, later, tunnel, the St Brides, or Llanrhian quarry) .

The harbour mouth was protected at about the low water line by an **incurving pier** on the west side and a **projecting pier** on its east side (**West Pier** and **East Pier**). These are shown in the first edition OS 1:2500 map of 1887. The head of the harbour was at this stage still a shelving beach.

The second stage of harbour building took place between 1904-6 to serve the demands of the developing roadstone trade. The **west pier** was **extended** southeastwards making another area inside the harbour for ships to lie against and tramlines were extended down its length. The major new work was a **central pier** extending northeastwards from mid-way along the beach head creating a smaller but more secure inner harbour with greatly increased lengths quay walls for berthing and loading. A stone wall was extended around the beach head of the 'inner' harbour. The leat which powered the pugging mill was culverted and issued out through the inner harbour wall. All these extensions were serviced by tramlines. No less than 8 steamships of 350 tons could now use the harbour to export the roadstone. A final, and unsuccessful attempt was made at the very end of the stone quarrying era in 1930 to attract larger ships by shortening the centre quay to allow a 170 foot, 650 ton ship to enter and load.

Materials used were stone, brick and concrete and phases of development can still be seen in the fabric though some detail has been lost in the more recent Harbour Repairs and Improvements of 1994. No detailed archaeological drawings or records have been made of the harbour. The only major new addition to the harbour in the 'post-industrial' era is the concrete slip on the east side of the central harbour pier for launching smaller modern fishing and leisure boats.

Porthgain was a difficult harbour to find and enter from the sea on the formidable North Pembrokeshire coast, especially in the days of sail. Probably dating back therefore to the mid 19th century, when the harbour was first built are three 'daymarks' - **cliff top beacons east and west** of the harbour mouth to aid navigation. The easternmost (prn 32685, see annotated Conservation Area Map for location) is a Listed Grade II structure and is of rubble stone build, 3.5 m. high a tapering bulbous cone in shape. It has recently been freshly painted white. The western marks are a tall unmortated stone obelisk, which presumably had a pointed top to clearly distinguish it from the eastern daymark on the cliff headland between Porthffynnon and Trwyn Porth-gain. A third Beacon is marked at the head of the deep narrow inlet, Aber Tunnel, between the outer mouth of Porthgain Harbour and Trwyn Porthgain on the 1939-1945 edition of the OS 1:10560 map but this has not survived.

The Pilot's House, (Listed Grade II) is a small single roomed slate slab building cut back into the cliff edge close to the West Pier, with a brick chimney stack. Across the back of the building and thence dog-legging to ascend straight up the slope are a flight of steps up to the cliff top. These are now part of the Coast Path . They were intended to lead up to a lookout point for the pilot to see what shipping was in the offing; a wall on the seaward side sheletered the steps and a stone wall with pointed top and an opening in it provided a sheletered lookout point. This has now gone but its foundations, together with the wall

seem still to be in place though much overgrown. (see photo reproduced from *Old Pembrokeshire* by Roger Davies on p. 6 of my 1997 Porthgain Report).

Geology, Location and Topography.

The three industries of Porthgain - slate quarrying, brickmaking and stone, especially roadstone, quarrying were made possible by what is considered to be an unusual geological conjunction of the three mineral resources in the immediate Porthgain/Abereiddi area. The intrusion of hot igneous rocks (the dolerite) through soft sedimentary shales metamorphosed them to a workable harder slate, and a blue clay of fine sediments formed around the interface of the two.

The north-west facing North Pembrokeshire coast between Strumble and St. David's Head is characterised by high rugged cliffs and rocky shores with a few small coves with narrow sand or shingle beaches at their heads formed by small north-west aligned streams weakly incised into and draining the plateau-like high ground of the areas inland of the coast. Porthgain is one such and the only one with a harbour.

The general location is typical of coastal settlements along the whole of the north Pembrokeshire and Ceredigion coast - they developed from the late 17th century onwards with the increase of coastal trading. Since inland communications were so poor any agricultural surpluses and any imported goods had to be moved by sea along these coasts. The medieval settlements were further inland - in this case Llanrhian some 2km distance upstream from Porthgain, with the parish church. Porthgain was late to develop as we have seen in the summary above of its industries.

Settlement Plan Form

Buildings

The only pre-industrial building at Porthgain of which we have any record is The Sloop Inn, sited at the beach head next to a limekiln. Inside is a panel claiming a date of 1743 for its foundation. There is an 1860 sale plan which I have not been able to consult. But the 1889 first edition 1:2500 which predates the roadstone quarrying phase, shows only the addition of a row of workers cottages on the opposite side of the valley to The Sloop Inn (thus named). This is Y Stryd (The Terrace or Porthgain Row) Listed Grade II as 'a rare example of industrial workers' housing in South Wales' and dated 1850-1860. They were thoroughly renovated in 1985; it is not known whether any records were made prior to their modernisation. They are single storey, single room depth with a low pitch to the roofs. In 1889 a longer row still of quarrymen's houses existed on the cliff top on the west side of Porthgain Harbour, known as Pen-top Terrace. These are now wholly ruinous and even the outline of the walls of the northern end difficult to trace except in winter when the vegetation is low. They are within the Conservation Area (see Annotated CA Map Appendix 3). Here the quarrymen had small yards and gardens attached and somewhere close were stables for the horses. All the tramway wagons were horse-drawn until 1909 when the brief but flourishing Porthgain steam locomotive era began. An early 20th

century account book details the weekly allowance of 8 bushels of oats for 8 horses taken up to Pen-top.

Y Stryd is built on level area formed partly by cutting back into the hillside. The projecting level of the terrace to the front of the Row, indicates the former course of a leat bring water to the brick pugging mill which was beyond the north end of the row set at right angles to its line. Terracing, simply to provide a level site for houses and indeed terracing to the rear for gardens has also characterised the development of housing on the east side of the valley, now the most populous. By 1905 there were more houses on this side though still sparse and scattered as the early 20th century photographs show. Even at this stage however the tracks which ascended and descended the slopes at a gradual gradient were in existence and they have determined the subsequent development of the village. (see Appendix 4).

Houses are set along the slope on terraced sites cut back into the rocky valley side and are mainly one room width deep, even today. The village has developed along these three main levels south-eastwards, to its present extent. All houses face in the same direction looking down to the valley floor, now an open green area with only Ty Mawr remaining of the former complex of sheds, brick kiln and mass of tramlines.

Industrial structures therefore survive today as either ruins forming a backdrop to the village or adapted to other uses or as buried archaeological traces. Other than a retention of slate built ruined walls or corners of buildings to act as setting or screen for more recent structures between the line of hoppers on the west side of the harbour and the present day adapted 'Harbour Lights' gallery, little can be made out of former industrial buildings there. Newer amenities (toilet block and sewage plant, fishermen's stores and slate slab working and storage, together with parking space, now cover this area, utilising the level site created by cutting back against the rock face and the creation of a level area for the rear harbour wall (1902-4). and earlier industrial use, principally for level areas for tramlines. The clearance of most of the brickworks apart from Porth Mawr and the removal of tramlines has provided open spaces for car-parking to service the modest tourist industry on which the village partly depends and also open spaces for play areas. Buildings have been adapted for the uses of the local crab and lobster fishery.

All other 19th and early 20th century housing is industrial in origin, its location and form dictated by the siting of the slate, and brickworks. Thus we have terraced rows of workers' cottages and a general linear form of development on the valley sides which needed terracing of the steep slopes to provide a level platform for the houses. The terraced rows have been modernised and newer building on the south east side of the valley is inland of the foreshore comprising single one and two story dwellings along an upper terraced road; There is a small third upper terraced line occupied by two early 20th century three storeyed houses. The views looking down to the rows of houses below also show the extent of terracing and levelling in the gardens as well. A steep footpath ascends directly up the slope.

Communications (see Appendix 5).

There is only one surfaced road in and out of Porthgain which comes from Llanrhian. It is possible that this was a creation of the early 19th century, with a track from Llanrhian leading to the line of the tramway built from Aberreiddi, where there were rows of small workers cottages close to the former slate yard. Later in the century and early in the 20th century some slate and roadstone for local markets was moved by traction engines pulling trucks which were intolerant of any steep gradients! Older lines of communication are perpetuated in footpaths and here the focal role played by Felindre and Henllys, (a name suggestive of early medieval origins) between Llanrhian and Porthgain is very evident. It would be along these footpaths and cart tracks that lime burnt in the kiln at Porthgain would have been transported to the neighbouring farms in the pre-industrial era. These tracks run either side of the stream leading down to Porthgain.

Water management

The un-named stream which rises near Mesur-y-Dorth and flows down to Porthgain via Llanrhian and Velindre-Henllys has been used to power mills at Llanrhian and, presumably from the place name, Felindre. Surviving ponds are evidence of this. At Porthgain a low dam was built across the head of the 'weirglo' (Tithe Map), or marshy meadow which still survives today as a marshy unimproved meadow, and a sluice constructed, the stream was canalized as a leat to power the brick pugging mill as noted above. It was later culverted along its length part of the harbour improvements of 1902-4. This was repaired during Porthgain Enhancement Works 1992-1993 and some archaeological observations were made. It exits through a culvert into the Harbour.

The importance of the Well as a source of fresh water, shown on the hillside, in isolation south east of The Sloop in the 1887 OS 1:2500, was such that as, we have seen, the paths to it have shaped subsequent development of the village. I have no information on when piped water came to the village.

Sites and Areas of Archaeological Interest

These are presented in the form of an annotated Conservation Area Map (Appendix 1) and a photocopied excerpt from the recent Cadw Coastal Report (Murphy and Allen 1996). More description of the industrial and maritime archaeology is given in the body of the Report above.

Key Characteristics and Recommendations.

Recommendations on Conservation Objectives and Interpretation Objectives were made in my 1997 Report. These remain unchanged. The following comments are made in support of the broader objectives.

- There is an urgent need for an industrial archaeological policy and a programme to deal with the repair, enhancement and presentation of the unique and remarkable ruins at Porthgain in partnership with Cadw and the National Trust.
- The 1992 and 1993 archaeological investigations at Ty Mawr demonstrated the potential of the buried archaeological resource of the harbour side and valley floor area and any below-ground operations should have in-built provision for archaeological recording.
- Understanding the original function of surviving harbour furniture and navigation aids will assist in sensitive conservation. Traffic bollards are different to mooring posts and warping bollards!
- Since the East Pier still has its original mooring posts and is unaltered from the first period of Harbour Construction the Scheduled Area should be extended to include it.

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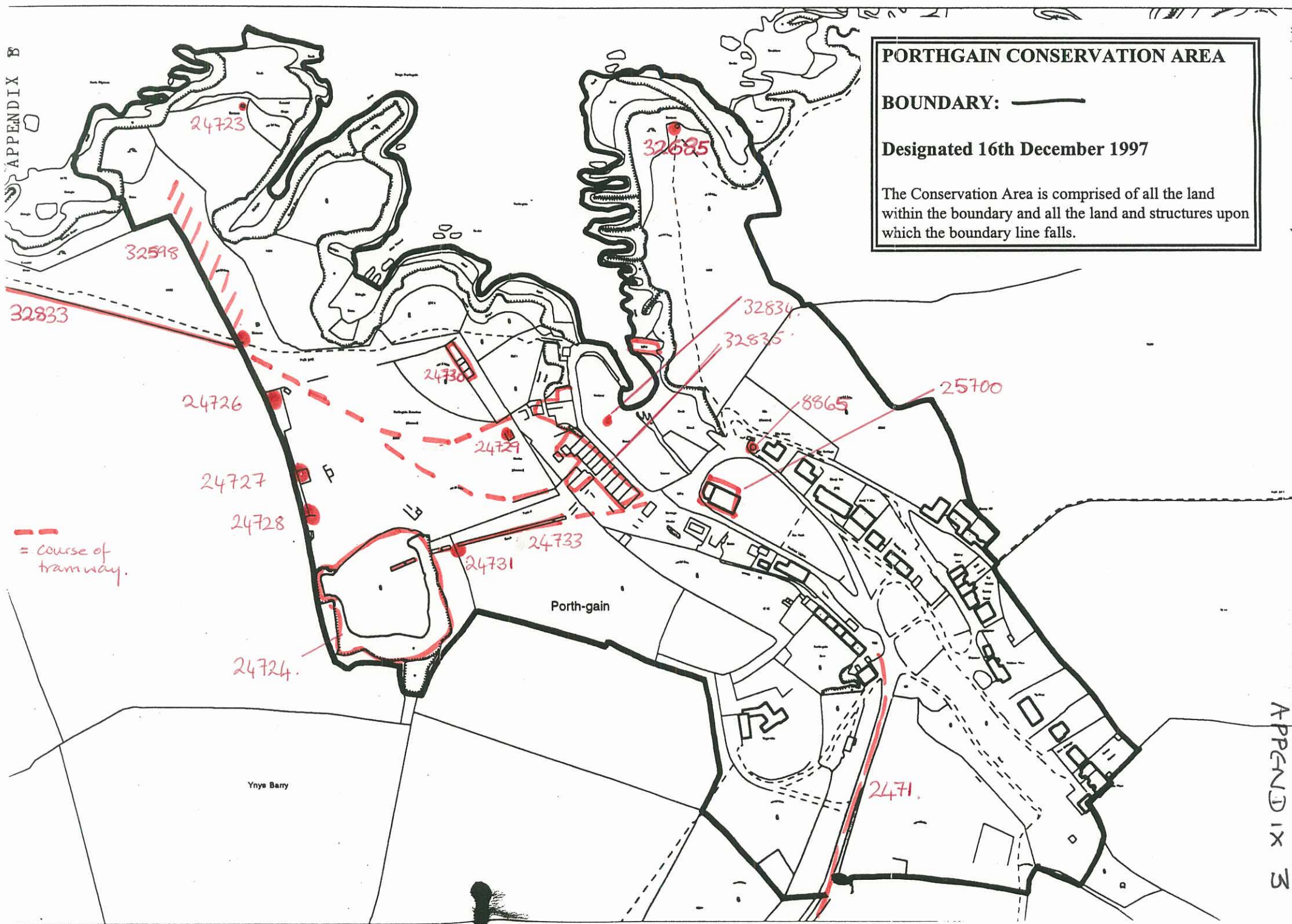
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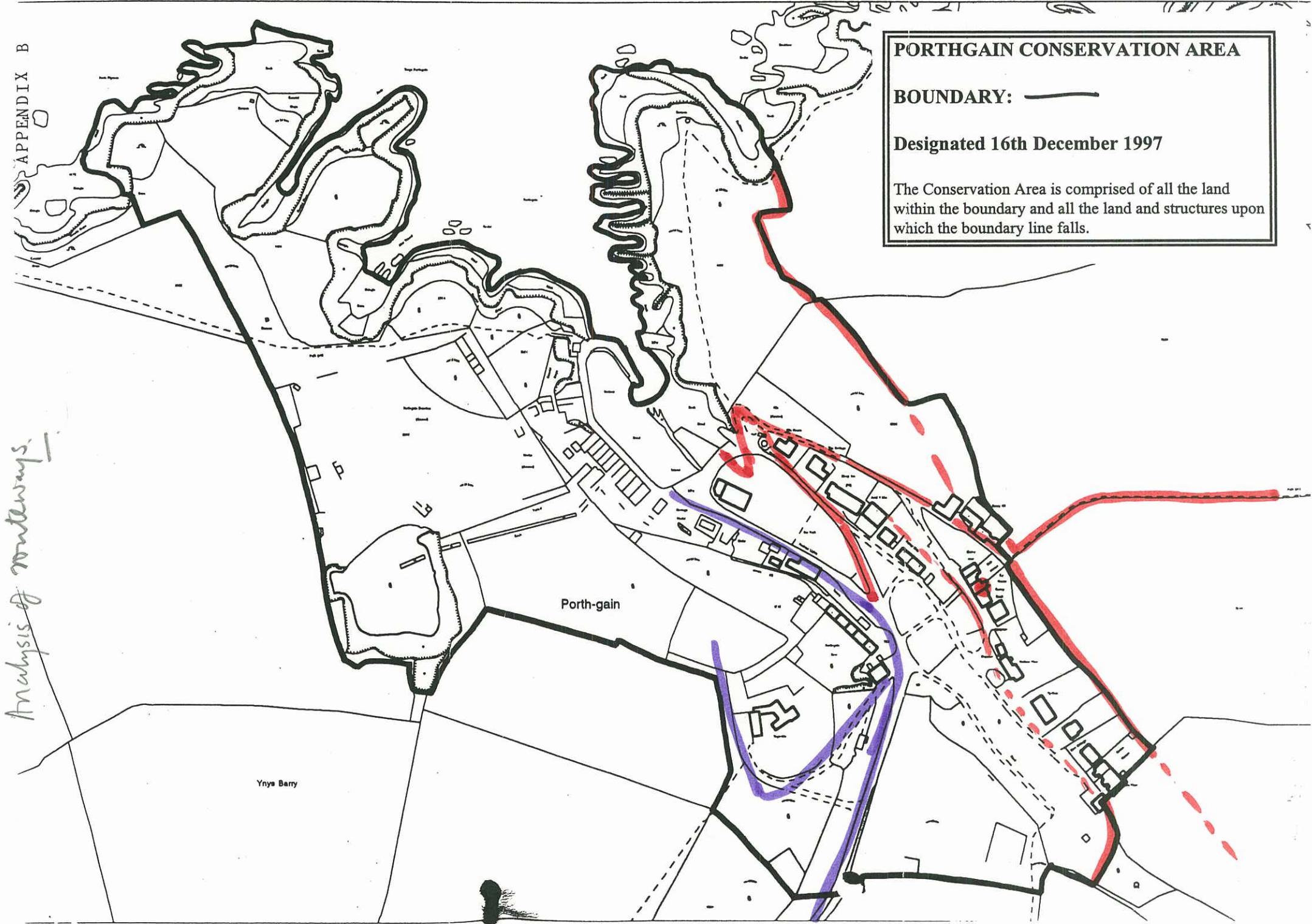


PORTHGAIN CONSERVATION AREA

BOUNDARY: —

Designated 16th December 1997

The Conservation Area is comprised of all the land within the boundary and all the land and structures upon which the boundary line falls.



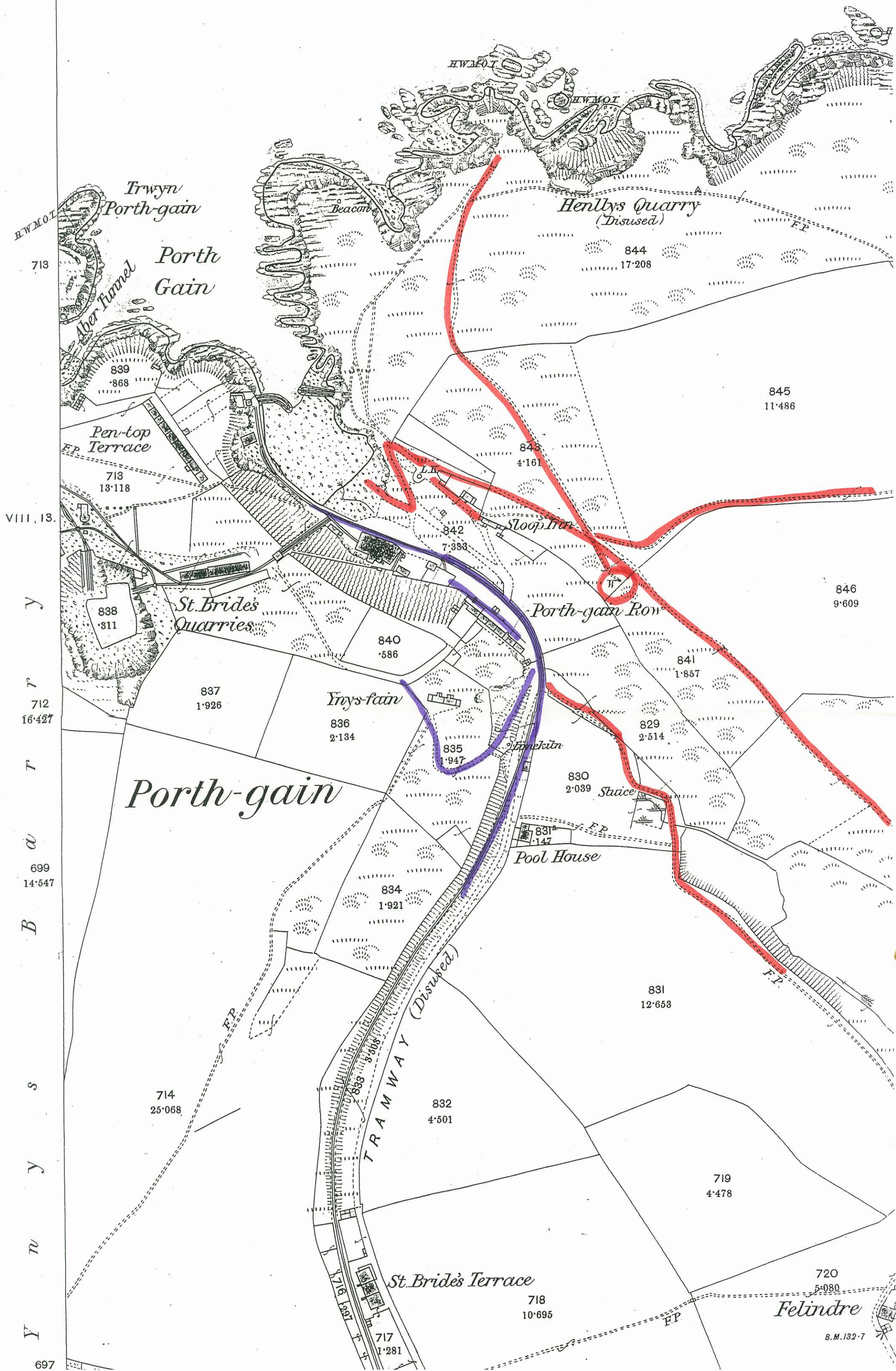
PORTHGAIN CONSERVATION AREA

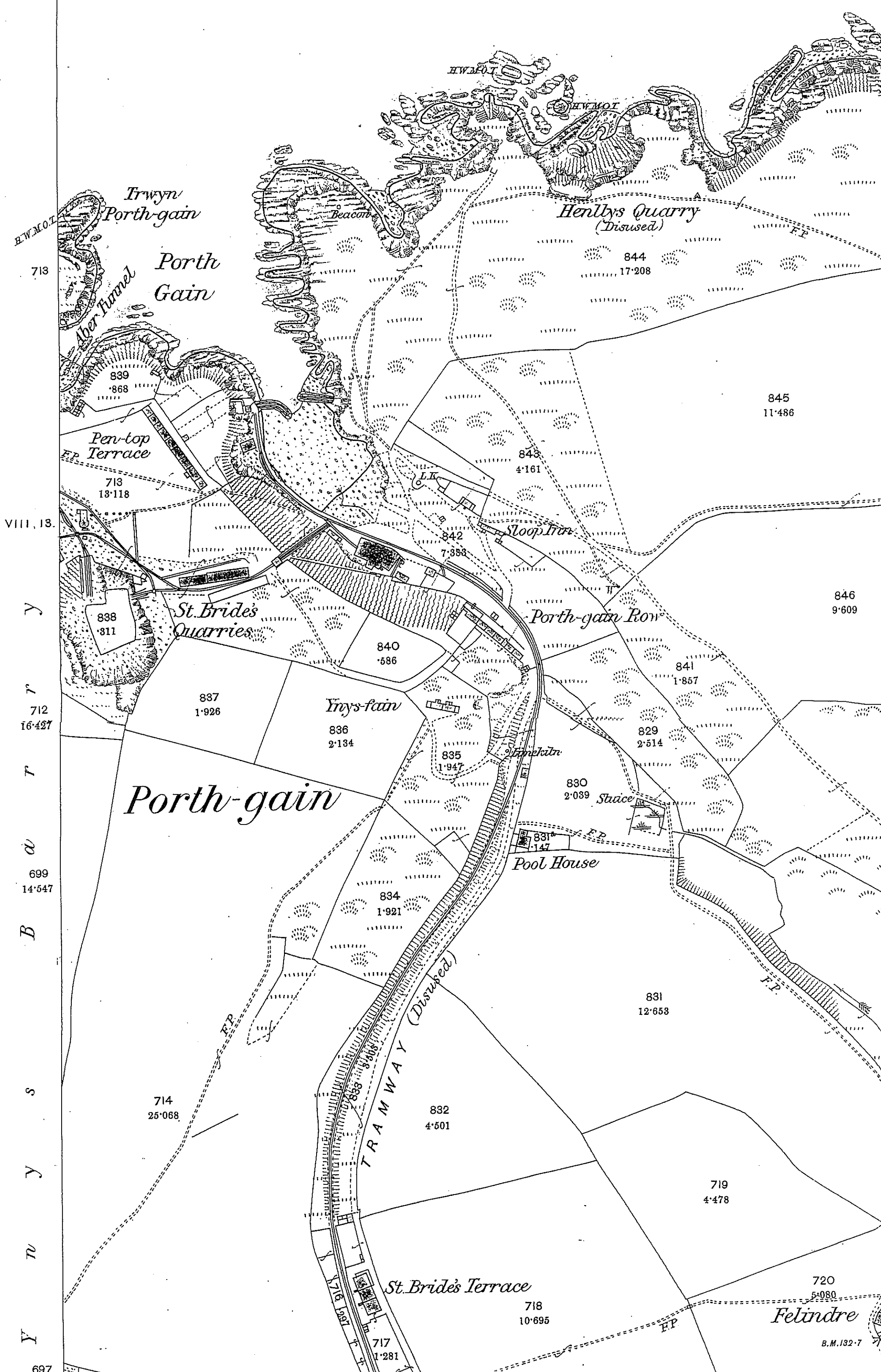
BOUNDARY: —

Designated 16th December 1997

The Conservation Area is comprised of all the land within the boundary and all the land and structures upon which the boundary line falls.

Analysis of routeways.

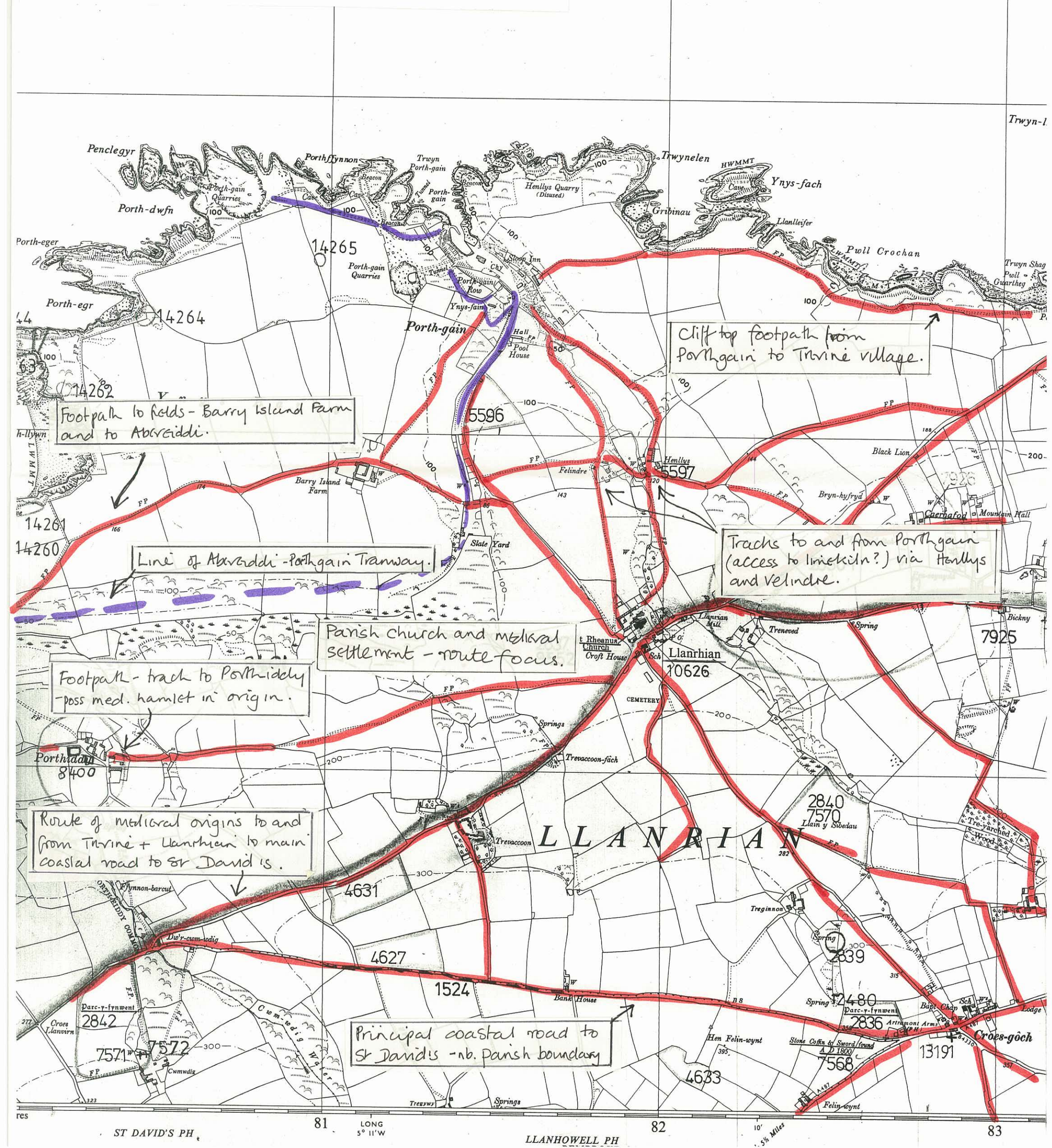


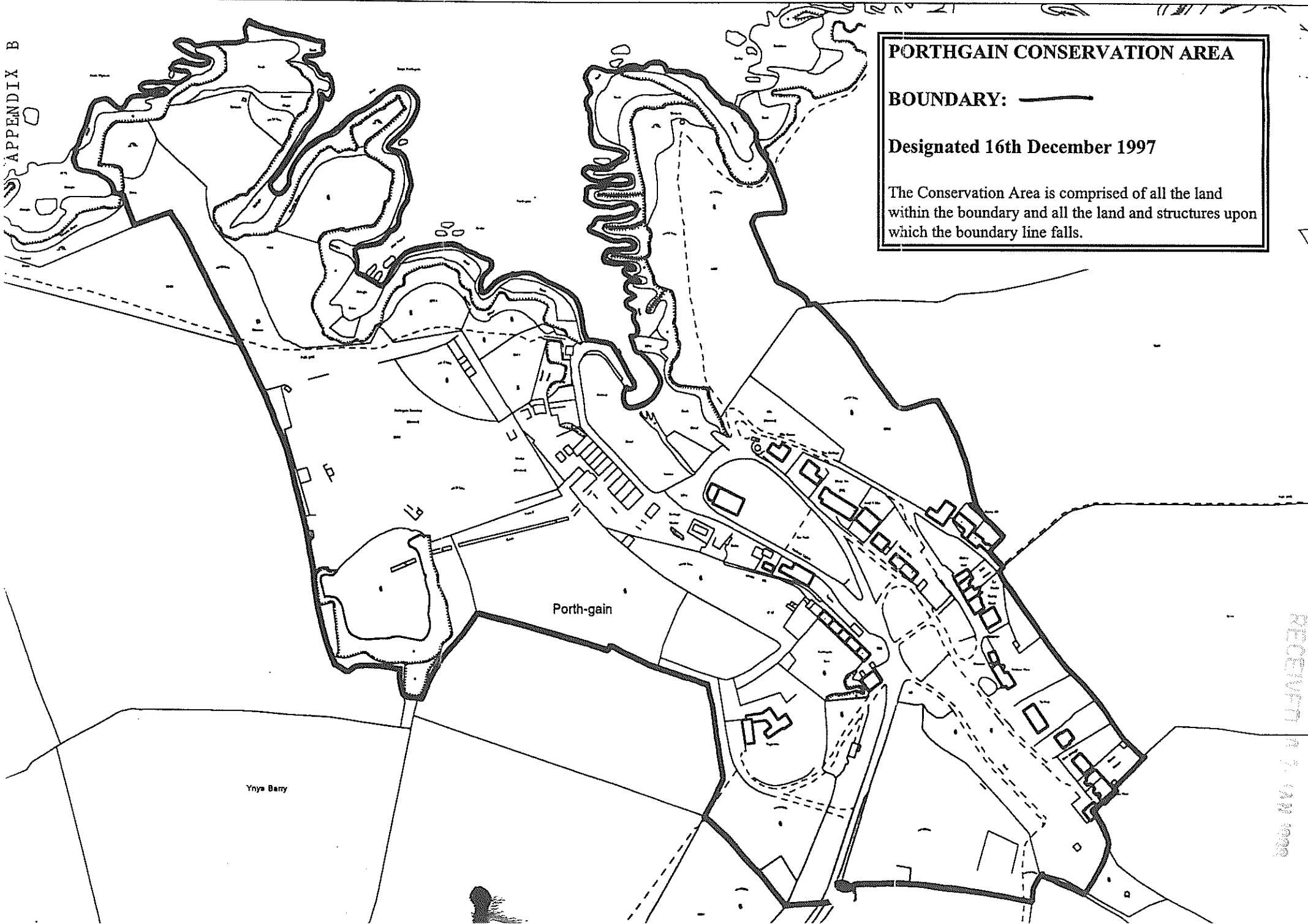


PORTHGAIN
Historic Communications network.

pre-industrial in origin

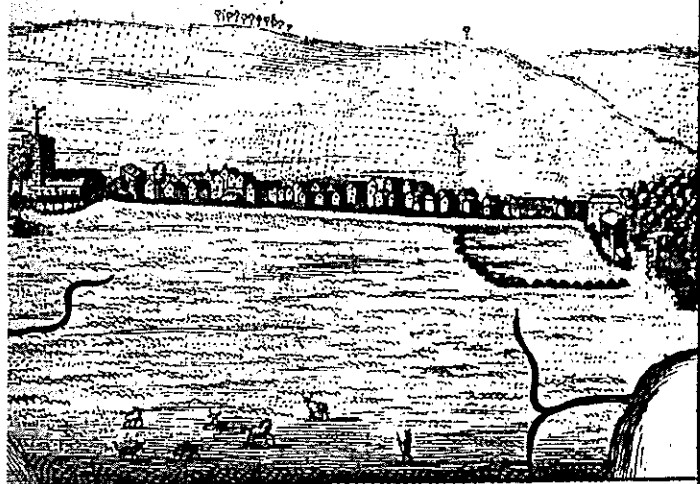
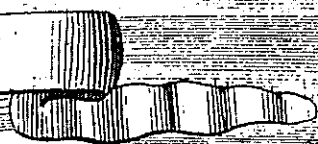
 industrial





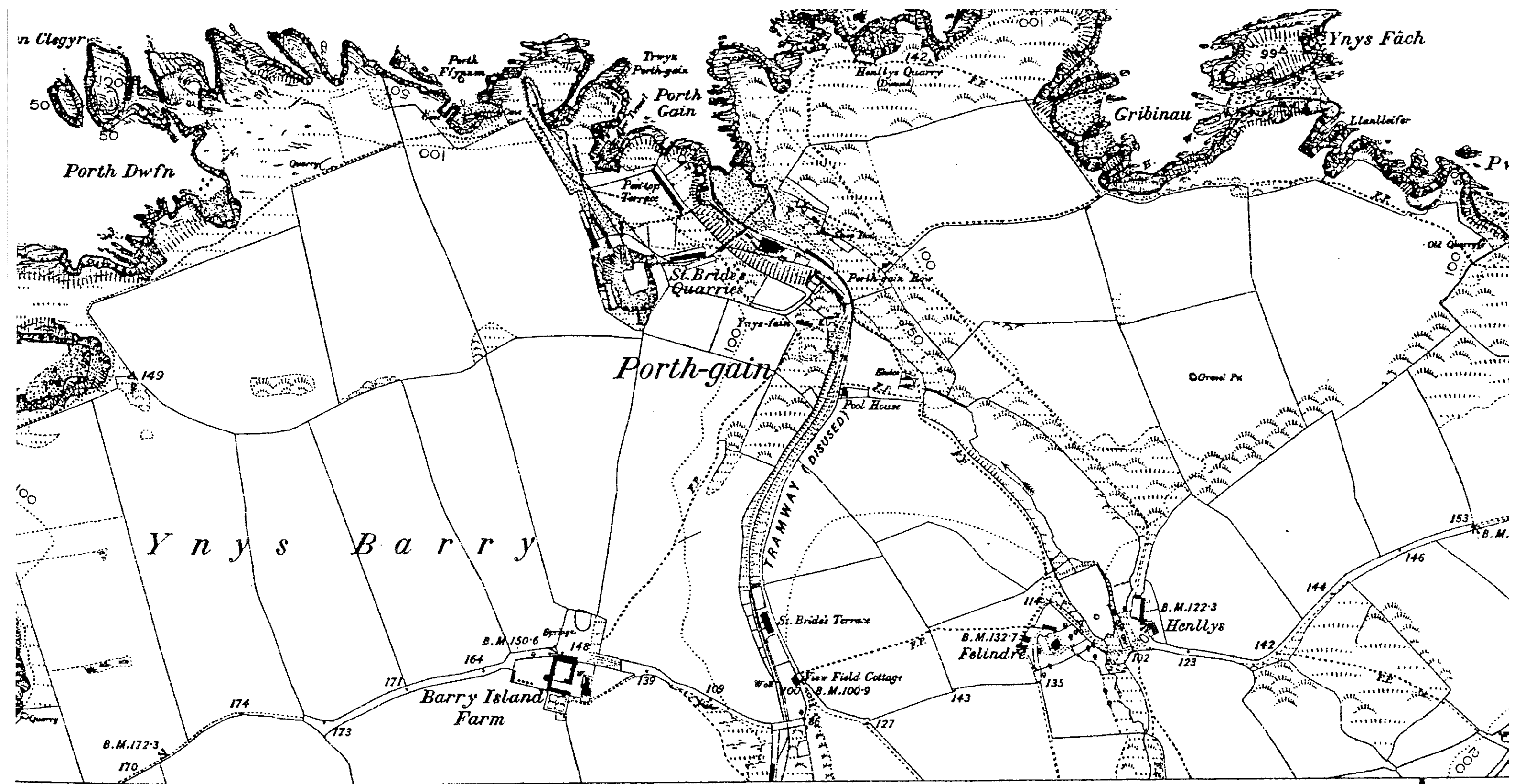
Eman: Bowen Sculp.^t

EN



Strumble Head





8° 11' XV. N.W.

8° 10' From St. David's

Scale—Six Inches to One Statute Mile

10 Chains	5	0	10	20	30
40 Perches	20	0	40	80	120
1000 Feet	500	0	1000		2000
1 Furlong		0			

Price 1s.

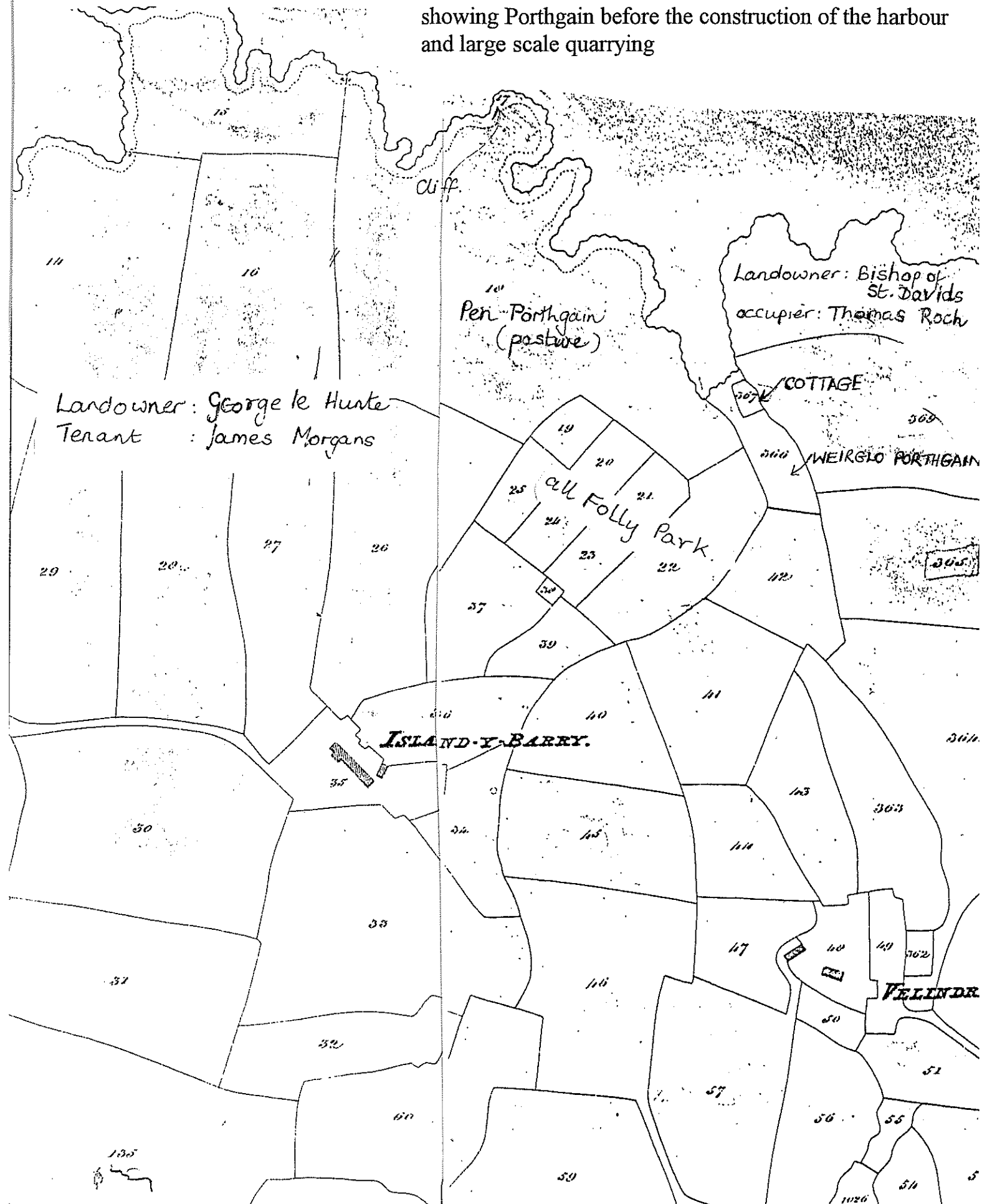
lary
Station

Photoreproduced from $\frac{1}{2500}$ Plans and Published at the Ordnance Survey Office, Southampton.

N.B.—The representation on this map

Extract from Llanrhian Tithe Map 1842

showing Porthgain before the construction of the harbour
and large scale quarrying



18th edn 1889. 8.14,

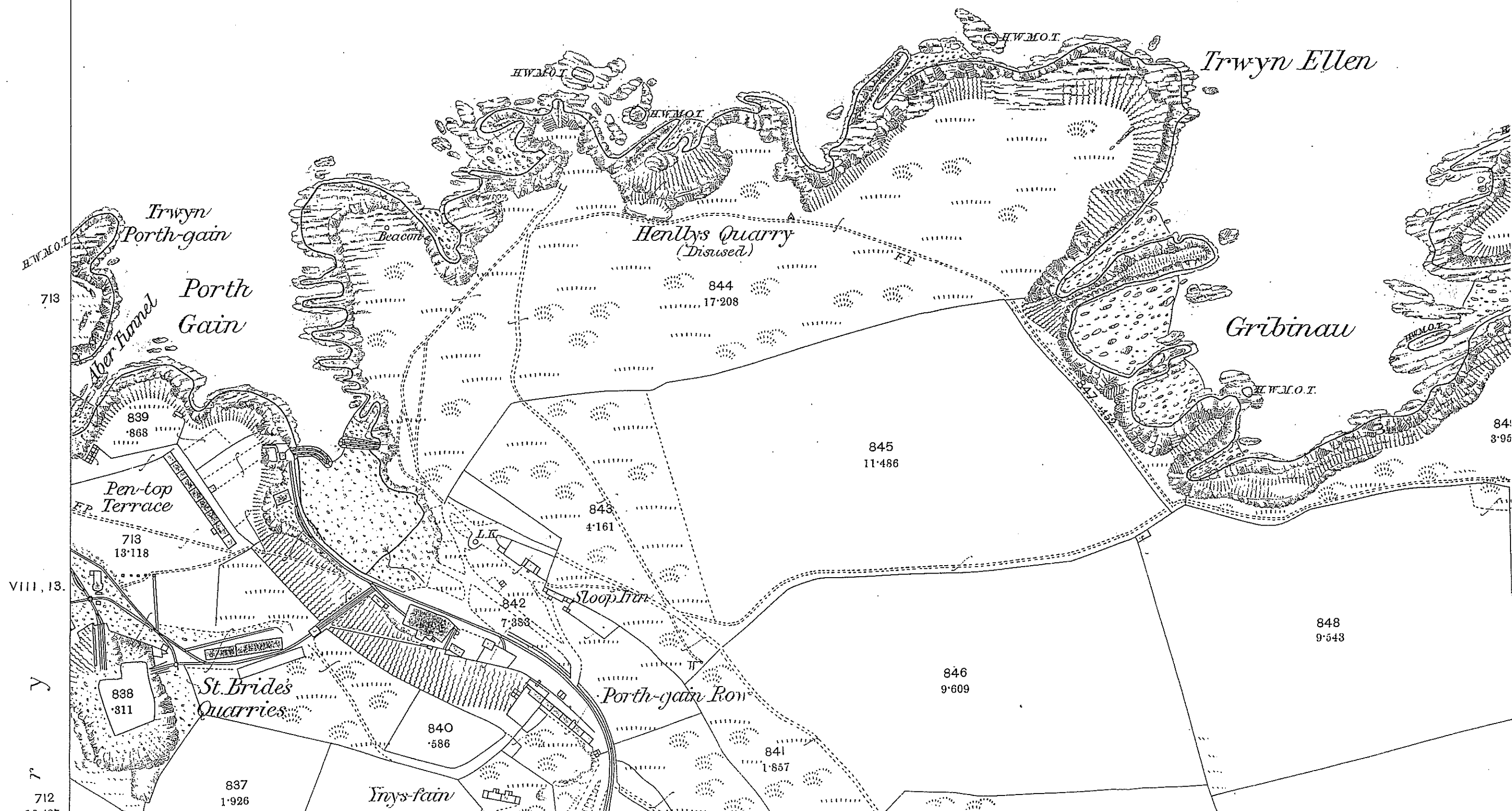
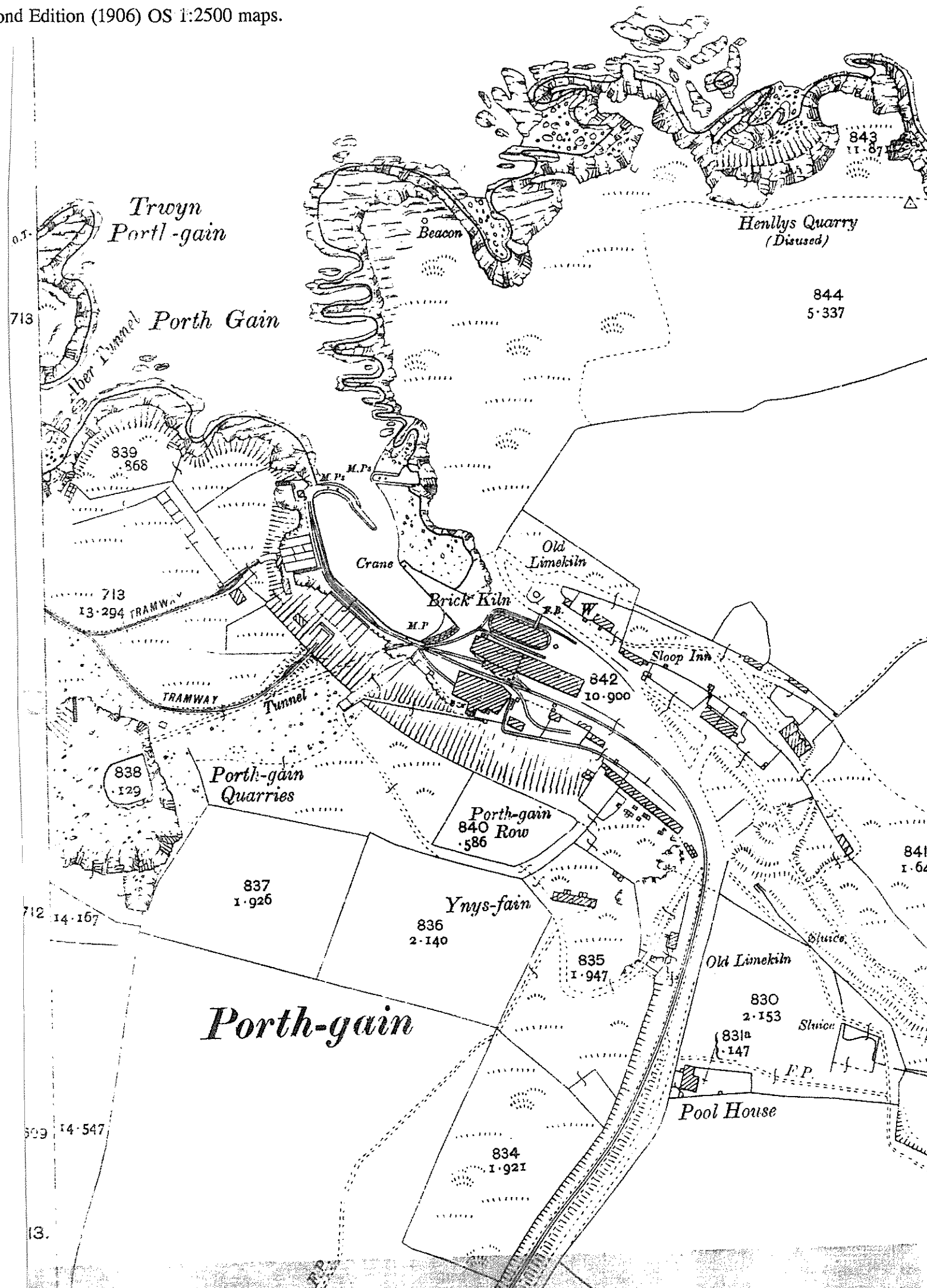
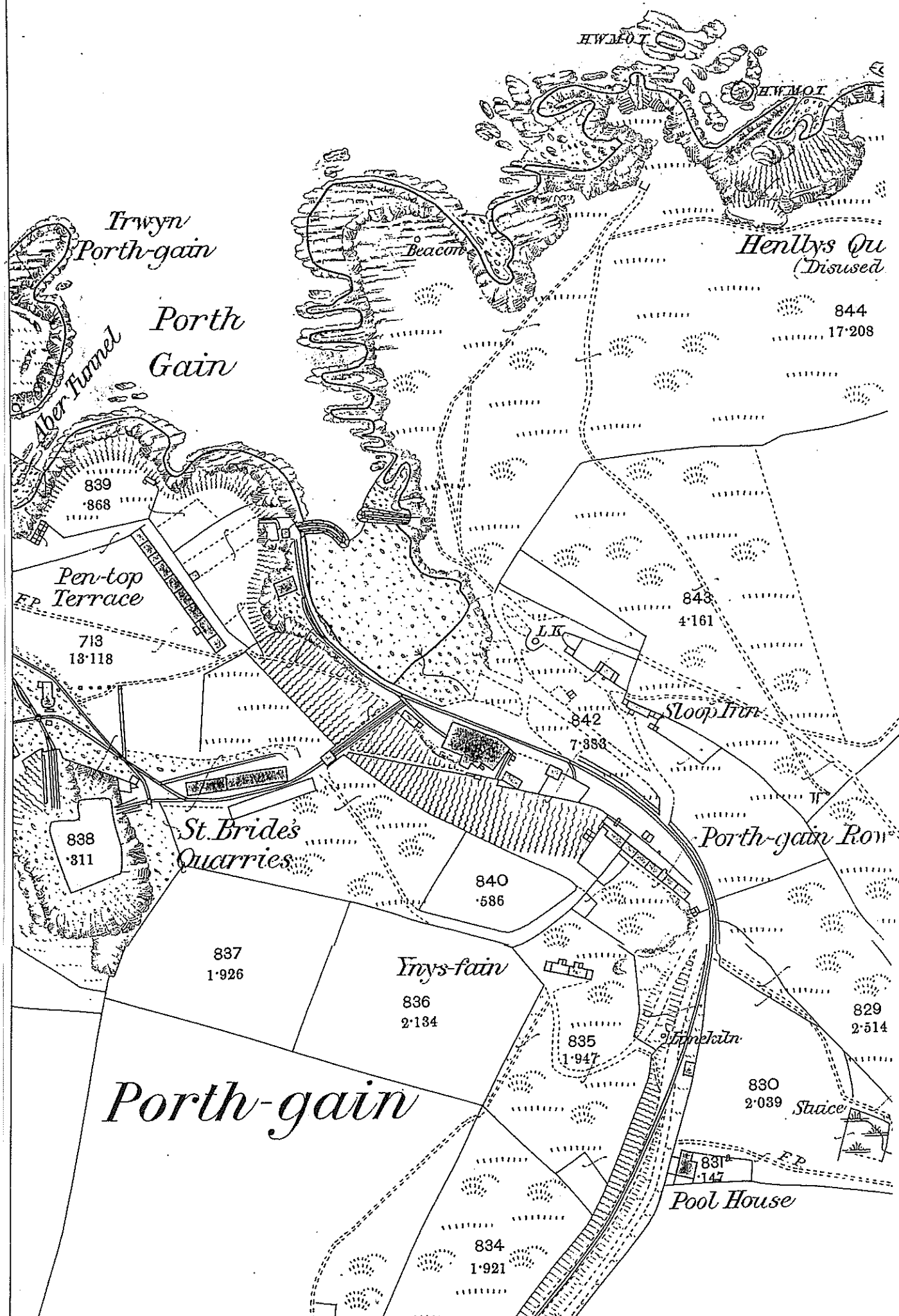


Fig. 2: First edition (1889) and Second Edition (1906) OS 1:2500 maps.



F

