
Llwyngwrl Wastewater Treatment Scheme

Proposed Rising Main



Archaeological Assessment

GAT Project No. 1867

Report No. 570

February 2005

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Drawn PKN 40681

Prepared for Capita Symonds

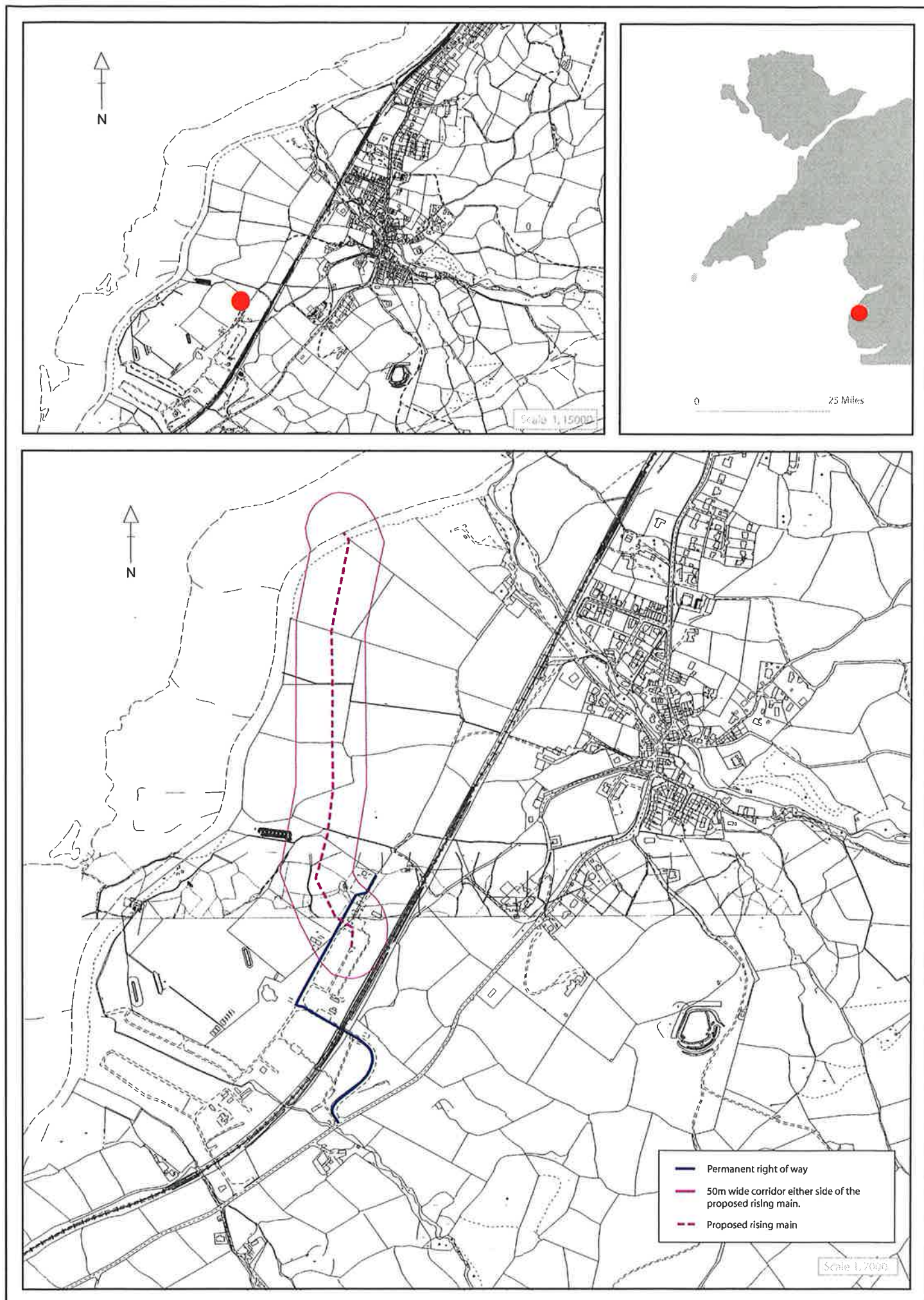
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By

John Roberts

Illustrations by Tanya Berks

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust



LLWYNGWRIL, GWYNEDD

ARCHAEOLOGICAL ASSESSMENT (G1867): WASTEWATER TREATMENT SCHEME:

THE RISING MAIN

SUMMARY

An archaeological assessment has been undertaken in advance of the construction of a wastewater treatment scheme at Llwyngwril, Gwynedd. Though several sites of interest lie within the wider vicinity of the proposals, no archaeological site has been identified within the proposed site of the works, and there will be no impact on the known archaeological resource.

1 INTRODUCTION

Gwynedd Archaeological Trust has been asked by Capita Symonds to undertake an archaeological assessment in advance of the construction of a wastewater treatment scheme at Llwyngwril, Gwynedd (SH58300920). The scheme has three principal components: a wastewater treatment works/temporary working area, a proposed rising main that runs northwards from the works to a possible storage tank/pump station and a temporary construction access that runs from the southwest along the landward side of the railway line before crossing the railway line to reach the treatment works (Figure 1). A 50 metre "corridor" along both sides of the rising main has been advised to be included in the assessment to account for any changes to the project design. The area affected is shown on Capita Symonds Drawing No. 2442/0000/0020.P1

2 SPECIFICATION AND PROJECT DESIGN

The basic requirement was for a desktop survey and a walkover survey of the proposed area, in order to assess the impact of the proposals on the archaeological features within the area concerned. The importance and condition of known archaeological remains were to be assessed, and areas of archaeological potential and new sites to be identified. Measures to mitigate the effects of the construction work on the archaeological resource were to be suggested.

Gwynedd Archaeological Trust's proposals for filling these requirements were as follows:

- Desktop study
- Field walkover
- Report

3 METHODS AND TECHNIQUES

3.1 Desk top study

This comprised the consultation of maps, documents, computer records, written records and reference works, which form part of the Sites and Monuments Record (SMR), located at GAT, Bangor. The archives held by the Meirionnydd Record Office, Dolgellau were also consulted.

3.2 Field Search

The field search was undertaken on 02 February 2005, when the site was visited and examined.

3.3 Report

The available information was synthesised to give a summary of the archaeological and historic background and of the assessment and recommendations, as set out below. The separate features, their evaluation and recommendations are listed separately, and a summary of the overall assessment of the area is given at the end.

The criteria used for assessing the value of features was based upon those used by the Secretary of State for Wales when considering sites for protection as scheduled ancient monuments, as set out in the Welsh Office circular 60/96. The definitions of categories used for impact, field evaluation and mitigation are set out below.

3.3.1 Categories of importance

The following categories were used to define the importance of the archaeological resource.

Category A - Sites of National Importance.

Scheduled Ancient Monuments, Listed Buildings of grade II* and above, as well as those that would meet the requirements for scheduling (ancient monuments) or listing (buildings) or both.

Sites that are scheduled or listed have legal protection, and it is recommended that all Category A sites remain preserved and protected *in situ*.

Category B - Sites of regional or county importance.

Grade II listed buildings and sites which would not fulfil the criteria for scheduling or listing, but which are nevertheless of particular importance within the region.

Preservation *in situ* is the preferred option for Category B sites, but if damage or destruction cannot be avoided, appropriate detailed recording might be an acceptable alternative.

Category C - Sites of district or local importance.

Sites which are not of sufficient importance to justify a recommendation for preservation if threatened.

Category C sites nevertheless merit adequate recording in advance of damage or destruction.

Category D - Minor and damaged sites.

Sites that are of minor importance or are so badly damaged that too little remains to justify their inclusion in a higher category.

For Category D sites, rapid recording, either in advance of or during destruction, should be sufficient.

Category E - Sites needing further investigation.

Sites, the importance of which is as yet undetermined and which will require further work before they can be allocated to categories A - D are temporarily placed in this category, with specific recommendations for further evaluation. By the end of the assessment there should usually be no sites remaining in this category. In this case several areas of unknown potential have been allocated to this category. These require environmental sampling which should be carried out during the pipeline works.

3.3.2 Definition of Impact

The impact of the development on each site was estimated. The impact is defined as *none, slight, unlikely, likely, significant, considerable or unknown* as follows:

None:

There is no construction impact on this particular site.

Slight:

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

Unlikely:

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

Likely:

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

Significant:

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

Considerable:

The total removal of a feature or its partial removal which would effectively destroy the remainder of the site.

Unknown:

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

3.3.3 Definition of field evaluation techniques

Field evaluation is necessary to fully understand and assess most class E sites and to allow the evaluation of areas of land where there are no visible features but for which there is potential for sites to exist. Two principal techniques can be used for carrying out the evaluation: geophysical survey and trial trenching.

Geophysical survey most often involves the use of a magnetometer, which allows detection of some underground features, depending on their composition and the nature of the subsoil.

Trial trenching allows a representative sample of the development area to be investigated at depth. Trenches of appropriate size can also be excavated to evaluate category E sites. Trenching is typically carried out with trenches of between 20 to 30m length and 2m width. The topsoil is removed by machine and the resulting surface is cleaned by hand, recording features. Depending on the stratigraphy encountered the machine may be used to remove stratigraphy to deeper levels.

3.3.4 Definition of Mitigatory Recommendations

None:

No impact and therefore no requirement for mitigation measures.

Avoidance

Where possible, features that may be affected should be avoided. Sometimes this could mean a change in layout, design or route. More usually it refers to the need for care during construction to avoid accidental damage to a feature. This may be achieved by marking features or areas, for example with warning tape, before work starts, or in sensitive cases carrying out a watching brief.

Detailed recording:

Detailed recording requires a photographic record, surveying and the production of a measured drawing prior to the commencement of the works on site.

Archaeological excavation may also be required depending upon the particular feature and the extent and effect of the impact.

Basic Recording:

A photographic record and full description, and limited measured survey where applicable.

Watching brief:

Requiring observation of particular identified features or areas during works in their vicinity. This may be supplemented by detailed or basic recording of exposed layers or structures.

It can be further defined as comprehensive (present during all ground disturbance), intensive (present during sensitive ground disturbance, intermittent (viewing the trenches after machining) or partial (as when seems appropriate).

4 ARCHAEOLOGICAL RESULTS

4.1 Topographic description (Figure 1)

The proposed site is located on a coastal plain, west of the Cader Idris mountain range, on the west and southwestern outskirts of the village of Llwyngwrl, in the community of Llangelynin, Meirionnydd, Gwynedd. The site is located either side of the *Cambrian* railway, west of the A493. The site covers an extensive portion of the land between the railway and the coastline, particularly the rising main, which stretches northwards from the proposed water treatment plant, c.750m to a proposed water storage tank (Figure 1).

An inspection of the *Sites and Monuments Record* and the *National Monuments Record* (Appendix I) shows the surrounding area to be quite rich in relict evidence of diverse land use and activity from prehistoric and later periods. The majority of these sites are located to the east and southeast of the development area. Llwyngwrl is part of the Mawddach Estuary, one of the Landscapes of Historic Interest in Wales listed by Cadw (Cadw 1998, pp. 121–123). The estuary is described as an area “rich in prehistoric and later remains, notably groups of Bronze Age ritual and funerary monuments, prehistoric trackways, and relict settlements and field systems from the Iron Age and medieval periods, which extend over the...south side of the [Mawddach] estuary” (*ibid.*, p. 121)

The underlying geology of the coastal flats around the Mawddach estuary consists of Cambrian beds of siliceous sandstone, but overlaid by alluvium and peat. The hill land immediately to the southwest, however, consists of Ordovician shales into which have intruded bands of igneous basalt, quartz-dolerites and diorites (Smith and George 1961). The Mawddach is a drowned estuary, which formed within a deep glacial valley as sea-levels rose after the end of the last glacial period, from c. 10,000 BC. Tidal movement caused the build up of off-shore sand bars at the river mouth, eventually causing a major build up of alluvial sediment on the valley floor. The rock outcrops of Fegla Fawr, Fegla Fach and Ynysgyfflog must once have been islands. Eventually marshes developed on the salt flats, leading to development of a thick peat cover. Elsewhere, such coastal peats have been shown to date from c. 6000 BC through to the first millennium BC. They are a valuable source of environmental information and in places have also produced much archaeological information.

4.2 Archaeological and historical background

4.2.1 Prehistory

The most notable sites within the area (defined by CADW), include the Bronze Age standing stones on the slopes below Pen y Garn and around the Cregennan Lakes to the northwest of Llwyngwrl, both linked by a prehistoric trackway; the Iron Age hillforts of *Craig y Castell* and *Pared y Cefn Hir*, both north of the Cregennan Lakes and *Castell-y-Gaer*, c.250m south of Llwyngwrl, which has an extensive system of contemporary field systems and hut settlements associated with it, extending as far as Cyfanedd, c.3km to the north (Cadw 1998, pp. 122).

4.2.2 Roman

Castell-y-Gaer and the hut settlements mentioned above (q.v.) continued in use to the Roman period, whilst the Roman road from Brithdir (to the south) to Cefn Caer (to the north) ran through Llwyngwrl (now part of the A493). A rectangular enclosure at Llys Bradwen above Arthog, several kilometres to the northwest of Llwyngwrl, produced Roman pottery sherds (*ibid.*).

4.2.3. Early Medieval

No known sites within the immediate vicinity.

4.2.4 Medieval and sub-medieval

Llwyngwrl was one of five Medieval townships within the coastal parish of Llangelynin, part of the commote of Talybont. These townships comprised mainly individual agricultural holdings within hereditary kinship lands.

Only two known medieval sites are listed within Llwyngwrl: an agricultural barn with cruck trusses at Gors Wen Farm, c.0.5km south of the proposed site and another barn of similar period and structure c.0.6km to the northeast at Henblas Farm (cf. Appendix I).

4.2.5 Early-Modern/Modern

The modern history of Llwyngwrl is seen through its development as an agrarian community supporting a system of enclosed farm holdings.

An inspection of the 1840 Tithe Map and Schedule shows the study area dominated by a patchwork of large enclosed fields working eastwards towards the main road (Figure 2). These plots of land, numbered 56c, 50 and 54 on the Tithe Map, belonged to the holdings of Borthwen, Henblas and Tydu Ceunant farms respectively. Henblas farm was owned by Robert Vaughan as part of the Nannau Estate.

The 1st Edition 25" Ordnance Survey Map (1889), shows this area considerably altered, with the original holdings further divided into smaller plots (Figure 3). Some evidence for this land change occurred in 1854, with the publication of a map detailing the selling of land within holding 54, the respective plots matching those detailed on the 1889 Ordnance Survey Map (Map of the Garthyngharad Estate 1854; Archive Reference Z/M/938).

The other major changes to Llwyngwrl included the building of a new parish church in the village in 1842 (the parish church was originally at Llangelynnin to the south). The railway line at Llwyngwrl, too, altered the landscape of the village when it was opened in October 1863, linking Llwyngwrl to Aberdovey, 17.3km to the south (Baughan 1991, 156-7). The railway line cut right across the holdings described above (cf. Figures 2 & 3).

The line north, from Llwyngwrl to Penmaenpool, was opened in 1865 and continued on to Barmouth in 1867.

A series of non-conformist chapels were built in Llwyngwrl during the 19th century, whilst the Garthangharad Hotel, in the centre of the village, bears an inscription from 1736 (although it was modernised after this date). Buildings more indicative of the village's agrarian economy include two corn mills and a blacksmiths along the main river and an old lime kiln at the river mouth (all of which are listed on the 1889 OS Map). Two fish trap sites, identified through aerial photography and listed on the National Monuments Record (Appendix I), are located in Cardigan Bay, c.0.5km from the development area.

There is one listed building within Llwyngwrl: a farm building at Hendre Farm, 18th Century (Grade II; Ref.: 16/102); [For a more detailed description of the building cf. Appendix II]. The listed building is at least 0.5km outside the development area.

An inspection of the 1:10000 Ordnance Survey Map of Llwyngwrl taken from the 1976 County Series (SH50NE) shows little change during the 20th Century: enclosed farmland to the northwest and south of the village centre have been turned into housing estates, whilst further south and north, a number of caravan parks are in existence; again, exploiting enclosed farmland (Figure 3). The Sites and Monuments Record (SMR) also lists the site of a 20th Century military training camp, immediately west of the proposed development area (PRN code 7,277; NGR SH58300920) and the site of a POW camp 0.2km southwest of the camp.

4.3 Impact and mitigation

4.3.1 Impact

The rising main covers a much more extensive area than the plant/working area and includes a 50m corridor either side of the proposed line to account for contingencies. Working southwards from the existing outfall on the coastline (Figure 1), the rising main traverses c.570m through five enclosed pasture fields before reaching the treatment plant. Accounting for the 50m corridor, the only known archaeology of any proximity is a Bronze Age looped palstave recovered from the shoreline (NPRN code 7873; NGR SH5809), c.120m west of the line of the main, 72m from the corridor on the western side. A southern portion of the main will run northwards 130m from a caravan park, to the plant. The only site in close proximity would be the military training camp described above (q.v.).

A visual inspection of the area defined no obvious earthworks, embankments or changes in vegetation to suggest any archaeological activity. A low-lying scarp was noted running north-south in the field immediately north of the wastewater treatment plant area. This scarp was located on the eastern extremity of the proposed rising main route.

It appears that the proposed scheme will have no impact on any standing archaeological remains. The latest aerial photograph of the area showed no visible cropmarks and/or earthworks. No parish boundaries will be disturbed. The only sites in close proximity are the military training camp and the site of a POW camp, both of 20th Century origin.

4.3.2 Mitigation

The suggested mitigation would be an intermittent watching brief to assess the exposed groundworks during the course of the project. If the scarp is to be affected, then an inspection of this should also be included as part of the watching brief to assess whether it is a redundant field boundary.

5 REFERENCES AND OTHER SOURCES CONSULTED

Baughan P, 1991, *A Regional History of the Railways of Great Britain. Volume 11. North and Mid Wales.*

Bowen E G & Gresham, C A 1967, *History of Meirioneth: Volume I.* The Meirioneth Historical And Record Society. Dolgellau

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

Chapman J 1992, *A Guide to Parliamentary Enclosures in Wales.* University of Wales Press. Cardiff

Documentary sources

OS 25" Merionethshire sheet X.1 and X.5, 1889 and 1901

OS 1:10,000 SH50NE, 1976

Tithe Schedule for Llangelynin, 1840 Gwynedd County Archives

Tithe Map for Llangelynin, 1840 Gwynedd County Archives

Map of part of the Garthyngharad Estate situated in the Parish of Celynin in the County of Meirioneth, 1854 (Archive Reference: Z/M/938). Meirionnydd Archives, Dolgellau.

Aerial Photograph of Llwyngwril from Countryside Council for Wales Archives, 1996.

Figure List

Figure 1 – Site Location Maps including map of projected development at Llwyngwril

Figure 2 - Tithe Map of Llangelynin 1840

Figure 3 – Ordnance Survey Map 25". County Series. Meirioneth X.1 and X.5. 1889 (Scale 1,5000)

Figure 4 - Sites of Historical Interest within 1km radius of the proposed development site (Scale 1,5000)

Figure 5 - Listed buildings within 1km radius of the proposed development site (Scale 1,5000)

Plate List

Plate 1 - Location for rising main (Facing Southeast)

Plate 2 - Location for rising main (Facing Northwest)

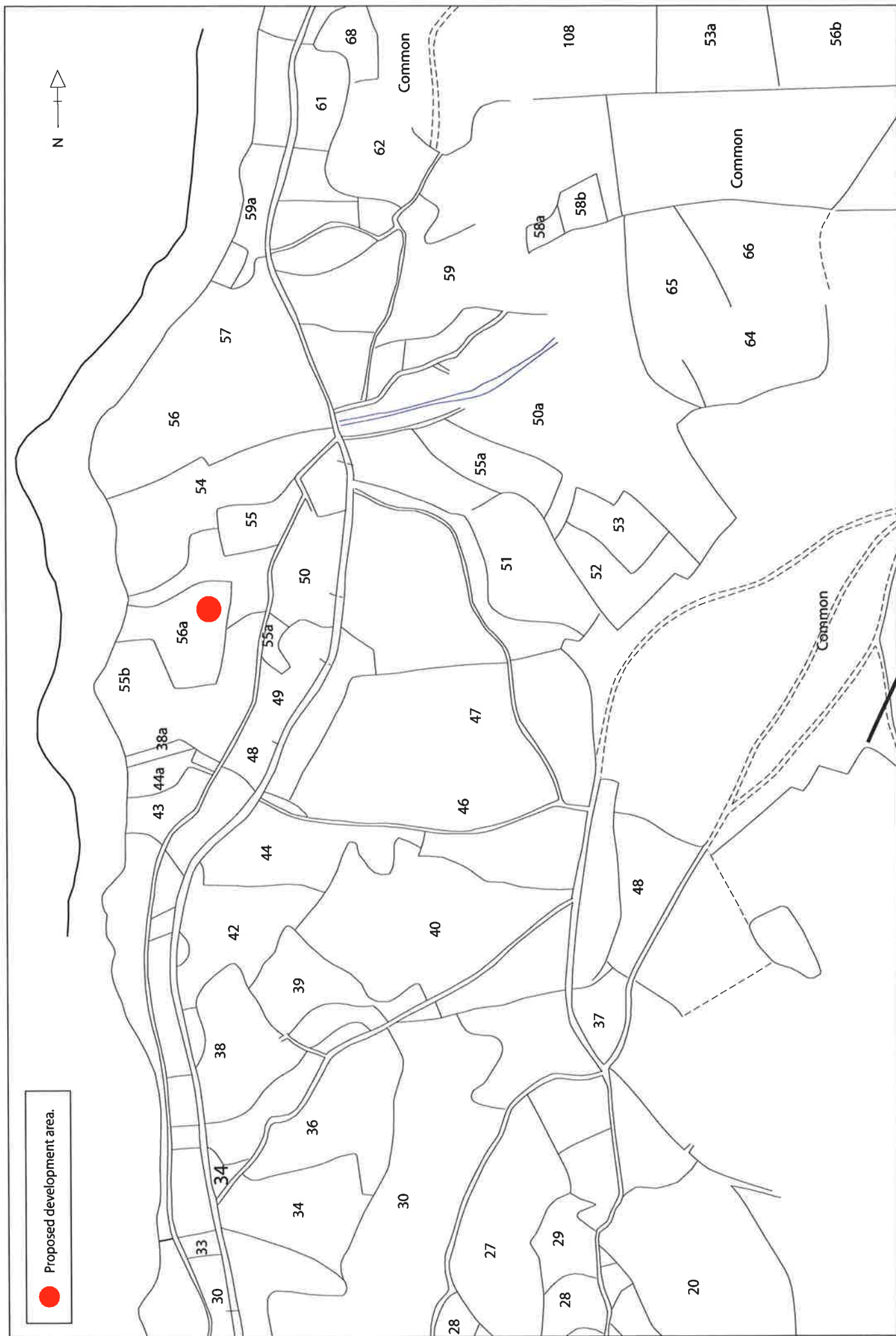


Figure 2. Tithe Map of Llangelynnin 1840

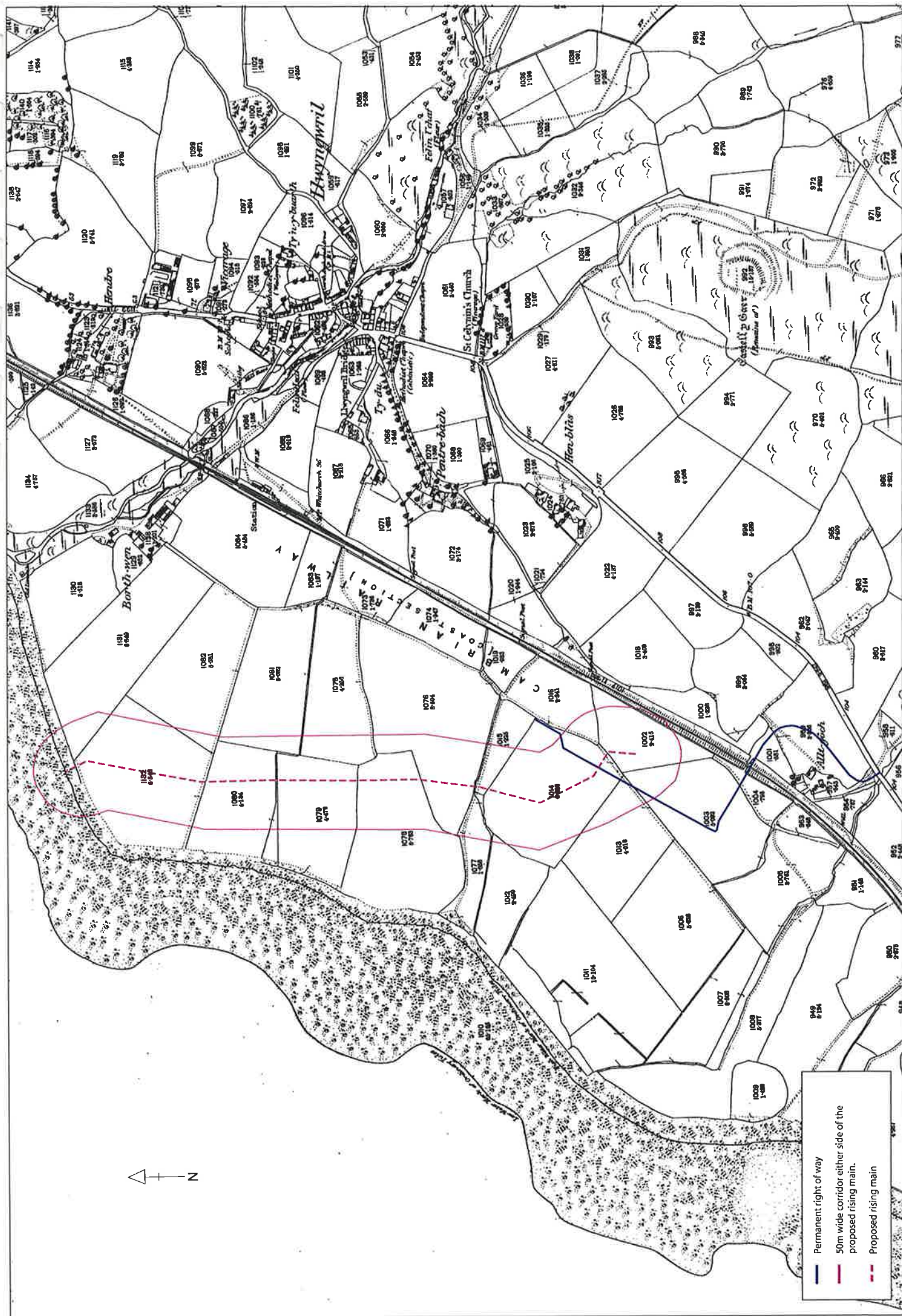


Figure 3. Ordnance Survey 25". County Series. Meirioneth X.1 and X.5, 1889. (Scale 1,5000).

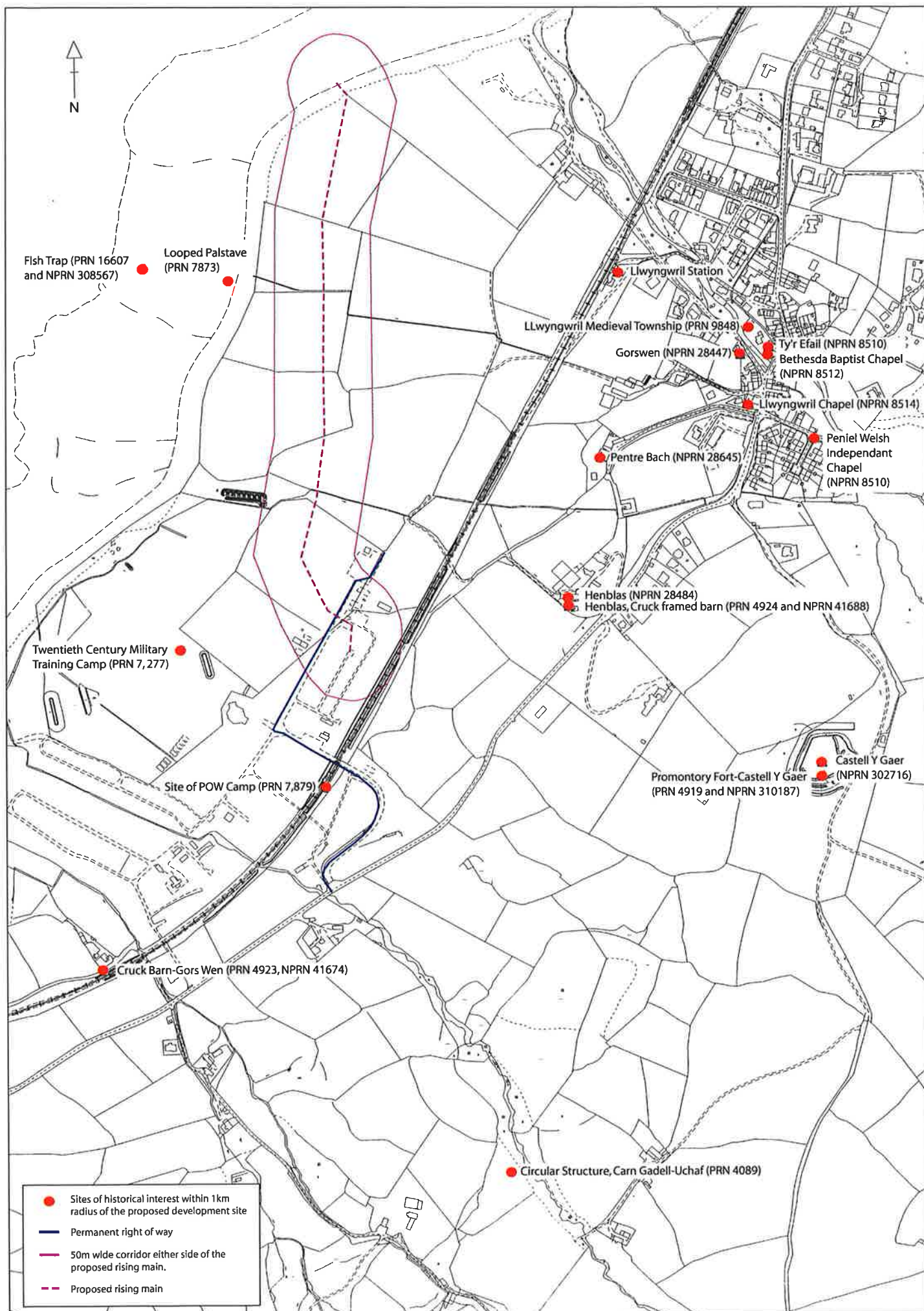


Figure 4. Sites of historical interest within 1km radius of the proposed development site (Scale 1,5000)

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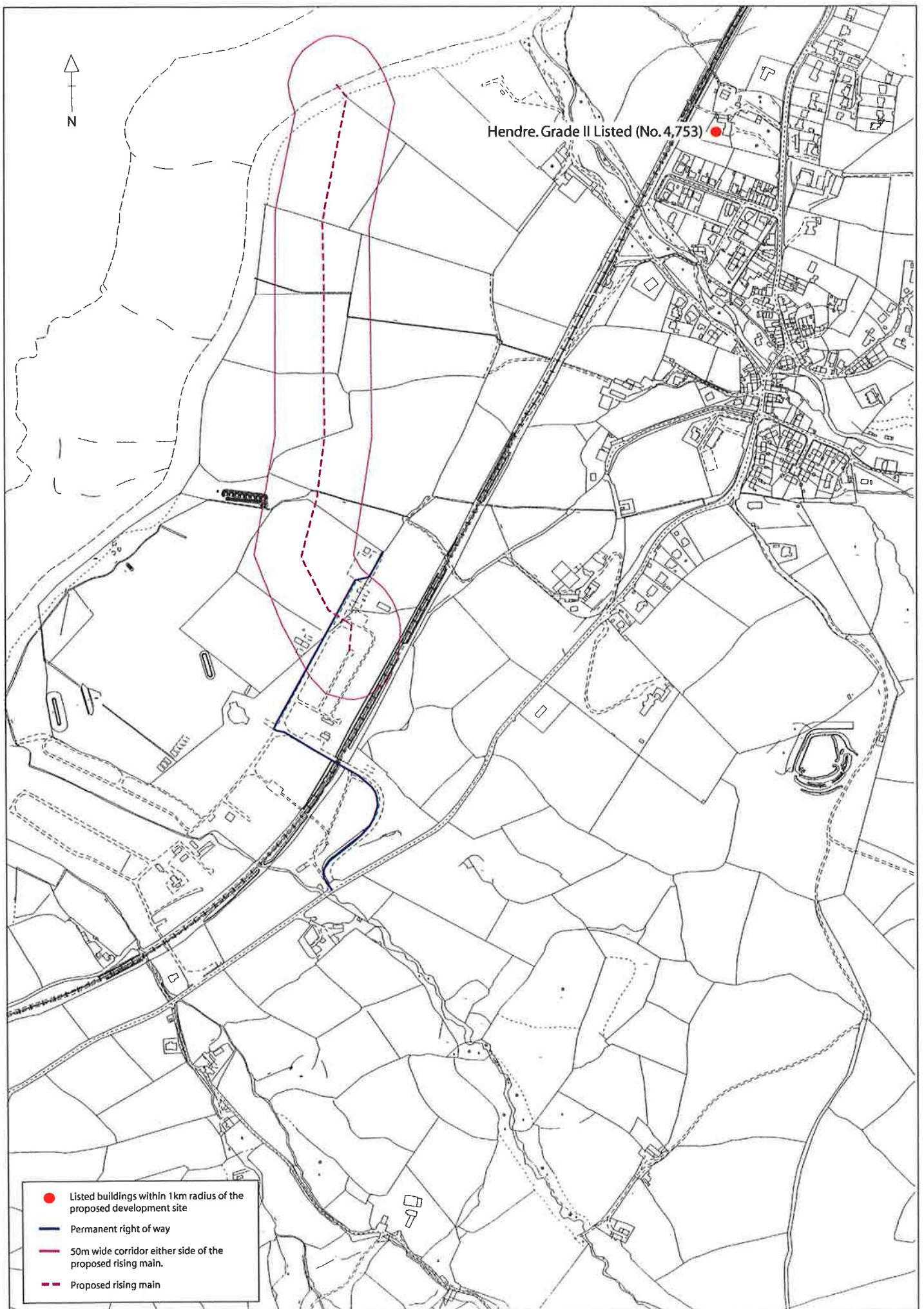


Figure 5. Listed buildings within 1km radius of the proposed development site (Scale 1,5000)
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Plate 1. Location for rising main (Facing southeast). G1867/01/33



Plate 2. Location for rising main. (Looking Northwest). G1867/01/28

Appendix I

Archaeological Sites within a 1.0km Radius of the Proposed Site (NGR SH58300920).

(Source: GAT Sites and Monuments Record/CARN database www.rcahmw.org.uk)

Prehistoric sites:

LOOPED PALSATVE - FINDSPOT, LLWYNGWRIL

NPRN: 7873

NGR: SH5809

Period: Prehistoric

Distance: 0.4

Broadclass: Object

Type: FINDSPOT

CASTELL Y GAER

SAM: ME053

NGR: SH592090

Period: Prehistoric

Distance: 0.9

Broadclass: Defence

Type: HILLFORT

CIRCULAR STRUCTURE, CARN-GADELL-UCHAF

NPRN: 4089

NGR: SH58750845

Period: Prehistoric

Distance: 0.9

Broadclass: Domestic

Type: BUILDING

Roman sites:

PROMONTORY FORT- CASTELL Y GAER

NPRN: 4919

NGR: SH59200900

Period: Roman

Distance: 0.9

Broadclass: Defence

Type: FORT - PROMONTORY

Medieval sites:

CRUCK BARN- GORS WEN

NPRN: 4924

NGR: SH58180875

Period: Medieval

Distance: 0.5

Broadclass: Agriculture and Subsistence

Type: BARN

BARN, CRUCK FRAMED

NPRN: 4923

NGR: SH58850925

Period: Medieval

Distance: 0.6

Broadclass: Agriculture and Subsistence

Type: BARN

LLWYNGWRIL MEDIEVAL TOWNSHIP

PRN: 9848
NGR: SH59100960
Period: Medieval
Distance: 0.9
Broadclass: Civil
Type: TOWNSHIP

Post-Medieval sites:

FISH TRAP, LLWYNGWRIL, MEIRIONNYDD

PRN: 16607
NGR: SH58260974
Period: Post-Medieval?
Distance: 0.5
Broadclass: Agriculture and Subsistence
Type: FISH TRAP

GORS WEN - BARN

PRN: 4923
NGR: SH58180875
Period: Post-Medieval?
Distance: 0.5
Broadclass: Agriculture and Subsistence
Type: BARN

HENBLAS

NPRN: 28484
NGR: SH58850925
Period: Post-Medieval?
Distance: 0.6
Broadclass: Domestic
Type: HOUSE

HENBLAS - BARN

NPRN: 41688
NGR: SH58850925
Period: Post-Medieval?
Distance: 0.6
Broadclass: Agriculture and Subsistence
Type: BARN

LLWYNGWRIL FISH TRAP

NPRN: 308567
NGR: SH58340976
Period: Post-Medieval
Distance: 0.6
Broadclass: Maritime
Type: FISH TRAP

PENTRE BACH

NPRN: 28645
NGR: SH58900946
Period: Post-Medieval?
Distance: 0.7
Broadclass: Domestic
Type: DWELLING Rebuilt 1868

LLWYNGWRIL STATION

NPRN: 41324

NGR: SH58930972

Period: Post-Medieval

Distance: 0.8

Broadclass: Transport

Type: RAILWAY STATION 1863

CASTELL-Y-GAER, BUILDING

NPRN: 302716

NGR: SH59210899

Period: Post-Medieval?

Distance: 0.9

Broadclass: Unassigned

Type: BUILDING

LLWYNGWRIL CHAPEL (WELSH CALVINISTIC METHODIST; BETHEL)

NPRN: 8514

NGR: SH59110953

Period: Post-Medieval 1831

Distance: 0.9

Broadclass: Religious, Ritual and Funerary

Type: CHAPEL

PENIEL WELSH INDEPENDENT CHAPEL

NPRN: 8510

NGR: SH59200948

Period: Post-Medieval 1807

Distance: 0.9

Broadclass: Religious, Ritual and Funerary

Type: CHAPEL

TY'R EFAIL

NPRN: 28875

NGR: SH59140961

Period: Post-Medieval?

Distance: 0.9

Broadclass: Domestic

Type: HOUSE

BETHESDA BAPTIST CHAPEL

NPRN: 8512

NGR: SH59140960

Period: Post-Medieval 1834/5

Distance: 0.9

Broadclass: Religious, Ritual and Funerary

Type: CHAPEL

GORSWEN

NPRN: 28447

NGR: SH59100960

Period: Post-Medieval?

Distance: 0.9

Broadclass: Domestic

Type: DWELLING

TWENTIETH-CENTURY MILITARY TRAINING CAMP

PRN: 7,277

NGR: SH58300920

Period: Post-Medieval

Distance: 0.2

Broadclass: Defence

Type: CAMP

SITE OF POW CAMP

PRN: 7,879

NGR SH

Period: Post-Medieval

Distance: 0.25

Broadclass: Defence

Type: CAMP

Appendix II

Listed Buildings within Llwyngwrl

Number	Grade	Description	Comments
16/102	II	Hendre	Late 18 th Century, or earlier. Stone with slated roof and stone stacks. One gable coped. Two-storeys and attic. Sashes. Five-window front. Attic windows gabled. Modern wood hood to door.

