
Archaeological Baseline Assessment of Land at Wylfa Nuclear Power Station, Anglesey



GAT Project No. 1934
Report No 670
prepared by
David Longley
March 2007

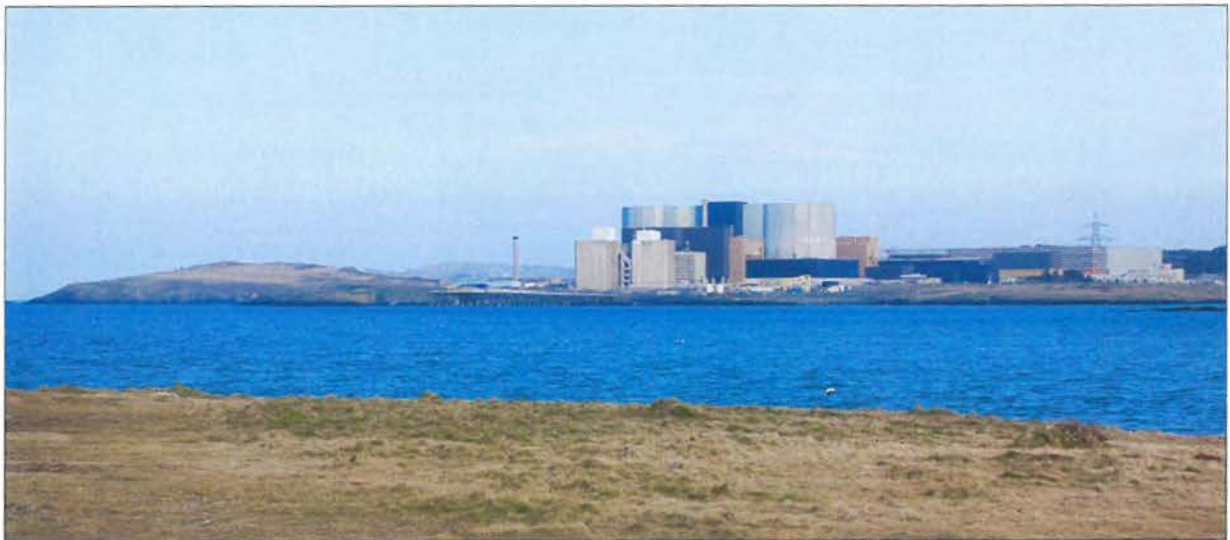
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Gwynedd Archaeological Trust
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Introduction

The Wylfa Power Station stands on a headland on the north coast of Anglesey between the two indented bays of Cemlyn and Cemaes (NGR 234910 393800). The power station was built during the 1960s and was operational from 1971. The station is scheduled to be decommissioned in 2010.

This report provides a baseline assessment of the historic landscape of the Wylfa headland and its immediate environs in advance of the forthcoming decommissioning of the power station. The boundary of the study area, which corresponds to the NDA land holding, is shown on Figure 1.

A summary with recommendations in respect of the historic environment is provided at the end of the report.

Methods and Techniques

Desk-top Study

Maps, computer records, written records and reference works, which make up the Historic Environment Record at Gwynedd Archaeological Trust were consulted. Records (including early Ordnance Survey maps, tithe maps and schedules, estate maps, aerial photographs, leases and rentals and reference works and secondary sources) were also consulted in the library and the archives of the University of Wales, Bangor, the County archives at Llangefni, the archive at BNG Wylfa, and the National Archives, Kew.

A site visit was made to the power station on 15th March 2007 to view the site archive and to discuss aspects of the development of the site with staff. Security and Health and Safety restrictions of access applied to many areas of the site.

This assessment was undertaken in accordance with the Institute of Field Archaeologists 1994 (revised 1999) Standard and Guidance for Archaeological Desk-Based Assessment.

I am grateful to the staff of the County and University Archives at Llangefni and Bangor and Wylfa Power Station for access to relevant documents.

Existing statutory protection and non-statutory designations

The area within the site boundary and subject to the current decommissioning proposals does not fall within a Conservation Area, however, the area is within an AONB /Heritage Coast designation.

That part of the western coastline of Wylfa Head from Porth y Gwartheg to Porth y Felin is within an Area of Outstanding Natural Beauty. The coastline continuing westward of Porth y Felin and the coastline extending eastward of Cemaes Bay are also Areas of Outstanding Natural Beauty.

Tre'r Gof, immediately east of the power station is a Site of Special Scientific Interest (SSSI) part of which lies within the NDA land ownership boundary. This site has been selected for its biological interest, in particular as a representative example of rich-fen habitat in north-west Wales. The fen has developed in a basin above the coastline and comprises a mosaic of rich-fen and associated communities. There are stands of fen meadows in which blunt-flowered rush and other jointed rushes are abundant; these grade into a variety of other communities in which fen species such as fen sedge, black bog rush and common reed are locally dominant. Swamp vegetation with stands of greater reedmace and fen scrub occur in places.

Cemlyn Bay to the west of the power station is also designated as a Site of Special Scientific Interest (SSSI), Special Protection Area (SPA) and Special Area of Conservation (SAC). This area, however, falls outside of the NDA boundary.

Mynydd y Wylfa, immediately to the north-east of the power station, is a Local Nature Reserve and a Joint Nature Conservation Committee Special Protection Area (SPA). The headland was gifted to the local community by Magnox Electric Ltd. It is characterised by a mixture of coastal grassland and heath, and is a location for seawatching of passing gannets, shearwaters and terns.

Cestyll Garden, within the NDA boundary, is included in the Cadw/ICOMOS Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales. A summary description, as presented in the Landscapes, Parks and Gardens Register, of the garden and its significance follows:

Cestyll Garden

Ref number PG W (Gd) 45 (ANG)

OS Map 114

Grid ref SH 345 933

Former county: Gwynedd

Unitary Authority: Isle of Anglesey County Council

Community council: Cylch-y-Garn/Mechell

Designations: Heritage coast

Site evaluation Grade II

Primary reasons for grading

Unusual, small and intimate 1920s garden informally planted with tender plants, well suited to its rocky seaside site, which is of great natural beauty; good survival of original planting. Princess Victoria, a close friend of the garden's owner and principal designer, Violet Vivian, designed part of the garden.

Type of site

A small garden exploiting a particular site the sheltered valley of a small stream, leading down to the sea - with interesting plantings and an intimate atmosphere.

Main phases of construction: 1920s.

Scheduled Ancient Monuments and Listed Buildings

There are no scheduled Ancient Monuments within or adjacent to Wylfa Power Station. The nearest Scheduled Ancient Monument is the triangular arrangement of Early Bronze age standing stones (A030, PRN 3047, NGR 236400 391680) near Llanfechell and 2.5km SSW of the power station.

There are no Listed Buildings within the study area. However, there are three Listed Buildings immediately adjacent to the study area. These relate to the operation of Cafnan Mill and are described below. The listed buildings lie 1km south-west of the power station.

Corn drying house at Felin Gafnan, 24417

Grade II

NGR 234390 393300

A summary description with the reason for listing, as presented in the listed description notes, follows:

Late C18 former drying house serving the nearby watermill. There are no buildings recorded at Felin Cafnan on the Tithe Map of the parish of Llanrhywydrys, 1840. The map is poorly annotated, however, and not all the buildings are shown and none of the agricultural buildings are recorded. The Tithe Schedule shows that the mill was owned by Lord Dinorben and the miller was Robert Owen; in the 1841 Census Returns he is recorded as being assisted by a labourer and also had a female servant. The drying floor and kiln tiles have been removed from the building.

Lofted drying house with dormer doorway. Rubble walls and roof of small slates, partly grouted. Stone staircase to front elevation, which is also designed to form a porch for the doorway into the ground floor storage area. The boarded loft door to the right rises above the eaves, and has a gabled dormer roof. Lean-to either end with corrugated iron roofs. Listed as a good C18 corn drying house, which retains much vernacular character, and for group value with the nearby miller's house, and corn mill.

Corn Mill at Felin Gafnan, 24416

Grade II*

NGR 234480 393350

A summary description with the reason for listing, as presented in the listed description notes, follows:

A water powered corn mill with one pair of stones. The present building is probably early C19, with mid C19 (1840s) machinery. The water for the mill came from an artificial diversion of the Afon Gafnan inside Cafnan

Farm, controlled by a sluice gate. A mill is referred to on this site in the Extent of Anglesey (1352), which mentions 'Caerdegog with hamlets of Cafnan and Llanddygael, and shares in Melin Cathaern'.

In National Library of Wales, Carreglwyd papers, dated 1617, there is a mention of 'Kafnant' mill. The mill is annotated on an estate map by Lewis Morris in 1724-7 as one of the neighbouring properties, belonging to 'Mr Lewis of Cemlyn'. Ambrose Lewis was one of the most prominent attorneys of his day, High Sherriff of Anglesey in 1683 and head of the Llysduelas Estate. The Tithe Schedule shows that the mill was owned by Lord Dinorben and the miller was Robert Owen. By the early C20 the mill was in the ownership of the Carreglwyd estate, and was recorded as disused at the time of the break up and sale of the estate in 1918. The mill is now owned by the National Trust.

Two storeys, with one pair of stones to the 1st floor. The internal machinery is complete and all of one period, probably the 1840s. Cobble floor and timber hayracks to store. Two storey overshot watermill with attached 1-storey mill store set at a lower level. Rubble walls with roofs of small slates, partially grouted. Narrow window to centre of gable at 1st floor, a pointed arch opening with gritstone voussoirs, re-used from a composite millstone, and dripcourse. An old millstone forms the threshold to the mill. Waterwheel to east gable end, in poor condition with rotted wheelshaft, buckets and sole boards. The mill operated with the mill race water flowing over the top of the wheel mill (overshot), but was diverted under the wheel when it was not in use.

Listed at II* as a substantially intact early C19 watermill, retaining much internal machinery dating from the 1840s, and part of the waterwheel, and which incorporates some unusual features, such as the arrangement of the layshaft drive.

Mill house at Felin Gafnan, 24418

Grade II

NGR 234350 393000

Early C19 miller's house.

The present house replaces an earlier house to the north, now a ruin. Now owned by the National Trust. There is a low stone walled garden in front of the house.

Listed as a good early C19 miller's house, which forms an important part of the corn mill group at Felin Gafnan and retains traditional character.

Historic Environment Records in or immediately adjacent to the study area

Historic Environment Records in or immediately adjacent to the study area are shown in Figure 1 and Table 1

Table 1: Historic Environment Records in or immediately adjacent to the study area

PRN	Site type	NGR	Location
3539	Place Name	234600 393400	Cestyll
7186	Lime Kiln	234800 393580	Porth Y Pistyll
7187	Corn Mill	234480 393360	Porth Y Felin
7763	Nonconformist Chapel	235770 392480	Bethania
17145	Landscape	235000 393990	Wylfa Nuclear Power Station

Sites provisionally identified from map and air photographic sources are listed here (table 2) and are shown on Figs 3, 8 and 9.

Table 2: Sites provisionally identified from map and air photographic sources

PRN	Site type	NGR	Location
44	Chain Home radar masts	234910 393800	Wylfa Headland
25022	Chain Home installation	234820 393620	Porth y Pystill
25023	Chain Home installation	235340 343420	Simddda wen
25024	Chain Home installation	235400 393660	Ty Croes

25025	Chain Home installation	235700 393880	Wylfa House
25026	Chain Home installation	235460 393850	Tyn y Maes
25027	Chain Home installation	235120 393780	Porth y Gwartheg
25028	Chain Home installation	235100 393570	Skerries View
25029	Field banks	234340 394270	Mynydd Wylfa
25030	Curvilinear bank	234740 393800	Porth y Gwartheg
25031	Rectangular structure possibly associated with Chain Home station	234900 393780	Porth y Gwartheg
25032	Rectangular structure possibly associated with Chain Home station	235060 394210	Porth Wnal
25033	Rectangular structure possibly associated with Chain Home station	235520 394150	Porth yr Ogof
25034	Fish Trap	235240 394270	Porth Wnal

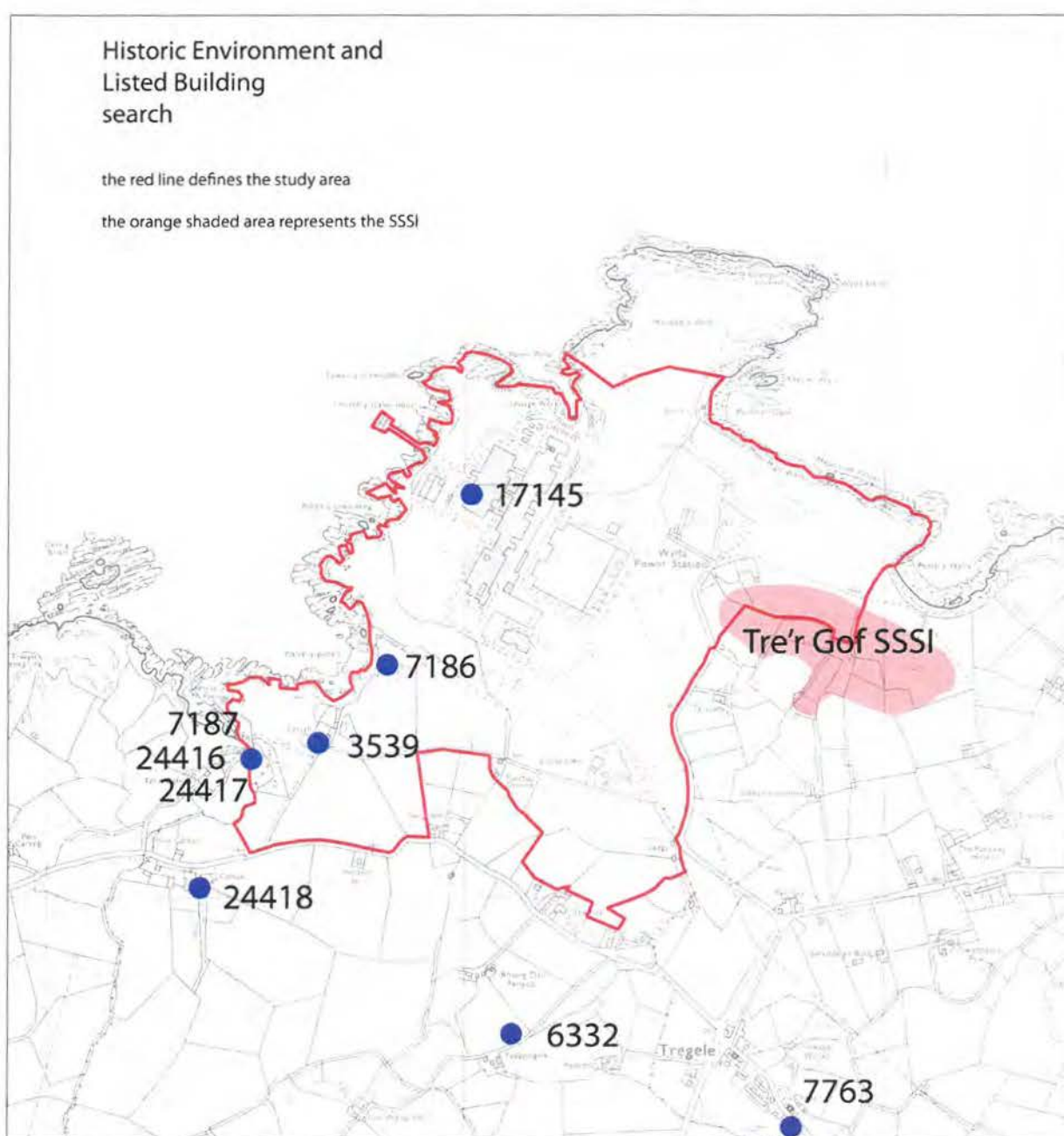


Fig. 1: Historic Environment Records and Listed Building search

The site and surrounding landscape

Wylfa Power Station is located on the North Anglesey Coast approximately 2 km west of the village of Cemaes. The nearest village is Tregele, approximately 1 km to the south east. The facility began generating electricity in 1971 and occupies approximately 50 hectares, however the NDA owned land including the power station comprises approximately 100 hectares. The site of the power station was chosen due to the generally flat ground area with solid rock close to ground level suitable to take heavy loading. Additionally deep water was available close to the coast for use as a coolant.

The Wylfa headland, on which Wylfa power station is located, projects from the northern coastline of Anglesey into the Irish Sea between the deeply indented bays of Cemlyn, to the west, and Cemaes, to the east. The coastline is further indented at Porth y Pistyll, 1 km east of Cemlyn, and at Porth y Wylfa, 1.2 km west of Cemaes and it is between these two bays that the headland is defined. The larger part of this headland is occupied by the NDA land holding within which the Wylfa power station stands. The northern tip of the headland is further constricted between the bays of Porth Wnal (west) and Porth yr Ogof (east), 400 m from its northernmost point. This area is known as Mynydd y Wylfa (Wylfa Mountain), and lies outside the site boundary.

The topography in the immediate vicinity of the headland and southwards, has a generally low and rolling aspect, rarely rising above 30 m OD. The lowest ground, at around 10–20 m OD occurs at the neck of the headland, from which the ground rises again to 38 m at Mynydd y Wylfa, with cliffs to seaward.

The underlying geology is of metamorphic rock, flaggy and laminate green-mica-schist of the New Harbour Group of the Mona Complex (Crutchlow and Mendoza, 1961). The schist contains bands and veins of quartz, jasper and calcite. The bedding planes dip in the northerly direction. Dolerite dykes can be seen outcropping along the coastline. Glacial erosion has reduced the landform to a generally level surface. Hollows are filled with brown clay or gravel. A pre-glacial valley crosses the site from east to west and is filled with overburden to a maximum depth of 7 m.

Land use in the surrounding landscape in 1963, in the period immediately before the construction of the power station, was described as mostly farmed and enclosed in a pattern of settlement characterised by a peppering of small buildings between Llanfechell, 2–5 km to the south, and Cemaes. To the south-west of Wylfa the landscape had a more open appearance with occasional farms and villages (Crowe, 1962).

The coastal strip was characterised by rough grazing and, where left uncultivated, colonised by gorse. Tree cover was sparse, except in the immediate vicinity of farm buildings where trees provided protection from the wind.

The landscape has changed little in the intervening period with the important exception of the power station itself which is now one of the more dominant features of the local landscape. Land use remains predominantly agricultural and mostly under grass. Landscaping and considerable tree planting has been undertaken within the Wylfa power station boundary.

The pattern of settlement in recent years remains one of scattered farms although there has been an expansion of domestic housing in the town and villages of Cemaes, Llanfechell and Tregele.

Historical context

Prehistory

There is no clear evidence of Prehistoric activity in the immediate vicinity of the Wylfa headland. In the wider landscape an important group of Neolithic and, possibly, Early Bronze Age ceremonial monuments are known in the area to the west and north of Llanfechell, 2.5km south of Wylfa. These comprise standing stones and, in particular, a remarkable group of three standing stones in a triangular arrangement at Llanfechell, and a now ruinous chambered tomb nearby. The tomb, on the basis of an antiquarian illustration, may have been of portal dolmen type.

Burial monuments of the Early Bronze Age are known at Rhosbeirio, to the east of Llanfechell. The most prominent, capping a small hill between Rhosbeirio and Llanfechell, is Pen y Morwydd. A beaker burial, a crouched inhumation in a rectangular cist and apparently lacking the covering of a cairn, is known from the same locality.

The visual evidence of later Prehistoric activity on Anglesey is very largely represented by defended enclosures and hut circle settlements. The place-name, Cestyll, (English: castles) at the western neck of the Wylfa headland at Porth y Pistyll, may represent a former presence of a coastal promontory fort, although nothing now survives. Lewis Morris' coastal survey of around 1730 marks 'Fort' in comparable positions on the flanks of the headlands which define Cemlyn Bay, 1km to the west. A large and prominent headland, 3.5km to the east of Wylfa, at the northernmost extent of the island, is occupied by one of the largest hillforts on Anglesey, at Dinas Gynfor. Steep cliffs on the seaward side provide a natural defence. The less steep landward side is protected by a wide swathe of marsh. Undefended and lightly defended hut circle settlements occur sporadically from the vicinity of Dinas Gynfor to the low ridges of Mynydd Mechel, 3.5 km to the east and south respectively.

Roman period

Direct evidence of settlement in the Roman period is absent from the north coast and its hinterland. However, several copper cakes (ingots) have been recovered from the vicinity of Mynydd Parys, south of Amlwch. These are good indicators that copper was extracted from the mountain in the Roman period, inevitably under military licence or supervision.

There is a distribution of these ingots across Anglesey with three examples known from south-east of Cemaes. Unassociated clutches of coins have also been found at Cemaes. These include one or more second century coins and a brooch from Cemaes Fawr Farm and a small hoard of seven coins of the late third century from the area of the coastguard station at Cemaes.

The Middle Ages

Evidence for the early Middle ages is slight, with the exception of the presence of the clas church and community at Llanfechell, discussed below. Unlike Anglo-Saxon churches, few, if any, Welsh churches have surviving fabric earlier than the twelfth century. The present church at Llanfechell is twelfth century and later. Clas communities were, however, considered to be archaic and decadent by the twelfth and thirteenth centuries and were suppressed in the early 1300s; a circumstantial indicator of an earlier origin.

By the twelfth century the Kingdom of Gwynedd, including the island of Anglesey, had been sub-divided into a number of regional districts for purposes of royal administration and the collection and utilisation of dues and renders. These regional units were called commotes (Welsh: cwmwd). There were six on Anglesey and in each commote there was a royal manorial centre (Welsh: maerdref) which provided a focus for administration and taxation within the commote. The maerdref would have extensive demesne lands which were worked by estate bondmen who were tied to the land under a restrictive tenure (Welsh: tir cyfrif = register land). In the wider landscape of the commote there existed other bond tenants of the king or Prince who held their land under a hereditary tenure (Welsh: tir gwelyog). Tir gwelyog tenure reflects the hereditary nature of the tenure and the term derives from the 'gwely' (= matrimonial bed) which is a shorthand way of defining the relationship, through kinship, of smallholders, free or bond, within the subdivisions of a township (Welsh: tref).

In addition to the nucleated settlement and estate centre at the maerdref and the hereditary bond tenants of the king in townships and hamlets, subdivided for taxation purposes into 'gwelyau' or lineages, there were other interests within the commote. These included the tenants of ecclesiastical lords, in this instance, the bishop

of Bangor; the tenants occupying land granted to monastic orders; quasi-monastic communities established through the alienation of land towards the support of a church, whereby the communities became the tenants of the church' and owed nothing to the king and, importantly the extensive settlements of freeholders, also grouped in townships and hamlets and subdivided into 'gwelyau'. Certain of these freeholders were the dynastic lords of great estates.

The north western corner of Anglesey, within which the study area lies, was, in the middle ages, known as the commote of Talybolion. Several important and diverse units of settlement once existed in the immediate vicinity of the Wylfa headland.

Wylfa now lies within the ecclesiastical parish and local authority ward of Llanfechell. During the Middle Ages the township was the important identifier of the community. Sometimes parish boundaries coincide with township boundaries but this is not always the case. Four medieval townships have a direct relevance in respect of the study area and its environs. These medieval townships are: Cemaes (modern Cemaes), Clegyrrog, Llanfechell and Caerdegog. Medieval townships and hamlets in the vicinity of Wylfa headland are shown on Figure 2.

The maerdref lay at Cemaes (modern Cemaes). The demesne land extended over 400 hectares to the east of the harbour of Cemaes, bounded on the west and south by the Afon Wygyr and on the north by the rising rocky ground which leads toward Llanbadrig church. The hall and royal apartments almost certainly stood towards the north-western limit of these lands where the present farm buildings of Neuadd Fawr and Cemaes Fawr now stand, and close to the harbour. English Crown surveys following the conquest of Gwynedd in 1283 throw some light on the operation of the maerdref. In particular, a survey of the rents and dues owed at Cemaes in 1352 refer to building works on the walls and roof of the hall, the chamber and chapel and the chamber of the rhaglaw (royal official) as well as making the watercourses and mending Cemaes mill. There were, by 1352, three categories of estate worker: gwyr mal (cash-rent), gwyr gwaith (workmen) and gwyr tir bwrdd (table-land men). The workforce would, once, have been very numerous but it is clear from the survey that the Black Death had decimated the population. Many tenures lay uncultivated.

The significance of Cemaes is underlined by the recurrent usage of Porth Wygyr (the harbour of the river Wygyr at Cemaes) juxtaposed with Portskewett as a simile for the length of Wales from top to bottom, as in 'from John O'Groats to Lands End'.

The free township of Clegyrrog lay to the south of Cemaes, comprising nine gwelyau. These are now represented by the present holdings of Clegyrrog Blas, Clegyrrog Ganol, Pentreheulyn and Rhosbeirio. A detached hamlet of bond tenants lay to the north west, immediately to the west of the present town of Cemaes, straddling the parish boundaries of Llanbadrig and Llanfechell and abutting the study area. This was the hamlet of Tre'r Gof (the smith's settlement), comprising two gwelyau, Goronwy Wyddel and Ithel ap Dafydd, and four bovates of escheat land in the adjacent hamlet of Castell Cefnhelyg. Escheat is land which has reverted to the king through lack of heirs to the tenement or through going against the king's peace. The location and approximate extent of the hamlets of Tre'r Gof and Castell Cefnhelyg can be reconstructed from their constituent parts. The tenement of Tyddyn Goronwy, or Tyddyn Ronwy, lies immediately east of the NDA boundary. Gwely Goronwy Wyddel is the name of one of the original components. Between Tyddyn Goronwy and the town of Cemaes Bay lie three separate but conjoined components. These, in the early nineteenth century, could be identified as Pentregof or Tre'r Gof (the name of the hamlet); Gwyddelyn (the name of the father of one of the heirs to gwely Goronwy Wyddel in 1352) and Castell and Cefn Helyg to the south. Llanfechell, now the name of the parish which incorporates the Wylfa headland, was, originally a clas church and community organised along ancient and traditional lines as a quasi-monastic institution. During the thirteenth century the clas was suppressed, along with other comparable churches in Gwynedd, as being an archaic institution and in decay. In the case of Llanfechell, the church became a parish church within a diocesan structure.

Caerdegog lies on the western boundary of the present parish, south west of Wylfa and north-west of Llanfechell. In the Middle Ages Caerdegog comprised six freeholding gwelyau and two hamlets; Llanddygfael and Cafnan. Fifteen bovates of the free gwelyau escheated to the Crown. Six of these were subsequently occupied by a bond tenant whereas, in 1352, the remaining nine bovates lay uncultivated through lack of tenants.

The hamlet of Llanddygfael lies hard on the south western boundary of Llanfechell. Half of the hamlet was freehold, however, the other half, was bond, under tir gwelyog tenure. The second hamlet, Cafnan, lies across the present parish boundary and also lies across the boundary of the NDA land holding. One third of the

hamlet was bond, probably through escheat of part of the freehold, as above. The remaining two thirds are not referred to in the 1352 survey and were almost certainly freehold. The royal surveyors were only interested in what was due to the Crown. The bond tenants of Llanddygfael and Cafnan were obliged to mill at the king's mill at Bodronyn. There is, therefore, no mention of a mill at Cafnan at this time. There is a reference to a fulling mill at Caerdegog in around 1430, although the grain mill there was called Melin Cathaearn.

The present mill at Cafnan lies on the boundary of the study area.

The post-Medieval and Early Modern period

Following the English conquest of Gwynedd in 1283 many aspects of the structure of society changed. The pattern of regional royal administration which applied during the twelfth and thirteenth centuries was not static. After 1283, however, more wide-ranging changes were put in place which were to pave the way for social and landscape change during the succeeding centuries. Lands which were formerly held by the Welsh Prince now accrued to the English Crown. Tenures were leased en-bloc as fee-farms to royal favourites and local men of standing. Consolidation took place but, in general, the pattern of landholding held. By the sixteenth century the enclosure of the open field with banks and ditches had begun and the dispersed arable quilllets of an earlier landscape were amalgamated into parcels and closes. The sale of Crown lands during the seventeenth century created many opportunities for fragmentation and new groupings and the greater consolidation of holdings in the creation of large landed estates. Some jumped the gun, as the bemused surveyor of Crown lands, John Fludde, remarked when he arrived at Cemaes in 1608

'We find the township of Cemaes to have been sometimes the kings maiesties manor, and part of ye principality of North Wales: As by a certain reccorde called the Extent book of North Wales, it dooth and may appear. And also we find that there was a patent grantaed of the said manor of Kemmais, by the late Kinge Henry the eighth of famous memory to one Nicholas Hurlton, Clerk. And that nowe one Sir Willm Thomas, Knight dooth holld and enjoy the siad manor as his free holld; and hath so doon by himself and his Ancestors, for the space of forty years and upwards ... but by what right or title, we know not (PRO, LR2/205, 128).

The process of estate building continued. In the parish of Llanfechell in the early nineteenth century, four percent of all the landholders held seventy percent of the total land. In the adjacent parish of Llanbadrig, five percent of the landlords held fifty-five percent of the land. Many of these landlords had extensive holdings elsewhere on the island. The major landholders in the vicinity of Wylfa were William Bulkeley Hughes, and Rice Thomas. Others with significant additional holdings elsewhere included Sir Richard Bulkeley, the Marquess of Anglesey, Lord Dinorben, Lord Stanley of Alderley and the Meyrick family.

This was a period of agricultural improvement as well as the consolidation of estates, which saw the replacement of small irregular and sinuous enclosures with large fields bounded by ruler-straight banks and ditches.

The Wylfa headland in the eighteenth and nineteenth centuries

(Observations made on the historic maps examined are summarised in Table 3)

Coastal charts and estate plans

The earliest available mapped information for the headland is to be found in Lewis Morris' manuscript maps towards the later published 'Plans of Harbours, Bars, Bays and Roads in St. George's Channel', published in 1748. The surveys and manuscript maps were produced some fifteen to twenty years earlier. At around the same time, Lewis Morris was surveying the lands of the Meyrick family estate and his c.1724 map of Llanrhwydris parish touches on the western neck of Wylfa. The coastal survey illustrated in this report (Fig. 3) extends from Cemlyn Bay to Cemaes Bay.

To seaward, Lewis Morris gives soundings and identified anchorages. Cemlyn Bay is considered to be a good anchorage. So is Porth y Pistyll to the east side of Porth y Felin, into which the stream by Cafnan mill flows. The mill itself is labelled and its position indicated by a sketched building. Cafnan mill is also indicated in Morris' 1720 survey of Llanrhwyrys complete with sketch of the mill, wheel included, and the leet. The land was in the hand of Mr. Lewis of Cemlyn. Across the Cafnan stream to the east of the land is part of the Carreglwyd estate. This land was later bought from Carreglwyd by William Walter Vivian and became the site of Cestyll gardens in the early twentieth century. In respect of the mill, the surveyor, Lewis Morris, had occasion to return to Cafnan in February 1740 to undertake a survey of the road to the mill through Cafnan which was, at that time, the

subject of a legal dispute between Lewis Bulkeley and John Griffiths of Carreglwyd.

There are no anchorages around the headland. Porth yr Ogo (Cave Bay), however, on the eastern side, provides a haven. The wide indentation between Wyllfa and Llanbadrig Point, north-east of Cemaes is known as Mill Bay to Morris.

Two houses are depicted on the coastal survey between Cemlyn and Cemaes, in addition to Cafnan mill. Both houses lie between Porth yr Ogof and Porth Wylfa and the name Wylfa (spelled Wylva) is attached to one of them. This is an indication of the significance of the house at Wylfa at this time as tenements at Tre'r Gof, Gwyddelyn and Tyddyn Rono (Tyddyn Goronwy) are all attested in other documents along this stretch of the coast between Wylfa and Cemaes in the early eighteenth century (Owen and Griffith, 1931). Mr. William Hughes held Wylfa in the 1730s.

In June 1739, a terrible accident occurred at sea involving two boats, one from Henborth (Old Harbour) and the other from Wylfa, at the Skerries, 3km offshore from Carmel Head. A storm blew up towards evening and the company determined to try to sail back through it. All lives were lost and the wreckage of the Wylfa boat was eventually recovered near Whitehaven on the coast of Cumbria. The boat had been built by John Thomas, nephew and heir of William Hughes of Wylfa, an indication of local boat-building on this stretch of the coastline (Owen and Griffith, 1931, 64-5).

John Evans' map

The next available mapping is John Evans' small scale map of North Wales, published in 1795. The scale of the map limits the detail but does show the route of the road from Cemlyn to Cemaes. A cluster of houses is indicated between Cafnan and Tregele and the house at Wylfa is labelled Rhiwylfawr. The headland is called Rhiwyrwylfa and the legend 'Mill Bay' is attached to Porth y Felin (Porth y Felin = Mill Bay).

Ordnance Survey 2 inch manuscript map

In the 1820s pencil manuscript maps were created by the Ordnance Survey's surveyors at 2" to the mile scale as a baseline for the published 1" to the mile series of the 1840s. Additional detail is to be found on the manuscript maps which does not appear on the published sheets.

The 2" scale pencil drawings (See Figure 2) show the road from Cafnan to Llanfechell with a branch to Cemaes and further branch roads northward on to the headland. The properties of Tyddyn Du, Pen y Groes, Tai Hirion Simnai Wyn, Tyddyn Goronw, Tre'r Gof, Ty Croes and Wylfa are all marked. Enclosed fields are indicated in association with these properties. A track leads westward from Wylfa to fields on the west side of the headland near Porth y Pistyll. A second track leads from Wylfa eastward to the sandy bay of Porth yr Wylfa and skirts it on the south to continue towards Pentre Tre'r Gof. At the point where the Wylfa headland narrows considerably at Mynydd Wylfa (not labelled on the 2" manuscript), there is shown, on the western side, a fish trap extending from a small rocky promontory at Porth Wnal (not labelled on the 2" manuscript). This is now the location of the power station outfall.

The Tithe map

The 1843 Tithe Survey and accompanying schedule (See Figure 5) provides another level of information. The level of detail in respect of roads is greater than the 2" manuscript map and we can clearly see the incipient nucleus of the village of Tregele. Otherwise topographic detail is poor. Properties, however, are named, their boundaries are mapped and their proprietors are listed. Unlike some tithe surveys, however, the Llanfechell schedule does not identify land use. The properties lying north of the Cafnan - Tregele - Cemaes road, that is, those on the Wylfa headland, are identified in the accompanying table. The significance of the tenures and their association are considered in the historical discussion above.

Ordnance Survey 1:2500 maps

The large scale Ordnance Survey mapping at 1:2500 scale between the 1880s and 1920s are very high quality and detailed surveys.

Ordnance Survey 1886

The survey of 1886 shows Cafnan mill, the mill-race and the leet which draws water from the main stream at Cafnan House, about 400m to the south-west (See Figure 6). The walled kitchen garden at Cestyll, adjacent to the house which formed the basis of Violet Vivian's ornamental garden, 40 years later, is clearly seen, with a footpath around the inner perimeter.

An old limekiln is marked between Pen-pistyll and the coastal rocks at Porth y Pistyll.

A very small property, Galen-ddu (Galan Ddu in 1843) sits among rocky, irregular fields north-west of Wylfa. Another small property, Tyn-Maes stood within small rectangular fields adjacent and to the west of Wylfa. Wylfa itself was a large property with ornamental gardens, tree-lined walks and greenhouses. The total area of William Williams' holding on the Wylfa headland, including the smallholding of Cwt (hut) and Mynydd Wylfa, was 138 acres.

The sites of Galen-ddu and Cwt are now occupied by the Power Station. Wylfa House was also demolished although all the other houses indicated on the late nineteenth-century surveys have survived in one form or another.

Ordnance Survey 1924

Forty years later, few changes have taken place to significantly affect the character of the headland (OS 25" survey, 1924, See figure 7). Some work can be seen to have been done at Cestyll. An additional range of sheds have been added to the east wall and beyond the north wall of the walled garden. Part of the eastern range of sheds can later be seen to have been a garage.

Cwt had, by 1924, been renamed as Skerries View.

On the southern boundary of Galen-ddu land a shed or barn is shown, sheltered by a rock face.

The old lifeboat station of 1886, at Porth yr Ogof, had, by 1924, acquired a slipway and a new boat house on the slipway.

Simdde Wen (Simai Wyn in the 1820s, Simdda Wen in 1924 = white chimneys, alternative spellings) had acquired some additional garden landscaping to the east of the house. To the south of Simdda Wen, the old tenement of Cae'r Brenin was abandoned and a new lodge had been built. The lodge is at a fork in the road at the approach to both properties. It was not possible during the map search to establish whether the lodge was built to serve Simdda Wen or Cae'r Brenin.

The small fields and relatively straight, linear, boundaries of the enclosures on the headland suggest a degree of intake and improvement during the early years of the nineteenth century. A large part of the area remained unenclosed. The headland is rocky, particularly towards Mynydd Wylfa and would have been used mostly for grazing.

The Wylfa headland in the twentieth century

The garden at Cestyll

In 1918 William Walter Vivian bought a tenement of the former Carreglwyd estate at Cestyll and gave it to his niece Violet Vivian, daughter of Lord Bodmin. Violet Vivian took holidays there and, in time, made Cestyll her home. She began work from the early 1920s, creating an unusual and varied garden. Violet was a maid of honour of the Queen. Princess Victoria, daughter of Edward VII, visited and designed part of the garden herself. It would seem that Violet Vivian's cottage was developed from, and on the same footprint as, a house mapped in that location on the 1886 OS 1:2500 map. A large rectangular kitchen garden is marked adjacent to the house. Violet Vivian died in 1962. The house and garden passed to her niece, Lady Astor and, in 1983 to the, then, Central Electricity Generating Board. The garden continues to be open to the public for a few days every year. The house was demolished in 1991 but the outline of the walled garden and a south-east range of sheds and a garage may still be seen.

Wartime installations

Little seems to have changed on the headland, with the exception of the development of Cestyll garden, described above, before the onset of the second world war. During the war a Chain Home radar defence station was established at Wylfa. A 1948 vertical aerial photograph (WAG 541/RAF/206 Frame 4020, Nov. 20, 1948) shows the installation (See Figures 8, 9 and 10). Two tall wireless masts stand close to the cliff edge near Porth y Gwartheg while a semi-circular ring of low, dome-shaped, bunker-like structures run from Wylfa House

to Porth y Pistyll. The staff complement at these stations was large and several structures which appear to be agricultural buildings, additional to those mapped in the 1920s, may be associated with the operation of the base.

The purpose of a Chain Home station was detection of enemy aircraft by radar or, in some instances, as along the north coast of Wales, the management of shipping in the Liverpool approaches. The radar worked by 'floodlighting' the sky with pulsed radio waves. The 'echo' from obstacles in the path would be received and displayed at the base station.

The Power Station

The then Central Electricity Generating Board (CEGB) applied for consent to build Wylfa power station in 1960 and a public inquiry commenced in 1961 to consider the application, with consent being given in late 1961. In 1963, following various technical reports and site investigations, work began on the construction of the site and its two Magnox reactors. The main construction phase lasted through the 1960s. Wylfa was the last and largest of this design of reactor. The power station was officially commissioned in 1972. In 1973, the CEGB received a Financial Times Industrial Architecture Commendation for Industrial Design.

The footprint of the power station extends over 50 hectares, however the NDA owned land including the power station comprises approximately 115 hectares and includes areas of farmland to the south and east of the power station. This is land formerly held by the tenements of Wylfa, Simdda, Penygroes, Tai Hirion, Tyn y Maes, Cae Brenin, Galen-ddu, Pen y Pistyll and part of Cafnan.

The Reactor building dominates the Wylfa site and is a large concrete structure housing two Magnox type reactors between which is the active effluent treatment plant (AETP), the three primary dry store cells and solid waste voids. To the west of the Reactor building, are the Secondary Dry Store Cells. The Reactor building includes a large concrete basement some 10m below ground level.

The Turbine Hall (including ancillary buildings) occupies the eastern side of the site. The basement level of the building is some 5m below ground level with the reinforced concrete extending to 3m above ground level. South of the Turbine Hall are the main administration buildings, the station canteen and workshops/stores. Adjacent to the offices extensive parking is provided, with overspill at Porth y Gwartheg. A visitor centre stands alongside the approach road to the south-eastern side of the complex adjacent to Simdda Wen.

The northern area of the site contains the water treatment plant, to the north of the building are two sets of tanks set within concrete bunds to supply acid and sodium hydroxide for use in the treatment process, two brine tanks and four water holding tanks located across the road to the north, which link to the building via a pipe bridge. The gas turbine plant with its four distinctive exhaust stacks is located adjacent to the water treatment plant.

North of the fuel tanks is an open area leading to the main site cooling water (CW) outfall, this area is covered in made ground comprising primarily broken bedrock. Adjacent to the CW outfall are the backup sewage treatment works and holding tanks, where the site sewage is stored before being pumped to the main treatment works located outside of the site boundary to the north-east. The north-western area of the site is occupied by a number of laydown areas, and also contains the active incinerator and the carbon dioxide tanks/plant. North of the carbon dioxide tanks set behind blast walls are two large fuel oil tanks.

In the western area of the site is the Pumphouse and associated plant, which are set within a deep concrete basement excavated into the bedrock at the level of the CW intake tunnels. The Pumphouse draws water from the sea via the intake tunnels, filters and treats this water before pumping it to the Reactor building.

The southern area of the site is dominated by the contractors compound, which comprise two storey, temporary, prefabricated cabins used as offices, rest rooms and change rooms.

To the east of site (outside of the licensed boundary) are the 400kV Switch house supplying the national grid and the 132kV Switch house supplying the Anglesey Aluminium Company. A municipal sewage works is located to the east of the CW outfall on Wylfa Head.

Construction of the site was a massive undertaking with deep excavations for the cooling water pump-house,

reactor building, turbine hall and outflow. (See Photographs 1 and 2). During the early construction phase of the station the site was levelled into two platforms, which involved the removal of material (both drift and rock) from high areas (mainly to the east) and the deposition of material in low areas (mainly to the west and north). The first platform was constructed to the east for the Switch-houses at a level of approximately 18m AOD. The second platform was for the main site buildings (Reactor and Turbine Hall) at a level of 12m AOD. West of the Reactor building, sea walls were constructed and the area backfilled to form a gentle westward dipping slope down to approximately 6m AOD. Excavation for the reactor building would have reached 13m below the existing ground surface and 7m depth for the turbine hall. During the construction period work camps were established in the areas to the south and east of the current site boundary. Following construction, banks of earth were disposed in this area and planted with trees to create a degree of landscaping from the landward viewpoint.

In 1989 proposals were made to construct a second reactor adjacent to the existing power station with a new Sizewell B PWR design. The new station would be named Wylfa B and was programmed that construction might begin in 1991 with output commencing in 1998. The proposals were never implemented.

The present station is due to be decommissioned in 2010.

Summary and recommendations

The Wylfa headland and its hinterland form part of an important historic landscape. The evidence for Prehistoric activity is lacking. However, during the Middle Ages the hamlets of two Medieval townships, Tre'r Gof and Cafnan, had a tenurial interest in the headland. The ancient mill at Cafnan stands at the neck of the promontory. The hamlet of Tre'r Gof encompassed the harbour of Porth y Wylfa. Within a radius of 2km lay the royal administrative centre of the commote of Talybolion at Cemaes (modern Cemaes) and the quasi-monastic clas community at Llanfechell.

Access to the sea would have been an important resource. Boats were built locally at Wylfa and a fish trap on the north-western side of the headland reflects another aspect of the use of the shoreline. The intractable northern tip of Wylfa must always have been used by local communities for pasturing animals.

The second world war found another use for the accessible but locally prominent coastal promontory when a Chain Home radar base was established there.

Twenty years later the headland was transformed by the construction and operation of a nuclear power station, the largest of that particular Magnox design. The site of the power station was chosen with regard to topographic and ground conditions as well as its proximity to the coast with access to cooling water.

The construction of the site, with its deep excavations is likely to have removed all traces of structural evidence for past use of the headland within the footprint of the power station. However, certain features of the historic landscape have the potential to have survived the disturbance of construction within the immediate vicinity of the power station, in the area of car-parking and overflow car-parking between Porth y Pistyll and Porth y Gwartheg and in the vicinity of the outflow at Porth Wnal and within the wider curtilage of the of the NDA land holding. Identified features are indicated in figures 4 and 10 and in the tables listing Historic Environment Records and sites identified during map and aerial photographic searches (Tables 1 and 2). Furthermore consideration should be given to the following recommendations before any decommissioning works which might involve ground disturbance in that wider area through the removal, transportation and storage of materials and the establishment of work camps and so on.

1. Walk over survey of the site to identify any surface evidence of previous occupation and land use, including agricultural, industrial, maritime and wartime operations.
2. Certain of the tenements on the headland have a long history. This is particularly the case at Wylfa House itself and in those areas where the boundaries of the Medieval hamlets of Tre'r Gof and Cafnan impinge upon the headland. Surface investigation should give particular consideration to any indication of early settlement features in these areas.

3. Particular consideration should be given to establishing whether certain landscape features identified during the desk-top study have survived and to a level of recording as appropriate. These might include the fish trap mapped at Port Wnal in the 1820s, the 'Old' lime kiln mapped at Porth y Pistyll in the 1880s and the sites of the military installations which have not certainly been destroyed during construction work.

4. In view of the industrial significance of the Power Station complex, consideration should be given to its recording at an appropriate level before dismantling works are undertaken and for records relating to its construction and use to be deposited in an appropriate archive.

Table 3: Table of observations made in respect of map searches

Map	General Observations	Figure Number
Lewis Morris manuscript coastal chart, c.1724	Coastal soundings, good anchorages shown, including Porth y Pistyll Cafnan Mill shown Porth yr Ogo shown as a haven Wylfa house shown	Fig. 3
Bodorgan Estate Map, 1720	Cafnan Mill shown	page 14
John Evans' map	Road from Cemlyn to Cemaes shown Cluster of houses between Cafnan and Tregale as incipient village Wylfa house labelled as Rhiwylfawr (= Yr Wylfa Fawr = Great Wylfa) Mill Bay (= Porth y Felin) shown	page 14
Ordnance Survey 2 inch manuscript map	Road from Cafnan to Llanfechell with a branch to Cemaes and further branch roads northward on to the headland shown. Tyddyn Du, Pen y Groes, Tai Hirion Simnai Wyn, Tyddyn Goronw, Tre'r Gof, Ty Croes and Wylfa are all marked and enclosed fields are indicated in association with these properties. A track leads westward from Wylfa to fields on the west side of the headland near Porth y Pistyll. A second track leads from Wylfa eastward to the sandy bay of Porth yr Wylfa and skirts it on the south to continue towards Pentre Tre'r Gof. A fish trap extending from a small rocky promontory at Porth Wnal shown	Fig. 4
Tithe map	Incipient nucleus of the village of Tregale shown. Property boundaries and house locations shown and named in the accompanying schedule (see Fig. 5)	Fig. 5

Ordnance Survey 1:2500 map 1886	<p>All properties identified in 1843 shown</p> <p>Cafnan mill, the mill-race and the leet shown.</p> <p>The walled kitchen garden at Cestyll shown.</p> <p>An old limekiln is marked between Pen-pistyll and the coastal rocks at Porth y Pistyll.</p> <p>Lifeboat station at Porth yr Ogof shown.</p> <p>Wylfa house with ornamental gardens, tree-lined walks and greenhouses and the smallholding of Cwt (hut) shown</p>	Fig. 6
Ordnance Survey 1:2500 map 1924	<p>An additional range of sheds have been added to the east wall and beyond the north wall of the walled garden at Cestyll.</p> <p>The smallholding, Cwt, had, by 1924, been renamed as Skerries View.</p> <p>A shed or barn is shown on the southern boundary of Galen-ddu.</p> <p>The old lifeboat station of 1886, at Porth yr Ogof, had, by 1924, acquired a slipway and a new boat house on the slipway.</p> <p>Simdde Wen (Simai Wyn in the 1820s, Simdda Wen in 1924 = white chimneys, alternative spellings) had acquired some additional garden landscaping to the east of the house. To the south of Simdda Wen, the old tenement of Caer Brenin was abandoned and a new lodge, ? to Simdda Wen, had been built.</p> <p>Small fields and relatively straight, linear, boundaries of the enclosures on the headland suggest a degree of intake and improvement during the early years of the nineteenth century.</p>	Fig. 7
Aerial Photograph	General observations	Fig. Number
WAG 541/RAF/206 Frame 4020, Nov. 20, 1948	Two tall wireless masts stand close to the cliff edge near Porth y Gwartheg. A semi-circular ring of low, dome-shaped, bunker-like structures run from Wylfa House to Porth y Pistyll. These represent the components of a wartime (1940s) Chain Home Radar installation.	Fig. 8

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Tithe maps and schedules Llanfechell and Llanbadrig parishes

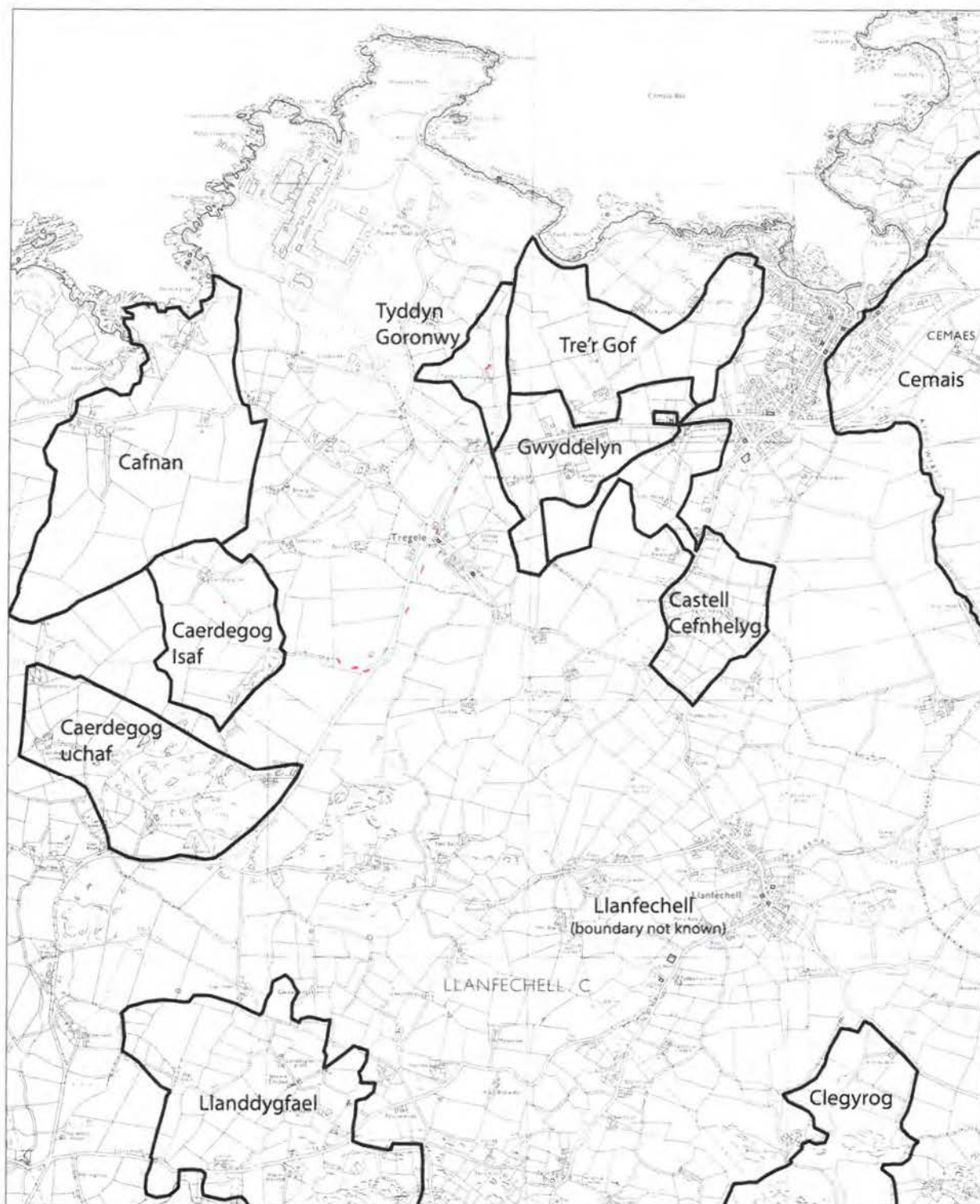


Fig. 2: Medieval townships and hamlets in the vicinity of Wylfa headland

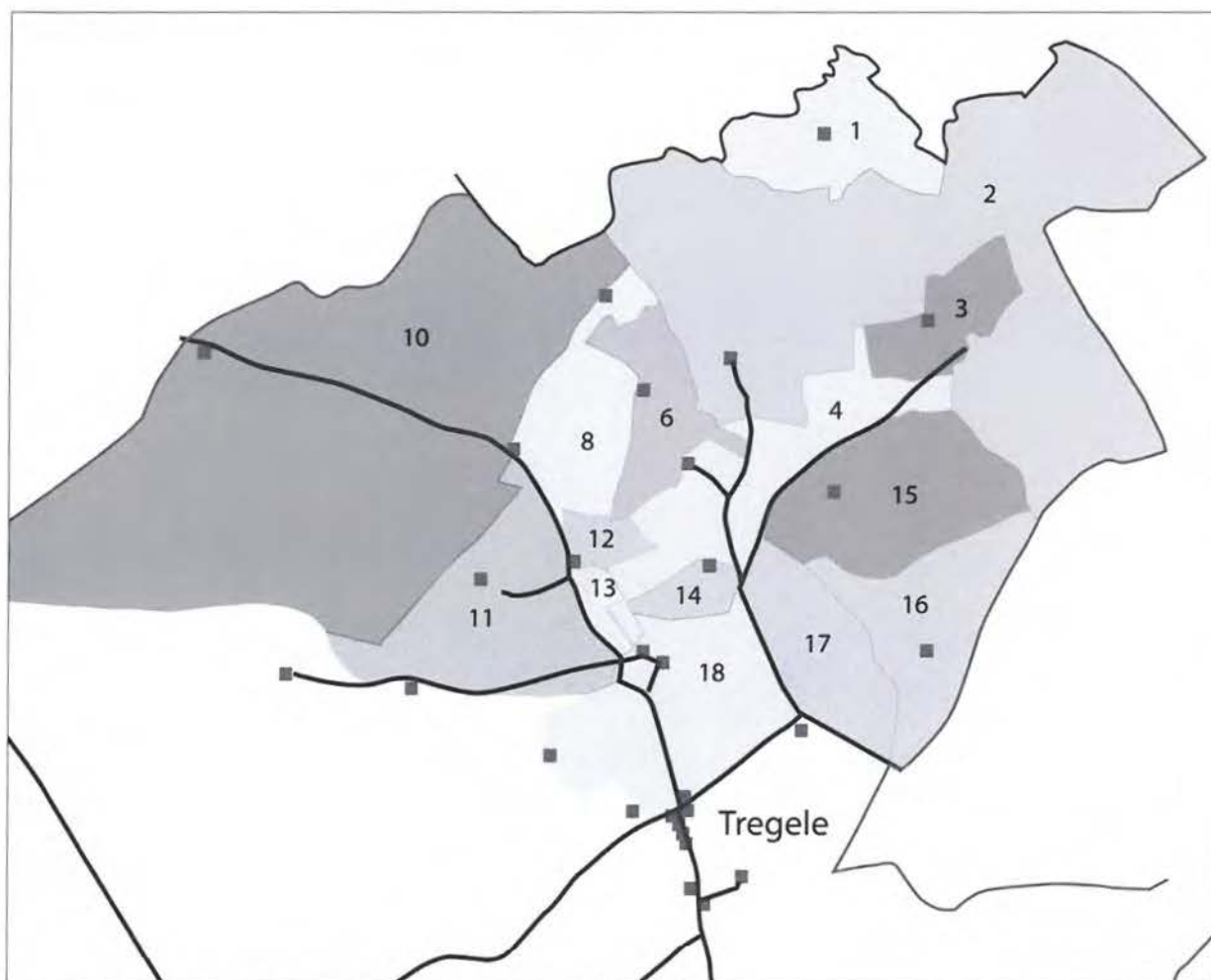


Fig. 5: Tithe survey and schedule for Wylfa headland. 1843

Tithe

Schedule no.	Property	Proprietor
1	Galan Du	Edmund Meyrick
2	Wylfa	William Williams
3	Tyn y Maes	Hugh Jones
4	Simdde Wen	Thomas Griffith Grace Hughes
5	Cwt	William Williams
6	Tai Hirion	Rice Owen
7	Pen Pistyll	Edward Williams
8	Tyddyn Iocyn	Edward Williams
9	Pen Pistyll	Edward Williams
10	Cafnan	Richard Trygarn Griffith
11	Rhwng y ddaufynydd	William Bulkeley Hughes
12	Pen y Groes	Revd. Edward Owen Hughes
13	Pen y Groes Isaf	Edward Williams
14	Cae Brenin	Revd. Robert Williams
15	Ty Croes	Owen Jones
16	Tyddyn Ronwy	Mary Hughes
17	Pen Lon Revd.	Robert Williams
18	Tyddyn Du	Edmund Meyrick

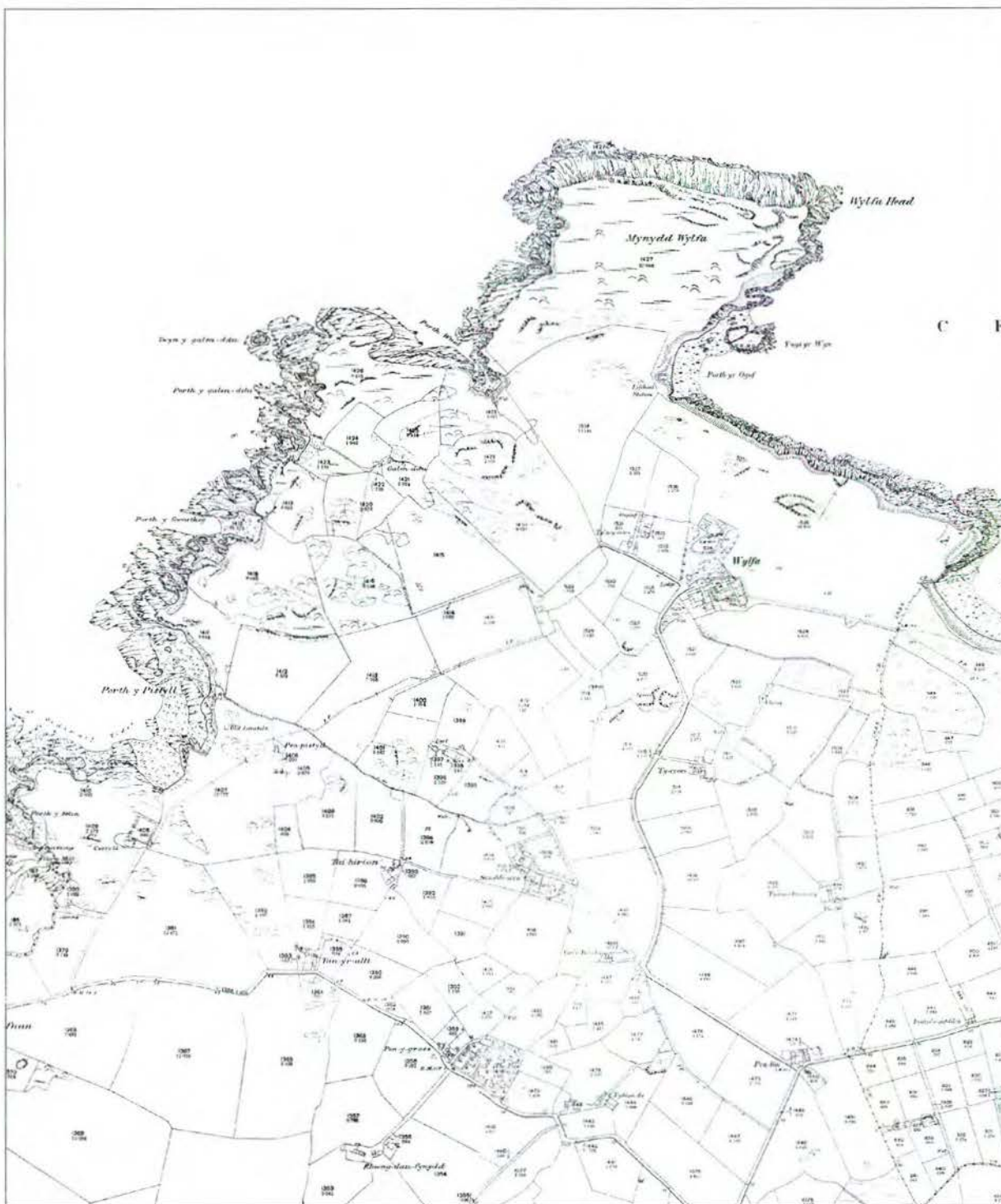


Fig. 6: OS 1:2500. Wylfa headland. 1886

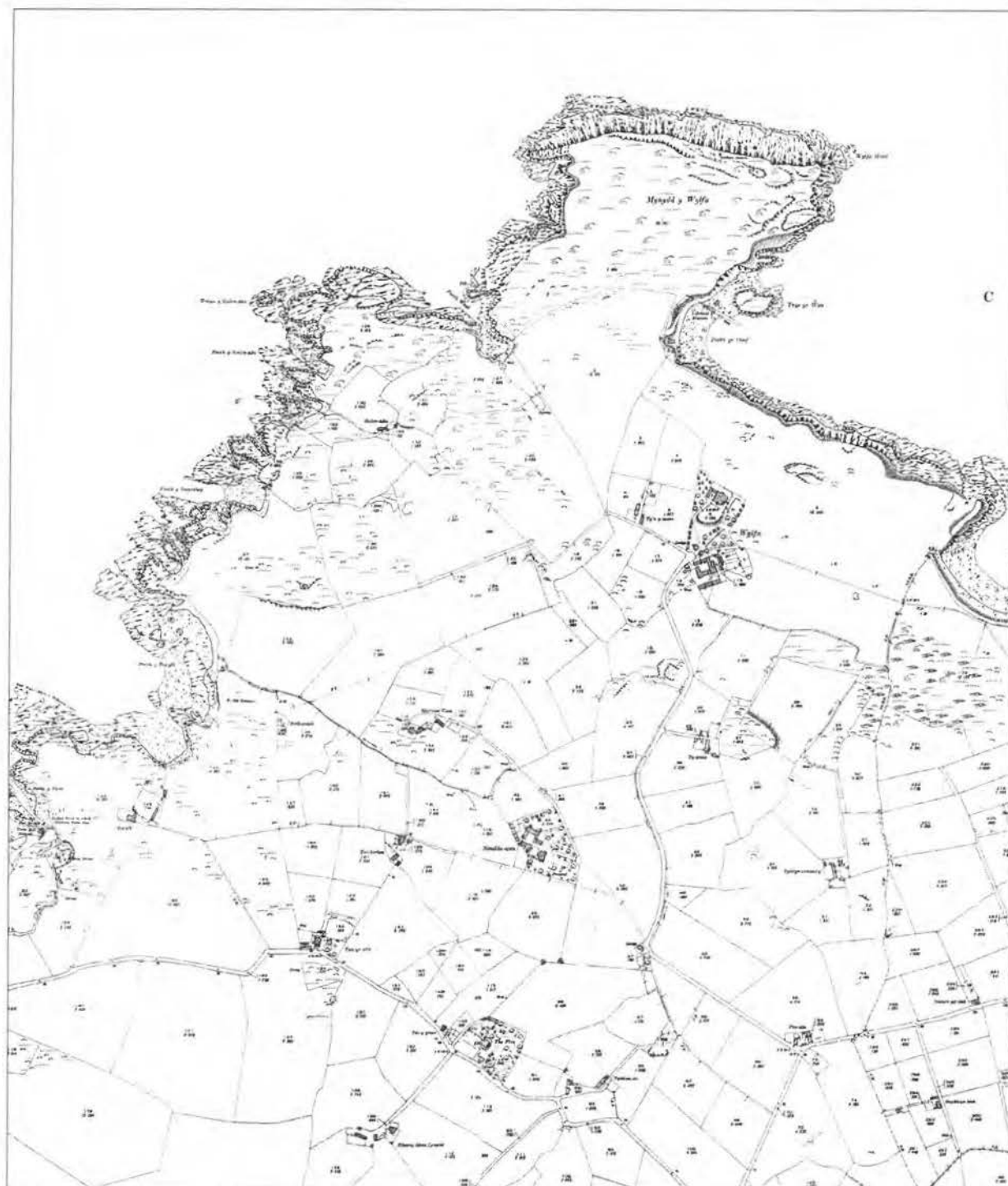


Fig. 7: OS 1:2500. Wylfa headland. 1924



Fig. 8: Wylfa headland. Vertical aerial photograph 1948



Fig. 9: Wylfa headland. Vertical aerial photograph with wartime features highlighted: 1948



Fig. 10: Wylfa headland. Vertical aerial photograph with location of wartime features highlighted: c.2000



Photograph 1: Wylfa under construction: showing the outflow and the reactors and turbine hall



Photograph 2: Construction of the reactors and turbine hall at Wylfa during the 1960s

