Eithinfynydd Water Treatment Works:
Tal-y- Bont, Gwynedd

Archaeological Evaluation

GAT Project No. 2099
Report No. 856
May 2010

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust
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Archaeological Evaluation:
Eithinfynydd Water Treatment Works

Report No. 856

Prepared for
Caulmert Ltd.

May 2010

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G2099 EITHINFYNYDD WATER TREATMENT WORKS

ARCHAEOLOGICAL EVALUATION

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EITHINFYNYDD WATER TREATMENT WORKS (G2099)

ARCHAEOLOGICAL EVALUATION

Summary

An archaeological evaluation was conducted on land to the north of Eithinfynydd in advance of an extension of the existing Water Treatment Works. The area of land in the vicinity of the development area consists of four relict field systems known as Cae Erwerth which was assessed by Gwynedd Archaeological Trust (GAT Report 831). Seventeen above ground features where identified within this assessment. The site is located within 200m of a medieval platform house, which is a Scheduled Ancient Monument.

The archaeological evaluation consisted of the excavation of Features 3 and 4 (GAT Report 831) and the soil stripping of the main development area identified as area F.

Feature 3 appeared to be associated with agricultural field clearance. Artefact evidence recovered from Feature 3 gave two dates from the mid 1700's and the late 1800's, although the former is residual. Feature 4 appeared to be a fragment of relict field boundary, which may be of medieval date, although later material had been dumped upon it.

While carrying out the stripping of Area F a small rubble bank was identified and numbered Feature 18. It seemed to indicate a later dump of stone brought in for the reconstruction of the field boundary after the construction of the water treatment works in the 1980s. No other archaeological features were observed within the area stripped.

1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) has carried out a programme of archaeological evaluation and excavation work at the Eithinfynydd Water Treatment Works, Tal Y Bont, Gwynedd for Black and Veatch on behalf of Dŵr Cymru Welsh Water, in advance of a proposed extension of the Water Treatment Works. The work was monitored on behalf of the Local Planning Authority by the Snowdonia National Park Authority (SNPA) archaeologist. An initial archaeological and geophysical assessment was carried out in 2009 (Berks and Evans 2009; Hopewell 2009).This assessment identified a number of above ground features associated with the Medieval to Post Medieval agricultural use of the land, and identified potential for buried archaeology. A project design for archaeological evaluation and mitigation of features 3 and 4, and a 70m by 10m area at the south east edge of the assessment area (Fig. 2), was produced for this work (Appendix 2). This was agreed with the client and the SNPA Archaeologist.

This document reports on the final fieldwork phase of the project, and includes the results of the excavations undertaken during January and February 2010.

2 METHODS AND TECHNIQUES

The evaluation excavation was carried out between 18th of January and 9th February 2010 with a maximum of four archaeologists.

The trenches were surveyed in relation to the whole site and planned at a scale of 1:20, and nine sections were drawn at a scale of 1:10. Each distinct layer or evidence of archaeological activity was given its own unique context number and a descriptive record made, and these are referred to throughout the discussion of the results below in brackets. Their relationships to each other were shown on the scale drawings and a photographic record was maintained.

The design identified three specific areas of work (Fig. 2):

- Area F – Area of direct impact
- Feature 3
- Feature 4

Area F - Area of direct impact

This area was fully excavated using a strip and map technique. This involved the examination of machine-stripped surfaces to identify archaeological remains. The removal of plough soil was undertaken by a 360 degree tracked excavator fitted with a 1.8m toothless bucket. Machine stripping ceased when archaeologically significant deposits were encountered, or when the topsoil and subsoil had been removed to the underlying glacial till. Feature 18 was identified in this area.

Feature 3

This feature was a large bank of stones, 11m in length on an approximate north-south alignment. The width was variable but measured between 5-6m. This feature was de-turfed by hand and planned at a scale of 1:20. It was then excavated by removing the north-west and south-east quadrants down to the natural subsoil. The sections through the deposits thus revealed were drawn to scale.

A slot, 1.6m wide and 5.2m long was cut across the feature 2.4m south of the quadranted area (Fig. 3; Feature 3B)

Feature 4

Feature 4 was a larger curvilinear tree-covered bank, curving from the south to the west, with a length of approximately 20m, a width between 2-3m and a maximum height of 1m. A trench 1.6m wide was cut across this feature.

3 ARCHAEOLOGICAL EXCAVATION RESULTS

3.1 Introduction

The excavation consisted of five excavation trenches (Fig. 2, inset), evaluating features 3 and 4 and open area (F). The results of these are described below, and an interpretation of the results is offered in section 5 below.

3.2 Area F

Area F comprised a 70m long angled strip approximately 10m at its widest point, bounded on the south by the water treatment works boundary wall (Figure 2). The area was stripped to the natural soils layer under supervision of an archaeologist to a depth between 0.30m and 0.43m.

The southern end of Feature 4 (Fig 2) protruded into this stripped area and was excavated at this stage. Feature 18 was identified along the northern edge of the stripped area approximately 50m north of Feature 2.

3.2.1 Feature 18 (Fig. 5; Plates 3-4)

This feature was identified during the strip and map process (Figs. 2, 5-6). Feature 18 consisted of a large stone spread within dark greyish brown sandy silt (010) approximately 13m in length on an east-west alignment and 3m wide at its widest point. It had a maximum depth of 1.10m (010) and overlaid firm light brown sandy silt with sub rounded stone inclusions which were occasionally large (layers 008 and 009).

The upper surface of the lower deposits, (008 and 009), lay at the same height as the surrounding ground surface. The deposits averaged 0.3m deep, and they are best interpreted as the pre-existing soil upon which the stones forming the stone spread were

placed. The two contexts are similar in character to the surrounding deposits which make up the present ground surface.

A significant quantity of modern material, including potato crisp packets and drinks cans, were recovered from within and under the stone dump 010. Feature 18 is therefore interpreted as a stone dump created in the 1980's during the construction of the existing water treatment works.

3.3 Feature 3

3.3.1 Feature 3

Feature 3 was visible as a roughly circular grass-covered stone cairn, to which was attached on the south a bank of stone (fig 2 inset; fig 3). To the north-west lay another bank of stone (feature 3A) separated from feature 3 by a small gap of approximately 1m in width.

Excavation showed that feature 3 consisted of a large bank of stones, 11m in length on an approximate north-south alignment (Fig. 3; Plate 1), which widened at the north end to form the 'cairn'. The width of the feature varied between 5m and 6m. The concentration of stones was defined by large to medium stones (004), to a depth of 0.46m and a deposit of small sub-angular stones (005) (Fig. 4; Plates 5-6). Both stone deposits were within a subsoil matrix and were covered with a thin layer of turf. A pipe bowl was recovered from the stone layer (004) dating from 1600-1750 (Ayto 2008).

An excavation trench across the bank south of the 'cairn' revealed a stone and earth bank built along a natural break of slope. A large amount of modern material was found within the turf layer (003), and this layer can be associated with 1980's construction activity. Upon removal of the turf, some large stones were revealed (007), which overlay the main stone deposit (006). Below this was a light brown silty clay (002), which was probably a former topsoil. A Victorian farthing of 1899 was recovered from this deposit (Plate 8).

The discovery of a well stratified 1899 farthing in context (002) of feature 3 indicates a 20th century phase of field clearance, which was subsequently overlain by a later phase of activity (004) and (005), which contained the clay pipe stem. One of the phases might be related to the construction of the first water treatment works.

3.3.2 Feature 3A

Approximately 1m to the north-west of feature 3 was a second smaller bank of stones which ran on an east-west alignment and was some 4.5m long and 3m wide. Covered with a layer of turf 0.14-0.22m deep (003) the east-west aligned feature was made of large to medium stones (013) in a loose mid brown clay silt soil matrix with a maximum depth of 0.80m (Figs 3, 4). Smaller stones were noted at the top of the mound under the turf layer. There appeared to be no physical association between feature 3 and 3A, and it is possible they represent two separate phases of field clearance.

It appears that the stone deposits and the bank are likely to be of a similar date and follow a tradition of the building up stone material along a natural break of slope. The natural terrace would be a convenient place to collect the stone, as it formed a natural division between two cultivatable areas. Feature 3 and feature 3A are similar to other agricultural clearance cairns seen in this area (features 1, 2 and 5 (GAT report 831).

3.4 Feature 4

Feature 4 was visible as a larger tree-covered bank, curving from the south to the west, approximately 12m long, 2-3m wide and 1m high. A section excavated across the bank showed it contained sub angular and flat stones (012) close to and on the turf covered surface. Below this the bank was made up of lose brown clayey silt with occasional small to medium sub-angular stones with a higher proportion of stone at the top of the bank. This layer overlay the natural glacial clay silt subsoil (001).

No dating evidence was recovered from feature 4. It is best interpreted as the remains of a relict field bank which relates to an earlier (pre-19th century) field system.

4.0 FINDS

4.1 Introduction

Finds were only identified in two contexts, both associated with feature 3, and these are listed in the table below. The fact that the coin find was made in a stratified context indicates that feature 3 results from clearance which post-dates 1899. The clay pipe bowl would appear to be a residual find that may have been picked up as part of the field clearance.

4.2 Finds Table

Description	Material	Context	Quantity	Date
Queen Victoria farthing	Copper Alloy	002	1	1899
Clay pipe bowl	Clay	004	1	18th cent.

5.0 ARCHAEOLOGICAL DISCUSSION AND INTERPRETATION

5.1 Introduction

This discussion of the archaeological background places the archaeological evidence from the excavations in a wider historical and archaeological context. The background information draws heavily on Berks and Evans 2009, but includes additional information.

5.2 Prehistoric and Roman

The high level of survival of prehistoric and Roman settlement patterns on the Ardudwy Uplands is one its defining characteristics (Kelly 1982; Johnston and Roberts 2009). These sites probably have their origins in the later Bronze Age and some may continue through to Early Medieval times, though accurate dating of remains is often very difficult.

A significant amount of evidence for settlement in the late prehistoric and Roman periods survives close to the development area. A defended settlement (PRN 1071) has been recorded about 100m west of the farm house at Eithinfynydd, consisting of a defensive stone wall enclosing an oval area of about 40m by 30m. Another hill-fort is located at Craig y Dinas to the south (SH 62432300, PRN 1107), where a wall 2.8m thick encloses the summit of a rocky knoll (Bowen and Gresham 1967, 156-160). Settlements at Tyddyn y Felin (PRN 1078) and Eithinfynydd (PRN 841) have been noted which are thought to date from this period.

Elsewhere in Ardudwy where survival of settlements of this period is very high, as for example at Muriau Gwyddelod south-east of Harlech, the evidence suggests a fully developed agricultural landscape, with terraced field systems and enclosures linking settlement remains. The origins of the terraced field system visible at Eithinfynydd are obscure, and no evidence for prehistoric origins were found during the excavations, though it is possible such evidence may survive in contexts close by.

5.3 Medieval

There is considerable evidence for medieval occupation of the upland slopes of Ardudwy (Gresham 1954, 18-53; Hooke 1975, 221-230; Roberts 2006), and the evidence suggests, as in the later prehistoric and Roman periods, a developed agricultural landscape of settlements and field systems. The structures comprise a variety of shapes and sizes, but in most cases they are rectangular, and usually set within enclosures or paddocks. They were generally considered to date from between about 1150 and 1400 (*ibid.* 43), and thought to represent expansion of population in the high Middle Ages, before a deteriorating climate and plague caused desertion of settlements, and a move away from the more marginal lands. However it

is difficult to identify defining characteristics of these structures (Roberts 2006, 172), and rectangular buildings can be found from all subsequent periods (Smith and Thompson 2006, 128). A proportion of the upland sites are considered by Kelly to represent a *hafod* or summer upland dwelling related to the more permanent *hendre* located on lower ground.

The survival of settlement sites characterised by relict rectangular buildings seems generally to lie between 150m and 200m OD (Hooke 1975, 225), although the absence of such sites on lower ground is likely to be a matter of lack of survival and subsequent development along the coastal plains, or continuity of settlement where the hendre was located. To the west of Eithinfynydd the field name Caer Fotty on the tithe map, meaning 'Field of the *Hafod*' further suggests that the rectangular structures that have been identified in the area are *hafodydd* (Hooke 1975, 228 and map 5C). The complexity of the settlement and field patterns surviving from this time at Eithinfynydd does however perhaps suggest that mixed and year round agriculture is being practiced rather than seasonal occupation.

A platform house and settlement, which is a Scheduled Ancient Monument (Me 202, PRNs 5069, 15653) is located immediately west of the proposed study area. The site is an extensive settlement with evidence for at least three long houses within an enclosure, well preserved wall facing and the remains of a drainage hood (GAT 1999, 12-13). There is an enclosure, possibly associated with the group, to the east of the scheduled area within the south-west corner of the study area (Site 10; Fig.2) (Berks and Evans 2009). Other sites of this type within the immediate vicinity of Eithinfynydd include an example to the south-west (PRN 5857), and a robbed out example 250m north (PRN 2939). Feature 6 located within the current study area is another example. Remnants of banks and terraces hint at a wider agricultural landscape of terraced fields and paddocks which once linked these settlements. These are thought to be represented within the study area by the terrace west of feature 14, and perhaps by feature 4.

5.4 Post-Medieval

5.4.1 Sixteenth century

Pressure on the land is revealed by 16th century encroachment on to the common lands in the Ardudwy area. These were usually to be found on the fringes of the open hillside commons. This included 78 acres within the parishes of Llanddwywe and Llanaber (Hooke 1975, 227). Settlement appears generally to coalesce around the current farmsteads at this time, and downward expansion on to the coastal marshland is also apparent. It is likely that surviving *hafodydd* were kept as individual farmsteads rather than as a communal upland resource (Longley 2006, 81).The nearby farmhouses, Eithin Fynydd, Cae Tanni Llecheiddor Uchaf and Isaf, and Llwyngwyn can be seen to be in existence by the time of the Cors-y-Gedol survey of about 1770, and probably have their origins in early post-medieval times, although the surviving buildings themselves are later in date.

Authorised enclosure was also a feature of Ardudwy in Tudor times, and it has been suggested that it 'did not proceed from either a need or a desire to create independent farms, but was rather the visible product of an internal struggle for wealth and power between already well-established landowners' (Thomas 2007, 136). However this creation of independent farms was the main outcome of the enclosures carried out at this time, and the parochial and community orientated life broke down in favour of farms owned by the large centralised estates of gentry families, such as the Vaughan's of Cors-y-Gedol.

A post-medieval building within an enclosure has been noted 400m east south east of the development area (PRN 6676).

5.4.2 Eighteenth century and later

An estate map of the Mostyn family, but previously belonging to the Vaughans of Cors y Gedol, and dated to about 1770 shows all the fields surrounding the development area (UWB Archives, Mostyn MSS S8678). The study area itself is described as Mr Griffith of Brynodol's

Land, a Caernarfonshire estate which had obtained the holdings of the Taltyddyn estate in the county of Merioneth. It appears to have been surveyed by the Cors y Gedol estate, and is shown as rough pasture, and to be completely surrounded by Cors y Gedol land. The area to the north is shown as a mixture of semi-improved and unimproved pasture; however some arable agriculture appears to be taking place, to the north and also west (field E9). The location of the current Water Treatment Works (field E11) is shown as rough pasture, and to be part of Cae Tanni farm. The map shows that there has been a significant survival of field boundaries from the third quarter of the 18th century to the present day in the area, although some of the field boundaries associated with the smaller arable fields to the north appear to have been lost. The platform upon which the medieval house (Site 12, SAM Me 202) is situated is shown on this map in field E10, along with an adjacent structure, probably also associated with the monument. A structure is also noted in field E9, which may be a field barn (Site 11). The Brynodol and Llanfair estate map of about 1800 (NLW, Vol 94/9/2) also shows the study area as a single field (Field 28) called Cae Erwerth, and noted that the trackway (site 17, 29 on estate map) is associated with it.

Similarly the tithe schedules and map for the parish of Llanddwywe (National Library of Wales) show that the pattern of field boundaries in the area noted then have remained mainly unaltered to the present day, though the relict field boundaries dividing the assessment area (Berks and Evans 2009) are shown (fields 464-468). The fields were part of Llwyngriffu farm, and they are described on the tithe schedule as below, along with adjacent fields belonging mainly to the Mostyn Estate.

The fact that the fields forming the study area are all described as Cae'r Erwerth (part of) suggests that they formerly were part of a single field, as is shown on the c. 1770 Cors y Gedol estate map, and the c.1800 Llanfair and Brynodol estate map. This suggests that the field sub-divisions (features 7 and 8) are of early 19th century date.

The same features are shown on the Sale Catalogue of the Cors y Gedol lands when a significant amount of land to the east was purchased by Lord Mostyn in 1858 (Mostyn MSS S8628), making him the major landowner in the area. Cae Tanni farm formed lot 59 of the sale, and included all the area surrounding the development area and the site of the current water treatment works.

The Ordnance Survey 1st edition 25 inch map of 1889 shows the medieval house platform (Fig. 2; Site 12), and possible field barn (Fig. 2; Site 11). The field boundaries seem generally unaltered from the tithe map of 1840. By the time of the 2nd edition 25 inch Ordnance Survey map in 1900 this trackway has gone, when a reservoir had been built to the south of the assessment area by Barmouth Urban District Council Water Works, the forerunner of over a century of works relating to public water supply on the site.

Features 3 and 3A have been identified as stone dumps of 20th century date, probably resulting from field clearance activity, or from first phase of construction of the water treatment works. Feature 18, containing recent waste material, is a modern stone spread relating to re-building at the Water Treatment Works site in the 1980s.

6.0 CONCLUSION

The evaluation excavation at Eithinfynydd has demonstrated that Feature 4 is a relict field bank of stone and earth. Although no dateable material was recovered from within it, it does not respect the 19th century field system (Features 7 and 8), and is therefore thought to pre-date it. It may therefore be a surviving element of the medieval field system, possibly associated with the long hut (Feature 6).

Features 3, 3A and 18 can demonstrably be shown to be stone dumps. Features 3 appears to have two phases of clearance activity, and may be of 19th and early 20th century date, containing an 1899 farthing in a stratified context. Feature 18 was a modern feature containing modern finds, and was probably the result of field clearance associated with the building of the current Water Treatment Works in the 1980s.

7.0 ARCHIVE

The archive consists of 13 context record sheets, register sheets, digital survey data, 11 scale drawings, 52 digital photographs, and two finds. They are currently held at GAT under project code **G2099**.

Three copies of the bound report will be sent to the SNPA archaeologist, and a further copy sent to the HER Archaeologist at the curatorial division of Gwynedd Archaeological Trust, Bangor, for deposition in the Regional HER. A hard copy and digital version of the report will be provided to the National Monument Record, Royal Commission on the Ancient and Historic Monuments of Wales, Aberystwyth.

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Bangor University Archives

Mostyn MSS

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B 8672 *Allotments in the Parish of Llanddwywe*
S 8628 *Plan of parts (lots 41-59) of the Cors-y-Gedol estate in the parishes of Llanenddwyn and Llanddwywe, co. Meirioneth to be sold 10 November 1858*

National Library of Wales

Tithe Map of the Parish of Llanddwywe, Meirionydd 1842
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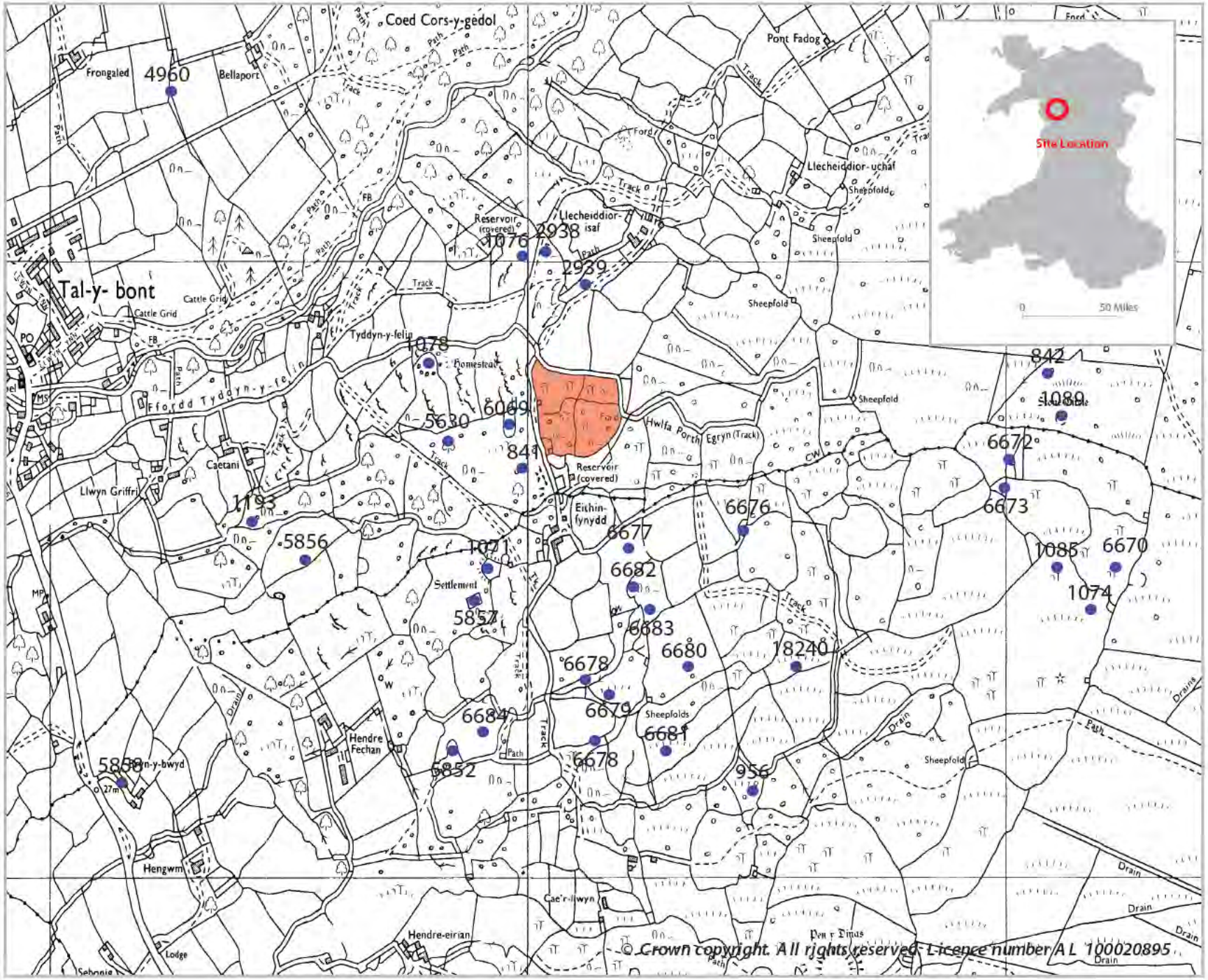


Figure 1: Study Area Location. OS 1:10 000 sheets SH52NE and SH62NW. PRNs shown in blue and numbered

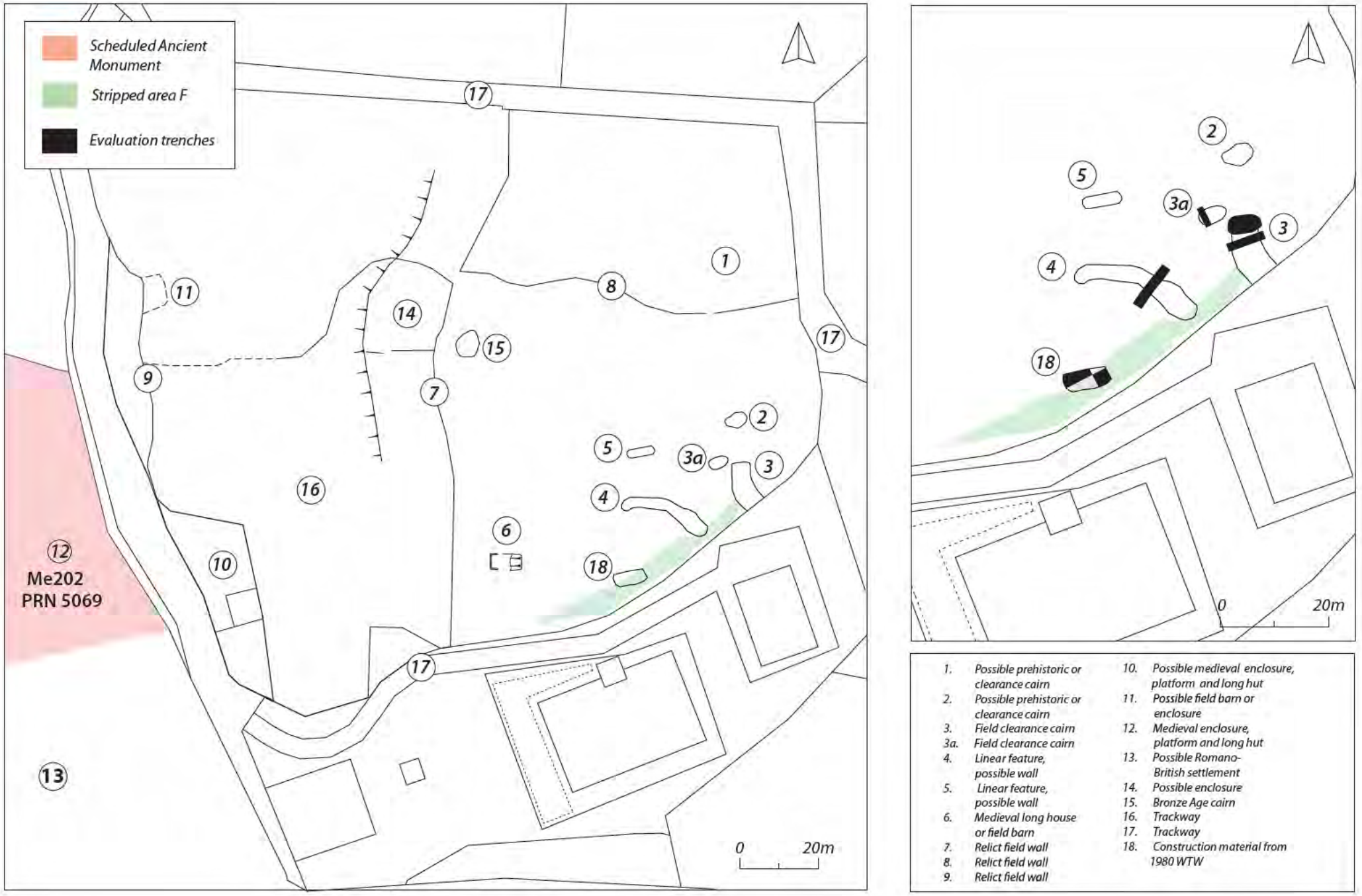
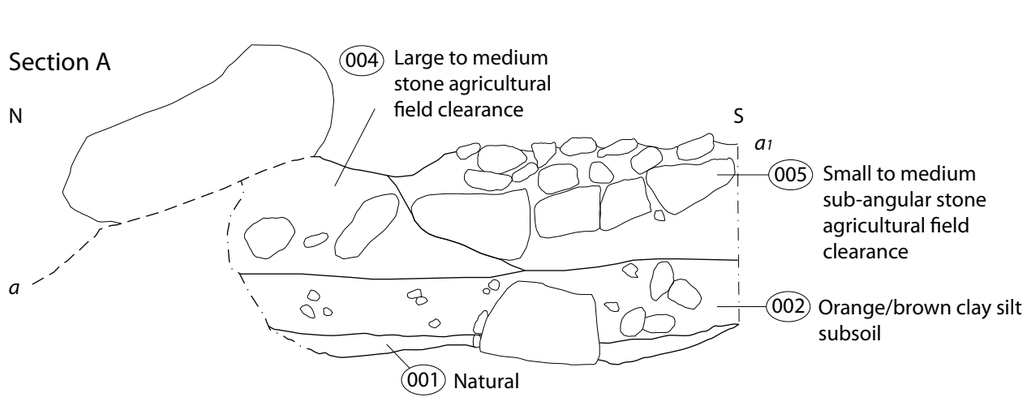
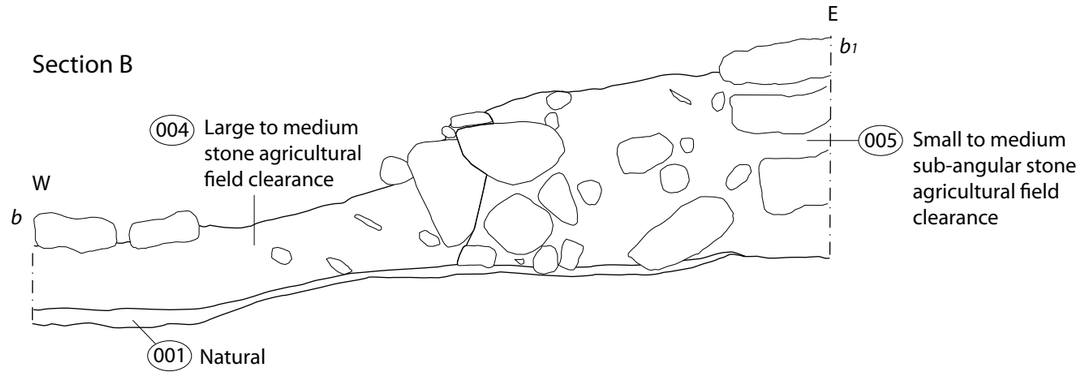
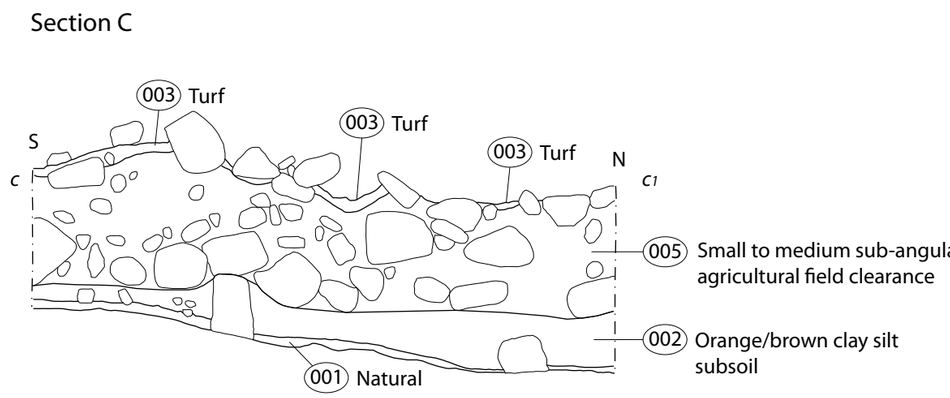


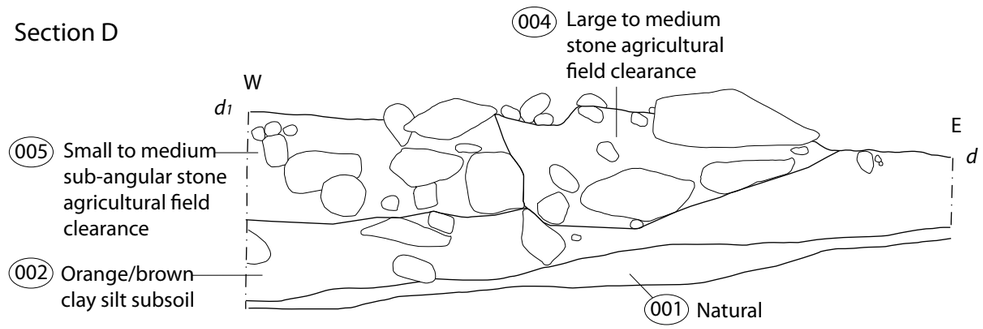
Figure 2: Location of stripped area F, evaluation trench location and archaeological features.

Figure 3: Plan of features 3, 3A and 3B.









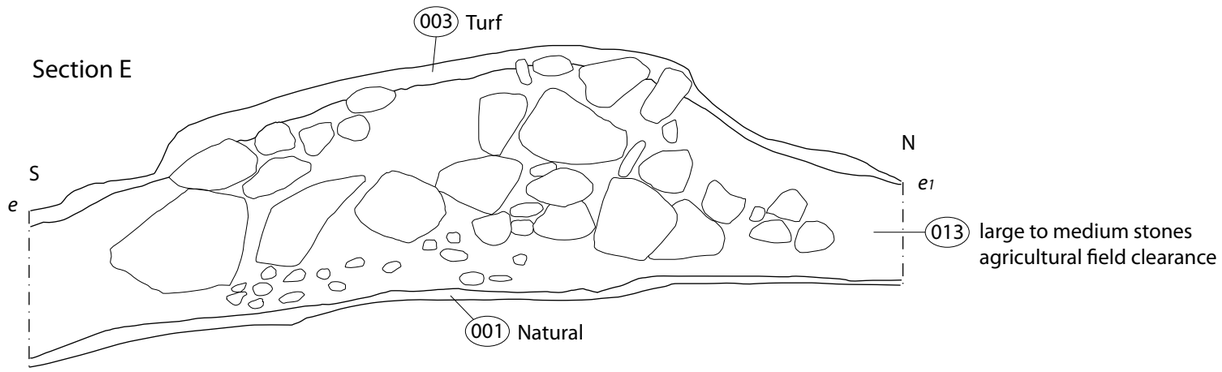


Figure 4: Sections of feature 3 and 3A.

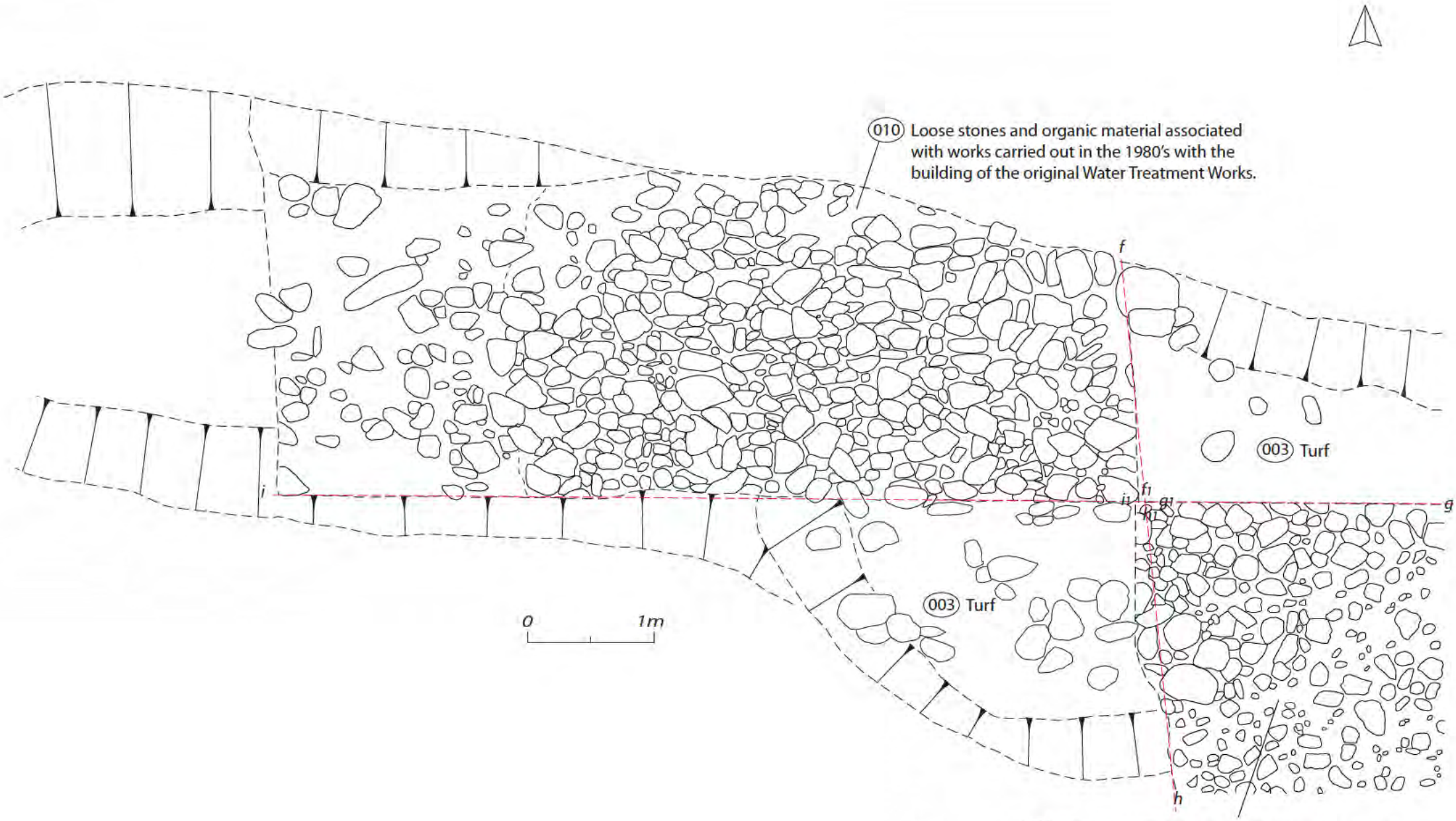
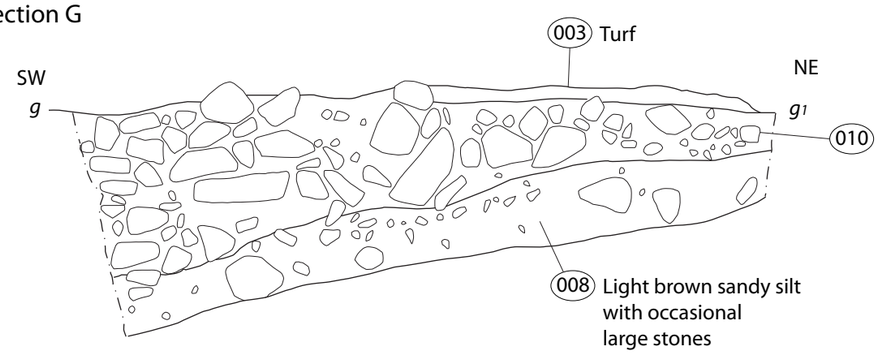
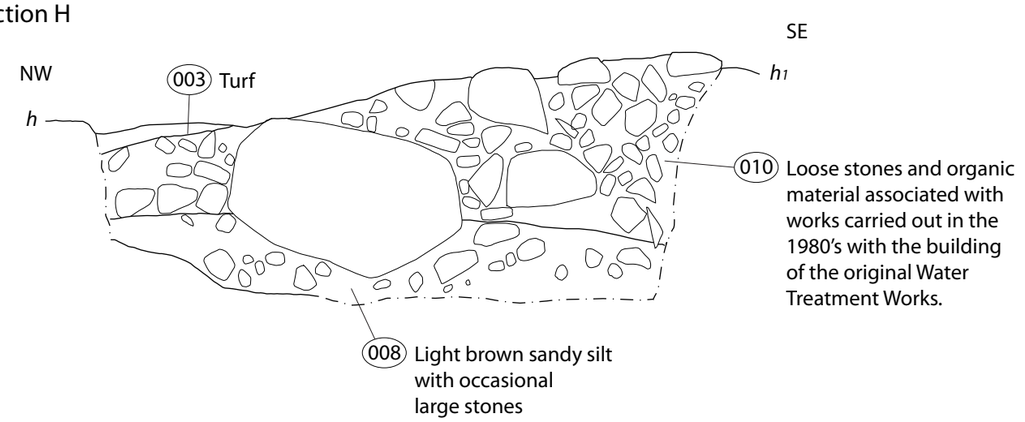


Figure 5: Plan of feature 18.

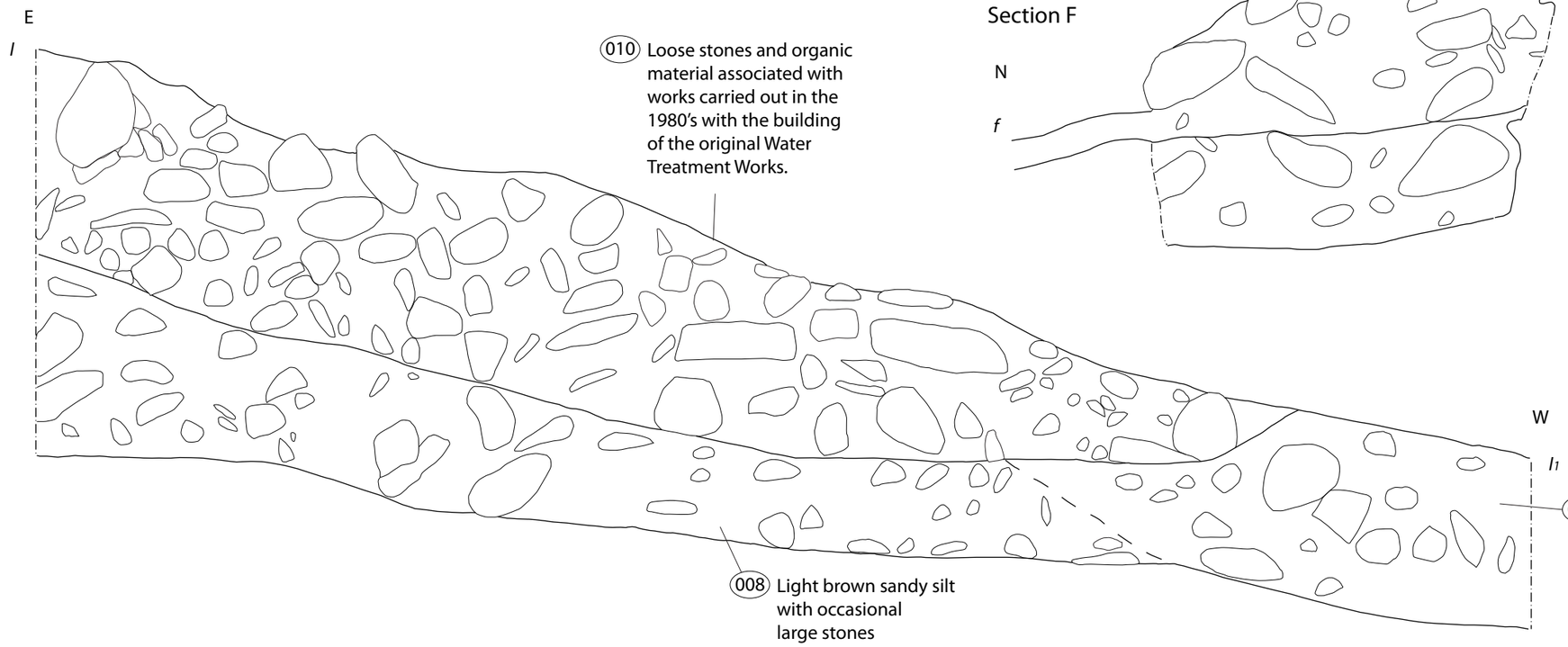
Section G



Section H



Section I



Section F

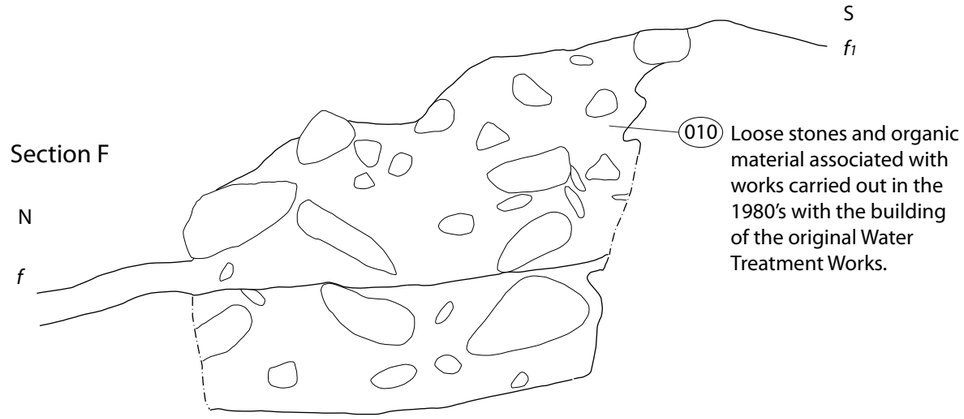


Figure 6: Sections of feature 18.

Plate 1: *Feature 3. Northern end, de turfed from the north*

Plate 2: *E-W feature within the area of feature 3, from the north*

Plate 3: *Feature 18. North east corner. Sections from the North East*

Plate 4: *Feature 18. Long section from the North*

Plate 5: *Sections from northern end of feature 3*

Plate 6: *Sections from northern end of feature 3*

Plate 7: *West facing sections of E-W feature*

Plate 8: Feature 4, east facing section

Plate 9: Reverse of 1899 Farthing from context (002)

APPENDIX 1

Context List

Context Number		Feature
01	Clay silt subsoil	4
02	Buried soil	3
03	Topsoil/turf	All
04	Large stone deposit	3
05	Concentration of sub rounded and angular stones	3
06	Possible stone tumble	3
07	Large flattish stones	3
08	Light orangey brown sandy silt subsoil or earlier ground surface	18
09	Mid brownish grey silty silt deposit, probable hill wash or subsoil	18
10	Loose stone deposit	18
11	Earth and stone bank in brown clay silt matrix	4
12	Stone revetment or dump	4
13	Stone bank, within mid greyish brown clay silt matrix	3A

APPENDIX 2

PROPOSED DEVELOPMENT AT EITHINFYNYDD, TALYBONT

PROJECT DESIGN FOR ARCHAEOLOGICAL MITIGATION

Prepared for

Black and Veatch

December 2009

EITHINFYNYDD WTW, TAL Y BONT

PROJECT DESIGN FOR ARCHAEOLOGICAL MITIGATION (G2099)

Prepared for Black and Veatch, December 2009

1. PROJECT BACKGROUND

Gwynedd Archaeological Trust has been asked by Black and Veatch to provide a cost and project design for carrying out a programme of archaeological mitigation in advance of a proposed extension to the Water Treatment Works at Eithinfynydd, Tal y Bont (SH 602217).

An archaeological assessment was undertaken in November 2009 (GAT Report 831), and this was followed in December 2009 by a magnetometer survey. The results of these surveys have been used to identify an appropriate mitigation programme.

A detailed archaeological brief has not been prepared for this scheme, but meetings have been held with the National Park archaeologist, and the specification that follows incorporates the results of these meetings. The specification is to be agreed with the National Park Archaeologist prior to any work starting on site.

This design will conform to the guidelines specified in *Standard and Guidance for Archaeological Excavation* (Institute of Field Archaeologists, 1994, rev. 2001).

2. ARCHAEOLOGICAL AIMS

The aim is to mitigate the impact of proposed development on the archaeological resource. This is to be achieved by undertaking a programme of works that will include preservation *in situ* and preservation by record.

3. ARCHAEOLOGICAL BACKGROUND

The water treatment works lies close to Tal y Bont in Ardudwy, in the former county of Merionethshire. The area lies within a registered landscape of outstanding historic interest, described as ‘a large, exceptionally archaeologically rich and well-studied landscape, containing extensive relict evidence of recurrent land use and settlement from prehistoric to recent times’ (*Register of landscapes of outstanding historic interest in Wales*, Cadw/CCW 1998). A scheduled ancient monument lies alongside the site (Me 202 Eithin Fynydd Platform House).

The study area lies within a landscape which has been settled and farmed from prehistoric times onwards, and this has left a wealth of archaeological sites which, because of its marginal position in post-medieval agriculture and settlement, have been partly retained as upstanding monuments, in the form of stone-built walls, earth banks and field lynchets, as well as ceremonial monuments such as cairns and standing stones. Though the wealth of upstanding remains is one of the key features of the landscape, there will also be substantial archaeological remains which survive as buried features but which are not visible from the surface.

The study area consists of 2.2ha of land on the north side of the existing works. The proposed development area occupies a small part of the south-east corner of the study area. Some 13 features have been identified within the study area, of which two (features 3 and 4) will be impacted upon by the proposed works. Two clearly defined lynchets run through the study area, and at least one of the features (6) appears to be a medieval long house. Whilst many of the features suggest the presence of a well-preserved medieval landscape, it is very probable that these are underlain by features of prehistoric and Roman date.

The magnetometer survey confirms that the fields have been ploughed in at least two different directions. Clearance work will have been required in advance of ploughing, and this has resulted in dumps of cleared stone, which make up a number of the identified features. However the choice of site for the cleared stone is likely to have been dictated by the presence of structural remains that could not be easily cleared (though outcropping bedrock is also a possibility). It is therefore very likely that the dumps of cleared stone identify, but also obscure and preserve, earlier archaeological structures. The date and nature of these structures will only be identifiable through excavation.

4. PROGRAMME OF WORK

4.1 Introduction

This design proposes a programme of archaeological mitigation work in advance of proposed impact. The areas of proposed impact include the works compound and the new treatment works. These areas are marked on figure 1.

4.2 Compound

The proposed compound area is shown on fig. 1, and comprises areas A, B1, B2 and C. Areas A and B1 have been used as a compound in the past and has been stripped and graded, whilst an iron pipe runs through Area A. No further work is proposed for these areas, which will be used as required for compound and storage.

Areas C2 and C are to be protected so that the archaeology is protected. Further details will be provided prior to the start of work, and agreed with the National Park Archaeologist, but the area will be covered with *terram* or similar, and crushed stone laid over. The area will be used as a compound and storage area during the construction works, and will be re-instated as grazing land following completion of the works.

4.3 Treatment works

The proposed works have been designed to minimise their impact upon the archaeological resource, and will be confined to the area identified on fig. 1 (Area F). However working areas and route corridors are required to run through Area C, and these may have a greater impact on features 3 and 4.

<u>Area F - Area of direct impact</u>

This area will be fully excavated using a strip and map technique. This involves the examination of machine-stripped surfaces to identify archaeological remains. The removal of plough soil will be undertaken by a 360 degree tracked excavator fitted with a 1.8m or 2m toothless bucket. Machine stripping will cease when archaeologically significant deposits are encountered, or when the topsoil and subsoil has been removed to the underlying glacial till. Soil removal will be continuously monitored by an archaeologist.

Stripping and removal of the overburden will be undertaken in such as manner as to ensure damage does not take place to surfaces that have already been stripped, nor to archaeological surfaces that have not yet been revealed.

Topsoil will be stored on site, in a place to be agreed. Topsoil will be stored separately from subsoil if required.

The machine stripping will be undertaken in as careful a manner as possible, to allow for good identification of archaeological features. Following machine stripping the area will be subsequently cleaned by hand as necessary. Features will be identified, and a design of works proposed. This may be for full excavation of all features. If this is the case, the guidelines given in Appendix I will be followed.

If appropriate, further machine excavation shall be carried out after hand excavation and recording of such deposits has been completed; such techniques are only appropriate for the removal of homogenous low-grade deposits, which may give a "window" into underlying levels. They shall not be used on significant complex stratigraphy and the deposits to be mechanically removed shall have been appropriately recorded first.

It is possible that during the removal of the topsoil it is identified that the method, at certain locations, is not conducive to exposing archaeological features or deposits, or that in extensive areas no important archaeological remains are present. If this were to occur stripping shall cease and time should be allowed to consult with the client and National Park representatives to potentially agree an alternative course of action.

Feature 3

This feature lies close to the new development. It may be feasible to produce an engineering design which does not impact upon feature 3, however this will be difficult, and may not be possible. It is therefore proposed to evaluate this feature to ascertain its form, status and significance. If the site is shown to be of minimal significance (for example a stone dump of recent creation), it will be excavated and removed. If the site is found to be of greater archaeological significance, a decision will be made with the client and the National Park Archaeologist concerning the most appropriate mitigation response.

In order to evaluate the site it will be divided into quarters, with baulks crossing the centre. The site will be recorded and surplus stone will be removed. It is hoped that this will reveal the nature of the site, to allow a decision to be made, but if not evaluation will continue until sufficient information is available to allow an appropriate decision to be made.

The evaluation will be undertaken according to strict excavation guidelines (see Appendix I) and the work will be carefully designed to ensure the integrity of the site is not damaged, so that it can be preserved *in situ* if required.

Feature 4

This is an upstanding section of a field or enclosure bank. It is partly covered in trees and other vegetation. Whilst it lies outside the area of direct impact it lies partly within the area of the proposed compound, and its presence will make storage and transport difficult. It is therefore proposed to excavate a section across the bank in order to gain more information concerning the status and significance of the feature. The section will be 1m wide. The work will be undertaken according to the guidelines given in Appendix I. A decision will be made concerning the most appropriate mitigation following completion of the evaluation.

4.4 Data processing and report compilation

Following completion of the stages outlined above, a post-excavation programme will be put in place, of which the first phase will be a post-excavation assessment. Details of the programme are given in Appendix I.

5. DISSEMINATION AND ARCHIVING

A full archive including plans, photographs, written material and any other material resulting from the project will be prepared. All plans, photographs and descriptions will be labelled, and cross-referenced, and lodged in an appropriate place within six months of the completion of the project. The location is to be agreed with the Curatorial Archaeologist.

Copies of the report will be sent to the regional HER, the Snowdonia National Park and the NMR.

The results of the assessment will be published in a suitable journal (e.g. Archaeology in Wales) if relevant.

6. PERSONNEL AND STAFFING

The work will be supervised by Mr Andrew Davidson, Principal Archaeologist. The work will be undertaken by an initial team of 4 archaeologists supervised by Robert Evans. The team is expected to comprise Iwan Parry, Laura Parry and Matthew Jones. If required the team will be supplemented by other field staff.

7. MONITORING AND TIMING

Monitoring visits can be arranged during the course of the project with the clients and with the Snowdonia National Park Archaeologist. It is hoped that the work will start during week beginning 4 January, though the full team will not be deployed until 11 January.

8. HEALTH AND SAFETY

The Trust subscribes to the SCAUM (Standing Conference of Archaeological Unit Managers) Health and Safety Policy as defined in **Health and Safety in Field Archaeology** (2006). Risks will be assessed prior to and during the work.

9. INSURANCE

The Trust holds public liability insurance with an indemnity limit of £5,000,000 through Russell, Scanlon Limited Insurance Brokers, Wellington Circus, Nottingham NG1 5AJ (policy 01 1017386 COM), and Professional Indemnity Insurance for £2,000,000 per claim (policy No. 59A/SA11818791).

10. OTHER

Any queries concerning the above should be directed to Mr Andrew Davidson or Mr John Roberts at the Gwynedd Archaeological Trust Offices, Garth Road, Bangor. Telephone (01248) 352535.

APPENDIX I

GUIDELINES FOR EXCAVATION

Field excavation
Initial cleaning may be partly undertaken by machine, depending upon the nature of the site. All subsequent excavation will be by hand, though again a machine may be used in exceptional circumstances if the quantity of over-burden warrants it. In all cases the stratigraphy of archaeological layers, features, deposits and structures will be respected. A detailed plan of all archaeological features will be produced. Section drawings will be undertaken (usually at a scale of 1:10) where appropriate. Context numbers shall be allocated to all features, cuts, fills and layers, and a context form completed for each describing the nature of the deposit and its stratigraphical relationship. Excavation will continue until all features are fully excavated, unless it is decided that the aims of the excavation are fulfilled, and that further excavation is unnecessary. That decision will be made by the Curatorial Archaeologist following discussion with the contracting archaeologists and the clients.

Photography. Record photographs shall be taken using digital SLR cameras set to maximum size and resolution, to create a file size of approximately 4 mb. Files will be initially stored in JPEG format, but converted to TIFF format for archival purposes. Cameras will be downloaded to a computer each day, and a backup taken off-site. The photographic record will illustrate the principal features and finds in both detail and general context.

Finds procedures. All finds and samples will be recorded, collected, bagged as appropriate, and labelled according to their individual stratigraphical context. Finds from each archaeological context will be allocated an individual finds tray and waterproof labels will be used for each tray to identify individual contexts. Each label will be marked with the appropriate context number in waterproof ink and will be securely attached.

All finds and samples will be exposed, lifted, cleaned, conserved, marked, bagged and boxed according to the United Kingdom Institute for Conservation's Conservation Guidelines No.2, the Council for British Archaeology's First Aid For Finds (Second Edition, 1987) and the Institute of Field Archaeologists' Guidelines for Finds Work (1992).

Artefacts recovered during the archaeological investigations will be taken away from the site at the end of each working day and will be stored in a secure off-site location. No formal procedures for cleaning finds on-site have been made. However, to assist spot dating and identify any potential conservation issues, occasional finds may be cleaned on-site.

All artefacts recovered from both phases of works at this site will be fully catalogued. After appropriate post-excavation assessment and analysis, all artefacts recovered from the archaeological works will be deposited with the appropriate approved museum at the end of the project, together with the appropriate paperwork. Discussions concerning archiving will be held when the nature of the material and size of archive is better known.

The project's archive comprises every record relating to that project, from written records and illustrative material to the retained artefacts. The Project Officer will ensure that every element of the archive is kept clean and secure, and that it is stored in a suitable environment. The archive comprising written, drawn, photographic and electronic media, will be fully catalogued, indexed, cross-referenced and checked for archival consistency.

Environmental samples. The strategy for sampling archaeological and environmental deposits and structures will be developed in consultation with the Trust’s environmental specialist. Their advice will be sought and if required a visit will be arranged to determine the importance that should be attached to the various deposit types. It is the intention to use Birmingham Archaeology for advice and subsequent processing.

The following provisions will apply if sampling is required.

Different environmental sampling strategies may be employed according to the perceived character,

interpretational importance and chronological significance of the strata under investigation.

Bulk samples of 20 to 40 litres will be taken for flotation for *carbonised remains* where there is clear indication of good potential for such material.

Bulk samples of 10 litres will be taken from significant datable waterlogged deposits for *insects and macroscopic plant remains.*

Column samples or sub-samples (of 10 litre bulk samples) of waterlogged deposits and sealed buried soils with potential for *pollen* preservation will be taken for analysis if appropriate.

Bulk samples of 1Kg will be collected for *molluscs* if clearly present. Columns of such samples will be taken through deposits where there is clear potential for recovering a datable sequence of environmental information.

Recovery of *small animal bones* will normally be achieved through processing other bulk samples or may be taken specifically to sample particularly rich deposits.

Each deposit in possible human cremations will be recovered in its entirety, sieved to retrieve the cremated bone and any associated artefacts, and then processed by flotation to recover any associated charred plant remains.

Undisturbed kubiena tin or column samples of sediments will be taken for *micromorphology* of buried soils where these are likely to shed important light on the environmental development of the area.

Samples will be processed by flotation and scanned to assess the environmental potential of deposits, but will not be fully analysed. The residues and sieved fractions will be recorded and retained with the project archive.

Human Burials. If human remains are found, the Coroner will be notified immediately, and an appropriate strategy shall be agreed with the Development Control Archaeologist.

In order to excavate human remains, a licence is required under Section *25* of the Burials Act 1857 for the removal of any body or remains of any body from any place of burial. This will be applied for should human remains be uncovered.

Due care and respect will be accorded any human remains located in the course of archaeological excavations and monitoring of the construction works.

Archaeological recording will be undertaken in accordance with good practice guidelines. No excavated remains will be left on view overnight. If it should be necessary to lift the remains, they will be removed to a safe store pending full compliance with any conditions for disposal required by the licence.

All soil containing cremated bone will be collected, and sent to a relevant specialist for analysis. If the burial is preserved within an urn, then excavation may be undertaken by a specialist, who will lift the urn and burial in a single block, and complete the excavation within a suitable environment. The contents will then be sent to relevant specialists for analysis.

Unexpected Discoveries: Treasure Trove. Treasure Trove law has been amended by the Treasure Act 1996. The following are Treasure under the Act:

Objects other than coins any object other than a coin provided that it contains at least 10% gold or silver and is at least 300 years old when found.

Coins all coins from the same find provided they are at least 300 years old when found (if the coins contain less than 10% gold or silver there must be at least 10. Any object or coin is part of the same

find as another object or coin, if it is found in the same place as, or had previously been left together with, the other object. Finds may have become scattered since they were originally deposited in the ground. Single coin finds of gold or silver are not classed as treasure under the 1996 Treasure Act.

Associated objects any object whatever it is made of, that is found in the same place as, or that had previously been together with, another object that is treasure.

Objects that would have been treasure trove any object that would previously have been treasure trove, but does not fall within the specific categories given above. These objects have to be made substantially of gold or silver, they have to be buried with the intention of recovery and their owner or his heirs cannot be traced.

The following types of finds are not treasure:

Objects whose owners can be traced.

Unworked natural objects, including human and animal remains, even if they are found in association with treasure.

Objects from the foreshore which are not wreck.

All finds of treasure must be reported to the coroner for the district within fourteen days of discovery or identification of the items. Items declared Treasure Trove become the property of the Crown, on whose behalf the National Museums and Galleries of Wales acts as advisor on technical matters, and may be the recipient body for the objects.

The National Museums and Galleries of Wales will decide whether they or any other museum may wish to acquire the object. If no museum wishes to acquire the object, then the Secretary of State will be able to disclaim it. When this happens, the coroner will notify the occupier and landowner that he intends to return the object to the finder after 28 days unless he receives no objection. If the coroner receives an objection, the find will be retained until the dispute has been settled.

Processing data, illustration and report

The post-excavation phase is divided into two sub-phases. The first involves an objective assessment of the results of the fieldwork phases in order to ascertain the appropriate level of post-excavation analysis and reporting. This phase culminates in the production of a post-excavation assessment report. The second involves carrying out the work identified within the post-excavation assessment report, and culminates in a final report and project archive. The work is undertaken according to the guidelines specified in *Management of Archaeological Projects*, 2nd edition, 1991, English Heritage.

Post-excavation assessment

The level of post-excavation analysis and reporting for the purposes of the evaluation will be sufficient to establish the character, scale, date range, artefactual and palaeo-environmental potential and overall significance of the remains.

Style and format of the report will include as a minimum the following:

- A location plan of trenches and/or other fieldwork
- Plans and sections of features located at an appropriate scale
- A section drawing showing depth of deposits including the present ground level with Ordnance Datum, vertical and horizontal scale.
- A summary statement of the results.
- A table summarising per trench the features, classes and numbers of artefacts contained within, spot dating of significant finds and an interpretation.

- An interpretation of the archaeological findings both within the site and within their wider landscape setting.

Artefact analysis will be sufficient to establish date ranges of archaeological deposits, a general assessment of the types of pottery and other artefacts to assist in characterising the archaeology, and to establish the potential for all categories of artefacts should further archaeological work be necessary.

A summary report will be prepared on completion of the site archive. This will include:

- A statement of the research aims of the fieldwork and an illustrated summary of results to date indicating to what extent the aims were fulfilled.
- A summary of the quantities and potential for analysis of the information recovered for each category of site, finds, dating and environmental data.
- A list of the project aims as revised in the light of the results of fieldwork and post-excavation assessment.
- A list of the methods which will be used to achieve the research aims (these should be explicitly linked to aims).
- A list of all the tasks involved in using the stated methods to achieve the aims and produce a report and research archive in the stated format, wherever possible linking each task explicitly to the relevant method statement and indicating the personnel and time in days involved in each task. Allowance should be made for general project-related tasks such as monitoring, management and project meetings, editorial and revision time.
- A report synopsis indicating publisher and report format, broken down into chapters, section headings and subheadings, with approximate word lengths and numbers and titles of illustrations per chapter. The structure of the report synopsis should explicitly reflect the research aims of the project.
- A list of the personnel involved indicating their qualifications for the tasks undertaken.
- A cascade or Gantt chart indicating tasks in the sequence and relationships required to complete the project. Due allowance will be made for leave and public holidays.

Analysis and report preparation

Following the completion of post-excavation analysis, a full report on the results of the programme works shall be prepared in accordance with standard IFA guidelines, and include plan and section drawings and photographs as appropriate.
A draft copy shall be issued to the Archaeological Curator for review. Once feedback has been received and revisions made, the report can be finalised.
The report should contain the following information:
Summary - a concise, non-technical summary
Introduction - General introduction to the project including reasons for work, planning background
Background - to include geology, topography, archaeological and historical background
Aims and Objectives - Summary of aims and objectives of the project
Method - methodology adopted to carry out the work
Fieldwork Results - Detailed description of results
Specialist Reports
Discussion and Conclusions - Overview of archaeological deposits and artefacts, including details of preservation and survival of the deposits across the site; discussion and interpretation of the results will include both the immediate archaeological context and in relation to other relevant evidence (including, but not limited to, the previous investigations referred to above).
Appendices - context descriptions, finds catalogues, content of archive, site matrix
Figures - location plan, section drawing showing present ground level and depth of deposits, including Ordnance datum.

Production of site archive

All finds shall be cleaned, conserved and catalogued in a manner appropriate for their long-term storage and for deposition as an archive in accordance with the UKIC (1990) Guidelines for the Preparation of Excavation Archives for Long-term Storage.

Excepting those covered by the procedures outlined above, all finds shall be the property of the Landowners. Subject to the agreement of the owner, suitable arrangements should be made with a local museum or other appropriate body for a permanent repository for the finds.

The archaeological document archive shall include all reports and field records including site context records, notebooks, plans, sections, computer printouts, photographic slides, photographs and all photographic negatives.

The original complete archaeological document archive shall be deposited with the finds. The location of this will be arranged in consultation with the Curatorial Archaeologist and the clients.
An appropriately bound hard (paper) copy of the archaeological document archives shall be deposited with the appropriate local authority Historic Environment Record (HER) and with the Snowdonia National Park and the National Monuments Record, with a digital archive to the SNP and HER.

Publication and dissemination

Arrangements shall be made for a summary of the archaeological work to be published in an appropriate place, dependant upon the significance of the results.

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