

BYNEA SEWAGE TREATMENT WORKS LLANELLI

ARCHAEOLOGICAL DESK BASED ASSESSMENT

Report No. 2002/13

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CAMBRIA ARCHAEOLOGY

REPORT NO. 2002/13
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BYNEA SEWAGE TREATMENT WORKS DESK BASED ASSESSMENT

By

Duncan E Schlee

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REPORT NUMBER 2002/13

FEBRUARY 2002

This report has been prepared by Duncan E Schlee

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This report has been checked and approved by Ken Murphy on behalf of Cambria
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As part of our desire to provide a quality service we would welcome any comments you may
have on the content or presentation of this report

ARCHAEOLOGICAL DESK-BASED ASSESSMENT FOR THE BYNEA SEWAGE TREATMENT WORKS SITE

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SUMMARY

This desk-top study describes the known land-use history of the proposed development site and the archaeological features that have existed and may still survive in the area. A section of the Ysbitty Canal built before 1770, may survive along the northern edge of the site, but there are not likely to be any surviving archaeological remains on the site of the sewage works itself. Until more detailed development plans are proposed, the threat to any archaeological features is uncertain.

ACKNOWLEDGEMENTS

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1. INTRODUCTION

1.1 Project proposals and commission

The project proposes to redevelop the site of the obsolete Bynea Sewage Treatment Works situated south east of Bynea at the junction of the B 4297 (Heol-y-Bwlch) and the new A484. The site is to become the 'gateway' to the new Millennium Coastal Park.

The proposals will require the removal of redundant settling tanks that occupy a large proportion of the site and other features associated with the sewage works. The only building to be retained is the pumping station which is still in operation. This building and a surrounding area approximately 15m wide will remain in the ownership of Welsh Water.

Cambria Archaeology Field Operations have been commissioned by Quadrant Consulting to undertake this desk top assessment of the archaeological resource at the site and the impact of the proposals upon it.

1.2 The Scope and Outline of the Report

This report is based on available written, cartographic, pictorial and technical information for known sites in the study area. In Section 2 the current land use, geology and environmental history of the area will be outlined. In Section 3 the landscape and archaeological history of the area, and of the proposal site specifically, will be described. The extent, significance and vulnerability of the archaeological resource and the possible impact of the proposed scheme upon the archaeological resource will be considered in section 4. Recommendations as to how the archaeological resource should be considered within the proposed scheme and how potential impacts upon its survival might be mitigated against, will be made in section 5. Details of sources are presented in a series of appendices.

2. THE STUDY AREA

The character and patterns of land use and infrastructure that exist in the landscape today have been dictated by the qualities of the natural environment, land ownership, and previous land use. In this section the geology, environmental history, and current land use of the site is outlined. The processes by which the area has been reclaimed and developed over the years is summarised in Section 3.

2.1 Current Land Use

The site proposed for redevelopment is a redundant sewage treatment works situated on land to the south east of Bynea at the junction of the B 4297 (Heol-y-Bwlch) and the new A484. This roughly triangular piece of land is bounded on two sides by the roads and to the west by a public footpath. To the west of the footpath is further waste ground and pedestrian access to the Millennium Park via a footbridge over the A484. The sewage works occupy the southern half of the area. To the north of the sewage works there is currently a car park. Although the sewage works are no longer operational a pumping station on the site is still in use.

2.2 Geology

A borehole and trial pit survey of ground conditions on land surrounding the site has been undertaken previously (Thyssen 1992). The findings of this report, which outline the geology of the site are summarised below.

The 1:10560 scale geological map (British Geological Survey, sheet SS 59 NE) indicates that the site is underlain by Marine Alluvium consisting of firm clays and silts varying in thickness from 0m in the west to 5.50m below ground level in the east of the surveyed area. This overlies firm brown fibrous peat approximately 1 meter thick with bands of silty clay overlying boulder clay consisting of a stiff brown sandy clay with occasional pebbles and boulders. Bedrock consists of the Upper Coal Measures at the horizon between the Swansea Two Feet and the Upper Swansea Six Feet coals. The boulder clay rises above the level of the marine alluviums and peat forming 'islands' of relatively high ground. Three test pits from the survey (10,11, and 12) immediately to the north, east and west of the sewage works revealed clays to a depth of 2m below ground surface, but no peat. This suggests that the sewage works are situated upon one of these areas of slightly higher ground.

2.3 Environmental History

Paleoenvironmental analysis has been undertaken on pollen core samples from Machynys to the west of the study area as part of an archaeological assessment in advance of the Machynys Golf Course (Page et al, 2000). The results show a sequence of silt-clay alluvial deposits of marine or estuarine origin, underlying the peat deposits. The alluvial deposits represent a general sequence of development from fen-carr through to open grassland communities. The presence of plant species characteristic of saltmarsh communities, indicate the occurrence of periodic sea level changes in this part of the sequence. The sequence then progresses into bog and peat formation. The peat has been carbon 14 dated to 1270-845 cal BC and 2330-1935 cal

BC. These dates correspond to the Neolithic-Bronze Age transitional period through to the late Bronze Age. The peat is subsequently overlain by deposits of tidal estuarine muds resulting in the formation of mud-flats saltmarsh and estuarine environments. The study area was marshy ground on the edge of the tidal zone on the eastern fringe of the Morfa Bacas salt marshes near the west side of the Loughor River. This area was naturally drained by pills and creeks feeding into the River Loughor. Human manipulation of this environment has resulted in the gradual reclamation of the land upon which the sewage works is now situated.

3. LANDSCAPE HISTORY AND THE ARCHAEOLOGICAL RESOURCE

The landscape around the Loughor Estuary is a dynamic and changing environment. In addition to changes brought about by natural processes of erosion and deposition, the environment has also been altered through human activity. Changes in the industrial and agricultural exploitation of the area have each had significant impacts upon the character of the landscape. Reclamation of saltmarsh enabled more effective exploitation of the land for agriculture and settlement. The mining of coal deposits in the area also was enabled by land reclamation. The processing and transportation of coal and other mineral and metal resources to and from the area resulted in the development of a varied infrastructure of roads, tramways, canals and settlements and industries all of which have shaped the character of this landscape.

The reclamation and enclosure of the saltmarshes in this area has been undertaken since medieval times, both in a piecemeal fashion and through large-scale embankment schemes. The history of this reclamation has been researched and presented elsewhere (James, 1992; James and Morgan, 1994; Page, 1997; Page, 1999; Page et al, 2000) and will not be discussed in detail within the scope of this project.

The primary source of information for the history of land use in the study area is from cartographic records. The development of the landscape can be traced from 1751, the date of the first large scale map of the area. Relevant portions of the available maps of the area are reproduced in the following section along with discussion of what they indicate.

Map of 1751 (Figure 2)

The earliest available map is of 1751 (Figure 2) entitled 'A Description of Lands Near or About Berwick Chappel in Llanelly Parish Carmarthenshire'. This map shows the land upon which the present study area lies to be identified as '385 Ddol Fawr, a common, Duke of Bolton'. The common land is probably marsh or saltmarsh and would have been used for grazing livestock. Two enclosed plots immediately to the east (nos. 386 and 387 on Figure 2) owned by Sir Edward Marvel may have been on slightly higher, drier ground. The lines to the south of these plots represent watercourses that were later named Townsends Pill and Pill-y-Ceven.

A Map of 1772 (Figure 3)

This map shows that The Yspitty Canal has been constructed and Townsends Pill and Pill-y-cefen have been identified. The Yspitty Canal (PRN 4669) was built by Chauncey Townsend between 1766 and 1770 to transport coal from his colliery at Genwen to his shipping place at Yspitty. At the east end of the canal there was a Coal Bank where coal was unloaded from canal barges and then loaded into smaller boats in Townsend's Pill. From here the coal was taken to larger ships in the River Loughour (Symmons, 1980). The end of the canal, the Coal Bank and Townsends Pill all situated on land previously owned by Sir Edward Marvel.

The canal runs along the northern edge of the common land. 'Common Bridge' (Symmons, 1980) gives access over the canal to the common land that would not otherwise have been accessible. It is unclear whether there was a track across the common at this time since it is beyond the limits of the map but it seems likely.

When ownership changed in 1802 the canal and pill were renamed General Warde's Canal and General Warde's Shipping Place in later plans. The canal was never used a great deal because of the inconvenience of loading and unloading the coal. It probably fell into disuse after the Apple Pit tram road and shipping place at Spitty Bite were created in 1808 (Symmons, 1980). The canal is now filled in and is no longer clearly visible as a feature in the landscape within the study area.

Townsends' Pill was a natural watercourse probably used as a shipping place before the construction of the canal. It was possibly modified for loading coal from the Coal Bank. The sluice indicated on the map was presumably for controlling the flow of water into or out of Pill-y-Ceven.

Llanelly Tythe Map of 1842 (Figure 4)

This map shows several interesting features. Pill y Ceven, a natural watercourse, has been used to link Townsends Pill with the Baccas Canal (PRN 31628). The Bacas Canal was a tidal canal constructed by the Revrend David Hughes and Joseph Jones circa 1795, to connect the Baccas or Carnarvon Colliery to Townsend's Pill. Its period of operation is not clear but it probably went out of use some time between 1802 and 1825 when it is referred to as 'old canal' (Symmons, 1980). Although the course of the canal is still visible on aerial photographs, it is not represented on later maps.

By 1842 the common ground has been enclosed and the following entries are made in the apportionment:

Plot No.	Occupier	Description of Plot
26	J Evans	Allotment east of road on Cefn Marsh
27	W Roberts	Allotment on Cefn Marsh
28	W Robert	Allotment adj Cefn Marsh
29	W Robert	Hane Hallt?
32	J Evans	Hene-y-Morfa ?
34	J Evans	Purchase on Cefn Marsh
35	J Evans	Allotment West of road on Cefn Marsh
62	J Evans	West of road on Cefn Marsh

The fact that this land has been enclosed may suggest that it had to some extent been reclaimed or drained. This possibility is supported by the presence of some plots of land and tracks to the south of Pill-y-Ceven and the Baccas Canal that appear to have been lost to the sea. This may suggest that between 1772 and 1842 a failed attempt at land reclamation had been undertaken.

A track is shown running along the tidal zone and then leading across the common marsh to join the Spitty road crossing the Yspitty Canal via Common Bridge. Although not shown, the existence of this track in 1772 can perhaps be inferred from the presence of the 'Common Bridge' on the map of that date.

Ordnance Survey Map of 1891 (Figure 5)

The next available map is the First Edition Ordnance Survey map of 1891, surveyed in 1877-78. This shows the Fishguard to London Railway and embankment which was constructed circa 1850. By this time, the Yspitty and Baccas Canals were obsolete. With the construction of the railway the Townsend and Pill-y-Ceven also became inaccessible and unnavigable and reverted to drains. Construction of the railway may also have affected drainage from the common land since it appears to have reverted to rough ground. The track across the common is not represented, this may be an omission or perhaps suggests the land was too marshy to cross.

Ordnance Survey Map of 1905 (Figure 6)

This map appears to show the study area as a single plot of agricultural land there is no evidence of the track that used to cross the previously common ground, save for an embanked access point to the railway on the same line as the earlier track.

Where the Yspitty canal ended two houses and associated land occupy a strip of land running down to Pill-y-Ceven. This area contained the end of the Yspitty Canal and part of the Coal Bank. This plot later becomes the new route of the A4240 leading to the junction with the A484.

Ordnance Survey Map of 1935 (Figure 7)

On this map the study area has been divided into several plots of land. Interestingly, the trackway that used to run across the common on earlier maps appears to have been re-instated land divided up. A Sewage works in the ownership of Llanelli District Borough Council has by this time been built on the same site as the present works. The precise date of the construction of the earlier works is at present uncertain. Welsh Water took over the ownership of the sewage works in 1960 (*pers. com. anon.*) at which time the works were modernised and from which date the existing works are presumed to date.

To summarise, from the available evidence it seems that the specific area of this study lies just to the east of all known drainage and embankment schemes (James, 1992). This may have been because it had a significant drainage function for the surrounding area inland and was a suitable shipping point for access to the Loughor. Because it does not appear to have been included in any large-scale reclamation schemes, the

ground conditions in the study area have fluctuated over the period for which documentary records exist. This in itself has influenced the land use history of the site, while not compromising its usefulness as a transport link to the river. Once better links were established elsewhere the usefulness of the location reduced. By 1842, the two canals associated with Townsend's Pill were obsolete. An attempt to reclaim the land for agricultural purposes also appears to have been attempted and to have failed by then. By 1850 when the pills were rendered unnavigable by construction of the Fishguard to London Railway, the significance of the location as a shipping point was lost. The former agricultural land reverted to marshy marginal land until by 1905 it had been reclaimed and returned to agricultural use. From this time, as settlement and industry in the area has expanded and declined, the land has gradually been encroached upon by a variety of industries and infrastructure developments up to the present day.

4. IMPACT OF PROPOSED SCHEME ON THE ARCHAEOLOGICAL RESOURCE

At present, since the exact nature of the proposed scheme is uncertain, its impact upon the archaeological resource is also uncertain. Development of the proposal site itself will primarily impact on the obsolete sewage works and will not impact directly upon any known archaeological features. It also seems unlikely that any previously unknown archaeologically sensitive features will exist within the site. The existing sewage works are of modern construction though the Ordnance Survey map of 1935 shows an earlier sewage works on the same site under the ownership of Llanelli Rural District Council. The exact date of construction for the earlier works is at present uncertain. A decorative cast iron pipe emanating vertically from a brick pier in the north east corner of the site (observed during a visit to the site) may be the only surviving vestige of these earlier works. The function and significance of this feature is unknown. Although of no great antiquity these sewage works reflect the infrastructure associated with the development of Llanelli in recent decades.

An area in which there ARE likely to be archaeologically sensitive deposits is at present occupied by the car park directly north of the Sewage works. Here, there is a high probability that the remains of a length of the Yspitty Canal still survives. Though no longer visible as a surface feature remains may survive below the present ground surface.

From the cartographic evidence it would appear that the re-routing of the east end of the A4297 to join the A484 will have run over the end of the Yspitty Canal. Apart from the 1772 map, there is no known evidence for what features there may have been at Coal Bank between Townsends Pill and the Yspitty Canal. It is possible that some evidence might survive within the proposed area of development.

The only other feature of any antiquity is the track running along the western edge of the proposed development area. There is reasonable evidence that this track was in existence before 1772.

5. RECOMMENDATIONS

The nature and full extent of the proposed development is at present unclear. If it is likely to disturb the area to the north of the Sewage Works there is likely to be a significant impact upon a remnant of the Yspitty Canal.

Should part of the Yspitty Canal be shown to survive within the area of the proposal, archaeological recording might be required if there was a negative impact upon its continued survival. A possible alternative might be to incorporate the canal into the proposed development as a feature for public enjoyment and education. The canal demonstrates the history of human exploitation of, and impact upon the area. Likewise, the trackway that once gave access to the saltmarshes for common grazing rights, could be retained within the proposals.

APPENDIX ONE: Primary Cartographic and Documentary Sources

Maps

A Description of lands near or about Berwick Chappel in Llanelly Parish, Carmarthenshire. Surveyed by William Jones, 1751.

John Thornton's Map of 1772.

Llanelly Tithe Map and Apportionment, 1842.

Ordnance Survey, First Edition 1891 (surveyed 1878) 6" Carmarthenshire LVIII.SE

Ordnance Survey, First Edition 1891 (surveyed 1878) 6" Carmarthenshire LIX.SW

Ordnance Survey, 1905 1:2500 Carmarthenshire LIX.9

Ordnance Survey, 1935 1:2500 Carmarthenshire LVIII.13

Aerial Photographs

Post World War 2 aerial photographs (CPE/UK/1977- 4130-31, 1947)

APPENDIX TWO: Catalogue of Research Archive

The project archive has been indexed and catalogued according to National Monument Record (NMR) categories and contains the following:

A. Copy of the report.

G. Documentary data, including primary and published sources.

I. Draft copies of report.

M. Miscellaneous correspondence

There is no material for classes B,C,D,G, E, F, H, K, J, L and N.

The project archive is currently held by Archaeoleg Cambria Archaeology Field Operations, Llandeilo, Dyfed as project number 44388.

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1829. Llanelli Borough Council. |
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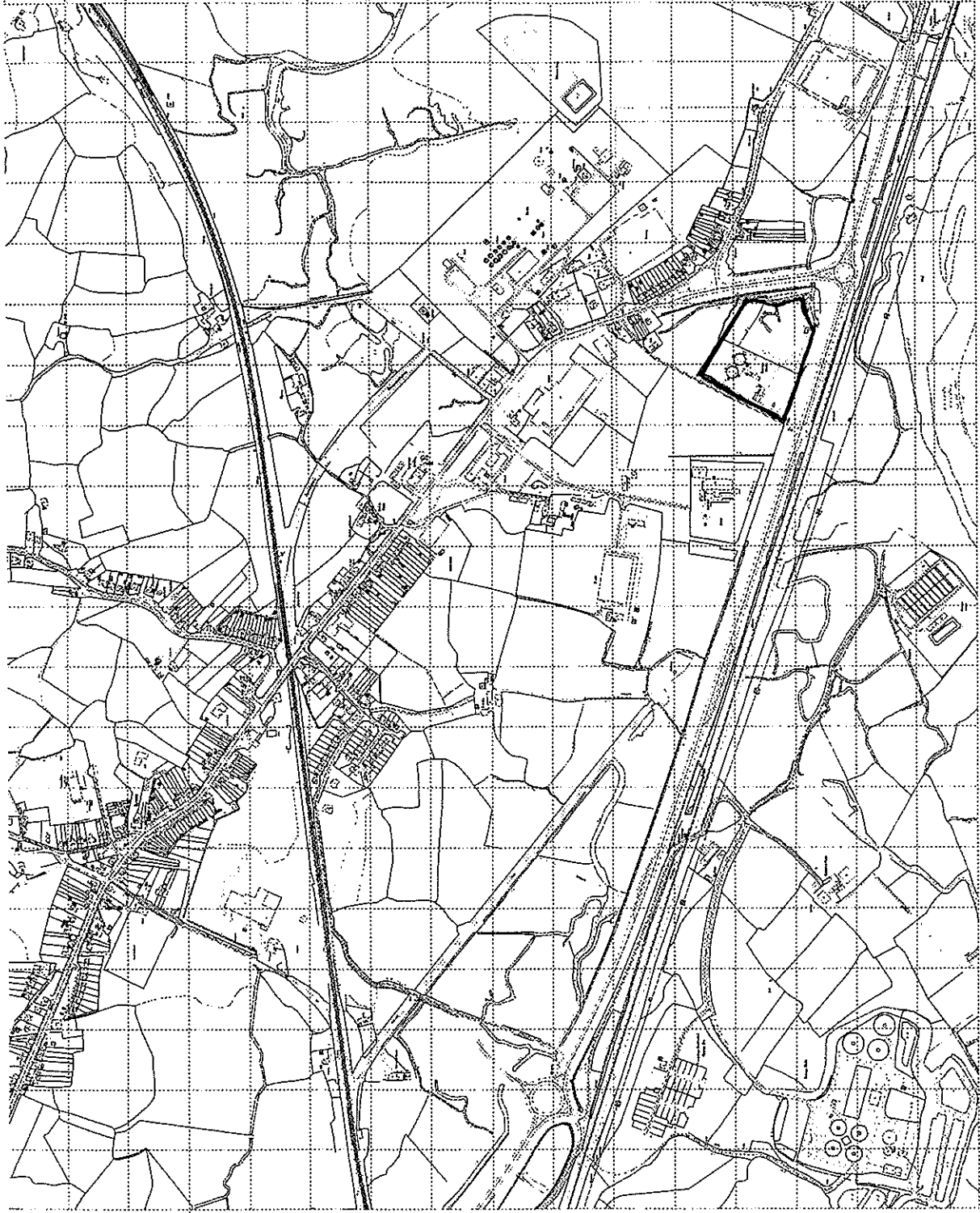


Figure 1: Site Location Plan.

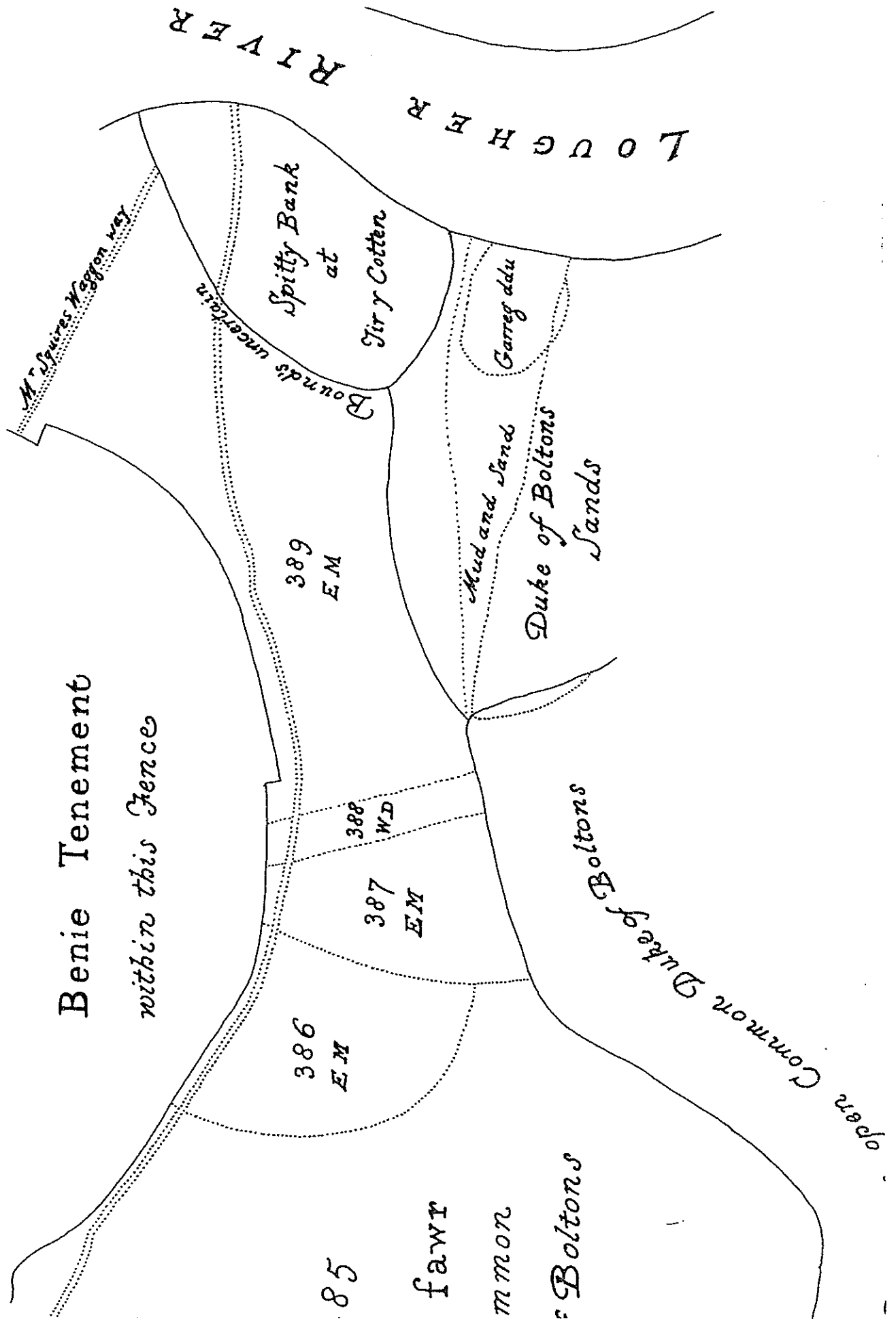


Figure 2: Map of 1771 "A Description of Lands Near or About Berwick Chappel in Llanelly Parish Carmarthenshire".

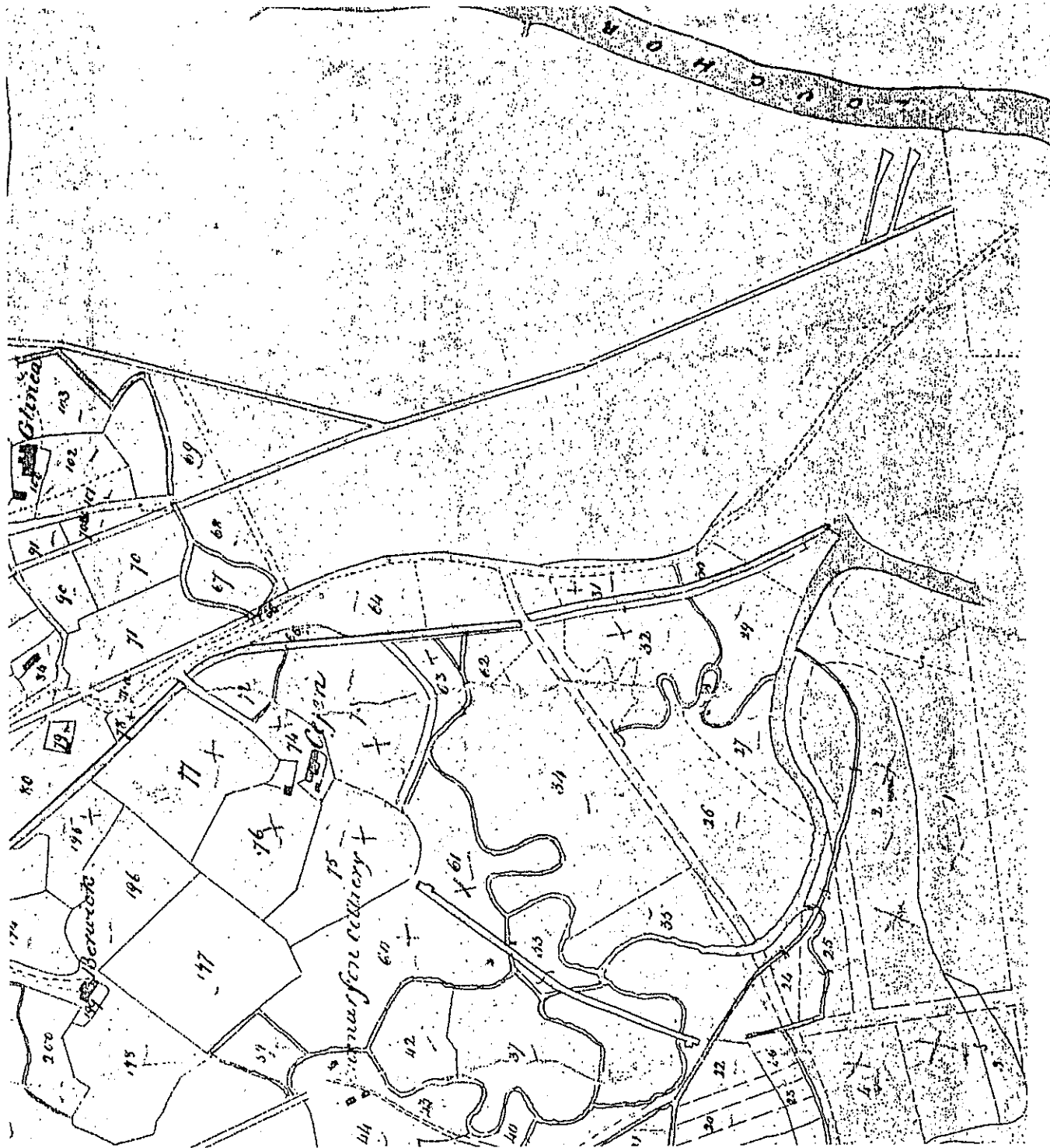


Figure 3: A Map of 1772 by John Thornton.

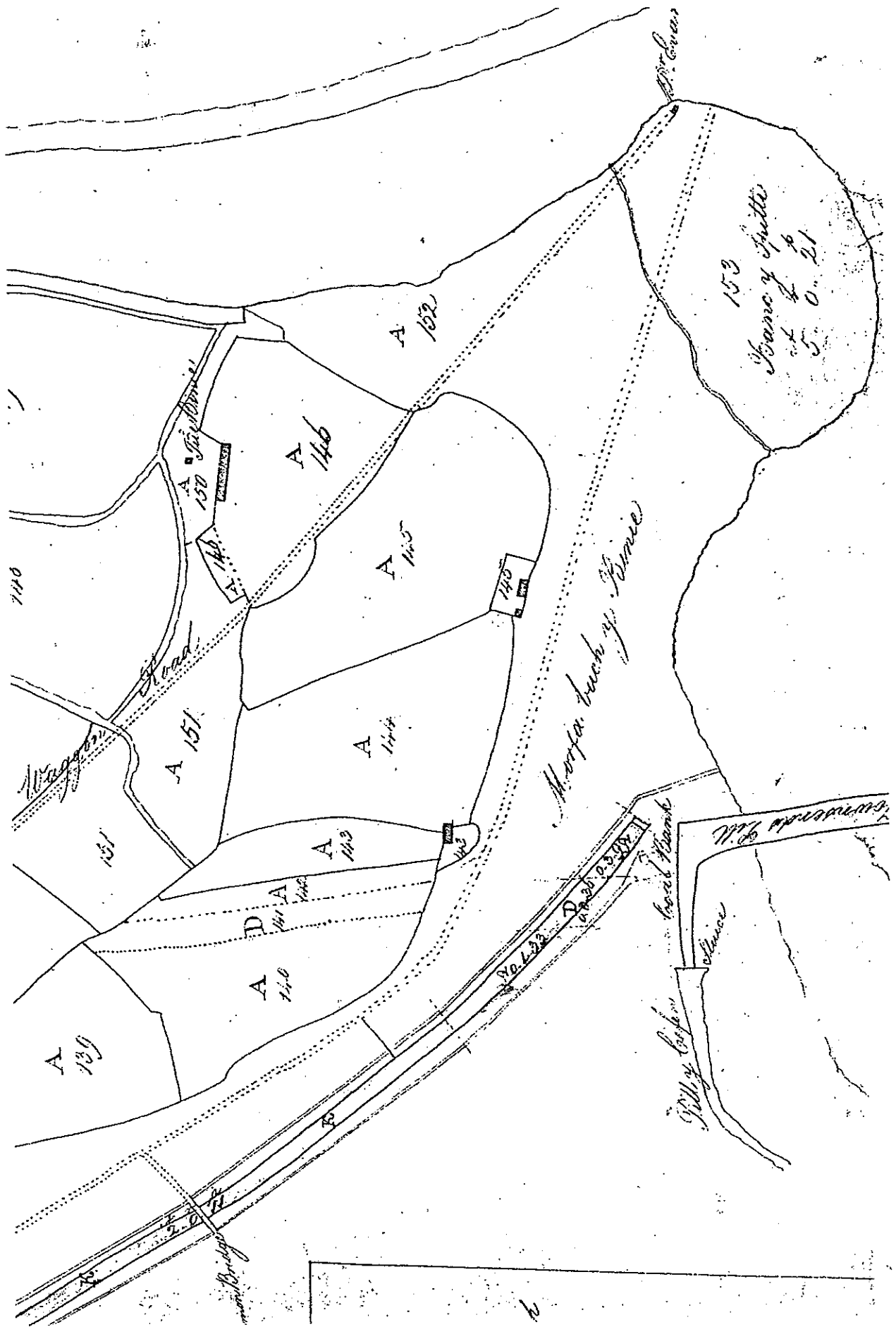
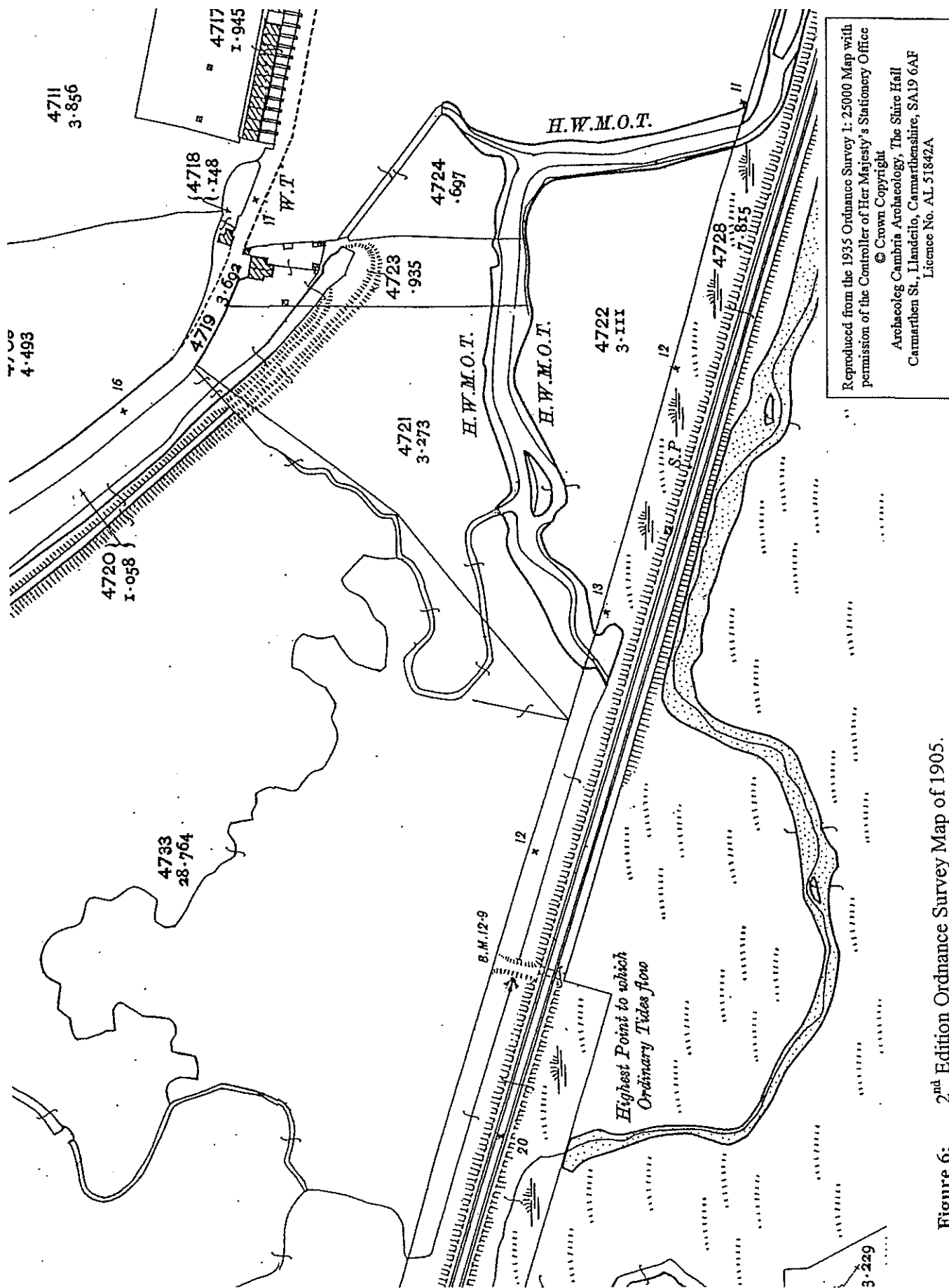


Figure 4: Llanelly Tithe Map.



Figure 5: 1st Edition Ordnance Survey Map of 1891.



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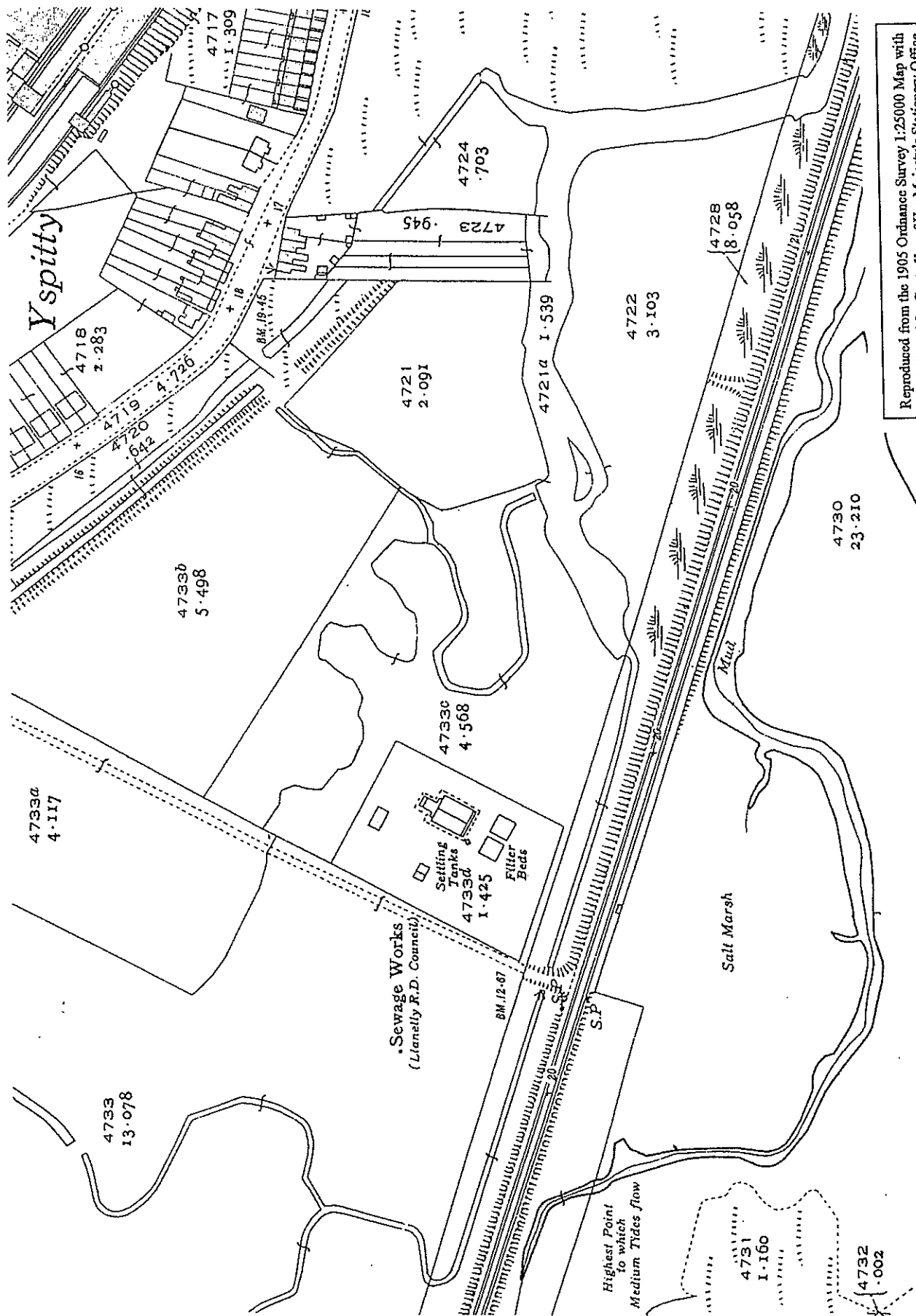
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Figure 6: 2nd Edition Ordnance Survey Map of 1905.



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Figure 7: 3rd Edition Ordnance Survey Map of 1935.