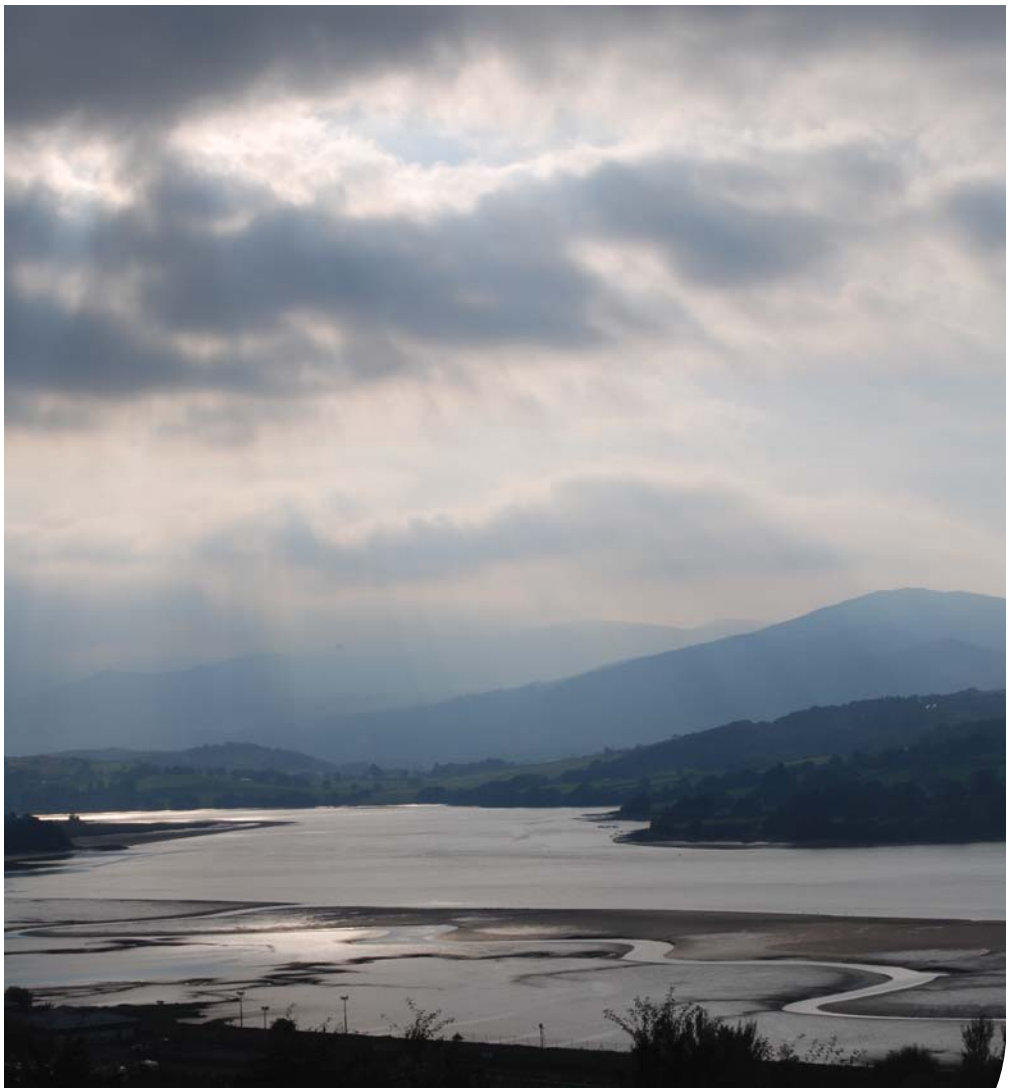
# COED DOLWYD SERVICE RESERVOIR AND ASSOCIATED PIPEWORK

## ARCHAEOLOGICAL MITIGATION



Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

# COED DOLWYD SERVICE RESERVOIR AND ASSOCIATED PIPEWORK

## Archaeological Mitigation

Project No. G2192

Report No. 1240

Prepared for: Costain

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**COED DOLWYD SERVICE RESERVOIR AND ASSOCIATED PIPEWORK: ARCHAEOLOGICAL MITIGATION**

Prepared for Costain, October 2014

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***Summary***

*A phased programme of archaeological mitigation has been undertaken in advance of and during the construction of a new service reservoir and pipeline at Coed Dolwyd, Conwy. This work identified several new archaeological sites including a small Bronze Age settlement (PRN 60152), the first evidence from this period found in the area. An isolated medieval feature, most likely a corn dryer (PRN 60153)was also found, hinting at further activity in both in the immediate and wider area.*

*This report provides an account of the work undertaken as part of the third and final phase of archaeological work; it includes the data and specialist reports and discusses the findings.*

## 1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) was asked by Costain to undertake a programme of archaeological mitigation during the groundworks for the Coed Dolwyd Service Reservoir and Associated Pipework Scheme. The archaeological mitigation was undertaken as a planning condition of the scheme (planning application number 0/38541).

The scheme comprised the instillation of:

- A reservoir, located c.690.0m east of Llansanffraid Glan Conwy (with neighboring temporary site compound during construction phase);
- A c.1.5km long pipeline route located north and east of Llansanffraid Glan Conwy.

The development area lies on the east slopes of the north end of the Conwy valley and is characterised by undulating agricultural land which features a scatter of farms of varying size. The reservoir and temporary compound site are located within neighboring fields adjacent to the minor road (B5381) between Rhyd-Ifan Farm and Plas Isa Farm (centred on NGR SH81657592). The pipeline route runs from the reservoir (NGR SH81497612) to the A470 trunk road north Llansanffraid, a small village of medieval origins, much expanded in the 20th century (NGR SH80367647) (see figure 1)

The staged program of archaeological works comprised 3 phases; an initial assessment phase (GAT Report 957), an evaluation/ground investigation phase (GAT Report 983) followed by a final mitigation phase. Phases 1 and 2 were completed in June 2011 and September/October 2011 respectively (cf. para. 2.0). The aim of the final phase was to establish the archaeological significance of the scheme, to assess the impact of the development on surviving monuments or remains and to help inform future decision making, design solutions and potential mitigation strategies.

Based on the results of the initial assessment (GAT Report 957) and the subsequent evaluation/ ground investigation work the third phase of archaeological work comprised:

- An archaeological watching brief within the reservoir and temporary compound zone;
- An archaeological watching brief along the length the pipeline route during both the easement strip and the pipe trench excavation;
- Archaeological recording (photographic/written records) of 4 sections of hedge bank (features 3, 5, 7 and 10 identified in GAT Report 957).
- An archaeological controlled strip and excavation of a defined area centred on NGR SH81357620 in response to the identification of archaeological activity, identified in Phase 2 (Trench 15).

### 1.1 Specifications

Gwynedd Archaeological Planning Service (GAPS) on behalf of Conwy CBC were the archaeological curators of this scheme. A mitigation brief for this phase was not prepared, however GAPS monitored phases 1 and 2 and approved the recommendations in the designs for this third phase (see appendix I & II).

This work conformed to the guidelines specified in Standard and Guidance for Archaeological Watching Brief (Institute for Archaeologists, 1994, rev. 2001, 2008) and Standard and Guidance for Archaeological Excavation (Institute for Archaeologists, 1995, rev. 2001, 2008).

## 2 SITE LOCATION AND GEOLOGY

The pipeline route lies on the eastern side of the Conwy river valley between 20m OD and 150m OD (see figure 1). The Conwy valley is a glaciated valley of typical U-shaped profile; its base was lowered by glacial erosion but has since silted up as the river reached a state of maturity. The river has a gently meandering course and during spring tides is tidal as far as Tan-lan, near Llanrwst. The solid geology is of shales and coarse sandstones of the Wenlock Series of the Silurian system of which there are steep cliff exposures higher up the valley (Smith and George 1961, 48-50). These rocks are covered with a thin glacial drift on the gentler slopes. The soil is mainly well drained and neutral, developed from former forest soils. The agricultural capability of these soils is identified mainly as Grade 3 (MAFF 1977) and as such is suitable for good quality pasture whilst arable use is possible, though with some limitations.

*Plate 1: General site view looking northwest towards the mouth of the Conwy*

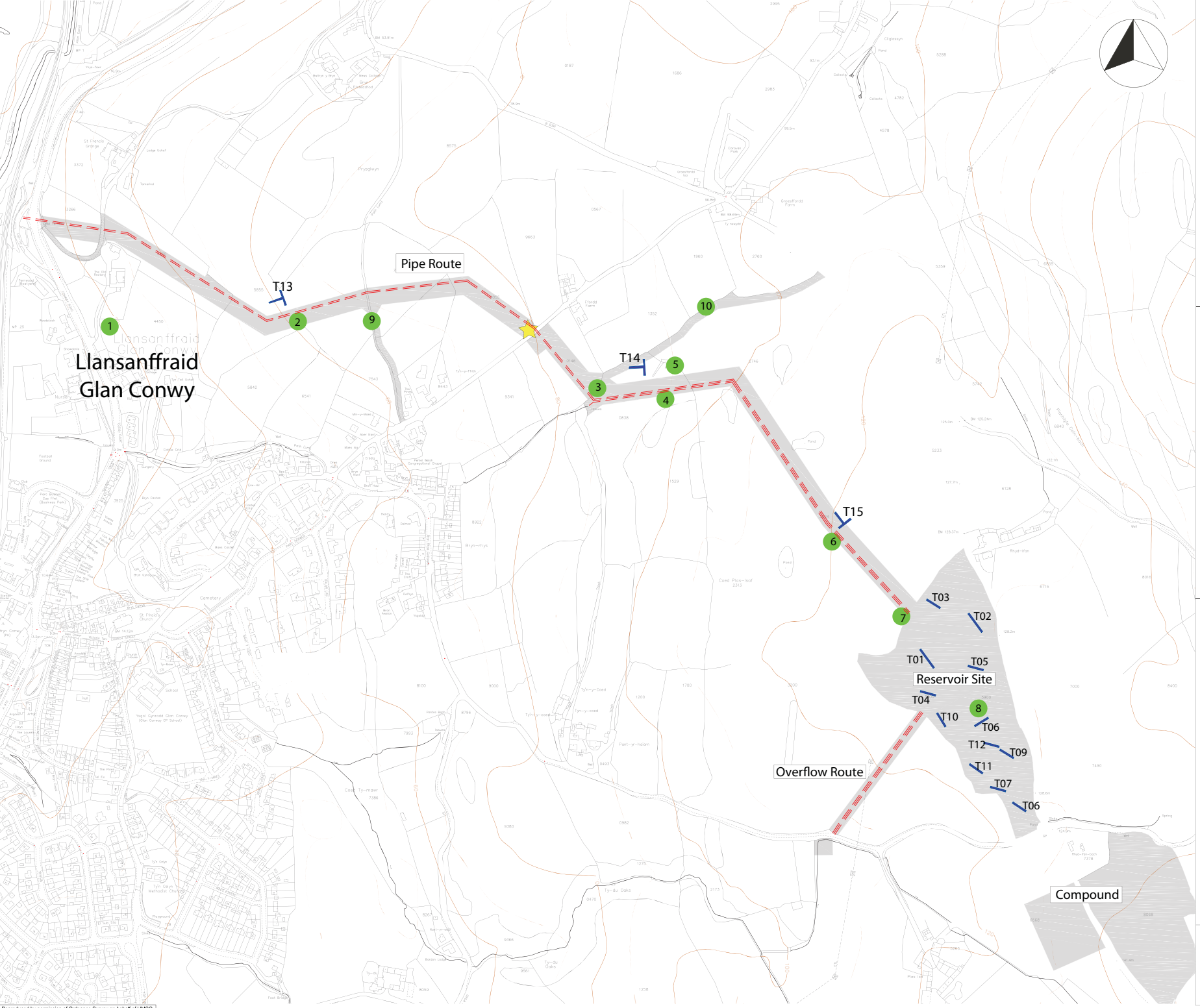



Figure 01: Location of archaeological phased works in relation to the pipe route

**KEY**

Location of stone marker

Features identifed during the assessment phase, labelled 1-10

Location of evaluation trenches

Pipe Route

Scale 1:2500 @ A1

50m 0 50 100 150 200 250

## 3.0 PROJECT BACKGROUND

This work forms the third phase of a staged programme of archaeological works; it was preceded by an initial assessment phase (Phase 1) (GAT Report 957); and an evaluation/ground investigation stage (Phase 2) (GAT Report 983).

### 3.1 Phase 1: Assessment

GAT completed an archaeological assessment of the reservoir/compound and pipeline route in June 2011 (Smith and Evans, 2011. GAT Report 957). This phase entailed a desktop study and a field walkover. Although primarily focused on the immediate development area; sites, buildings and find spots listed in the GAT Historic Environment Record (HER) within approximately 1km of the route were identified in order to give background information relevant to understanding the area.

The assessment found that the pipeline ran through an area with relatively few recorded archaeological sites, particularly in comparison to areas on the west side of the Conwy valley. A total of 29 sites are recorded in the Gwynedd HER as standing within the vicinity of the pipeline, including several buildings of historic interest. Sites of particular note included a Neolithic chambered tomb at Hendre Waelod, known as Allor Molloch (Altar of Terror), located 1.5km to the south-west and a find spot of a bronze axe head of Early Bronze Age type.

A total of ten features were identified within the immediate assessment area, of which six were thought to be 18th century or earlier in date. Prehistoric archaeological activity was postulated at three locations: two areas along the pipeline route and one area within the reservoir site. No upstanding structures or earthworks, with the exception of hedge banks, were identified, and the report summarised that as the whole area of the route had been used as arable for several centuries and any earlier archaeological remains must survive only as sub-soil features. The results are summarised below:

*Table 1. Potential archaeological activity identified along the proposed pipeline route (reproduced from GAT Report 957 with amendments):*

| Feature No | Name | Location |
|---|---|---|
| 1 | Platform | SH 80377651 |
| 2 | Terrace/former field bank | SH 80627653 |
| 3 | Hedge bank | SH 80987636-SH 81067644 |
| 4 | Area of potential for prehistoric activity | SH 81107640 C |
| 5 | Hedge bank | SH 81127647-SH 81187640 |
| 6 | Area of potential for prehistoric activity | SH 81357620 C |
| 7 | Hedge bank | SH 81417605- SH 81557620 |
| 8 | Area of potential for prehistoric activity | SH 81597592 C |
| 9 | Former Trackway | SH 80737664- SH 80787638 |
| 10 | Hedge banks | SH 80967639- SH 81357658 |

### 3.2 Phase 2: Evaluation/Ground Investigation

Based on client feedback and discussions with GAPS, it was agreed that a second phase of works should be undertaken. This phase of archaeological evaluation included targeted trial trenching, predominantly at the proposed site of the reservoir and temporary compound, but also along the route of the pipeline. A total of 15 archaeological trial trenches were excavated across the site. These trenches targeted potential archaeological anomalies identified in the results of a programme of geophysical survey and by the archaeological assessment. A watching brief was also undertaken along the pipeline route during client led ground investigation works.

*3.2.1 Geophysical Survey*

The geophysical survey of the reservoir site was completed by Stratascan in September 2011 (Stratascan Ltd. ref. 2958). A magnetometer survey was completed using a Bartington Grad 601-2, which used two fluxgates mounted 1.0m vertically apart aligned to nullify the effects of the earth's magnetic field. Readings were taken at 0.25m centers along traverses 0.5m apart, which equated 7200 sampling points within a full 30m x 30m grid. The survey identified various linear anomalies that included two parallel linear anomalies running east-west, c.12.0m apart and up to 110.0m in length (classed as probable cut features of archaeological origin) and a 30.0m long linear feature aligned north south (also classed as probable cut feature of archaeological origin). A series of disparate linears of various lengths were also identified, all classed as possible cut features of archaeological origin, along with probable plough marks at the northern end and an in filled "pond" towards the centre. Magnetic variation was identified across the site, indicative of geological and/or pedological activity; this tallied with the identification of shale and coarse sandstone geology by GAT during the walkover/assessment (GAT Assessment Report 957: 5).

(Reproduced from GAT Project Design for Archaeological Evaluation (G2192) Trial Trenching, October 2011).

*3.2.2 Trail Trenching*

The subsequent archaeological evaluation trenching was primarily located at the proposed site of the reservoir and temporary compound but also targeted three areas highlighted in the initial assessment phase (GAT Report 957; features 2, 4 & 6). A total of 15 archaeological trial trenches were excavated across the site (see figure 1).

The 12 trenches targeting the geophysical survey anomalies at the reservoir/compound site did not identify any significant archaeological evidence: the majority of anomalies were interpreted as evidence for geological activity, and those features that were demonstrated to be of an archaeological origin were all of a post-medieval date, and associated with field-drainage.

Five geotechnical ground Investigation trial pits were observed along the proposed pipeline route: no archaeological deposits or features of note were identified within the confines of any example, bar a redundant post-medieval ceramic field drain in STP 03. Colluvia up to 1.65m thick was recorded in STP 11, located at the western limit of the pipeline route, north of Llansanffraid Glan Conwy.

Three T-shaped archaeological trenches (Trenches 13 to 15) were positioned along the proposed pipeline route to target GAT Report 957 Features 2, 4 & 6. Archaeological activity was identified in Trenches 13 and 15, those targeting features 4 & 6). Trench 13 contained agricultural drainage indicative of land improvement and management; no further archaeological mitigation was recommended.

Trench 15 contained three distinct phases of archaeological activity: a rock cut linear succeeded by parallel gullies and then intercutting pits. The presence of burnt clay within the subsoil horizon as well as in the intercutting pits suggested localised activity indicative of kiln firing, or some other industrialised process. The date of the activity could not be determined during on-site works but charcoal was recovered for possible C14 dating. The archaeological activity in Trench 15 was concentrated in the north-eastern end of one of the two spurs forming the T-shaped trench. No similar activity was identified within the remainder of the trench. This implied that the linear feature and gullies continued on an alignment parallel and to the northeast of the centreline of the pipeline; the pit clusters also appeared to continue to the northeast of the centreline (the full extent of the cluster could not be determined within the confines of the trench).

Based on the results of these first two phases recommendations were given for specific mitigation to examine the Trench 15 area and to mitigate the scheme as a whole: an archaeological watching brief during main works was recommended for the pipeline route and reservoir/compound site; whereas controlled stripping under archaeological control was recommended for a targeted area surrounding Trench 15.

## 4 METHODOLOGY

Based on the results of the initial assessment (GAT Report 957) and the subsequent evaluation/ ground investigation phase (GAT Report 983) three main archaeological mitigation recommendations were made for the third phase of archaeological work:

An archaeological watching brief within the reservoir and temporary compound zone and along the length the pipeline route during both the easement strip and the pipe trench excavation; Archaeological recording (photographic/written records) of 4 sections of hedge bank (features 3, 5, 7 and 10 identified in GAT Report 957).

An archaeological controlled strip and excavation of a defined area centred on NGR SH81357620 in response to the identification of archaeological activity during Phase 2 (Trench 15).

Specific methodology for each of the key mitigation elements are given below.

### 4.1 Archaeological watching brief

Based on the Institute for Archaeologists (IFA) guidelines (Standard and Guidance for Archaeological Watching Brief (Institute for Archaeologists, 1994, rev. 2001 & 2008), watching briefs are divided into four main categories:

- comprehensive (present during all ground disturbance)
- 
- intensive (present during sensitive ground disturbance)
- 
- intermittent (viewing the trenches after machining)
- 
- partial (as and when seems appropriate).

An intensive watching brief was recommended at the western end of the scheme where the thick colluvium identified in the client's trial pit STP 11 had the potential to mask underlying archaeology. This work was completed in tandem with the client/contractor program and maintained during easement strip and open trenching.

A partial watching brief was recommended for the remainder of the scheme (east of STP11 environs and excluding the Trench 15/Controlled Strip environs), including the reservoir/compound. Again this work was completed in tandem with the client/contractor program and maintained during easement strip and open trenching.

A written and photographic record was maintained throughout the watching brief, which was conducted between 27th June 2012 and 23rd January 2013. The initial topsoil/subsoil stripping was completed using a tracked 360 excavator (either a 13 tonne or 21 tonne machine) with a flat ditching bucket; a toothed bucket was then used for the deeper excavation of the natural deposits and shales.

### 4.2 Archaeological recording of hedge banks

Three sections of hedge bank (features 3, 5 and 7 identified in GAT Report 957) were recorded during groundworks. Feature 10, also identified during the assessment phase was not directly impacted upon by the scheme and thus was not recorded during this phase (see figure 1).

A photographic record was completed using a Digital SLR set to maximum resolution and completed in JPEG format. Also a written record of size (height/width/length), composition, profile and any phasing was completed on GAT pro-formas; with drawn records completed to scale if specific detail were required.

### 4.3 Archaeological controlled strip and excavation

The controlled strip/archaeological excavation was centred on the location of GAT Trench 15 (NGR SH81357620) which targeted an area of potential for prehistoric activity (Feature 6) identified in the initial archaeological assessment (GAT Report 957). The original T-shaped trench measured 2 x 2.0m by 20.0m (80m2) and was designed to cover the easement width and pipe route centreline as comprehensively as possible within the area of suspected archaeological activity.

The area of the controlled strip measured 40.0m x 20.0m (total area of 800m2) and was centred on the known area of archaeological activity (formerly within Trench 15). This was designed to allow a large enough area for the orientation and length of the features, as well as the distribution of the pit cluster to be determined. Moreover, it aimed allow a suitable opportunity to identify the origin of the burnt clay, if the source of this material was located within the easement.

The designated area was stripped with a tracked 360˚ excavator using a toothless bucket under the constant direction of an archaeologist. All topsoil and ploughsoil was removed in thin spits until archaeological deposits or natural glacial sub soils were encountered. All features encountered were cleaned by hand, evaluated, and located using a Global Positioning System (GPS). A Further Archaeological Works Design was then submitted in September 2012 for the full excavation and recording of the identified features. Following this the entire area containing archaeological features was cleaned by hand to ensure that all features had been identified.

All identified features were hand excavated with the exception of a large silt-filled hollow located at the edge of the area. Given the scale of this feature it was agreed with GAPS and the client that an investigative slot would be cut through this using a small mechanical excavator supervised by the archaeologist.

- Where appropriate features were half sectioned in order to record the stratigraphy and then excavated in full.
- Buried soils were recorded and removed by hand to ensure any finds within them were recovered.
- All features were drawn to a scale of 1:20 on permatrace, both in plan and section; with drawing baseline etc. surveyed in by GPS.
- A written record of all identified features was completed via GAT pro-formas.
- A photographic record was maintained using a digital SLR camera set to maximum resolution.
- All finds were recovered and the precise location of important finds was recorded.
- Bulk soil samples (a minimum of 10.0 litres and maximum of 30.0 litres) were taken for flotation of charred plant remains. These bulk samples were taken from all probably prehistoric contexts containing charcoal and/or finds to allow the recovery of both charred plant remains and small artefacts not easily recovered by hand.

### 4.4 Post excavation analysis and reporting

The post-excavation analysis, report and archiving has been carried out according to the post excavation project design submitted in December 2012.

*4.4.1 Data collection from site records*

Site records were checked, and photographs, plans, finds and samples were cross referenced to the relevant context sheets. Site records, including context sheets and field drawings, were scanned to provide a security copy of the information. These records were used as the basis of descriptions and discussion of individual features and for the creation of illustrations. A database of photographs was created to provide appropriate metadata to allow for the active curation of the digital photographs.

*4.4.2 Finds*

The finds have been catalogued and grouped by material type. All finds, where appropriate, were cleaned, and have been packaged in suitable containers for long term storage. The flint was studied by George Smith, GAT's in-house lithics expert, whilst Frances Lynch assessed and reported on the prehistoric pottery (see appendix V & VI)

*4.4.3 Environmental samples*

Thirty bulk soil samples were collected and these were processed by flotation and wet sieving, using a 500 micron mesh to collect charred plant remains. The residue from the sieving was sorted to check for small artefacts. The charred plant remains were studied by Rosalind McKenna (free-lance environmental specialist). Appropriate pieces were selected for radiocarbon dating. See appendix III for the full report. James Rackham of The Environmental Archaeology Consultancy examined and reported on the burnt bone and shell samples (see appendix VII).

*4.4.4 Radiocarbon dating*

The potential for gaining significant archaeological information by radiocarbon dating each feature was assessed; this selection took into account the suitability of the material for the process (not all deposits/features contained suitable material). The priority was to obtain dates from the two distinct areas of activity, areas B and C, but also to assess phasing with in these two areas. Rosalind McKenna then selected short-lived, identifiable material from the chosen samples, primarily fragments of burnt hazel nut shell, though oat grains were also used. Two pieces of material from each context were dated to allow these to be compared to detect any mixing or contamination of the deposit (see appendix IV).

Nine samples of burnt hazel nut shell and three samples of oat grain (from six separate deposits) were submitted to the Scottish Universities Environmental Research Centre to be measured by Accelerator Mass Spectrometry (AMS). The samples were pre-treated following Stenhouse and Baxter (1983), and combusted as described in Vandeputte et al (1996) with the graphite targets prepared and measured following Xu et al (2004). I.

*4.4.5 Reporting and dissemination*

The present document provides a record of the methodology and results of the archaeological works. It will be held in the Gwynedd Historic Environment Record and will be available for public and academic consultation. A copy of the report will be sent to the Gwynedd Archaeological Planning Service Archaeologist. A copy of the report will be sent to the Royal Commission on the Ancient and Historical Monuments of Wales and will be made available on their website. The site will also be written up in the Council for British Archaeology (CBA) publication *Archaeology in Wales*.

*4.4.6 Archiving*

The artefacts and ecofacts are to be held by the Gwynedd Museum and Art Gallery, Bangor and the paper archive will be held by the National Monuments Record (NMR), Aberystwyth. The charred plant remains and charcoal are to be held with the artefacts. The full digital record including photographs with the appropriate metadata will be stored by the Royal Commission for the Ancient and Historical Monuments of Wales in their active digital storage facility.

## 5.0 RESULTS

### 5.1 Archaeological watching brief

*5.1.1 Site Compound*

The initial phase of the groundworks comprised the construction of a compound area and associated short haul road located at the southern extent of the development area (see figure 1).The sub surface deposits revealed in this area comprised a friable, mid grey-brown clay-silt topsoil containing occasional sub-angular cobbles which varied in thickness from 0.2m to 0.4m. Occasional shards of 19thC pottery were observed within this deposit, though were not retained. Below this the glacial horizon was composed of ridges of fractured shale bedrock surrounded by mixed friable clay-silt deposits ranging in colour from pale yellow to mid reddish-orange, and containing varying quantities of gravel and fractured shale cobbles (see plate 2).

No archaeology was observed in this area and no further archaeological mitigation was recommended.

*Plate 2: Working shot taken during the archaeological watching brief on the compound area.*

*5.1.2 Reservoir Area*

The reservoir area measured some 200m x 150m (30,000 sq. m) and was orientated on a south-west/north-east axis. The topsoil comprised a mid-brown clay-silt containing a moderate amount of sub-angular stone. Occasional shards of 19thC pottery were observed within this deposit, though were not retained. This overlay a loose fractured shale bedrock interspersed with patches of a light orange brown clay-silt (see plate 3).

No archaeology was observed in this area and no further archaeological mitigation was recommended.

*Plate 3: Working shot taken during the archaeological watching brief on the reservoir area.*

*5.1.3 Pipeline Route*

The pipeline route was roughly 1.5km in length and was orientated on a broadly northwest/ south-east axis. The initial works involved the construction of a haul road on the western side of the easement; short lengths were machined at a time and were then covered with a membrane of terram followed by a layer of stone in order to create a hard surface for the works traffic to progress across the site. This work commenced from the reservoir area and continued along the route to the north-west as far as the end of the pipeline route which was to the north of Llansanffraid-Glan-Conwy (see plate 4).

*Plate 4: View of the completed haul road running northwest towards Ffordd farm*

The pipe trenching involved two teams, each using two 360 tracked excavators and a 30 tonne dumper truck. One team started near the Old Rectory, to the north of Llansanffraid-Glan-Conwy and worked south-east as far as the minor road from Croesffordd Farm to Glan Conwy, near Ffordd Farm. The second team started at this minor road near Ffordd farm and again worked in a south-east direction and finished at the reservoir on Site 11. The pipe trenching was also undertaken in short stages, with the pipes being laid and the ground reinstated as the teams went along (see plate 5).

Generally the topsoils over the route were a mid-grey brown silt-clay, containing occasional small sub-angular stones, and which was underlain by a mid brown grey clay-silt subsoil. The natural consisted of a mid red-brown glacial clay silt, or a light orange brown silt-clay. There were also numerous areas where the bedrock protruded through and was exposed either on the surface or directly below the turf.


*Plate 5: Working shot taken during the excavation of the pipe trench, view from the southeast.*

*Plate 6: Possible boundary marker (PRN 60154), viewed from the southwest.*

An upstanding stone, 1.1m high was identified within a boundary near the middle of the route (PRN 60154) (see figure 1 for location). The stone was of a pale grey in colour and fine grained, it appeared to have been roughly hewn into a relatively regular shape with flat faces. A circular hole was positioned centrally near the top of one face (see plate 6). The stone was 0.6m wide at the base, tapering towards the top and had a maximum thickness of 0.3m. The drilled hole suggests this stone had been utilised as part if a gateway, though it may also have been a boundary marker.

The intensive watching brief undertaken at the western end of the scheme, where thick colluvium had been identified in the client's trial pit STP 11, did not reveal any archaeology activity, though the upper deposits here were significantly thicker than those elsewhere on the site, as recorded previously (see plate 7).

With the exception of the possible boundary marker, no further archaeology was observed along the route and no further archaeological mitigation was recommended.

*Plate 7: Shot taken during the archaeological watching brief at the western end of the scheme, showing the sub-surface deposits. View from the west .*

*5.1.4 Overflow Pipeline Route*

The route of the overflow pipeline was some 200m in length and ran southwest from the reservoir site downhill to a minor road and the emergency discharge drain. The easement was some 12 m wide and, as with the main route, was excavated in stages with an access road constructed first, followed by further topsoil strip and trenching.

The topsoil in this area was some 0.3m deep and comprised a friable mid grey-brown clay-silt containing occasional sub-angular gravel. This overlay a sub-soil with a similar matrix, but which contained frequent poorly sorted sub-angular stone inclusions. The natural comprised a mid/light grey-brown clay-silt (see plate 8).

No archaeology was observed in this area and no further archaeological mitigation was recommended.

*Plate 8: Working shot taken during the topsoil strip of the overflow pipeline route. View from the northeast.*

### 5.2 Archaeological recording of hedge banks

Four hedge banks were identified in the archaeological assessment phase of the scheme as being of archaeological interest and requiring recording (GAT Report 957) (see figure 1). Of these only three were impacted upon in the final design (features 3, 5 and 7), feature 10 was not effected by the scheme and thus was not recorded during this phase.

*5.2.1 Hedge bank 3*

Hedge bank 3 is a gently curving boundary orientated approximately northeast/southwest; it is located at the approximate middle of the scheme, south of Ffordd Farm. The feature comprises a low wide bank composed primarily of earth with small stone inclusions, topped by mature trees and significant amounts of undergrowth, reinforced using a modern post and wire fence (see plate 9).

*Plate 9: A cross section of hedge bank 3, view from the south, scale: 1 x 1m.*

*5.2.2 Hedge bank 5*

Hedge bank 5 is a gently curving boundary orientated approximately northwest/southeast; it is located towards the eastern end of the scheme. The feature comprises a low bank, 3.8m wide and 0.5m high composed primarily of earth with small stone inclusions, topped by a mature hedge (see plate 10).

*Plate 10: Hedge bank 5 (with temporary newt fencing in the foreground), view from the northwest, scale: 1 x 1m.*

*5.2.3 Hedge bank 7*

Hedge bank 7 is a gently curving boundary orientated approximately northeast/southwest; it is located at the eastern end of the scheme, to the southwest of Rhydd-Ifan. The boundary is fairly wide and low, comprising an earth and stone bank 2.8m wide and 0.5m high; topped by a hedge (in places) which stands some 2.2m high and is reinforced using a modern post and wire fence (see plate 11).

*Plate 11: Plate 10: Hedge bank 7, view from the southeast, scale 1 x 1m.*

### 5.3 Archaeological controlled strip and excavation

The control strip area comprised of a strip 40m in length and 20m in width orientated on a north-west to southeast axis. Topographically this area sloped down gently from the south-eastern end to a small hollow, before rising up again to a slight rise, located at the approximate centre of the area. From here the ground continued to slope down to the northwest at a moderate gradient.

The excavation site was divided into three areas A, B and C. Area A was located at the south eastern end, where the ground sloped down to the northwest; area B was located at the base of the hollow, and area C was located to the northwest, where the ground sloped up to the top of the rise. No archaeological activity was identified in the north-western half of the area, beyond the central rise.

*Plate 12: Working shot taken during the archaeological control strip, view from the south.*

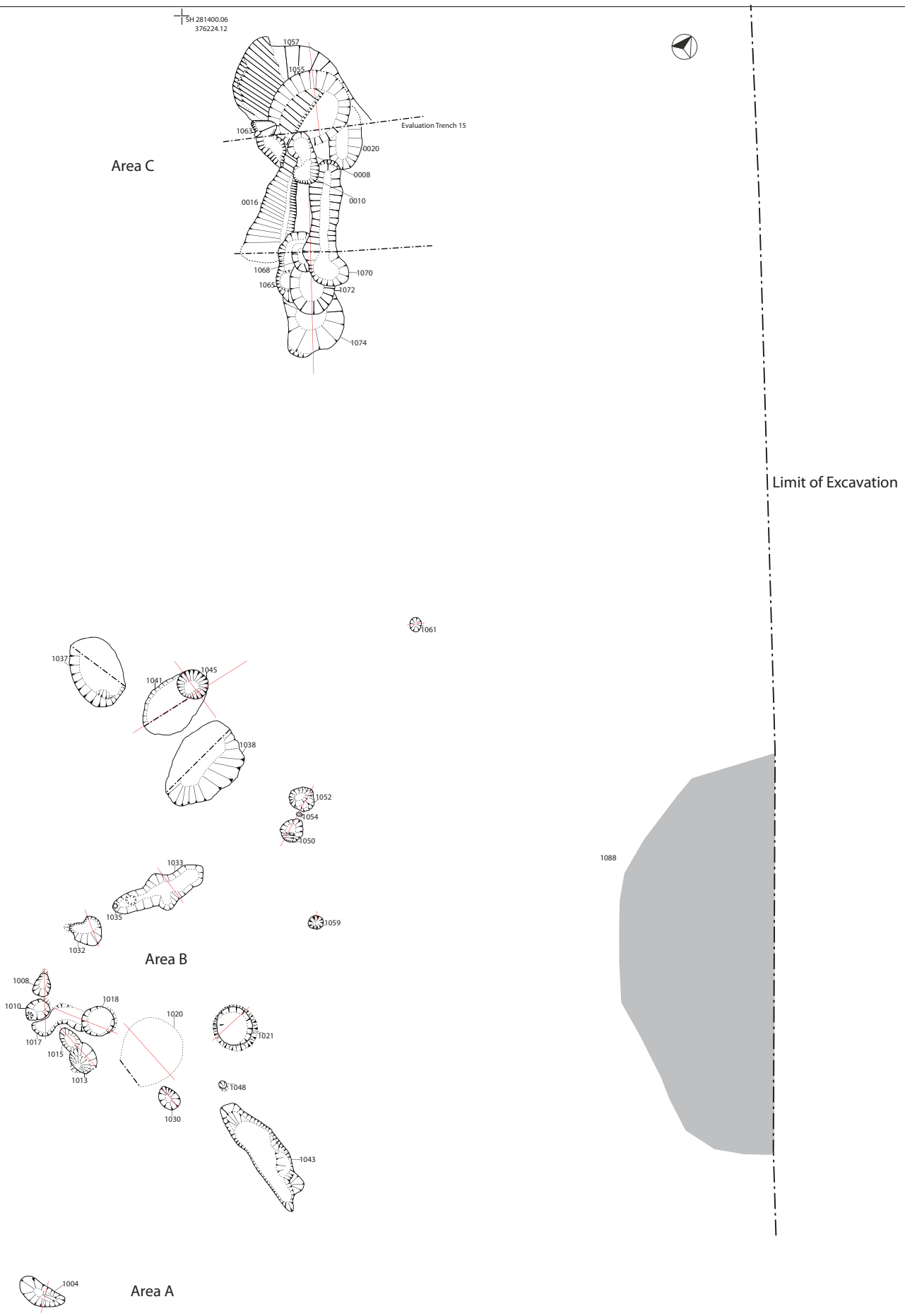




*Figure 2: Post-Excavation plan of the control strip area*

*5.3.1 Area A*

The southern half of area A featured moderately sloping ground, which primarily comprised of a loose shale bedrock, which was overlain by a soft silty orange glacial deposit (1003) towards the base of the slope. No archaeological features were identified within the bedrock; however a single feature, [1004] was identified in the silty glacial deposit (1003). This small sub rounded feature contained a  single, fairly sterile fill which offered little information regarding its date or purpose. An area of bioturbation [1006] was also identified in this area .

*Table 2. Features Identified within Area A of the control strip*

| Context no | Sub Area | Description | Fills |
|---|---|---|---|
| 1004 | A | Small oval pit, single, fairly sterile, uniform fill, possibly natural. | 1005 |
| 1006 | A | Natural feature caused by bioturbation | 1007 |

*Plate 13: Pre-excavation shot of area A. View from the north.*

*5.3.2 Area B*

At the base of the hollow the natural deposits primarily comprised of a soft silty orange glacial deposit (1003), with patches of the loose shale bedrock protruding through in places. A variety of discrete features were identified in this area, indicating some prehistoric settlement, most likely of a temporary nature. The features included a hearth [1020] and a possible storage pit containing several charcoal rich fills [1021]. Several post holes [1010], [1013, [1018], [1045] and stake holes [1035], [1040], [1048], [1054], identified in the vicinity of the hearth indicate some kind of structure. Various other features were found in this area, some of which may be attributed to bioturbation or frost cracking, whilst others are more likely to be archaeological, though of a less distinct function. At the northeastern limit of this area a silt-filled hollow was identified, most likely a small dried up pond; no deposits of an archaeological nature were identified within this feature, however its proximity to the settlement may be significant.

*Table 3. Features Identified within Area B of the control strip*

| Context no | Sub Area | Description | Fills |
|---|---|---|---|
| 1008 | B | Shallow pit/truncated posthole, single silty fill | 1009 |
| 1010 | B | Posthole, single silty fill | 1012 |
| 1013 | B | Large posthole, single silty fill with occasional charcoal inclusions | 1014 |
| 1015 | B | Small oval pit, single silty fill with occasional charcoal inclusions | 1016 |
| 1017 | B | Very shallow amorphous feature, possibly a natural hollow, single fill containing prehistoric pot & flint | 1011 |
| 1018 | B | Possible posthole, uniform silty fill, some charcoal | 1026 |
| 1020 | B | Hearth – in situ burning of the natural, carbonized material pressed into the top | 1028,1029, 1027 |
| 1021 | B | Large circular cut, possible storage pit, several charcoal rich fills, a couple of flint finds | 1022, 1023, 1024, 1025 |
| 1030 | B | Small oval pit, single silty fill containing some charcoal | 1031 |
| 1032 | B | Small pit, with evidence of some bioturbation; single silty fill containing some charcoal, cut by a small stake hole | 1039 |
| 1033 | B | Shallow, slightly amorphous linear, single fill with occasional charcoal, cut by small stake hole | 1034 |
| 1035 | B | Stake hole located at the w. end of linear | 1036 |
| 1037 | B | Natural feature – probable root bole | n/a |
| 1038 | B | Natural feature – probable root bole | n/a |
| 1040 | B | Stake hole | n/a |
| 1041 | B | Natural feature – an area of burnt roots | n/a |
| 1042 | B | Natural feature – an area of burnt roots | n/a |
| 1043 | B | Large irregular feature – possible natural frost crack, several fairly sterile fills | 1044, 1076, 1077, 1078 |
| 1045 | B | Posthole, two fills containing burnt stone & a flint core | 1046, 1047 |
| 1048 | B | Stake hole | 1049 |
| 1050 | B | Shallow pit – likely to be natural | 1051 |

| | | | |
|---|---|---|---|
| 1052 | B | Shallow pit – likely to be natural | 1053 |
| 1054 | B | Stake hole | n/a |
| 1059 | B | Small pit, single sandy fill – possibly natural | 1060 |
| 1061 | B | Small pit, single sandy fill – possibly natural | 1062 |
| 1088 | B | Silt filled alluvial hollow | 1086 1087 |

The hearth [1020] was situated in the approximate centre of this area with the other features dispersed unevenly around it (see figure 2 and plate 14). The feature was sub-circular in plan and measured some 1.3m x 1.2m. It primarily consisted of heat affected natural, with remnants of a possible ground-surface above which contained charcoal, carbonised hazel nut shells and burnt bone fragments. Radiocarbon dates obtained from the hazel nut shells provided a date of 1741calBC (±31) (see appendix IV). The burnt bone fragments were too small and infrequent for useful analysis.


*Plate 14: North facing section cut through the heat effected natural of the hearth [1020]. Scale: 1 x 1m.*

The possible storage pit [1021] was located 0.6m to the northeast of the hearth (see figure 3.1 and plate 15). This circular feature had a diameter of 0.75m and was 0.37m deep with a slightly concave base. The sides were near vertical at the top, but irregularly undercut towards the base; this may have been a deliberate design feature though is more likely to have been the result of collapse. It is common for the sides of pits to subside if left open to the elements, particularly if they are allowed to fill with rainwater.

The pit was filled by 4 distinct deposits. The primary fill (1022) was extremely charcoal rich and contained frequent fragments of carbonised hazel nut shell and very occasional fragments of burnt bone. Radiocarbon dates obtained from the hazel nut shells provided dates of 1743calBC (±31) and 1757calBC (±31); very close to dates obtained from the hearth (see appendix).The secondary fill (1023) contained significantly less charcoal but did yield several pieces of flint; a thick, broad flake with fine retouch along one sharp straight edge (find no.007) and two small tertiary flints of a different fabric to the blade (find nos.009.1 and 009.2) (see appendix for the full specialist report). The uppermost fills (2024) and (1025) contained only occasional charcoal flecks and appeared to have slumped in from the south and north sides respectively. The tertiary deposit (1024) contained further flint, a partly prismatic core (find no 008).


*Plate 15: East facing section cut through pit [1021]. Scale: 1 x 1m.*

A large irregular feature [1043] situated some 1.2m east of the hearth was interpreted as a natural feature, most likely caused by frost cracking. It measured 2.5m x 0.7m, was orientated on an east/west axis and was 0.4m deep. It was filled by several fairly sterile deposits with diffuse edges which contained occasional charcoal flecks and sub rounded pebbles.

To the north of the hearth a group of seven small possible pits and stake holes formed a rough line running north/south[1061], [1052], [1054], [1050], [1059], [1048] and [1030] (see figure 2). The features were irregularly dispersed, and varied somewhat in size from very small stake holes to larger possible post holes. No finds were obtained from these features and no radiocarbon dating was undertaken.


*Plate 16: East facing section cut through small pits [1050], [1054] and 1052]. Scale: 1 x 1m.*

A cluster of larger pits, probable postholes was located to the west of the hearth. These included two intercutting pits, [1013] and [1015] (see figure 1). The larger of the two pits, [1013] was sub-circular in plan with a diameter of 0.5m. The sides were slightly stepped, and undercut at the southern edge, suggesting the pit was designed to hold a post set at an angle, leaning to the north (see figure 3.08). The second pit [1015] was shallower and more regular; it was oval in plan, orientated on an east/west axis and measured 0.45m x 0.30m, with a depth of 0.17m. The sides of the pit were concave, as was the base (see figure 3.07).


*Plate 17: South facing section cut through pits [1015] and [1013]. Scale: 1 x 1m.*

Some 0.9m to the west of the hearth lay a very shallow amorphous feature, roughly 'S' shaped in plan [1017]; it measured 0.8m in length, had a maximum width of 0.75m and a maximum depth of 0.06m. The feature was filled by a uniform clay-silt deposit with occasional charcoal flecks (1011). The fill contained four decorated ceramic sherds, all from the same vessel, identified by F. Lynch as a classic Collared Urn of Longworth's Primary Series (see appendix V for the full specialist report) and thus of a Bronze Age date

At its eastern edge, feature [1017] was truncated by a substantial post hole [1018] (see figure 3.09 and plate 18). This feature was sub circular in plan with a width of 0.53m and a breadth of 0.47m. It was 0.51m deep with a relatively flat base and steep sides; somewhat undercut at the northeast edge.

To the west of feature [1017] lay a second, somewhat shallower posthole, [1010]; although these two features were immediately adjacent, no direct relationship between them was observed (see figure 3.10). This post hole was sub-circular in plan with a width of 0.48m and a breadth of 0.45m. It was 0.20m deep with steep sides tapering slightly to the concave base. This feature was filled by a single, uniform clay-silt deposit (1012) containing frequent small sub rounded stones, but no post-packing of any description. No finds were identified and no date analysis work was undertaken for this feature.


*Plate 18: West facing section cut through pits [1018] and [1017]. Scale: 1 x 1m.*

Feature [1032], a possible small post hole, was located 1.65m to the northwest of the hearth [1020]. This feature was somewhat amorphous in plan with irregular sides and base; it had a diameter of roughly 0.6m and was 0.16m (see figure 3.12). It was filled by a single silty deposit which contained occasional charcoal flecks and frequent sub-angular gravel. A possible stake hole [1040] was cut into the northwest side of the feature. The western side displayed evidence of disturbance caused by bioturbation; it is possible that this accounted for the entire feature. No finds were identified and no date analysis work was undertaken for this feature.


*Plate 19: Northeast facing section cut through pit [1032]*

Some 0.4m north of feature [1032] there was a short, fairly shallow linear [1033], measuring 2.00m by 0.75m and orientated on a north/south axis, with a depth of 0.22m. The sides of the feature were irregular, though had a predominantly moderate gradient and the base was undulating and slightly concave. The feature was filled by single silty deposit (1034) containing occasional charcoal flecks and moderately frequent pebbles. A small possible stake hole [1035] was recorded cut into the southwest terminus and a small circular depression located towards the south-western terminus may have represented a second feature, though no differentiation in the fills was identified. The irregular shape of this feature, combined with the somewhat diffuse edges indicate it may be the result of bioturbation; however its proximity to other more definite features and the charcoal within the fill suggest it may have been archaeological, although its function is unclear. No finds were identified and no date analysis work was undertaken for this feature.

Some 5m north of the hearth was a cluster of three fairly large, shallow sub oval features [1037], [1038] and [1041] (see plate) cut into the loose shale bedrock. These ranged in length from 1.24m to 2.28m and the deepest was only 0.24m. The western most feature of the three [1037] had a sterile stony fill whilst the other two contained burnt clay material. Due to the very irregular and shallow nature of these features they were interpreted as the result of bioturbation; with the heat affected clay most likely evidence of vegetation clearance through burning.

Although feature [1041] was not deemed to be archaeological in origin, it overlay a fairly substantial pit, interpreted as a likely posthole [1045]. This circular feature had a diameter of 0.60m and was 0.3m deep and the slightly concave sides tapered to a point. The pit was filled by a primary deposit (1047) of clay-sand containing moderately frequent sub-angular stones, some of which were heat-fractured. A secondary deposit (1046) comprised a very soft, black silt-sand-charcoal mix which contained few inclusions and had a very clear interface. This deposit was positioned in the centre of the feature and is likely to have represented the remnants of a burnt out post; results from the environmental report (see appendix) confidently identified this as hazel. A small flint core remnant or reject (find no. 10) was obtained from this deposit.

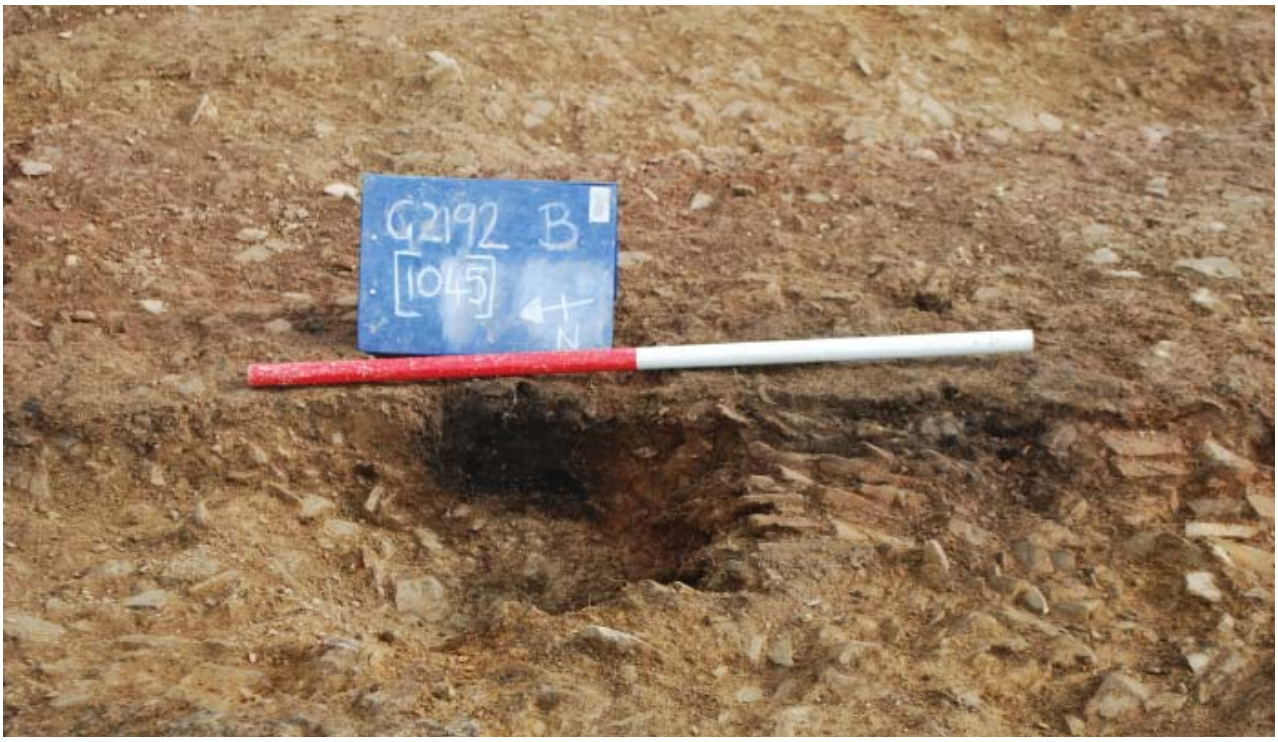


*Plate 20: West facing section cut through pits [1045]. Scale: 1 x 1m.*

At the northeast edge of area B a natural silt filled hollow was identified [1088], this feature extended some 3m southwest from the edge of excavation; it was 8.0m in length and 0.7m deep (see figure 3.01 and plate 21) . Due to the scale of this feature a machine used to excavate a meter wide slot along the main trench edge. This revealed several alluvial deposits but no evidence of archaeological activity.


*Plate 21: Post excavation shot of the machine excavated trench cut through the natural silt filled hollow in area B. View from the northwest, scale: 2 x 1m.*

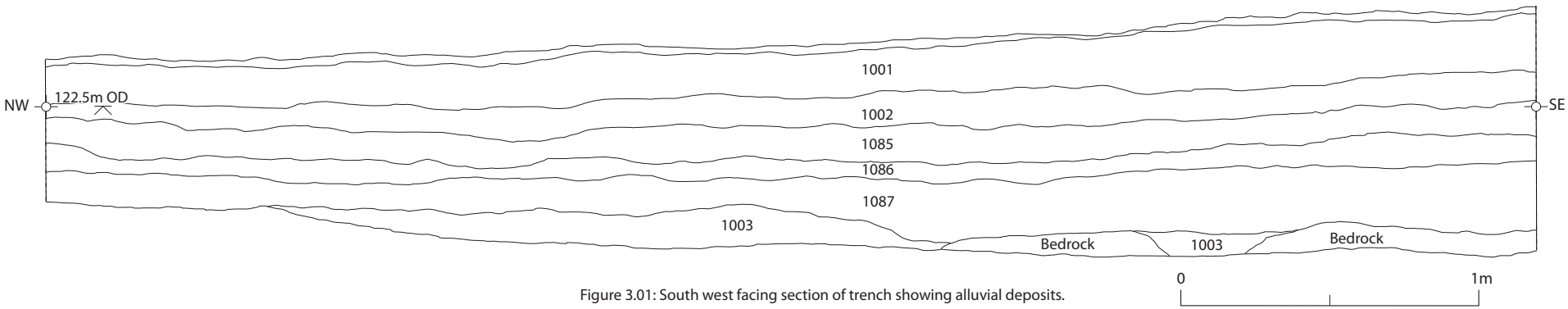


Figure 3.01: South west facing section of trench showing alluvial deposits.

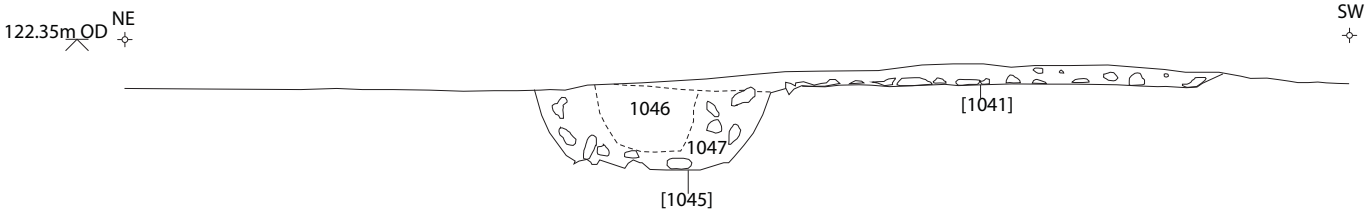


Figure 3.02: NW facing section through [1045] and [1041].

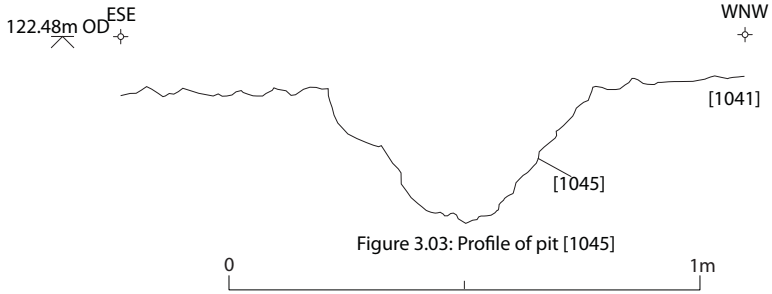


Figure 3.03: Profile of pit [1045]

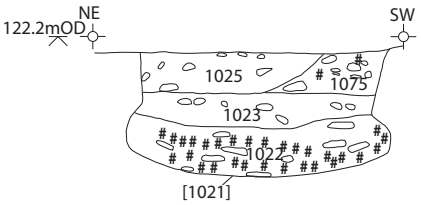


Figure 3.04: North facing section through pit [1021].

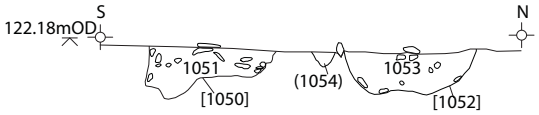


Figure 3.05: Section through pit [1050], stakehole (1054) and pit [1052].

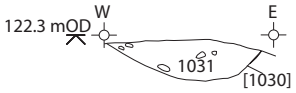


Figure 3.06: South facing section though pit [1030].

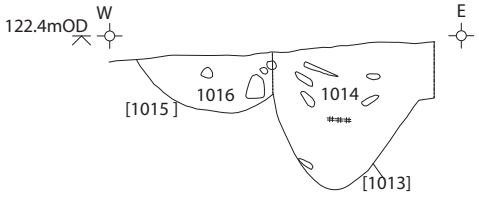


Figure 3.07: South facing section through pits [1015] and [1015].

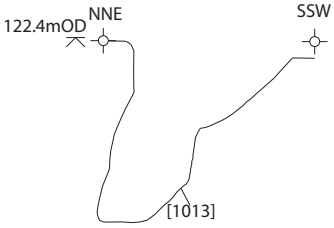


Figure 3.08: Profile through posthole [1013].

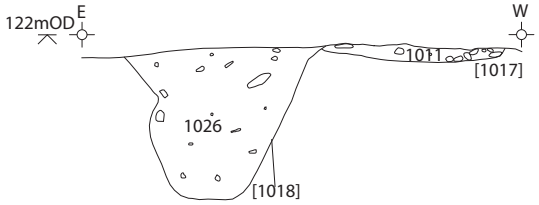


Figure 3.09: North facing section through pit [1018[ and feature [1017].

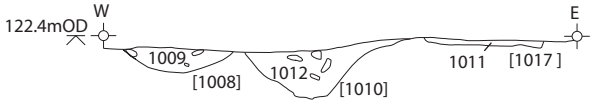


Figure 3.10: Section through features [1008], [1010] and [1017].

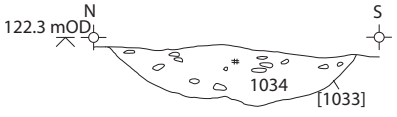


Figure 3.11: West facing section through linear [1033].

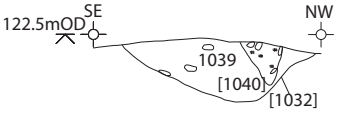


Figure 3.12: North east facing section through pit [1032].

5.3.3 Area C

Area C was located to the northwest of the hollow, where the ground sloped up at a moderate gradient to the top of the rise. It primarily comprised of a loose shale bedrock, overlain by a soft silty orange glacial deposit in places. This area featured a cluster of 12 intercutting shallow pits and gulleys, orientated on a northwest/southeast axis (see figure 2).

The central section of this area was excavated during the evaluation phase of work (see Trench 15 in GAT report 987). During this work four distinct phases of archaeological activity were identified: a rock cut linear [0012], succeeded by two parallel running gullies [0016] & [1070] and then several intercutting pits [0010] [0008], [1065] & [1063]. During the second phase of excavation the areas to the northeast and southwest of the original trench were investigated (see figure 2). The full extent of those features identified in the first phase of excavation was revealed, as well as several entirely new features. The additional information gained from the second phase of excavation altered the initial site matrix somewhat, and demonstrated that the two gullies were of stratigraphically different phases. The grouping as a whole will be discussed in this report.

*Table 4. Features Identified within Area C of the control strip*

| **Context no** | **Sub Area** | **Description** | **Fills** |
|---|---|---|---|
| 1055 | C | Large truncated pit, single moderately stony fill containing charcoal & burnt clay | 1056 |
| 1057 | C | Very large heavily truncated pit, single stony fill containing charcoal & burnt clay | 1058 |
| 1063 | C | Small, irregular pit, single silty fill containing frequent charcoal & burnt clay | 1064 |
| 1065 | C | Truncated linear, single stony fill, occasional burnt clay & charcoal. Possibly the same as [1055] | 1067 |
| 1068 | C | Small oval pit, truncated, single soft silty fill, occasional burnt inclusions | 1069 |
| 1070 | C | Linear feature, very stony fill – large sub angular cobbles, possibly heat affected. | 1071 |
| 1072 | C | Shallow, truncated pit, single silty fill with few inclusions | 1073 |
| 1074 | C | Shallow, slightly irregular truncated pit, single fairly stony fill with occasional burnt inclusions | 1075 |
| 1080 | C | Possible pit, heavily truncated, evidence of in situ burning in the base | 1081 |
| 0008 | C | Oval pit, single stony fill | 0009 |
| 0010 | C | Small pit, single silty fill | 0011 |
| 0012 | C | Rock cut linear | 0013<br>0005 |
| 0016 | C | Cut of shallow gully containing occasional charcoal, burnt clay and burnt bone fragments | 0017 |

The earliest phase of activity appears to have comprised a large pit, [1057], cut through a possible buried ground surface (1084) into the bedrock at the north-western limit of the grouping, a shallow pit [1081] showing evidence of in situ burning at the southwest limit of the grouping and a 2.0m long gulley [0016] (and possibly an earlier linear [0012]), linking the two. Unfortunately these features have been repeatedly truncated by the later activity, thus their exact form and relationships are unclear.

Pit [1057] was sub-circular in plan, measured 1.9m x 2.2m and was 0.4m deep (see figure 4.01 and plate 22). There was no evidence of in situ burning within the cut; however the stony fill did contain moderately frequent inclusions of charcoal, lumps of burnt earth and very small fragments of burnt hazel nut shell, oat grains, mussel shell and bone. The bone fragments were for the most part too small for any type of identification, though two sheep sized long bone shaft fragments were identified (see appendix VII for the full report). Linear [0012] appears to have run northwest/southeast down the centre of the grouping, and contained two fills, the primary of which displayed some evidence of in situ burning. Gully [0016], cut into the eastern site of [0012] was somewhat more clearly defined and contained a very similar fill to pit [1057]. Very little remained of the south-eastern pit [1080], beyond an area at the base of the cut where the underlying natural silt showed evidence of in situ burning.


*Plate 22: Northeast facing section through pits [1055] and [1057] at the northwest end of the pit grouping scale: 1 x 1m.*

The subsequent features were all cut into the top of these first four, not straying outside the initial footprint to any great extent. These features were for the most part fairly small, slightly irregular pits. The fills contained varying amounts of burnt material, including lumps of burnt earth, (typically angular lumps up to 0.002m in diameter in varying shades of orange); though no further evidence of in-situ burning was noted. Fragments of burnt earth were also observed in the overlying subsoil horizons, presumably due to plough damage. A third short linear [1070] orientated on the same axis as the earlier two, though stratigraphically somewhat later. This feature contained a significant amount of cobbles, which may have represented the remnants of some form of lining, as well as charcoal burnt inclusions of earth.

The results of the environmental sampling (see appendix III) identified low levels of indeterminate cereal grains as well as oats, wheat and barley within many of the fills, and a significant quantity of possibly cultivated oats (Avena cf. sativa) within three pit fills (1056), (1064) and (1058) all at the northwest end of the grouping. Small quantities of burnt bone was also identified in many of the features,

Radio carbon dates were obtained from four of the deposits, ranging from the stratigraphically earliest deposits at either end of the grouping (1075) and (1058);from one of the central gullies (1071) and from one of the uppermost pits (1064) (see appendix for the full report). The dates were obtained primarily from hazel nut shell, though oat grains were used in a couple of instances. The dates obtained all fell within a very small range, all being within the 1260'scal AD, with one exception of 1284cal AD.


*Plate 23: Northeast facing section through pits [1072] at the southeast end of the pit grouping scale: 1 x 1m*

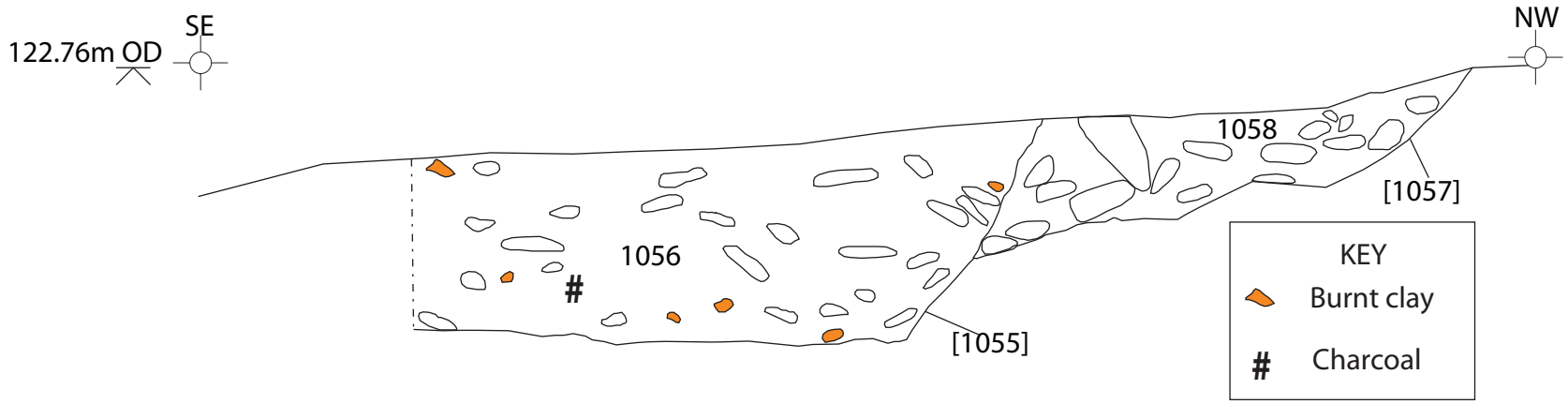


Figure 4.01: North east facing section though pits [1055] and [1057].

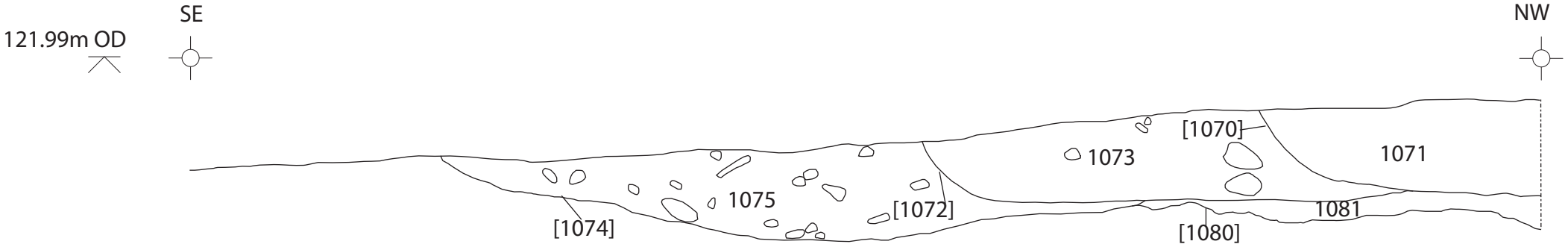


Figure 4.02: North east facing section through intercutting pits [1074], [1072], [1070] and [1080].

## 6 DISCUSSION

### 6.1 Archaeological watching brief

No archaeological features of note were identified during the watching brief phase of this work, with the exception of the gate post/boundary marker identified towards the middle of the main pipe route. This feature at present performs no function, but the circular hole drilled into the face indicates it has been used as a gate post. It is possible that prior to this it was used as a boundary marker.

Elsewhere a variety of relatively modern field drains and field boundaries (19th + 20thC) and a few sherds of pottery, dating from the 18thC to the present were identified. No archaeological activity was observed at the *area of potential for prehistoric activity* (Feature 8 in the Assessment Report 957).

### 6.2 Archaeological controlled strip and excavation

*6.2.1 Area A*

No archaeology of note was identified within area A. A small sub-rounded pit containing a sterile fill was recorded, along with several features attributed to bioturbation.

*6.2.2 Area B*

The cluster of features identified in area B comprised a central area of burning surrounded by a number of pits of varying size, situated at the base of a slight hollow. Although directly associated with no obvious structure the localised area of intense burning indicates a hearth, most likely used in a domestic context. The selection of pits and postholes did not form particularly obvious arrangements, being somewhat randomly dispersed, but are likely to represent the site of a small temporary structure and possible wind break. Several fragments from the same Collared Urn, and a number of pieces of worked flint and chert were obtained from the fills of some of the features.

The radiocarbon dating from the hearth and a nearby pit produced very tightly clustered results focussed in the mid-17th century cal BC (1757-41 +/- 31 cal BC GU 34986, 34987 and 34989), thus somewhere in the middle of the early Bronze Age. In her analysis of the pottery, Lynch confirmed that the date range for the use of Collared Urns, in both a funerary and domestic context encompassed this date. The small number of lithics found were not sufficiently technologically or typologically distinct to independently attribute them to any specific period, however they were not deemed to be inconsistent with the posed date.

The small size of the activity area and limited number of features suggests a temporary occupation area or camp. The features are for the most part discreet, with minimal intercutting, indicating a single phase of construction. In the lithics report (see appendix VI) Smith observes that the 'casual use of only locally available, if poor quality, raw material also demonstrates the temporary nature of the settlement at a time when imported raw materials of better quality would have been expected, as found in Later Neolithic contexts near Bangor (Smith 2008) and in Early Bronze Age contexts on the Denbigh Moors (Healey 1993'. The absence of small fragments of debitage in the samples reflects a minimal amount of flint and chert working at the site, again indicating the temporary nature of this site.

There is no evidence of any industrial processes occurring at the site thus we may infer the primary use of the hearth was domestic. Charred hazelnut shell fragments recovered in varying quantities from the majority of the features across the site, including the hearth itself, may represent evidence of food consumption. Although it is noted by McKenna in the environmental report that the 'shell fragments show no marks typically associated with processed shells. Together with the presence of hazel charcoal, this may indicate that they are merely representative of hazel wood trees being burnt, which could be either a natural or a man-made process'. The environmental analysis also produced some slight evidence of cultivation, in the form of occasional cereal grains and weed seeds typical of cultivation (see appendix III). A few small fragments of burnt bone were identified, but in such small quantities as to be incidental (see appendix VII). However the complete absence of non-charred faunal remains at the site indicates that the soil conditions are unsuitable for the preservation of bone, thus the assemblage is unlikely to be complete.

The preservation of the charcoal fragments was relatively variable, but was dominated by oak. In her analysis of the environmental samples McKenna observes that it is possible that 'this was the preferred fuel wood obtained from a local environment containing a broader choice of species. Oak is probably the first choice structural timber, and with a local abundance it may have been used instead of ash, thereby providing more by-product fire fuel'. Hazel was also observed in lesser quantities and the presence of hazel nut indicates that the site was used primarily in the autumn.

Although Collared Urns are often found within a funerary context, used to contain skeletal remains; there is no evidence that this was the case in this instance. Their proximity to the hearth suggests a domestic function, perhaps food storage. A large pit [1021] to the northeast of the hearth may be interpreted as a storage pit, given its size and regularity, though no evidence of stored remains was identified. The charcoal rich layer at the base of the pit does however indicate that it was left open concurrently with the use of the hearth, and may have been used for rubbish disposal. The upper deposits indicate it was subsequently left to silt up naturally

The irregular line of pits, interpreted as small post holes and stake holes to the east of the hearth may represent the remnants of a wind break. The holes did not appear sufficiently deep or large to support a structure of any great height. Several of the pits to the west of the hearth were significantly larger and were possibly associated with a more substantial structure. Large posthole [1013] appears to have been deliberately cut at an angle; the trajectory of the post would have extended over the fire, and may thus have been associated with food preparation. To the north of the main nucleus of the settlement, a single posthole [1045] was identified in an area otherwise characterised by bioturbation. Remnants of a charred hazel post, burnt in situ were identified. Elsewhere however there was no evidence of post packing or post pipes, perhaps indicating that the structures were taken down and moved elsewhere

### 6.2.3 Area C

The results of the radio carbon dating clearly demonstrate that the cluster of intercutting pits and gullies identified in area C is associated with an entirely separate phase of activity to those features in area B. This area of activity may be confidently attributed the 1260s, the end of what may be termed the High Middle Ages.

The earliest features in the sequence appear to comprise two large pits cut into a moderate slope, linked by a shallow gulley. The downslope pit displayed evidence of in situ burning whilst the fill of the upslope pit (1058) contained significant quantities of oat grain. This arrangement of features closely matches the classic form of a Medieval corn drier (O'Sullivain and Downey 2005). Such features were common in the medieval landscape, used to dry grain in order to both preserve it and allow for easier milling (Kenney 2014, 22). The grain would be placed on a lattice of sticks uphill of the fire and would be dried by the rising heat. Separating the pit over which the grain was dried from the fire with a flue reduced the risk of the harvest catching fire. Such features were generally lined with stone, though there is other unlined examples, for example at Parc Bryn Cegin, Llandegai (PRN31787) (Kenney 2014, 23).

The primary features in the sequence are truncated by a number of smaller pits, which do not appear to be associated with the function of the corn dryer, and postdate its usage. The fill of the pits contained a mixture of burnt material, including a variety of domestic waste such as hazel nut shell, mussel shell and burnt bone. Burnt earth was also observed in many of the pits, though this may be redeposited from the original corn dryer. The results of the dating showed no significant difference between the dates of the stratigraphically earliest deposit, to those later in the sequence, indicating a fairly small time frame for the activity, all within the 1260'scal AD.

## 7.0 CONCLUSION

Bronze Age activity within this area is rare, thus the discovery of a site from the period is significant. The nature of subsistence in the Neolithic and early Bronze Age has been identified as an area of particular interest by *A Research Framework for the Archaeology of Wales Version 02*. The limited phasing and small number of the features combined with the presence of hazel nutshells indicates that this was an autumn seasonal camp, perhaps used as part of a herding or hunting circuit (PRN 60152). Smith suggests that 'the presence of pottery and of some cereal grain shows that, although short-term, the camp probably belonged to a permanent farming settlement elsewhere. No such settlements are known but the presence of activity, and presumably settlement is attested by a number of Bronze Age burial monuments on the uplands on both sides of the Conwy Valley' (see appendix VI).

The Medieval corn dryer (PRN 60153) identified in area C of the controlled strip, is a common feature of the period, though would generally be associated with a settlement. The relatively small size and simple construction style indicate that such a settlement was quite small. No further evidence from this period was identified within the confines of these works, however we may that there is significant potential for a medieval settlement in the immediate vicinity.

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# Appendix I: Project Design

# COED DOLWYD SERVICE RESERVOIR AND ASSOCIATED PIPEWORK

## FURTHER ARCHAEOLOGICAL WORKS DESIGN FOR ARCHAEOLOGICAL EXCAVATION: PREHISTORIC FEATURES WITHIN CONTROLLED STRIP AREA (NGR SH81357620)

***Prepared for***

Costain

***September 2012***

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

**COED DOLWYD SERVICE RESERVOIR AND ASSOCIATED PIPEWORK**

**FURTHER ARCHAEOLOGICAL WORKS DESIGN FOR ARCHAEOLOGICAL EXCAVATION: PREHISTORIC FEATURES WITHIN CONTROLLED STRIP (NGR SH81357620)**

Prepared for Costain, September 2012

## Contents

**COED DOLWYD SERVICE RESERVOIR AND ASSOCIATED PIPEWORK**

**FURTHER ARCHAEOLOGICAL WORKS DESIGN FOR ARCHAEOLOGICAL EXCAVATION: PREHISTORIC FEATURES WITHIN CONTROLLED STRIP (NGR SH81357620)**

Prepared for Costain, September 2012

## 1. INTRODUCTION

Gwynedd Archaeological Trust (GAT) has been asked by Gwynedd Consultancy to provide a Further Archaeological Works Design (FAWD) for the excavation of an area of prehistoric activity located on the pipe line route **(NGR SH81357620)**.

The archaeological excavation is centred on the location of GAT Trench 15 (NGR SH81357620), which was initially located to target GAT Report **957** Feature 6: *Area of potential for prehistoric activity*. During the phase of archaeological evaluation and mitigation, GAT Report **983,** a linear feature, truncated by several smaller gullies and pits of a possible prehistoric date were identified.

The project design for a subsequent phase of archaeological mitigation proposed a controlled strip of an area 40m in length, centred on the location of GAT Trench 15 (NGR SH81357620). This revealed some 24 features located predominantly to the south of the original trench (figure 1). The features probably include a hearth and several post holes along with pits of varying size, but it is not yet possible to be sure of their final number or character. A fragment of pot from the top of one of these pits indicates a prehistoric date. Some of the features appear to be cut through remnants of a possible buried ground surface and there is evidence of a dried up pond area to the east.

It is proposed to undertake a full excavation of all the features and deposits identified within this area.

## 2. METHOD STATEMENT

- The area will be cleaned by hand and all identified features will be hand excavated. Where appropriate features will be half sectioned in order to record the stratigraphy and then excavated in full.
- Any buried ground surfaces will subsequently be removed by hand.
- An investigative slot will be cut through the possible pond area.
- All features will be drawn to a scale of 1:20 on permatrace, both in plan and section.
- Grid points, etc will be surveyed in.
- A written record of all identified features will be completed via GAT pro-formas
- All subsurface features will be recorded photographically using a digital SLR set to maximum resolution.

<u>Plant machinery and welfare to be supplied by client.</u>

Gwynedd Archaeological Planning Service (GAPS) will advise and monitor the archaeological works. The current updated project design is to be approved by GAPS.

## 3. FURTHER ARCHAEOLOGICAL WORKS

- **This design and costs are based on the archaeology currently visible. It is possible that excavation may reveal a level of complexity that was not anticipated or unusual material that may need specialist sampling or on site conservation. In this case further work will be agreed between GAT, the clients and GAPS, and new cost estimates will be submitted.**
- **This design does not include a methodology or cost for examination of, conservation of, or archiving of finds discovered during the archaeological works, nor of any radiocarbon dates required, nor of the processing and examination of palaeoenvironmental samples. The need for these will be identified in the post-fieldwork programme, and a new design will be issued for approval by the GAPS Archaeologist.**

## 4. ENVIRONMENTAL SAMPLES

If necessary, relevant archaeological deposits will be sampled by taking bulk samples (a minimum of 10.0 litres and maximum of 30.0 litres) for flotation of charred plant remains. Bulk samples will be taken from waterlogged deposits for macroscopic plant remains. Other bulk samples, for example from middens, may be taken for small animal bones and small artefacts, as well as charred plant remains.

## 5. HUMAN REMAINS

Any finds of human remains will be left *in-situ*, covered and protected, and both the coroner and the GAPS Archaeologist informed. If removal is necessary it will take place under appropriate regulations and with due regard for health and safety issues. 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 need to be investigated or moved.

## 6. SMALL FINDS

The vast majority of finds recovered from archaeological excavations comprise pottery fragments, bone, environmental and charcoal samples, and non-valuable metal items such as nails. Often many of these finds become unstable (i.e. they begin to disintegrate) when removed from the ground. All finds are the property of the landowner, however, it is Trust policy to recommend that all finds are donated to an appropriate museum where they can receive specialist treatment and study. Access to finds must be granted to the Trust for a reasonable period to allow for analysis and for study and publication as necessary. All finds would be treated according to advice provided within *First Aid for Finds* (Rescue 1999). Trust staff will undertake initial identification, but any additional advice would be sought from a wide range of consultants used by the Trust, including National Museums and Galleries of Wales at Cardiff, ARCUS at Sheffield and BAE at Birmingham.

### 6.1 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.

## 7. STAFF & TIMETABLE

### 7.1 Staff

The project will be supervised by John Roberts, Acting Head of GAT: Contracts. The work will be carried out by fully trained Project Archaeologists who are experienced in conducting project work and working with contractors and earth moving machinery. (Full CV's are available upon request).

### 7.2 Timetable

Excavation is scheduled to commence on the 11th September 2012

## 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** (1999).

## 9. INSURANCE

*Liability Insurance - Aviva Policy 24765101CHC/00045*

- Employers' Liability: Limit of Indemnity £10,000,000 any one occurrence.
- Public Liability: Limit of Indemnity £10,000,000 any one occurrence.
- Hire-in Plant Insurance: £50,000 any one item.

The current period expires 21/06/13

*Professional Indemnity Insurance* – Aviva Insurance Ltd 24765101CHC/000405

The cover has been issued on the insurers standard policy form and is subject to their usual terms and conditions. A copy of the policy wording is available on request.

## 10. BIBLIOGRAPHY

Davidson, J. and Roberts, J., 2011. 2011GAT Report **983**: COED DOLWYD SERVICE RESERVOIR AND ASSOCIATED PIPEWORK – Archaeological Works

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Standard and Guidance for Archaeological Watching Brief (Institute for Archaeologists, 1994, rev. 2001 & 2008)

Standard and Guidance for Archaeological Excavation (Institute for Archaeologists, 1995, rev. 2001 & 2008)

**COED DOLWYD SERVICE RESERVOIR AND ASSOCIATED PIPEWORK**

**FURTHER ARCHAEOLOGICAL WORKS DESIGN FOR ARCHAEOLOGICAL EXCAVATION: PREHISTORIC FEATURES WITHIN CONTROLLED STRIP (NGR SH81357620)**

Prepared for Costain, September 2012

## COST ESTIMATE

Cost estimate is based on an hourly rate. **ALL PRICES EXCLUSIVE OF VAT.**

Welfare to be supplied by client; the trench extensions will be excavated by hand.

No reinstatement strategy for the trench has been requested of GAT by Client. It is not currently intended that the trench is backfilled by hand by GAT; if required, this will necessitate additional time/costs.

From the features currently visible it is estimated that a total of 10 days will be required for excavation and recording, with 2 GAT site agents in attendance. The GAT site agents are costed

**Full excavation of features near trench 15.**

Staff time – 10 days for 2 people

**Management**

Staff time – 2 days for 1 person

Please note the following:

The Trust will not be held responsible for any delays to the work programme resulting from the discovery of archaeological sites or finds.
A report on the work will be necessary and this is not included in the cost quoted, nor are the examination of, conservation of or archiving of finds discovered during the archaeological programme, nor of any radiocarbon dates required, nor of examination of palaeoenvironmental samples.

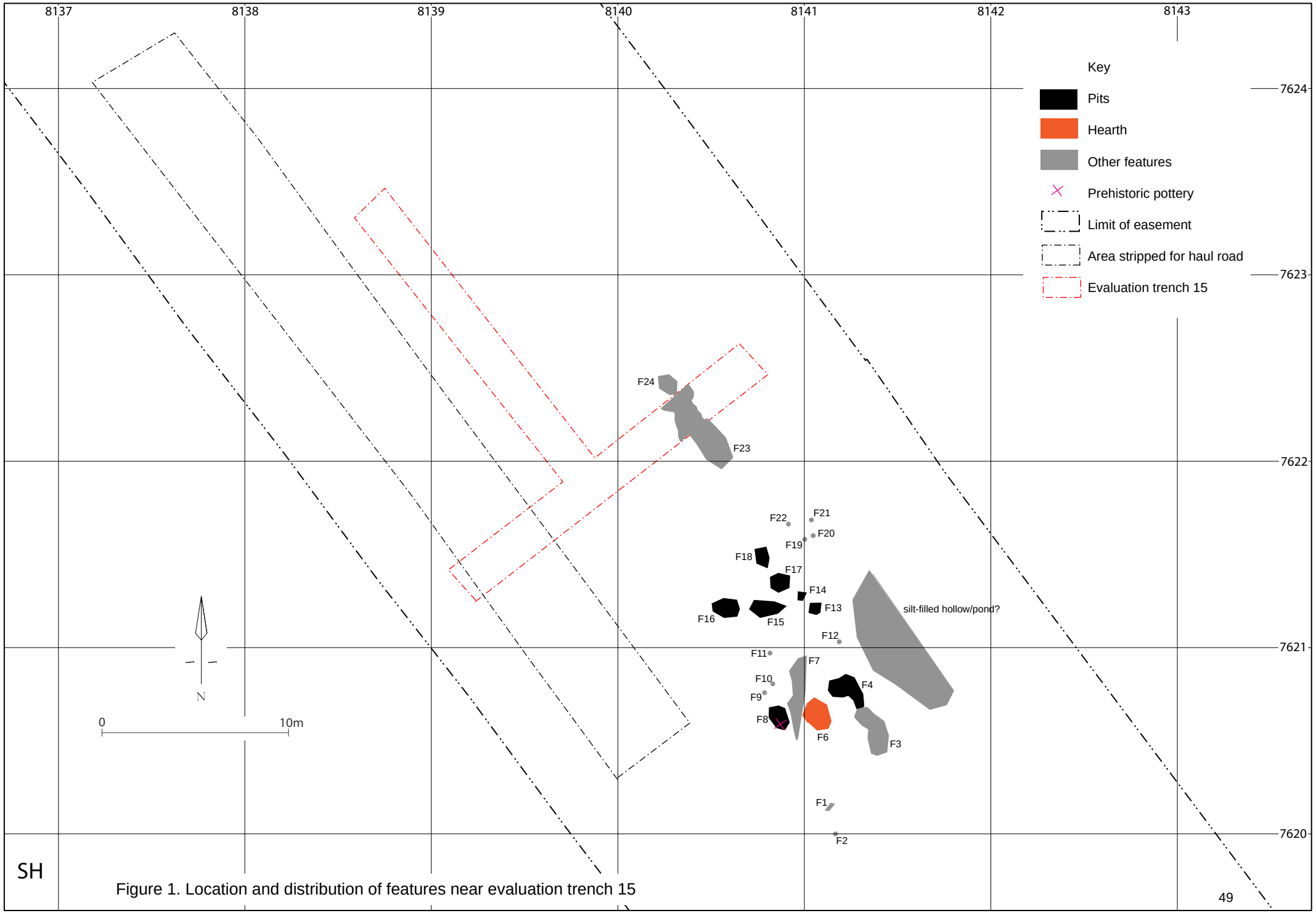


Figure 1. Location and distribution of features near evaluation trench 15

## Appendix II: Post Excavation Design

# COED DOLWYD SERVICE RESERVOIR AND ASSOCIATED PIPEWORK

## Project Design for Assessment of Potential for Analysis

***Prepared for***

Costain

***December 2012***

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

**COED DOLWYD SERVICE RESERVOIR AND ASSOCIATED PIPEWORK**

**Project Design for Assessment of Potential for Analysis**

Prepared for Costain, December 2012

## Contents

## 1.0 INTRODUCTION

This document provides a design for post excavation work associated with a programme of archaeological mitigation during the groundworks for the Coed Dolwyd Service Reservoir and Associated Pipework Scheme. This design applies only to the analysis of results from an area of controlled stripping and excavation. It provides a preliminary statement on the results of the archaeological work. It also includes a project design to assess the potential of the archive and finds resulting from that work.

The work proposed in this document will lead to the production of a report on the potential of the finds and archive and an updated design, with additional costs, proposing work necessary to complete the post-excavation analysis, report writing and archiving. The final phase of post-excavation work will result in a full excavation report, a briefer report for publication and the site archive ready to submit to the agreed museum.

## 2.0 ARCHAEOLOGICAL BACKGROUND

### 2.1 The scheme

The scheme included:

- A proposed reservoir site (Dŵr Cymru Site 11), *c.*690.0m east of Llansanffraid Glan Conwy with neighboring temporary site compound during construction phase (Dŵr Cymru Site 8c);

- A *c*.1.5km long pipeline route located north and east of Llansanffraid Glan Conwy.

The reservoir and temporary compound were located within neighbouring fields in close proximity to a local road (B5381) between Rhyd-Ifan Farm and Plas Isa Farm (centred on NGR **SH81657592**).

The pipeline route runs from Site 11 (NGR **SH81497612**) to the A470 trunk road north of Llansanffraid (NGR **SH80367647**).

The construction work was carried out by Costains for Dŵr Cymru, and Gwynedd Archaeological Trust carried out archaeological programme.

### 2.2 Archaeological Assessment

Gwynedd Archaeological Trust (GAT) completed an archaeological assessment of the reservoir/compound and pipeline route in June 2011 (Smith and Evans, 2011. GAT Report **957**). A total of ten features were identified within the assessment area, of which six were thought to be 18th century or earlier in date, with prehistoric archaeological activity areas postulated at three locations.

*Table 1. Potential archaeological activity identified along the proposed pipeline route (reproduced from GAT Report 957 with amendments)*

| Feature No | Name | Location |
|---|---|---|
| 1 | Platform | SH 80377651 |
| 2 | Terrace/former field bank | SH 80627653 |
| 3 | Hedge bank | SH 80987636-SH 81067644 |

| | | |
|---|---|---|
| 4 | Area of potential for prehistoric activity | SH 81107640 C |
| 5 | Hedge bank | SH 81127647-SH 81187640 |
| 6 | Area of potential for prehistoric activity | SH 81357620 C |
| 7 | Hedge bank | SH 81417605- SH 81557620 |
| 8 | Area of potential for prehistoric activity | SH 81597592 C |
| 9 | Former Trackway | SH 80737664- SH 80787638 |
| 10 | Hedge banks | SH 80967639- SH 81357658 |

### 2.3 Archaeological Evaluation/Ground Investigation Watching Brief

The archaeological evaluation included a geophysical survey of Sites 11 and 8c, followed by targeted trial trenching based on the survey results and to investigate GAT Report **957** Features **2**, **4** & **6** (cf. Table 1). A watching brief was also undertaken along the pipeline route during client ground investigation works.
The geophysical survey, using a magnetometer, was completed by *Stratascan* in September 2011 (*Stratascan Ltd.* ref. **2958**). The survey identified various linear anomalies within sites 11 and 8c.

A total of 15 archaeological trial trenches were excavated across the site, See figure 1. Three T-shaped archaeological trenches (Trenches 13 to 15) were positioned along the proposed pipeline route to target GAT Report **957** Features **2**, **4** & **6**: archaeological activity was identified in Trenches 13 and 15 (the location of Features **4** & **6**):

Trench 13 contained agricultural drainage indicative of land improvement and management. Trench 15 contained three distinct phases of archaeological activity: a rock cut linear, succeeded by parallel gullies and then intercutting pits. The presence of burnt clay within the subsoil horizon as well as the intercutting pits, suggested the presence of further localised activity indicative, possibly, of kiln firing or other industrialised process. The date of the activity could not be determined during on-site works but charcoal was recovered for possible $C^{14}$ dating.

Five geotechnical ground investigation trial pits were observed along the proposed pipeline route.

### 2.4 Mitigation Phase

An archaeological watching brief was carried out during main works along the pipeline route and the reservoir/compound site. This watching brief is still on-going. Controlled stripping under archaeological control was recommended for a targeted area of 20m x 40m, surrounding Trench 15 (figure 1).

This control strip was carried out in two phases; the south-western portion was completed first, on the 20th and 21st of August 2012, in order to allow for the construction of the haul road. No archaeology was identified in this section. The remainder of the work was undertaken on the 5th and 6th of September 2012. The

stripping of this section revealed numerous archaeological features, which were excavated and recorded according to FAWD.

## 3.0 AIMS AND OBJECTIVES

The original aim of the programme of work was to identify any archaeological remains revealed prior to and during the course of the construction works. Appropriate mitigation measures were developed for all archaeological remains revealed.

The current objective is to prepare an archaeological archive of the site to ensure the long-term curation of the recovered data. This is to include the treatment and preservation of any finds, deposition of the archive at an agreed repository or repositories, and the detailed analysis and publication of results to an appropriate level in line with nationally defined guidelines.

## 4.0 FIELDWORK METHODOLOGY FOR CONTROLLED STRIP AND EXCAVATION

The area of the controlled strip around trench 15 (NGR SH81357620, figure 1) measured a total of 20m x 40m within the easement corridor. This area was stripped with a tracked 360˚ excavator using a toothless bucket under the constant direction of an archaeologist. All topsoil and ploughsoil was removed in thin spits until archaeological deposits or natural glacial sub soils were encountered.

All features encountered were cleaned by hand, evaluated, and located using a Global Positioning System (GPS).

A Further Archaeological Works Design was then submitted in September 2012 for the full excavation and recording of the identified features. Following this all the area containing archaeological features was cleaned by hand to ensure that all features had been identified.

All identified features were hand excavated. Where appropriate features were half sectioned in order to record the stratigraphy and then excavated in full. A layer of buried soil was located and extent of this was planned before the layer was removed by hand to ensure any finds within it were recovered.

A silt-filled hollow was located at the edge of the stripped area and an investigative slot was dug through this using a small mechanical excavator.
All features were drawn to a scale of 1:20 on permatrace, both in plan and section; with drawing baseline etc surveyed in by GPS. A written record of all identified features was completed via GAT pro-formas. A full photographic record was maintained using a digital SLR camera set to maximum resolution.

All finds were recovered and the precise location of important finds was recorded in plan. Bulk soil samples (a minimum of 10.0 litres and maximum of 30.0 litres) were taken for flotation of charred plant remains. These bulk samples were taken from all probably prehistoric contexts containing charcoal and/or finds to allow the recovery of both charred plant remains and small artefacts not easily recovered by hand.

## 5.0 SUMMARY OF RESULTS

### 5.1 Features

The excavation resulted in the identification of 34 archaeological features which are likely to range in date from the prehistoric to modern period (see figure 2).

| Context no | Sub Area | Description | Fills |
|---|---|---|---|
| 1004 | A | Small oval pit, single, fairly sterile, uniform fill | 1005 |
| 1006 | A | Natural feature caused by bioturbation | 1007 |
| 1008 | B | Shallow pit/truncated posthole, single silty fill | 1009 |
| 1010 | B | Posthole, single silty fill | 1012 |
| 1013 | B | Large posthole, single silty fill, occasional charcoal | 1014 |
| 1015 | B | Small oval pit, single silty fill, occasional charcoal | 1016 |
| 1017 | B | Very shallow amorphous feature, possibly a natural hollow, single fill containing prehistoric pot & flint | 1011 |
| 1018 | B | Possible posthole, uniform silty fill, some charcoal | 1026 |
| 1020 | B | Hearth – in situ burning of the natural, carbonized material pressed into the top | 1028,1029, 1027 |
| 1021 | B | Large circular cut, possible storage pit, several charcoal rich fills, a couple of flint finds | 1022, 1023, 1024, 1025 |
| 1030 | B | Small oval pit, single silty fill containing some charcoal | 1031 |
| 1032 | B | Small pit, evidence of some bioturbation, single silty fill containing some charcoal, cut by small stake hole | 1039 |
| 1033 | B | Shallow, slightly amorphous linear, single fill with occasional charcoal, cut by small stake hole | 1034 |
| 1035 | B | Stake hole located at the w. end of linear [1035] | 1036 |
| 1037 | B | Natural feature – probable root bole | n/a |
| 1038 | B | Natural feature – probable root bole | n/a |
| 1040 | B | Stake hole | n/a |
| 1041 | B | Natural feature – an area of burnt roots | n/a |
| 1042 | B | Natural feature – an area of burnt roots | n/a |
| 1043 | B | Large irregular feature – possible natural frost crack, several fairly sterile fills | 1044, 1076, 1077, 1078 |
| 1045 | B | Posthole, two fills containing burnt stone & a flint core | 1046, 1047 |
| 1048 | B | Stake hole | 1049 |
| 1050 | B | Shallow pit – likely to be natural | 1051 |
| 1052 | B | Shallow pit – likely to be natural | 1053 |
| 1054 | B | Stake hole | n/a |
| 1055 | C | Large truncated pit, single moderately stony fill containing charcoal & burnt clay | 1056 |
| 1057 | C | Very large heavily truncated pit, single stony | 1058 |

| | | | |
|---|---|---|---|
| | | fill containing charcoal & burnt clay | |
| 1059 | B | Small pit, single sandy fill – possibly natural | 1060 |
| 1061 | B | Small pit, single sandy fill – possibly natural | 1062 |
| 1063 | C | Small, irregular pit, single silty fill containing frequent charcoal & burnt clay | 1064 |
| 1065 | C | Truncated linear, single stony fill, occasional burnt clay & charcoal. Possibly the same as [1055] | 1067 |
| 1068 | C | Small oval pit, truncated, single soft silty fill, occasional burnt inclusions | 1069 |
| 1070 | C | Linear feature, very stony fill – large sub angular cobbles, possibly heat affected. | 1071 |
| 1072 | C | Shallow, truncated pit, single silty fill with few inclusions | 1073 |
| 1074 | C | Shallow, slightly irregular truncated pit, single fairly stony fill with occasional burnt inclusions | 1075 |
| 1080 | C | Possible pit, heavily truncated, evidence of in situ burning in the base | 1081 |
| 0008 | C | Oval pit, single stony fill | 0009 |
| 0010 | C | Small pit, single silty fill | 0011 |

The control strip area comprised of a strip 40m in length and 20m in width orientated on a northwest to southeast axis. Topographically this area sloped down gently from the south-eastern end to a small hollow, before rising up again to a slight rise, located at the approximate centre of the area. From here the ground continued to slope down to the northwest at a moderate gradient. The archaeology was all located on the northeastern side of the control strip area, and at the south eastern end, with the majority of the features located at the base of the hollow and on the slope up to the top of the rise.

The excavation site was divided into three areas A, B and C. Area A was located at the south eastern end, where the ground sloped down to the northwest; area B was located at the base of the hollow, and area C was located to the northwest, where the ground sloped up to the top of the rise.

Area A featured moderately sloping ground, which primarily comprised of a loose shale bedrock, which was overlain by a soft silty orange glacial deposit (1003) towards the base of the slope. No archaeological features were identified within the bedrock; however a single feature, [1004] was identified in the silty glacial deposit (1003). This small sub rounded feature contained single, fairly sterile fill which offered little information regarding its date or purpose. An area of bioturbation [1006] was also identified in this area.

Area B located at the base of the hollow primarily featured a soft silty orange glacial deposit (1003), with patches of the loose shale bedrock protruding through in places. A variety of discrete features were identified in this area, indicating some prehistoric settlement, most likely of a temporary nature. The features included a hearth [1020] and a possible storage pit containing several charcoal rich fills [1021]. Several post holes [1010], [1013, [1018], [1045] and stake holes [1035], [1040], [1048], [1054], identified in the vicinity of the hearth indicate some kind of structure. Various other features were found in this area, some of which may be attributed to bioturbation or frost cracking, whilst others are more likely to be archaeological, though of a less distinct function. At the northeastern limit of this area a silt-filled hollow was identified, most likely a small dried up pond; no deposits of an archaeological nature were

identified within this feature, however its proximity to the settlement may be significant.

Area C was located to the northwest of the hollow, where the ground sloped up at a moderate gradient to the top of the rise. It primarily comprised of a loose shale bedrock, overlain by a soft silty orange glacial deposit in places. This area featured a cluster of 11 intercutting shallow pits. Some of these pits were initially identified in trench 15 during the evaluation phase. The pits were sub-rounded and shallow (on average 0.15m deep) and featured a mixture of burnt material within their fills. The function of theses pits is unclear; it is possible they represent a means of waste disposal, possibly associated with the settlement in area B, though there is no direct relationship.

## 5.2 Finds

### *5.2.1 Prehistoric Pottery*

3 shards of substantial prehistoric pottery, baring a cross-hatched design, were found in a very shallow feature [1017]. Initial examination indicates all three shards may come from the same vessel, possibly a Bronze Age collared urn.

### *5.2.2 Flint/chert*

A small, fairly worn chert core was found in the same shallow feature, [1017] as the prehistoric pot. A second small flint core, associated with a small flint flake and part of a small flint blade were found within a large circular pit [1021]. A third small flint core was found within the fill of a small post hole [1045].

### *5.2.3 Slag*

A small piece of possible slag was found within a large pit which appears early in a sequence of intercutting pits. Several further pieces of slag were identified within remnants of a relict soil associated with these pits and were included within a sample.

## 6.0 QUANTIFICATION OF RESULTS

***Field records***

| | |
|---|---|
| Context sheets | 87 |
| Drawings | 29 drawings on 12 sheets |
| Digital photographs | 103 |

***Environmental Samples***

30 from 29 contexts

***Finds***

| | |
|---|---|
| Flint/Chert | 5 |
| Prehistoric pottery | 3 |
| Possible slag | 1 |
| **Total** | **9** |

## 7.0 POST-EXCAVATION ASSESSMENT

### 7.1 Assessment of potential for analysis

The management of this project follows guidelines specified in *Management of Archaeological Projects* (English Heritage, 1991) and the Institute For Archaeology (IFA) *Standard and Guidance for Archaeological Excavation* (2008). Five stages are specified:

Phase 1: project planning
Phase 2: fieldwork
Phase 3: assessment of potential for analysis
Phase 4: analysis and report preparation
Phase 5: dissemination

The post-excavation stage of the project includes phases 3 to 5. This project design is concerned with phase 3, following which a report will be produced detailing the potential for analysis, accompanied by a revised project design.

The purpose of this phase is to ensure appropriate post-excavation analyses are undertaken. This involves the careful definition of academic and archaeological objectives, to ensure that appropriate selection is made and a publication produced which accurately reflects the value of the data collection. All data sources are to be collated, quantified and assessed for their potential to provide information of relevance. This includes all site records, made up of the written record, drawn record and photographic record, all artefacts, and all environmental samples, including those suitable for dating purposes. Relevant specialists will assess the potential for each category. On completion an assessment report will be compiled, and an updated project design produced.

The style and format of the assessment report will include as a minimum the following:

- Plan showing location of the controlled strip and excavation.
- Detailed plans of features at an appropriate scale
- A summary statement of the results.
- Reports on the assessment of the artefacts, ecofacts and samples with recommendations for further work.
- A preliminary interpretation of the archaeological findings.

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.

### 7.2 Assessment methods

#### *7.2.1 Data collection from site records*

The site records will be checked and cross-referenced and site matrices will be drawn up where appropriate. Photographs, plans, finds and samples will be cross-referenced to contexts. A detailed site narrative will be written. Field drawings will be combined to form the basis from which detailed plans of the excavated features will be produced. Final drawings will be produced of important and informative sections.

All paper field records will be scanned to provide a backup digital copy. Field drawings will be scanned both as a backup and to use in the creation of final illustrations. The photographs will be organised and a digital photo record will be produced in the form of an Access Database so that the Royal Commission of Ancient and Historical Monuments of Wales can curate them in their active digital storage facility.

### *7.2.2 Finds methodology*

Finds will be catalogued and grouped by material type. All finds, where appropriate, will be cleaned. Finds will be initially photographed and described to create a basic record to protect against any accidental losses when the pieces are sent for specialist analysis. All finds will be packaged in suitable containers and conditions for long-term storage. Objects requiring conservation will be identified. The finds will be assessed by specialists as detailed below. The assessment of the material will identify and catalogue the collections and identify pieces to be drawn and any requirement for further study. Cataloguing is most efficiently done at this stage as each item must be inspected if the material is to be dated and its ultimate academic value is to be assessed.

The assessment report will established what comparative and research work will be required to place the assemblage within its national and international context. Any pieces worth illustrating will be identified and any appropriate further analysis will be proposed. The illustration and analysis will be carried out in the next phase of work.

When the residue from the wet sieving has been sorted (see below) any finds will be incorporated into the above process and assessed by the specialists. In particular if metal-working had occurred on the site evidence is likely to come from the fine wet sieving residues. Similarly small fragments of burnt bone may also be recovered and these would require assessment. Potential costs for the assessment of artefacts that might be recovered from the residues are included in the costs below, but obviously will not be required if none of these items are found.

The specialists to be used are as follows:

Prehistoric pottery: Frances Lynch (freelance pottery specialist, formerly of Bangor University)
Lithics: George Smith (freelance lithics specialist, formerly of GAT)
Slag and metal-working debris: Tim Young, GeoArch, Cardiff
Burnt bone: James Rackham, The Environmental Archaeology Consultancy

### *7.2.3 Environmental samples*

The sampling strategy for bulk soil samples was related to the perceived character, interpretational importance and chronological significance of the strata under investigation. This ensured that only significant features were sampled. The aim of the sampling strategy was to recover carbonised macroscopic plant remains and, if the deposit was waterlogged, possibly non-carbonised plant and animal remains, especially insect remains. However, the samples simultaneously enabled the recovery of small artefacts particularly knapping debris and evidence for metalworking.

The bulk soil samples will be processed by flotation and wet sieving by Gill and Richard Collier (sub-contractors to GAT) using a 300 micron mesh for flotation. The residues will be sorted by GAT archaeologists to recover finds and non-floating

ecofacts. All residues will be tested for magnetic metalworking debris and this will be collected where it is present. Once sorted the residues will be discarded.

The flots will be weighed, catalogued and assessed by Rosalind McKenna (freelance specialist). The flots will be rapidly assessed and their potential established in relation to charcoal and other plant macrofossils. The presence of suitable dating material will also be recorded. Specific samples may be recommended for further work.

### *7.2.4 Radiocarbon dating*

Radiocarbon dating can potentially resolve many chronological questions of importance. The small number of finds mean that dating features on the site by finds alone is not possible. There appears to be a Bronze Age phase of activity but it is not clear whether all the features are contemporary, especially as there are two main groups of features, which could potentially be of very different ages. By radiocarbon dating several features it should be possible to clarify which features are contemporary and how many phases of activity are present.

In order to interrogate the dates rigorously and increase precision by incorporating stratigraphic information it is now possible to use Bayesian statistics. With the use of Bayesian modelling it should be possible to establish the duration of each phase of activity. If the group of intercutting pits contains enough suitable material it should be possible to statistically model the dates to produce a more precise probable date for this group.

Bayesian modelling can also be used to model likely outcomes before selecting material for dating to identify the optimum number of dates required to answer specific questions for specific periods. Once the stratigraphy of the site has been checked and the site matrix drawn up Derek Hamilton (SUERC Radiocarbon Dating Laboratory) will be consulted to advise on the choice and number of samples for dating. In the next phase, when the results have been obtained he will carry out analysis of these dates.

The assessment process will concentrate on formulating dating questions and on identifying suitable material from the contexts best placed to answer these questions. The optimum number of dates will be established in consultation with Derek Hamilton and will be proposed in the updated project design.

### *7.2.5 Reporting and dissemination*

The primary product of this project is to be a full excavation report to be published in a peer reviewed academic journal. The assessment of potential process will assess what data should be included in this report and how the report should be presented, including the number and type of illustrations. A step towards the published report is the detailed archive report, which may contain much more detailed information and a greater number of illustrations than the published version. Time will be allocated to a list of tasks necessary for the completion of the archive report and its conversion into the published report.

While essential as a record of the archaeological works an academic report is not the only means of dissemination of the results that might be considered desirable. The assessment process will look at appropriate alternatives for dissemination, which will be proposed in the updated project design.

### *7.2.6 Archiving*

Some aspects of archiving are included in the methods of data collection and finds processing, but these will be incorporated into an overall archiving strategy. There will be liaison with the Conwy Museum Service towards the deposition of the artefacts, including appropriate boxing and cataloguing of finds. The finds are currently the property of the owners of the land on which they were found. Owners will be contacted and asked to donate the finds to the Museum Service where they will be available for future study.

Similarly liaison will take place to ensure that Conwy Archive Service can accept the site paper archives. The National Monuments Record (NMR), Aberystwyth will take the digital record and the assessment process will identify what this should include and what formats and metadata are appropriate. Standards, costs and timetables for archiving will be included in the revised project design.

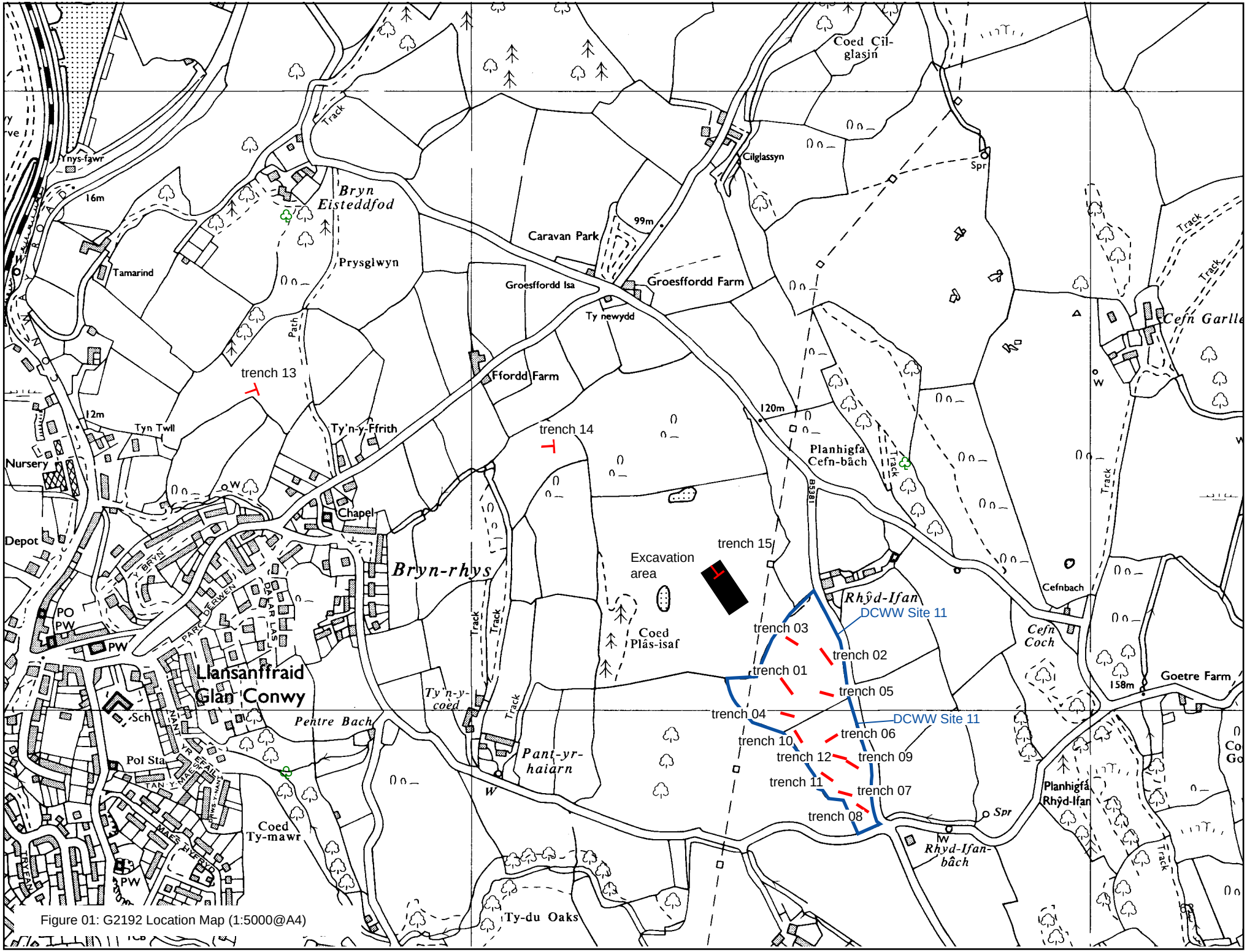


Figure 01: G2192 Location Map (1:5000@A4)

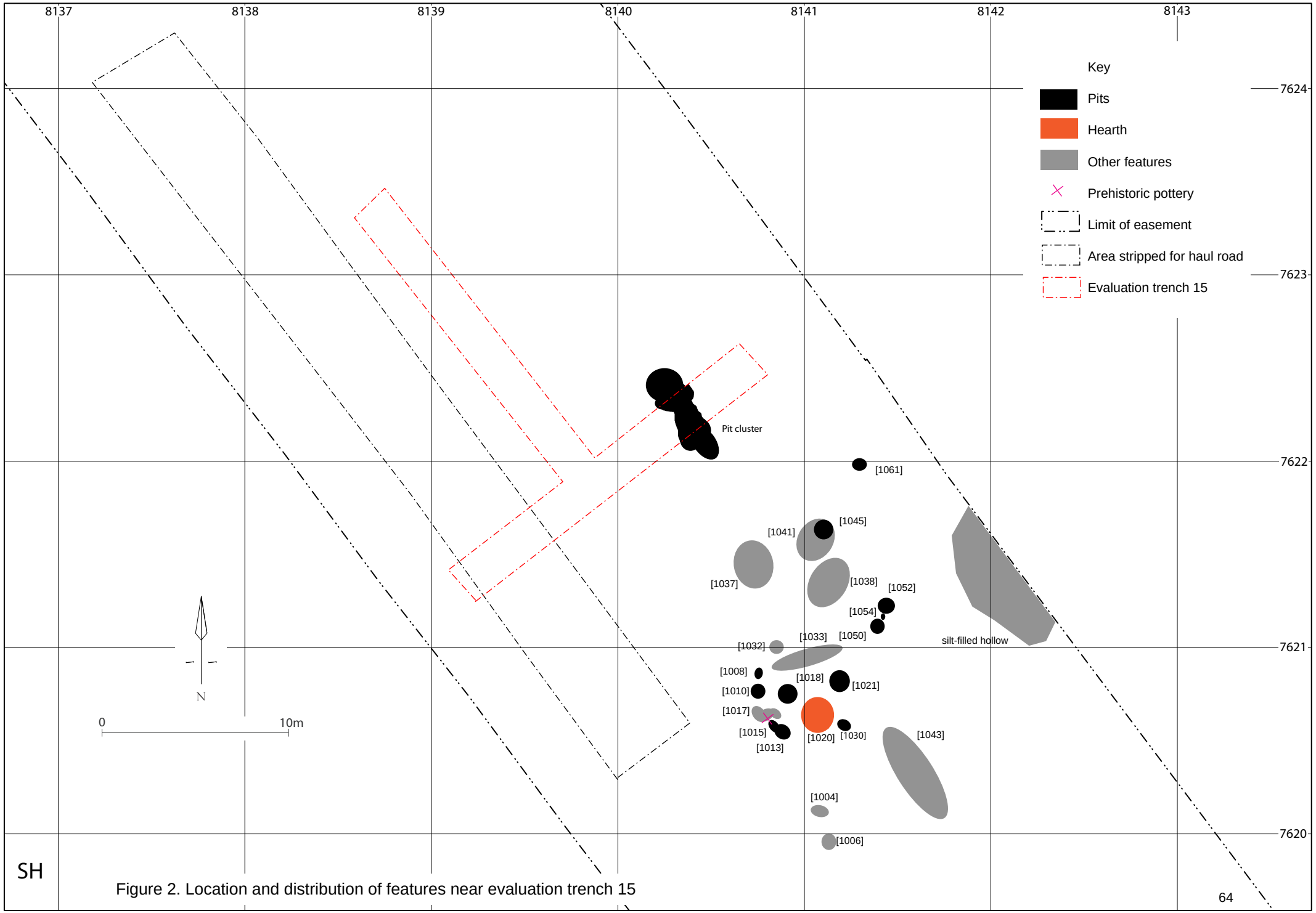


Figure 2. Location and distribution of features near evaluation trench 15

# Appendix III: Environmental Report

# An assessment of the palaeoenvironmental potential of deposits from Coed Dolwyd, Conwy (Project Number: G2192)

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## Introduction

A series of twenty eight samples were submitted in June 2013, from deposits excavated at a site located at Coed Dolwyd, Conwy (centred on NGR SH81657592) were submitted for an evaluation of their environmental potential. The excavation was carried out by Gwynedd Archaeological Trust in August and September 2012. The samples came from pits, post holes, hearths, stake holes and linear features.

A programme of soil sampling from sealed contexts was implemented during the excavation. The aim of the sampling was to:

- assess the type of preservation and the potential of the biological remains
- identify suitable samples for possible radiocarbon dating
- identify if any human activities were undertaken on the site
- reconstruct the environment of the surrounding area

## Methods

The initial material was submitted to the author in a processed state. It was processed by staff at Gwynedd Archaeological Trust using their standard water flotation methods. The flot (the sum of the material from each sample that floats) was sieved to 0.5mm and air dried. The heavy residue (the material which does not float) was not examined, and therefore the results presented here are based entirely on the material from the flot. The flot was examined under a low-power binocular microscope at magnifications between x12 and x40.

A four point semi quantative scale was used, from '1' – one or a few specimens (less than an estimated six per kg of raw sediment) to '4' – abundant remains (many specimens per kg or a major component of the matrix). Data were recorded on paper and subsequently on a personal computer using a Microsoft Access database.

Identification was carried out using published keys (Jacomet 2006, Biejerinkc 1976, Jones – unpublished and Zohary & Hopf 2000), online resources (http://www.plantatlas.eu/za.php), the authors own specimens and the reference collection housed at Birmingham Archaeology's laboratory. The full species list appears in Table 2 at the end of this report. Taxonomy and nomenclature follow Stace (1997).

The flot was then sieved into convenient fractions (4, 2, 1 and 0.3mm) for sorting and identification of charcoal fragments. Identifiable material was only present within the

4 and 2mm fractions. The number of charcoal fragments to be identified is dependent on the diversity of the flora. A study by Keepax (1988, 120-124) has indicated that depending on the location of the archaeology site, 100-400 fragments of charcoal would need to be identified in order to obtain a full range of species. A random selection of ideally 100 fragments of charcoal of varying sizes was made, which were then identified. Where samples did not contain 100 identifiable fragments, all fragments were studied and recorded. This information is recorded with the results of the assessment in Table 3 below. Identification was made using the wood identification guides of Schweingruber (1978) and Hather (2000).

Taxa identified only to genus cannot be identified more closely due to a lack of defining characteristics in charcoal material.

## Results

Table One below shows the components recorded from each of the samples.

Of the twenty eight samples submitted, charred plant macrofossils were present in all twenty eight of the samples. Thirteen of the samples were from Area B and nine of the samples were from Area C. The results of this analysis can be seen in Table 2 below. The samples generally produced small assemblages of plant remains both in volume and diversity.

In the samples from Area B, hazel nut shell fragments were the most abundant remain and were found in all thirteen samples. The volume of these fragments ranged from 2 in one sample to 803 in another. Indeterminate cereal grains were recorded in three of the samples in very small numbers and were very poorly preserved. An unidentifiable piece of cereal chaff was also recorded from a single sample. Amongst the identifiable cereal remains a single barley grain from one sample was recorded. Weed / wild seeds were present in individual counts in five of the samples – and those recorded can be identified as being indicators of cultivation.

In the samples from Area C, the most abundant remains were oat grains, and seeds of the grass family (some of which may be oat but require further analysis to enable identification). Oats were present in seven of the samples and grasses in six of the samples. Three of the samples (18, 22 and 23) contained abundant remains in terms of volume and diversity. The other six samples contained a medium sized suite of remains in both volume and diversity terms. Indeterminate cereal grains, which were poorly preserved and lacking in identifying morphological characteristics were present in seven of the samples. Where it was possible to ascertain identifications, wheat was present in six of the samples and barley grains in five of the samples. Cereal chaff was present in five of the samples, as single occurrence in two but in higher volume in samples 18, 22 and 23 which also produced abundant remains of oats and grasses. Weed/wild seeds that are typically associated with areas of cultivation were also recorded in small numbers in six of the samples. Members of the pea family were present in four of the samples. Hazel nut shell fragments were recorded from all of the samples from this area. The volume of remains differs greatly from those found in Area B however, with the volume ranging from one to ten fragments in the samples.

Charcoal remains were present in all twenty eight of the samples and scored between '1' and '4' on the abundance scale. There were identifiable remains in twenty of the samples – 11 of the samples from Area B and nine of the samples from Area C. The preservation of the charcoal fragments was relatively variable even within the samples. Some of the charcoal was firm and crisp and allowed for clean breaks to the material permitting clean surfaces where identifiable characteristics were visible. However, most of the fragments were very brittle, and the material tended to crumble or break in uneven patterns making the identifying characteristics harder to distinguish and interpret. Table 3 below shows the results of the charcoal assessment.

Of the eleven samples with identifiable remains from Area B, nine were dominated by oak, with four of these samples containing only oak charcoal. Of the other seven samples dominated by oak charcoal, three also contained hazel and two contained alder/hazel charcoal fragments. A further sample was dominated by hazel with a smaller amount of oak charcoal also present. The final sample contained a small amount of alder/hazel charcoal as the only identifiable fragments within it.

Of the nine samples with identifiable remains from Area C, eight of these contained purely oak charcoal. A further samples contained a small number of hazel charcoal fragments.

The total range of taxa comprises oak (Quercus), willow/poplar (Salix/Populus), alder/hazel (Alnus/Corylus) and hazel (Corylus). These taxa belong to the groups of species represented in the native British flora. A local environment with a range of trees and shrub is indicated from the charcoal of the site. As seen in Table 3, oak is by far the most numerous of the identified charcoal fragments, and it is possible that this was the preferred fuel wood obtained from a local environment containing a broader choice of species. Oak is probably the first choice structural timber, and with a local abundance it may have been used instead of ash, thereby providing more by-product fire fuel.

Generally, there are various, largely unquantifiable, factors that effect the representation of species in charcoal samples including bias in contemporary collection, inclusive of social and economic factors, and various factors of taphonomy and conservation (Thery-Parisot 2002). On account of these considerations, the identified taxa are not considered to be proportionately representative of the availability of wood resources in the environment in a definitive sense, and are possibly reflective of particular choice of fire making fuel from these resources. Bark was also present on some of the charcoal fragments, and this indicates that the material is more likely to have been firewood, or the result of a natural fire.

Root / rootlet fragments were also present within twenty seven of the twenty eight samples – eighteen samples from Area B and nine samples from Area C. This indicates disturbance of the archaeological features, and this may be due to the nature of some features being relatively close to the surface, as well as deep root action from vegetation that covered the site. The presence of earthworm egg capsules in twenty one of the samples – twelve from Area B and nine from Area C, and the modern plant macrofossils in a single sample from Area B further confirms this disturbance.

## Conclusion

The samples produced a good amount of environmental material, with the identifiable charcoal remains from twenty of the samples (eleven from Area B and nine from Area C) and the plant macrofossils from twenty two of the samples (thirteen from Area B and nine from Area C). The deposits from which the samples derive, probably represent the domestic waste associated with fires, and its subsequent dumping into features at the site.

These charcoal remains showed the exploitation of several species native to Britain, with the prevalence of oak, being selected and used as fire wood. Oak has good burning properties and would have made a fire suitable for most purposes (Edlin 1949). Oak is a particularly useful fire fuel as well as being a commonly used structural/artefactual wood that may have had subsequent use as a fire fuel (Rossen and Olsen 1985). Both areas were dominated by this species, however two samples from Area B were dominated by hazel and alder/hazel respectively. This shows that these species were also easily accessible within the area. Area C contained only a few fragments of hazel charcoal, perhaps indicating that it was less widely available in this area, or this phase of occupation. Hazel is recorded as a good fuel wood and was widely available within oak woodlands, particularly on the fringes of cleared areas (Grogan *et al.* 2007, 30). Willow/poplar was also recorded in small numbers in a single sample from Area B, perhaps indicating its presence within the wider environs of the site. Willow/Poplar are species that are ideal to use for kindling. They are anatomically less dense than for example, oak and ash and burn quickly at relatively high temperatures (Gale & Cutler 2000, 34, 236, Grogan *et al.* 2007, 29-31). This property makes them good to use as kindling, as the high temperatures produced would encourage the oak to ignite and start to burn.

Dryland wood species indicates the presence of an oak woodland close to the site. This would have consisted of oak which would be the dominant large tree species (Gale & Cutler 2000, 120, 205). On the marginal areas of oak woodlands or in clearings hazel thrives. There is also evidence of some fen-carr type of woodland would have consisted of alder, willow and poplar which are all trees that thrive in waterlogged and damp soils, particularly in areas close to streams or with a high water table (Stuits 2005, 143 and Gale & Cutler 2000), perhaps indicating such an environment within close proximity to the site.

As asserted by Scholtz (1986) cited in Prins and Shackleton (1992:632), the "Principle of Least Effort" suggests that communities of the past collected firewood from the closest possible available wooded area, and in particular the collection of economically less important kindling fuel wood (which was most likely obtained from the area close to the site), the charcoal assemblage does suggest that the local vegetation would have consisted of an oak woodland close to the site.

The most commonly recorded plant macrofossil from Area B was hazel nut shell fragments. The majority of the samples contained less than 50 fragments, however one samples (3) contained 803 fragments. Hazel-nuts are valuable nutritionally, as well as being readily available. In addition, the nut shell is hard and resistant to decay ensuring its survival in some quantities. The hazelnut shells recovered may be indicative of a food source being consumed, perhaps as a snack and their husks being added to the fires as a method of waste disposal. However, the hazelnut shell

fragments show no marks typically associated with processed shells. Together with the presence of hazel charcoal, this may indicate that they are merely representative of hazel wood trees being burnt, which could be either a natural or a man-made process. There were also four samples that produced cereal remains- three samples contained indeterminate cereal grains and one sample contained a single barley grain. There were also remains of cereal chaff and weed seeds typical of cultivation. These remains were however in such small numbers that no further interpretable information can be made other than to state their presence.

The plant macrofossils present in Area C were very different from those in the samples from Area B. All nine of the samples did contain hazel nut shell fragments, but in very low numbers. Six of the samples contained a medium suite of remains in terms of both volume and diversity. The most commonly recorded remain in these samples was indeterminate cereal grains, which lacked identifying morphological characteristics. This may suggest a high degree of surface abrasion on the grains, indicative of mechanical disturbances that are common in features such as pits, where rubbish and waste are frequently discarded. Identified cereals recovered from these samples were wheat (*Triticum* sp.), barley (*Hordeum* sp.) and oat (*Avena sativa*). These were probable identifications based on overall size and morphological characteristics. These grains represent the typical suite of charred grains recovered from archaeological sites, and may show they were being utilised by the inhabitants of the site. The evidence for cultivation in these samples was confirmed via the presence of small amounts of cereal chaff fragments and weed seeds that are typically associated with cultivation. The remaining three samples from Area C (18, 22 and 23) contained a completely different suite of remains. They were dominated by seeds from the grass (POACEAE) family and grains of probably cultivated oats. Cereal chaff and weeds typically associated with cultivation were also present in these samples.

The difference in composition of the samples from the two different areas (B and C) in terms of both charcoal remains and plant macrofossil assemblages is worth noting. A variety of discrete features were identified in Area B, indicating some prehistoric settlement, most likely of a temporary nature. A hearth was recorded that had associated post and stake holes, possibly indicating some type of structure. The remains from these features may therefore be indicative of some sort of domestic activity and the subsequent deposition of fuel waste. Area C was located a short distance from Area B. It is characterised by the presence of eleven intercutting pits. The function of theses pits is unclear; it is possible they represent a means of waste disposal, possibly associated with the settlement in area B, though there is no direct relationship. The abundance of cereal grains within some of these samples may indicate the disposal of waste from domestic activity, together with the dumping of the build up of occupational waste. It is worth noting that when further archaeological interpretation has been made, a more precise conclusion in terms of the environmental remains may be possible.

It is thought to be problematic using charcoal and plant macrofossil records from archaeological sites, as they do not accurately reflect the surrounding environment. Wood was gathered before burning or was used for building which introduces an element of bias. Plant remains were also gathered foods, and were generally only burnt by accident. Despite this, plant and charcoal remains can provide good

information about the landscapes surrounding the sites presuming that people did not travel too far to gather food and fuel.

## Recommendations

The samples have been assessed, and interpretable data has been retrieved from the vast majority of the samples. It is recommended that the material from sample 18 (1056) have a full analysis of the plant macrofossils recovered in order to ascertain the majority of identifications and confirm the suspected identifications of other seeds recovered. The flots from samples 22 (1064) and 23 (1058) were only partially sorted due to the high volume of plant macrofossils within them. It is recommended that a full analysis of the remains already recovered, alongside those yet to be removed from the flot is carried out on these two samples. When this full analysis has been carried out it is also recommended that further research into comparative site on both a local and national scale is carried out in order to place the site in context and see whether the activity recorded here is unique or has contemporary comparisons.

Any material recovered by further excavations should be processed to 0.3mm in accordance with standardised processing methods such as Kenward *et al.* 1980, and the English Heritage guidelines for Environmental Archaeology.

A series of radiocarbon dating may be required to aid in absolute dating of the archaeological features, and the environmental remains from the samples can provide the material to enable this process to be carried out. A list of samples with appropriate material can be seen in Table 4 at the end of the report.

## Archive

All extracted fossils and flots are currently stored with the site archive in the stores at Gwynedd Archaeological Trust (GAT), along with a paper and electronic record pertaining to the work described here.

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http://www.plantatlas.eu/za.php

*Table 1. Components of the subsamples from deposits recovered at Coed Dolwyd, Conwy (G2192)*
*Semi quantitative score of the components of the samples is based on a four point scale, from '1' – one or a few remains (less than an estimated six per kg of raw sediment) to '4' – abundant remains (many per kg or a major component of the matrix).*

*Area B*

| **Sample** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cut** | 1017 | | 1021 | 1021 | 1021 | 1020 | 1020 | 1020 | 1030 | 1033 |
| **Deposit** | 1011 | 1019 | 1022 | 1024 | 1023 | 1027 | 1029 | 1028 | 1031 | 1034 |
| **Feature type** | Natural hollow | | ?Storage pit | ?Storage pit | ?Storage pit | Hearth | Hearth | Hearth | Pit | Linear |
| **Area** | B | B | B | B | B | B | B | B | B | B |
| | | | | | | | | | | |
| Charcoal fgts. | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 2 | 4 | 3 |
| Earthworm egg capsules | | 1 | 1 | | 1 | | 1 | 1 | 1 | 1 |
| Plant macros (modern contaminant) | | 1 | | | | | | | | |
| Plant macros. (ch.) | | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | 1 |
| Root/rootlet fgts. | 2 | 2 | 1 | 2 | 2 | 3 | 3 | 4 | 3 | 3 |
| Sand | 4 | | 2 | 2 | 3 | 4 | 4 | 3 | 3 | 4 |

| **Sample** | 11 | 12 | 13 | 14 | 15 | 16 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|---|---|
| **Cut** | 1035 | 1032 | | 1045 | 1050 | 1052 | 1043 | 1059 | 1061 |
| **Deposit** | 1036 | 1039 | 1040 | 1046 | 1051 | 1053 | 1044 | 1060 | 1062 |
| **Feature type** | Stake hole | Pit | Stake hole | Post hole | Pit | Pit | Irregular feature | Pit | Pit |
| **Area** | B | B | B | B | B | B | B | B | B |
| | | | | | | | | | |
| Charcoal fgts. | 4 | 4 | 3 | 4 | 1 | 2 | 4 | 3 | 4 |
| Earthworm egg capsules | 1 | 1 | | 1 | | | 1 | 1 | |
| Plant macros. (ch.) | | 1 | | 1 | | 1 | 1 | | 1 |
| Root/rootlet fgts. | 2 | 2 | | 2 | 2 | 3 | 2 | 2 | 2 |
| Sand | 4 | 2 | 4 | 3 | 4 | 4 | 3 | 4 | 3 |

*Area C*

| **Sample** | 18 | 22 | 23 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|
| **Cut** | 1055 | 1063 | 1057 | 1070 | 1068 | 1072 | 1065 | 1074 | 1080 |
| **Deposit** | 1056 | 1064 | 1058 | 1071 | 1069 | 1073 | 1067 | 1075 | 1081 |
| **Feature type** | Pit | Pit | Pit | Linear Feature | Pit | Pit | Linear Feature | Pit | Pit |
| **Area** | C | C | C | C | C | C | C | C | C |
| | | | | | | | | | |
| Charcoal fgts. | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 4 | 2 |
| Earthworm egg capsules | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Plant macros. (ch.) | 1 | 3 | 2 | 2 | 2 | 2 | 1 | 2 | 2 |
| Root/rootlet fgts. | 2 | 2 | 3 | 3 | 3 | 3 | 2 | 2 | 2 |
| Sand | 4 | 3 | 3 | 4 | 4 | 4 | 4 | 3 | 4 |

*Table 2: Plant Macrofossils: Complete list of taxa recovered from deposits recovered at Coed Dolwyd, Conwy (G2192).*
*Taxonomy and Nomenclature follow Stace (1997).*
*Area B*

| **Sample** | **2** | **3** | **4** | **5** | **6** | **8** | **9** | **10** | |
|---|---|---|---|---|---|---|---|---|---|
| **Cut** | | **1021** | **1021** | **1021** | **1020** | **1020** | **1030** | **1033** | |
| **Deposit** | **1019** | **1022** | **1024** | **1023** | **1027** | **1028** | **1031** | **1034** | |
| **Feature type** | | **Pit** | **Pit** | **Pit** | **Hearth** | **Hearth** | **Pit** | **Linear** | |
| **Area** | | **B** | **B** | **B** | **B** | **B** | **B** | **B** | |
| **Sample volume (ml)** | **25** | **500** | **25** | **60** | **>5** | **>5** | **5** | **40** | |
| **LATIN BINOMIAL** | | | | | | | | | **COMMON NAME** |
| | | | | | | | | | |
| *Corylus avellana* (fgts.) | 7 | 803 | 14 | 19 | 2 | 12 | 2 | 13 | Hazelnut shell fgts. |
| *Chenepodium / Atriplex* spp. | | | | | 1 | | | | Goosefoot / Orache |
| BRASSICACEAE | | | | | 1 | | | | Cabbage family |
| *Galium* spp. L. | 2 | | | | | | | | Bedstraws |
| *Arrhenatherum elatius* | | | | | | | | 1 | False oat grass |
| *Hordeum* spp. | | | 1 | | | | | | Barley |
| Indeterminate cereal | | 5 | | 3 | | | | 2 | Indeterminate cereal |
| Indeterminate culm node | | | | | | | | 1 | Indeterminate culm node |
| Unidentified | | 1 | | 1 | | | | | Unidentified |

| **Sample** | **12** | **14** | **16** | **19** | **21** | |
|---|---|---|---|---|---|---|
| **Cut** | **1032** | **1045** | **1052** | **1043** | **1061** | |
| **Deposit** | **1039** | **1046** | **1053** | **1044** | **1062** | |
| **Feature type** | **Pit** | **Post hole** | **Pit** | **Irregular feature** | **Pit** | |
| **Area** | **B** | **B** | **B** | **B** | **B** | |
| **Sample volume (ml)** | **20** | **450** | **10** | **10** | **5** | |
| **LATIN BINOMIAL** | | | | | | **COMMON NAME** |
| | | | | | | |
| *Corylus avellana* (fgts.) | 18 | 42 | 3 | 1 | 2 | Hazelnut shell fgts. |
| *Malus* Mill. | | 2 | | | | Apples |
| Indeterminate cereal | 1 | 2 | | | | Indeterminate cereal |
| Unidentified | 2 | 2 | | | | Unidentified |

*Area C*

| **Sample** | **18** | **22** | **23** | **25** | **26** | **27** | **28** | **29** | **30** | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cut** | **1055** | **1063** | **1057** | **1070** | **1068** | **1072** | **1065** | **1074** | **1080** | |
| **Deposit** | **1056** | **1064** | **1058** | **1071** | **1069** | **1073** | **1067** | **1075** | **1081** | |
| **Feature type** | **Pit** | **Pit** | **Pit** | **Linear** | **Pit** | **Pit** | **Linear** | **Pit** | **Pit** | |
| **Area** | **C** | **C** | **C** | **C** | **C** | **C** | **C** | **C** | **C** | |
| **Sample volume (ml)** | **60** | **60** | **100** | **300** | **300** | **200** | **40** | **230** | **40** | |
| **LATIN BINOMIAL** | | | | | | | | | | **COMMON NAME** |
| | | | | | | | | | | |
| *Corylus avellana* (fgts.) | 2 | 7 | 3 | 6 | 10 | 9 | 1 | 5 | 3 | Hazelnut shell fgts. |
| *Chenepodium / Atriplex* spp. | 16 | | | 14 | 15 | 6 | 19 | 13 | | Goosefoot / Orache |
| *Rumex* spp. L. | | | | 1 | 5 | 7 | | 3 | 3 | Docks |
| BRASSICACEAE | | | | 5 | 15 | | 5 | 3 | | Cabbage family |
| *FABACEAE* | | | | 3 | 5 | 9 | | | 3 | Pea family |
| *Galium* spp. L. | | | | 1 | | 2 | 1 | 2 | 3 | Bedstraws |
| *Centaurea* L. | | | | 1 | | | | | | Knapweeds |
| *Chrysanthemum segetum* | | | | 1 | 1 | 1 | 1 | | | Corn marigold |
| *Carex* spp. | | | | | | | | 2 | | Sedge |
| POACEAE | 500+ | 500+ | 200+ | | 14 | 5 | 4 | | | Grass Family |
| *Avena* cf. *sativa* | 200+ | 500+ | 300+ | 20 | 33 | | 9 | | 2 | Oat (possible cultivated) |
| *Hordeum* spp. | | | | 3 | 6 | 4 | 1 | | 1 | Barley |
| *Triticum* spp. | | | | 6 | 25 | 9 | 3 | 5 | 4 | Wheat |
| Indeterminate cereal | 15 | | | 42 | 91 | 42 | 19 | 29 | 18 | Indeterminate cereal |
| Indeterminate cereal chaff | ++ | ++ | ++ | | 1 | 1 | | | | Indeterminate cereal chaff |
| Unidentified | 30+ | 100+ | 50+ | | | | | | | Unidentified |
| Indeterminate nut shell fgts. | | | | | | 2 | | 1 | | Indeterminate nut shell fgts. |

*Table 3. Charcoal: Complete list of taxa recovered from deposits at deposits recovered at Coed Dolwyd, Conwy (G2192).*
*Taxonomy and nomenclature follow Schweingruber (1978). Numbers are identified charcoal fragment for each sample.*

*Area B*

| **Sample** | | **1** | **2** | **3** | **4** | **5** | **10** | **12** |
|---|---|---|---|---|---|---|---|---|
| **Cut** | | **1017** | | **1021** | **1021** | **1021** | **1033** | **1032** |
| **Deposit** | | **1011** | **1019** | **1022** | **1024** | **1023** | **1034** | **1039** |
| **Feature type** | | **?Natural hollow** | | **Pit** | **Pit** | **Pit** | **Linear** | **Pit** |
| **Area** | | **B** | | **B** | **B** | **B** | **B** | **B** |
| **No fragments** | | **300+** | **400+** | **5000+** | **500+** | **400+** | **250+** | **200+** |
| **Max size (mm)** | | **6** | **19** | **23** | **22** | **16** | **14** | **9** |
| | | | | | | | | |
| **Name** | **Vernacular** | | | | | | | |
| *Alnus / Corylus* | Alder / Hazel | | 12 | | | 17 | 27 | |
| *Corylus avellana* | Hazel | | | 38 | 26 | | | |
| *Quercus* | Oak | 16 | | 62 | 74 | 83 | 59 | 100 |
| | Indeterminate | 84 | 88 | | | | 14 | |

| **Sample** | | **14** | **16** | **19** | **21** |
|---|---|---|---|---|---|
| **Cut** | | **1045** | **1052** | **1043** | **1061** |
| **Deposit** | | **1046** | **1053** | **1044** | **1062** |
| **Feature type** | | **Post hole** | **Pit** | **Irregular feature** | **Pit** |
| **Area** | | **B** | **B** | **B** | **B** |
| **No fragments** | | **2000+** | **50+** | **300+** | **150+** |
| **Max size (mm)** | | **19** | **13** | **7** | **17** |
| | | | | | |
| **Name** | **Vernacular** | | | | |
| *Corylus avellana* | Hazel | 71 | | | |

| | | | | | |
|---|---|---|---|---|---|
| *Salix / Populus* | Willow / Poplar | | | 20 | |
| *Quercus* | Oak | 29 | 15 | 80 | 73 |
| | Indeterminate | | 35 | | 27 |

*Area C*

| **Sample** | | **18** | **22** | **23** | **25** | **26** | **27** |
|---|---|---|---|---|---|---|---|
| **Cut** | | **1055** | **1063** | **1057** | **1070** | **1068** | **1072** |
| **Deposit** | | **1056** | **1064** | **1058** | **1071** | **1069** | **1073** |
| **Feature type** | | **Pit** | **Pit** | **Pit** | **Linear** | **Pit** | **Pit** |
| **Area** | | **C** | **C** | **C** | **C** | **C** | **C** |
| **No fragments** | | **2000+** | **500+** | **400+** | **500+** | **500+** | **400+** |
| **Max size (mm)** | | **20** | **25** | **30** | **16** | **17** | **29** |
| | | | | | | | |
| **Name** | **Vernacular** | | | | | | |
| *Corylus avellana* | Hazel | | | | | 37 | |
| *Quercus* | Oak | 100 | 100 | 100 | 100 | 63 | 100 |

| **Sample** | | **28** | **29** | **30** |
|---|---|---|---|---|
| **Cut** | | **1065** | **1074** | **1080** |
| **Deposit** | | **1067** | **1075** | **1081** |
| **Feature type** | | **Linear** | **Pit** | **Pit** |
| **Area** | | **C** | **C** | **C** |
| **No fragments** | | **150+** | **300+** | **100+** |
| **Max size (mm)** | | **11** | **19** | **12** |
| | | | | |
| **Name** | **Vernacular** | | | |
| *Quercus* | Oak | 59 | 100 | 47 |
| | Indeterminate | 41 | | 53 |

*Table 4. Radiocarbon dating: a list of samples that contain viable material to be subjected to the radiocarbon dating process from sample at Ceod Dolwyd, Conwy (G2192)*

| Sample Number | Cut | Context | Area | Feature Type | C14 material available |
|---|---|---|---|---|---|
| 2 | | 1019 | B | | Hazel nut shell fgts. |
| 3 | 1021 | 1022 | B | ?Storage pit | Hazel nut shell fgts. |
| 4 | 1021 | 1024 | B | ?Storage pit | Hazel nut shell fgts. |
| 5 | 1021 | 1023 | B | ?Storage pit | Hazel nut shell fgts. |
| 6 | 1020 | 1027 | B | Hearth | Hazel nut shell fgts. |
| 8 | 1020 | 1028 | B | Hearth | Hazel nut shell fgts. |
| 9 | 1030 | 1031 | B | Pit | Hazel nut shell fgts. |
| 10 | 1033 | 1034 | B | Linear feature | Hazel nut shell fgts. |
| 12 | 1032 | 1039 | B | Pit | Hazel nut shell fgts. |
| 14 | 1045 | 1046 | B | Post hole | Hazel nut shell fgts. |
| 16 | 1052 | 1053 | B | Pit | Hazel nut shell fgts. |
| 19 | 1043 | 1044 | B | Irregular feature | 1 small hazel nut shell fgt. or willow/poplar charcoal |
| 21 | 1061 | 1062 | B | Pit | Hazel nut shell fgts. |
| 18 | 1055 | 1056 | C | Pit | Hazel nut shell fgts. or oat grains |
| 22 | 1063 | 1064 | C | Pit | Hazel nut shell fgts. or oat grains |
| 23 | 1057 | 1058 | C | Pit | Hazel nut shell fgts. or oat grains |
| 25 | 1070 | 1071 | C | Linear feature | Hazel nut shell fgts. or wheat or oat grains |
| 26 | 1068 | 1069 | C | Pit | Hazel nut shell fgts. |
| 27 | 1072 | 1073 | C | Pit | Hazel nut shell fgts. |
| 28 | 1065 | 1067 | C | Linear feature | Hazel nut shell fgts. or oat grains |
| 29 | 1074 | 1075 | C | Pit | Hazel nut shell fgts. |
| 30 | 1080 | 1081 | C | Pit | Hazel nut shell fgts. |

## Appendix IV: Radiocarbon Dates

**Scottish Universities Environmental Research Centre**

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# RADIOCARBON DATING CERTIFICATE

18 September 2014

| | |
|---|---|
| **Laboratory Code** | SUERC-55141 (GU34986) |
| **Submitter** | Laura Wilson Parry<br>Gwynedd Archaeological Trust<br>Craig Beuno<br>Garth Road<br>Bangor , Gwynedd, LL57 2RT |
| **Site Reference** | G2192 Coed Dolwyd, Conwy |
| **Context Reference** | 1022 |
| **Sample Reference** | 3 |
| **Material** | Hazel nut shell fgt. : Corylus avellana |
| **$\delta^{13}C$ relative to VPDB** | -25.5 ‰ |
| **Radiocarbon Age BP** | 3501 ± 31 |

**N.B.** The above $^{14}C$ age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

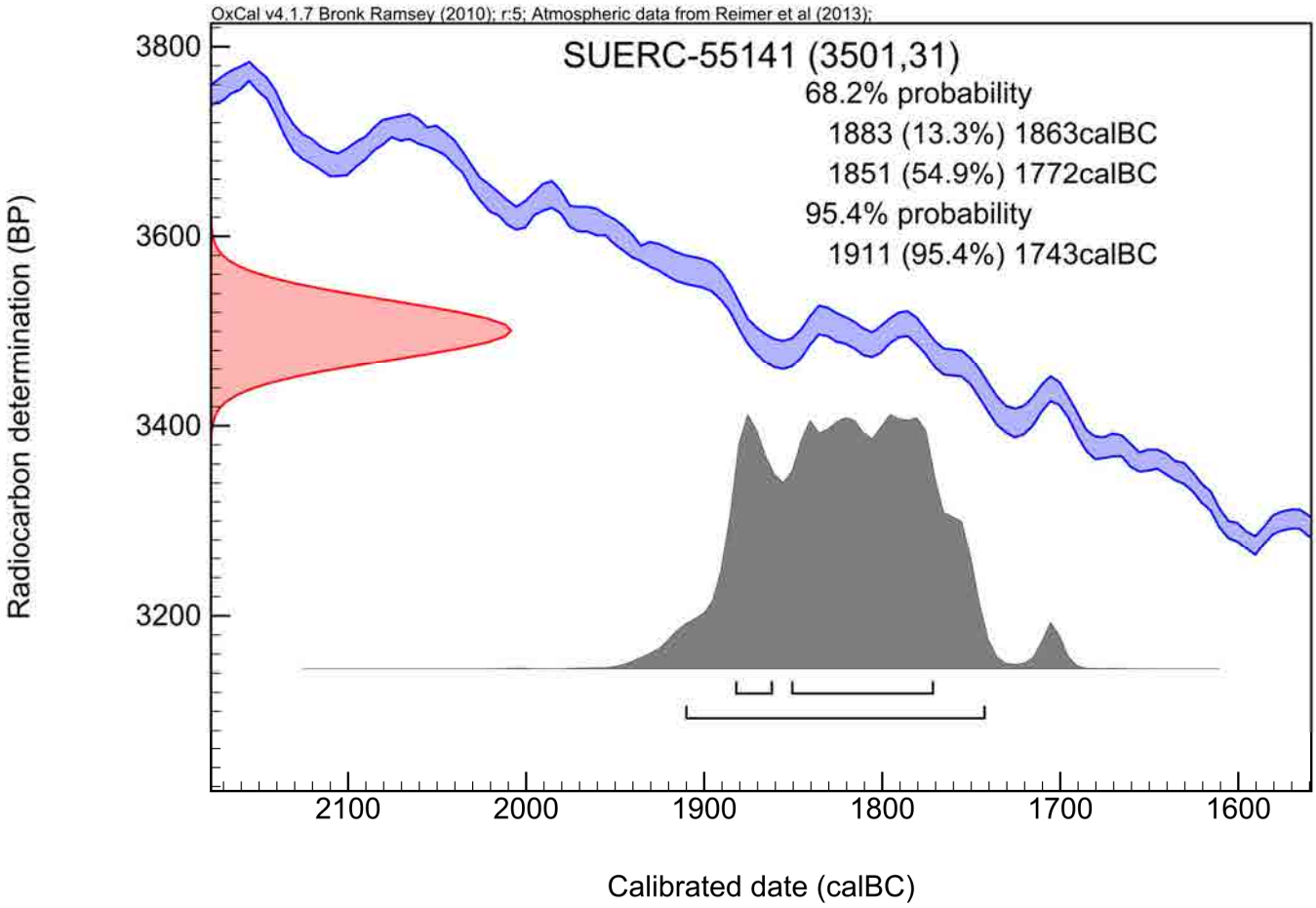
The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :- N. Rudd Date :- 18/09/2014

Checked and signed off by :- E Dunbar Date :- 18/09/2014

**Calibration Plot**



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# RADIOCARBON DATING CERTIFICATE

18 September 2014

| | |
|---|---|
| **Laboratory Code** | SUERC-55145 (GU34987) |
| **Submitter** | Laura Wilson Parry<br>Gwynedd Archaeological Trust<br>Craig Beuno<br>Garth Road<br>Bangor , Gwynedd, LL57 2RT |
| **Site Reference** | G2192 Coed Dolwyd, Conwy |
| **Context Reference** | 1022 |
| **Sample Reference** | 3 |
| **Material** | Hazel nut shell fgt. : Corylus avellana |
| **$\delta^{13}C$ relative to VPDB** | -24.4 ‰ |
| **Radiocarbon Age BP** | 3526 ± 31 |

**N.B.** The above $^{14}C$ age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

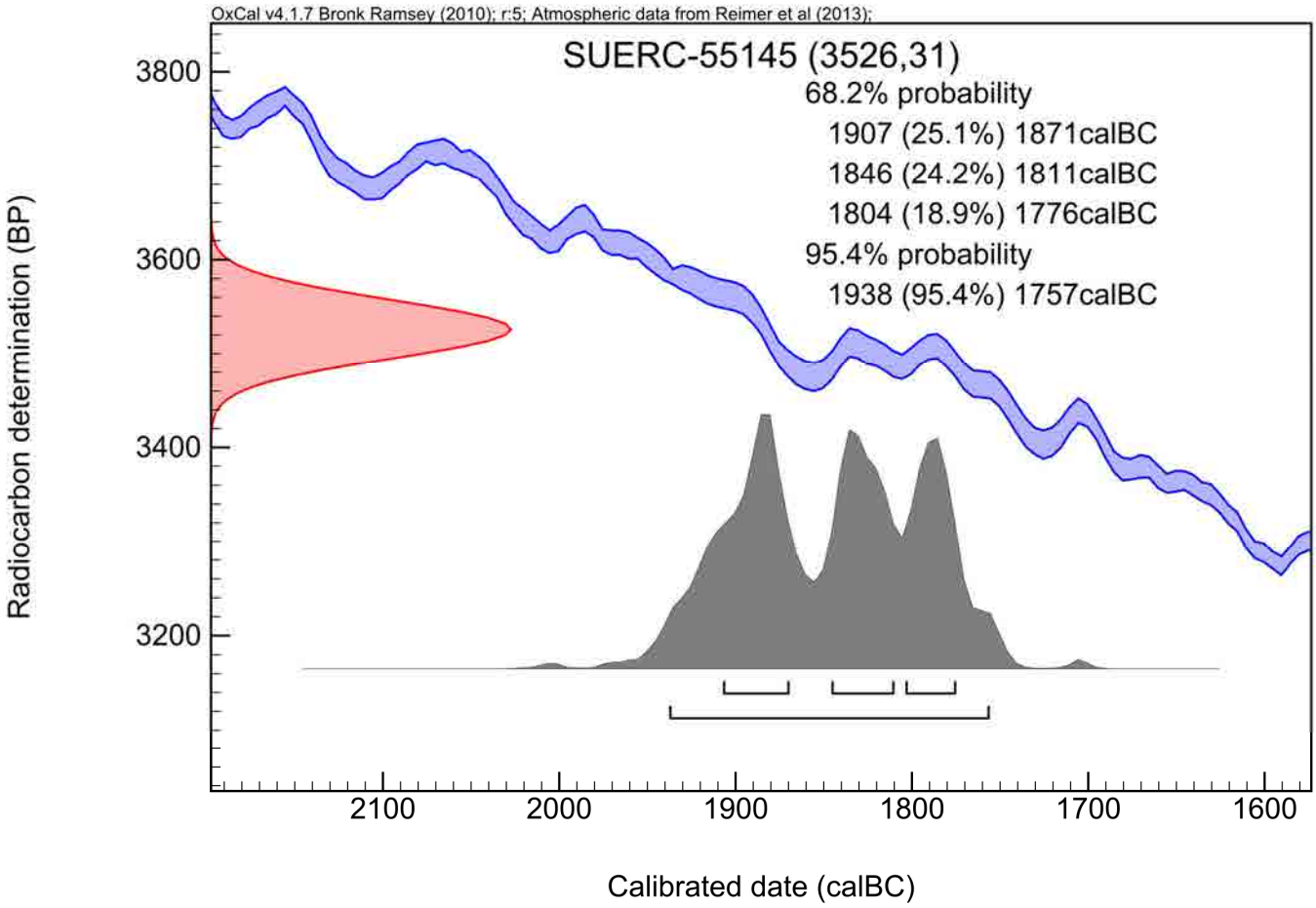
The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :- N. Rutt Date :- 18/09/2014

Checked and signed off by :- E Dunbar Date :- 18/09/2014

**Calibration Plot**



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# RADIOCARBON DATING CERTIFICATE

18 September 2014

| | |
|---|---|
| **Laboratory Code** | GU34988 |
| **Submitter** | Laura Wilson Parry<br>Gwynedd Archaeological Trust<br>Craig Beuno<br>Garth Road<br>Bangor , Gwynedd, LL57 2RT |
| **Site Reference** | G2192 Coed Dolwyd, Conwy |
| **Context Reference** | 1028 |
| **Sample Reference** | 8 |
| **Material** | Hazel nut shell fgt. : Corylus avellana |
| **Result** | Failed on AMS. |

**N.B.** Any questions directed to the Radiocarbon Laboratory should quote the GU coding given above.

The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Checked and signed off by :- E Dunbar Date :- 18/09/2014

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# RADIOCARBON DATING CERTIFICATE

18 September 2014

| | |
|---|---|
| **Laboratory Code** | SUERC-55147 (GU34989) |
| **Submitter** | Laura Wilson Parry<br>Gwynedd Archaeological Trust<br>Craig Beuno<br>Garth Road<br>Bangor , Gwynedd, LL57 2RT |
| **Site Reference** | G2192 Coed Dolwyd, Conwy |
| **Context Reference** | 1028 |
| **Sample Reference** | 8 |
| **Material** | Hazel nut shell fgt. : Corylus avellana |
| **$\delta^{13}C$ relative to VPDB** | -23.6 ‰ |
| **Radiocarbon Age BP** | 3495 ± 31 |

**N.B.** The above $^{14}C$ age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

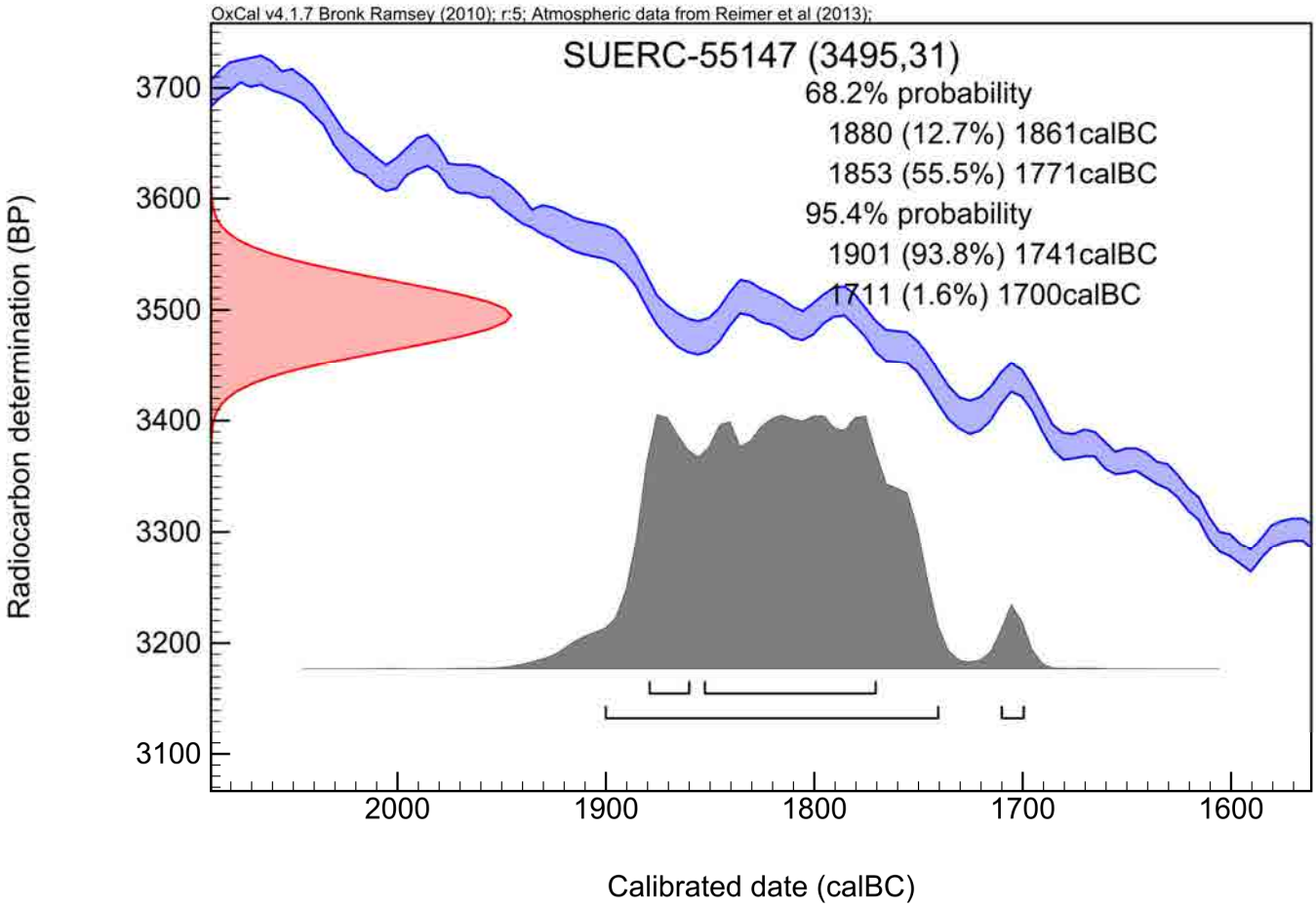
The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :- N. Rutt Date :- 18/09/2014

Checked and signed off by :- E Dunbar Date :- 18/09/2014

**Calibration Plot**



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# RADIOCARBON DATING CERTIFICATE

18 September 2014

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|---|---|
| **Laboratory Code** | SUERC-55148 (GU34990) |
| **Submitter** | Laura Wilson Parry<br>Gwynedd Archaeological Trust<br>Craig Beuno<br>Garth Road<br>Bangor , Gwynedd, LL57 2RT |
| **Site Reference** | G2192 Coed Dolwyd, Conwy |
| **Context Reference** | 1064 |
| **Sample Reference** | 22 |
| **Material** | oat grain : Avena cf. sativa |
| **$\delta^{13}C$ relative to VPDB** | -23.9 ‰ |
| **Radiocarbon Age BP** | 841 ± 31 |

**N.B.** The above $^{14}C$ age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

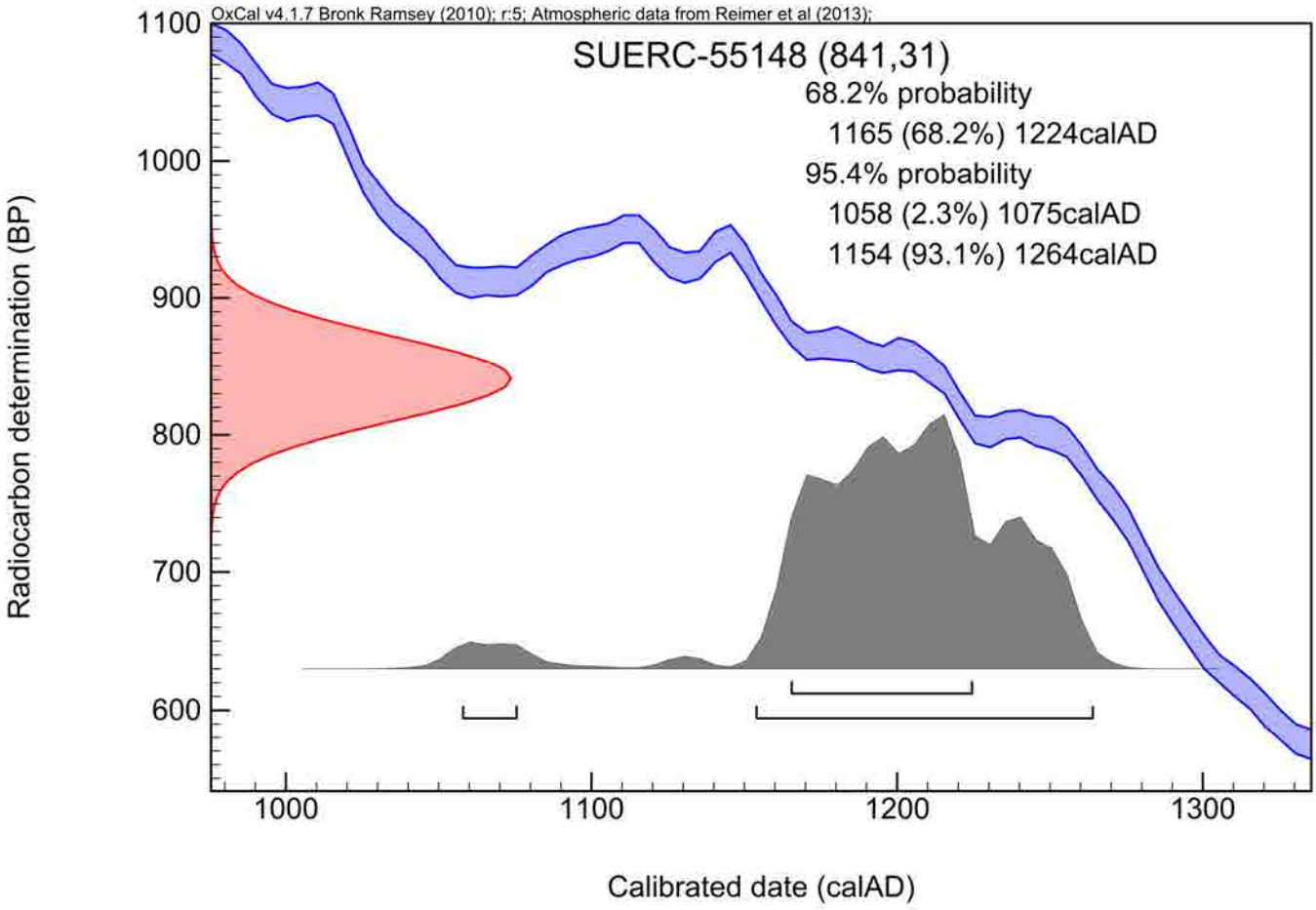
The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :- N. Rudd Date :- 18/09/2014

Checked and signed off by :- E Dunbar Date :- 18/09/2014

**Calibration Plot**



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# RADIOCARBON DATING CERTIFICATE

18 September 2014

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| **Laboratory Code** | SUERC-55149 (GU34991) |
| **Submitter** | Laura Wilson Parry<br>Gwynedd Archaeological Trust<br>Craig Beuno<br>Garth Road<br>Bangor , Gwynedd, LL57 2RT |
| **Site Reference** | G2192 Coed Dolwyd, Conwy |
| **Context Reference** | 1064 |
| **Sample Reference** | 22 |
| **Material** | Hazel nut shell fgt. : Corylus avellana |
| **$\delta^{13}C$ relative to VPDB** | -25.4 ‰ |
| **Radiocarbon Age BP** | 826 ± 31 |

**N.B.** The above $^{14}C$ age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

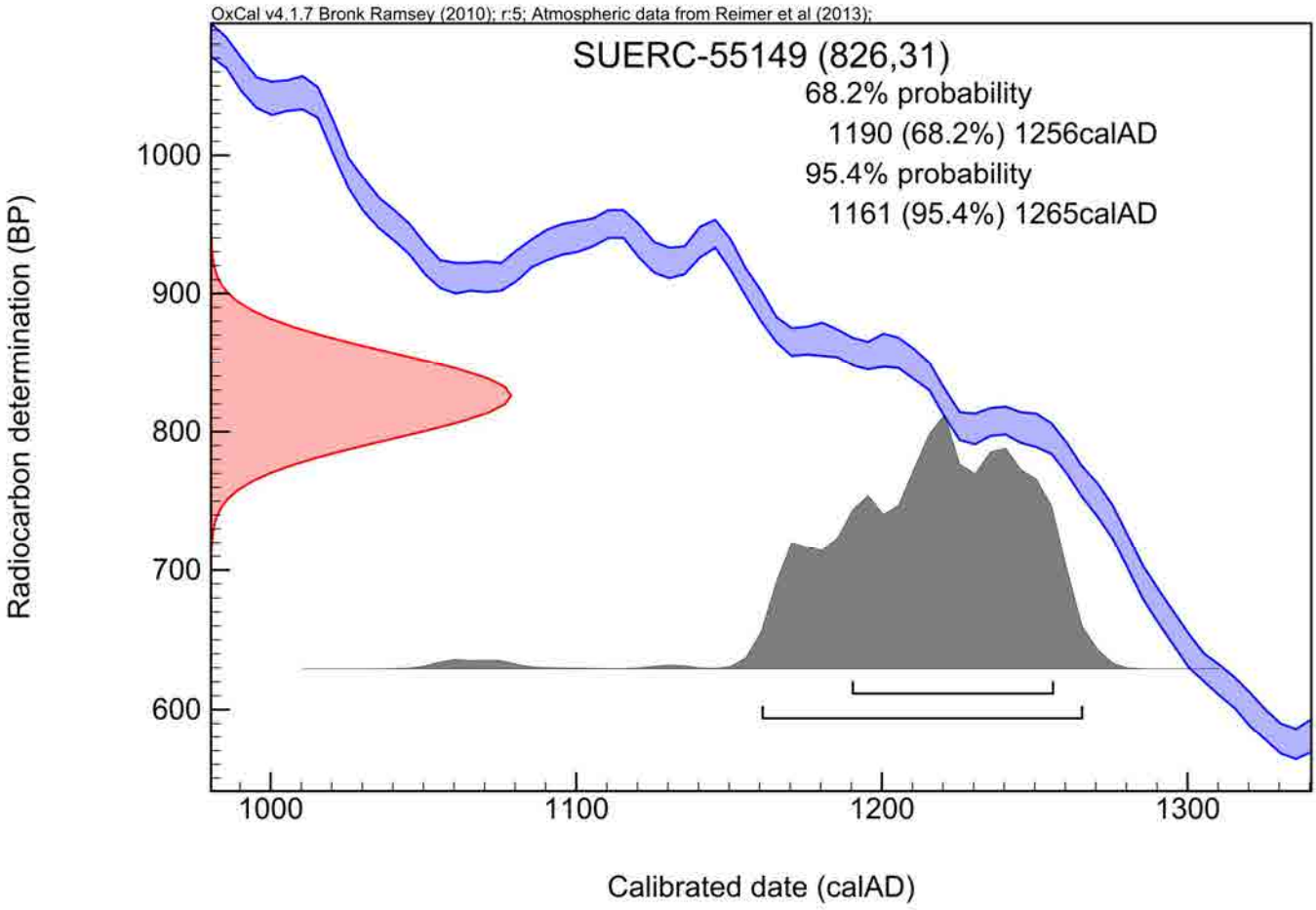
The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :- N. Rudd Date :- 18/09/2014

Checked and signed off by :- E Dunbar Date :- 18/09/2014

**Calibration Plot**



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# RADIOCARBON DATING CERTIFICATE

18 September 2014

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|---|---|
| **Laboratory Code** | SUERC-55150 (GU34992) |
| **Submitter** | Laura Wilson Parry<br>Gwynedd Archaeological Trust<br>Craig Beuno<br>Garth Road<br>Bangor , Gwynedd, LL57 2RT |
| **Site Reference** | G2192 Coed Dolwyd, Conwy |
| **Context Reference** | 1058 |
| **Sample Reference** | 23 |
| **Material** | oat grain : Avena cf. sativa |
| **$\delta^{13}C$ relative to VPDB** | -24.3 ‰ |
| **Radiocarbon Age BP** | 849 ± 31 |

**N.B.** The above $^{14}C$ age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

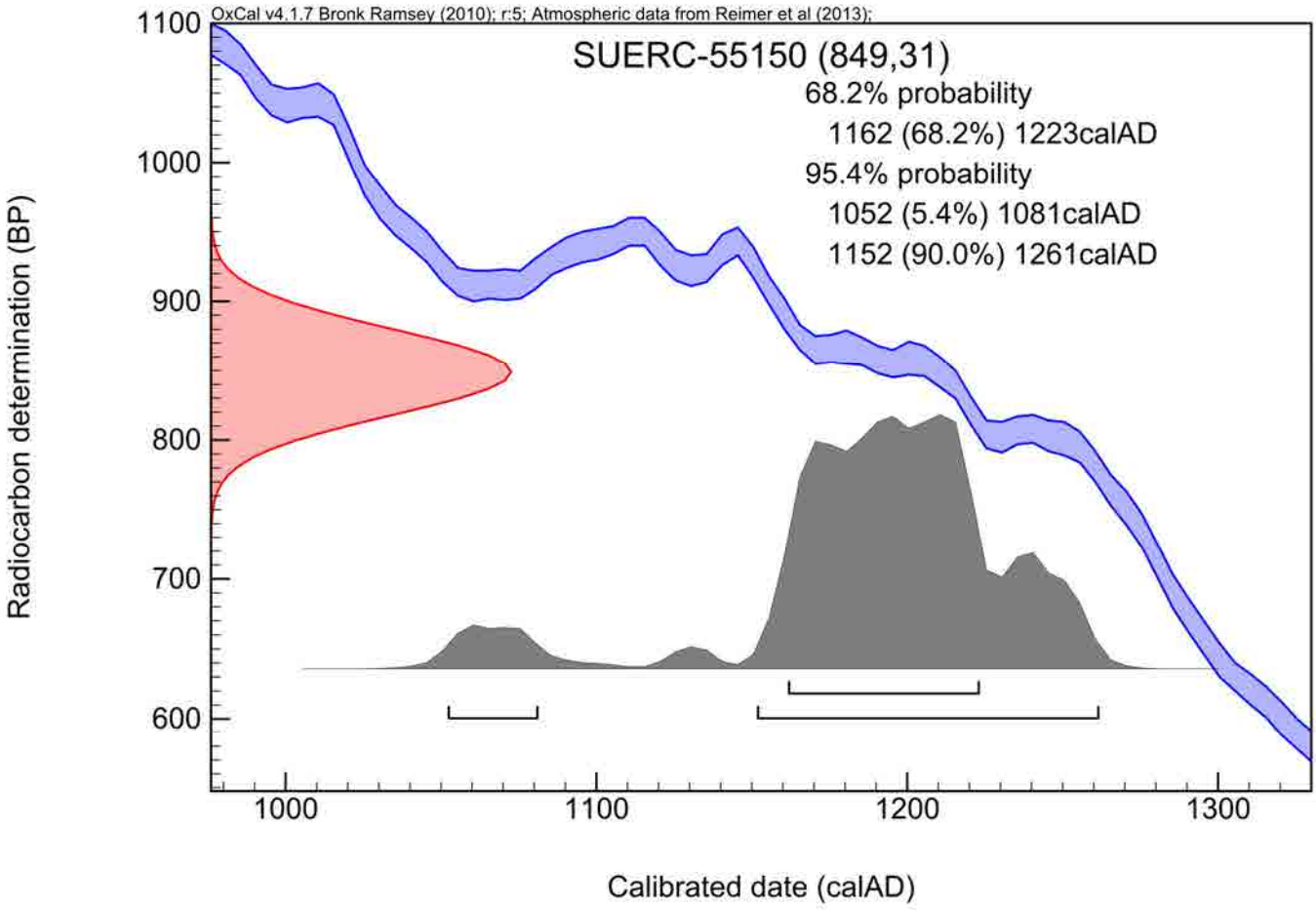
The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :- N. Rutt Date :- 18/09/2014

Checked and signed off by :- E Dunbar Date :- 18/09/2014

**Calibration Plot**



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# RADIOCARBON DATING CERTIFICATE

18 September 2014

| | |
|---|---|
| **Laboratory Code** | GU34993 |
| **Submitter** | Laura Wilson Parry<br>Gwynedd Archaeological Trust<br>Craig Beuno<br>Garth Road<br>Bangor , Gwynedd, LL57 2RT |
| **Site Reference** | G2192 Coed Dolwyd, Conwy |
| **Context Reference** | 1058 |
| **Sample Reference** | 23 |
| **Material** | Hazel nut shell fgt. : Corylus avellana |
| **Result** | Failed: insufficient carbon. |

**N.B.** Any questions directed to the Radiocarbon Laboratory should quote the GU coding given above.

The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Checked and signed off by :- E Dunbar Date :- 18/09/2014

**Scottish Universities Environmental Research Centre**

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East Kilbride, Glasgow G75 0QF, Scotland, UK
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# RADIOCARBON DATING CERTIFICATE

18 September 2014

| | |
|---|---|
| **Laboratory Code** | SUERC-55151 (GU34994) |
| **Submitter** | Laura Wilson Parry<br>Gwynedd Archaeological Trust<br>Craig Beuno<br>Garth Road<br>Bangor , Gwynedd, LL57 2RT |
| **Site Reference** | G2192 Coed Dolwyd, Conwy |
| **Context Reference** | 1071 |
| **Sample Reference** | 25 |
| **Material** | oat grain : Avena cf. sativa |
| **$\delta^{13}C$ relative to VPDB** | -25.0 ‰ |
| **Radiocarbon Age BP** | 812 ± 31 |

**N.B.** The above $^{14}C$ age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

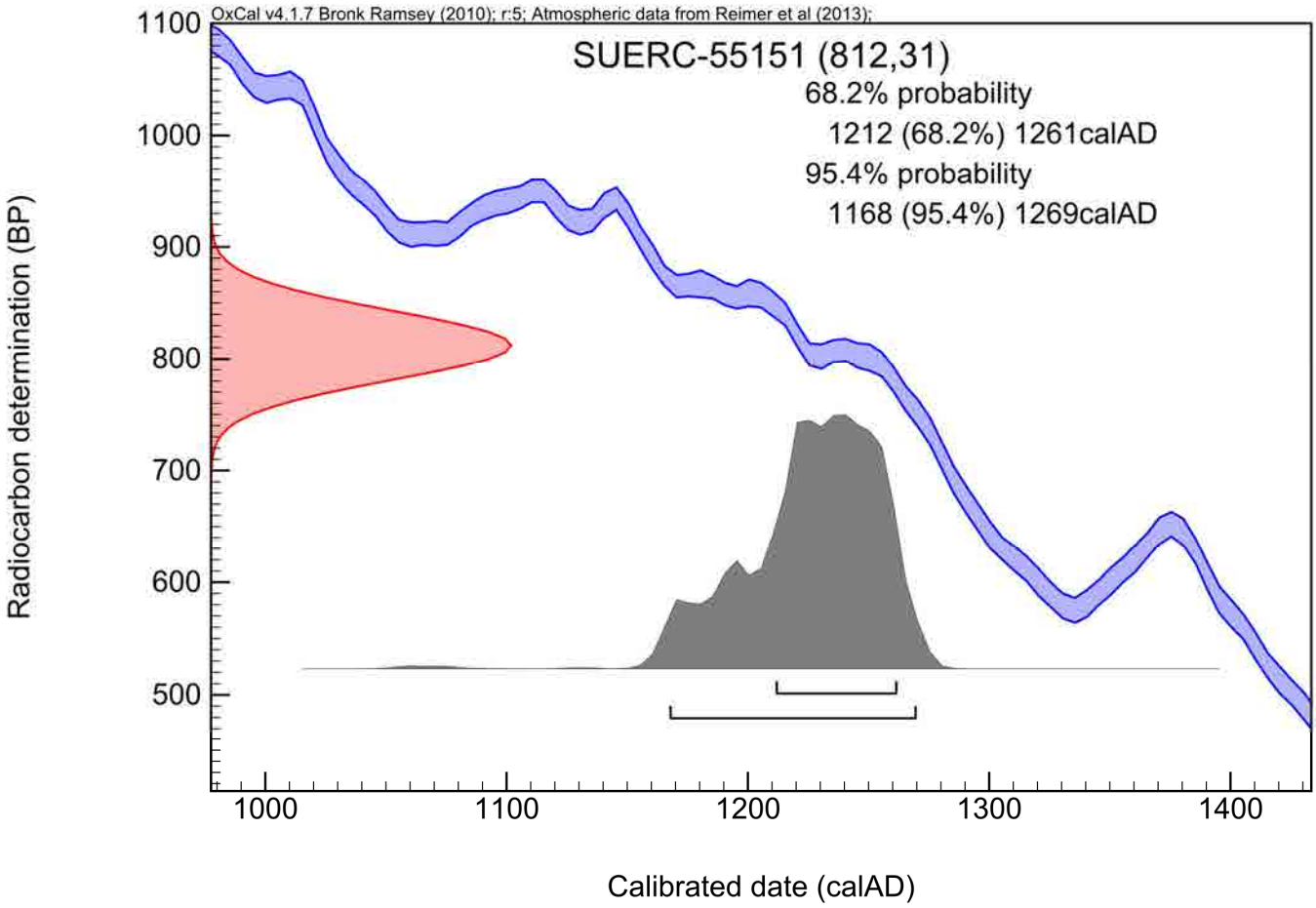
The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :- N. Rutt Date :- 18/09/2014

Checked and signed off by :- E Dunbar Date :- 18/09/2014

**Calibration Plot**



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# RADIOCARBON DATING CERTIFICATE

18 September 2014

| | |
|---|---|
| **Laboratory Code** | SUERC-55155 (GU34995) |
| **Submitter** | Laura Wilson Parry<br>Gwynedd Archaeological Trust<br>Craig Beuno<br>Garth Road<br>Bangor , Gwynedd, LL57 2RT |
| **Site Reference** | G2192 Coed Dolwyd, Conwy |
| **Context Reference** | 1071 |
| **Sample Reference** | 25 |
| **Material** | Hazel nut shell fgt. : Corylus avellana |
| **$\delta^{13}C$ relative to VPDB** | -24.0 ‰ |
| **Radiocarbon Age BP** | 828 ± 31 |

**N.B.** The above $^{14}C$ age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

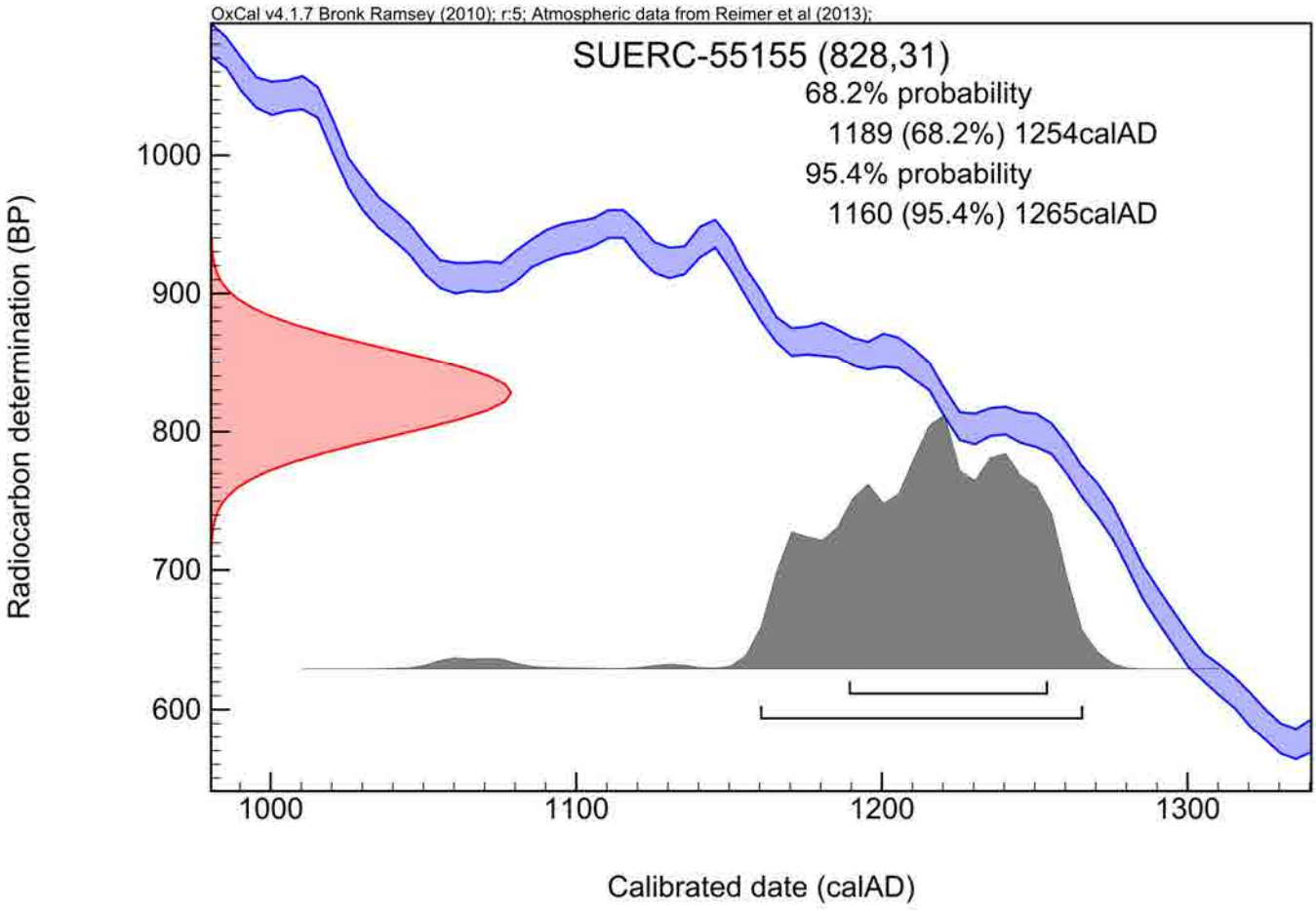
The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :- N. Rudd Date :- 18/09/2014

Checked and signed off by :- E Dunbar Date :- 18/09/2014

**Calibration Plot**



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# RADIOCARBON DATING CERTIFICATE

18 September 2014

| | |
|---|---|
| **Laboratory Code** | SUERC-55156 (GU34996) |
| **Submitter** | Laura Wilson Parry<br>Gwynedd Archaeological Trust<br>Craig Beuno<br>Garth Road<br>Bangor , Gwynedd, LL57 2RT |
| **Site Reference** | G2192 Coed Dolwyd, Conwy |
| **Context Reference** | 1081 |
| **Sample Reference** | 30 |
| **Material** | Hazel nut shell fgt. : Corylus avellana |
| **$\delta^{13}C$ relative to VPDB** | -25.6 ‰ |
| **Radiocarbon Age BP** | 819 ± 31 |

**N.B.** The above $^{14}C$ age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

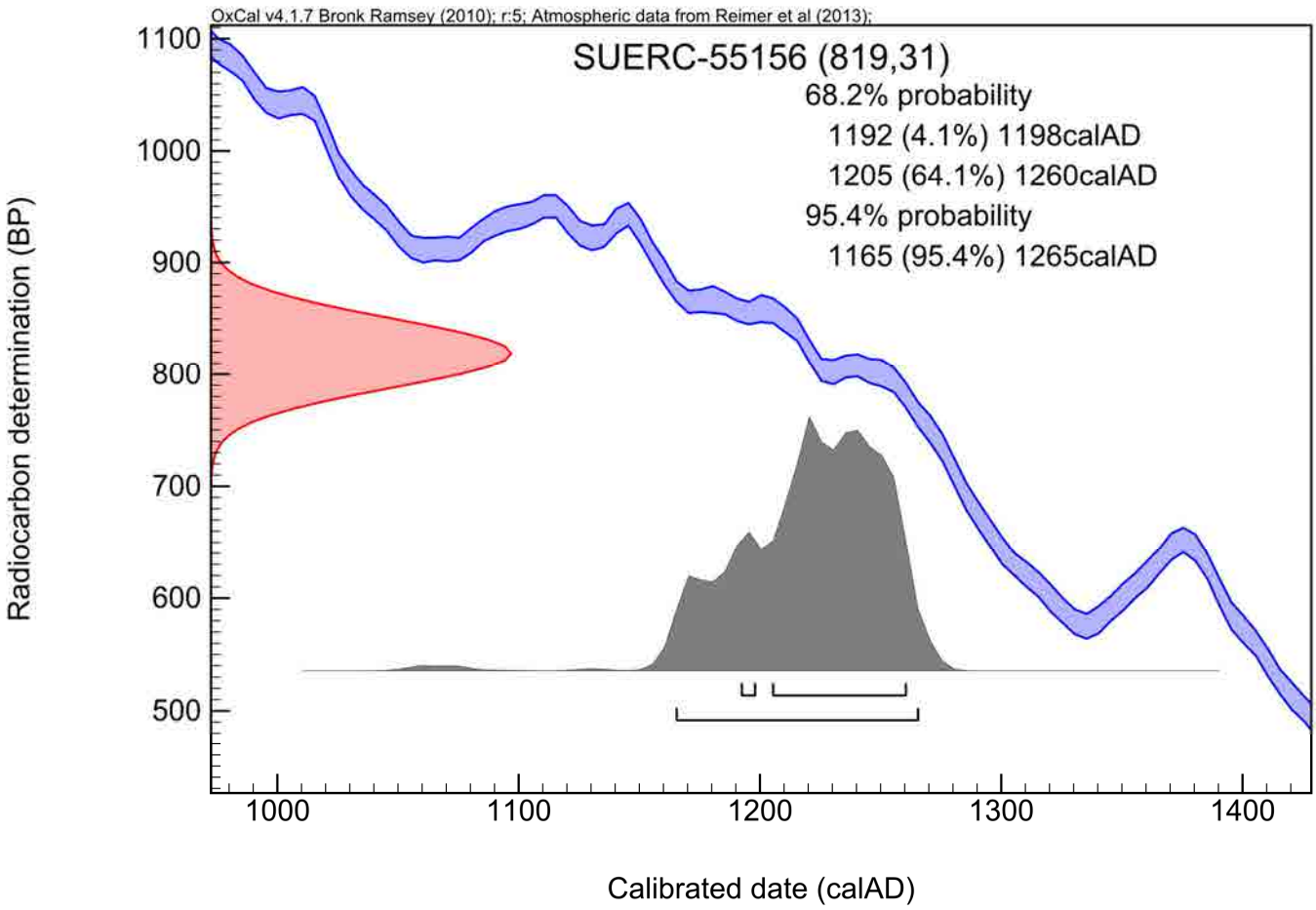
The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :- N. Rutt Date :- 18/09/2014

Checked and signed off by :- E Dunbar Date :- 18/09/2014

**Calibration Plot**



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# RADIOCARBON DATING CERTIFICATE

18 September 2014

| | |
|---|---|
| **Laboratory Code** | SUERC-55157 (GU34997) |
| **Submitter** | Laura Wilson Parry<br>Gwynedd Archaeological Trust<br>Craig Beuno<br>Garth Road<br>Bangor , Gwynedd, LL57 2RT |
| **Site Reference** | G2192 Coed Dolwyd, Conwy |
| **Context Reference** | 1081 |
| **Sample Reference** | 30 |
| **Material** | Hazel nut shell fgt. : Corylus avellana |
| **$\delta^{13}C$ relative to VPDB** | -24.0 ‰ |
| **Radiocarbon Age BP** | 764 ± 31 |

**N.B.** The above $^{14}C$ age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

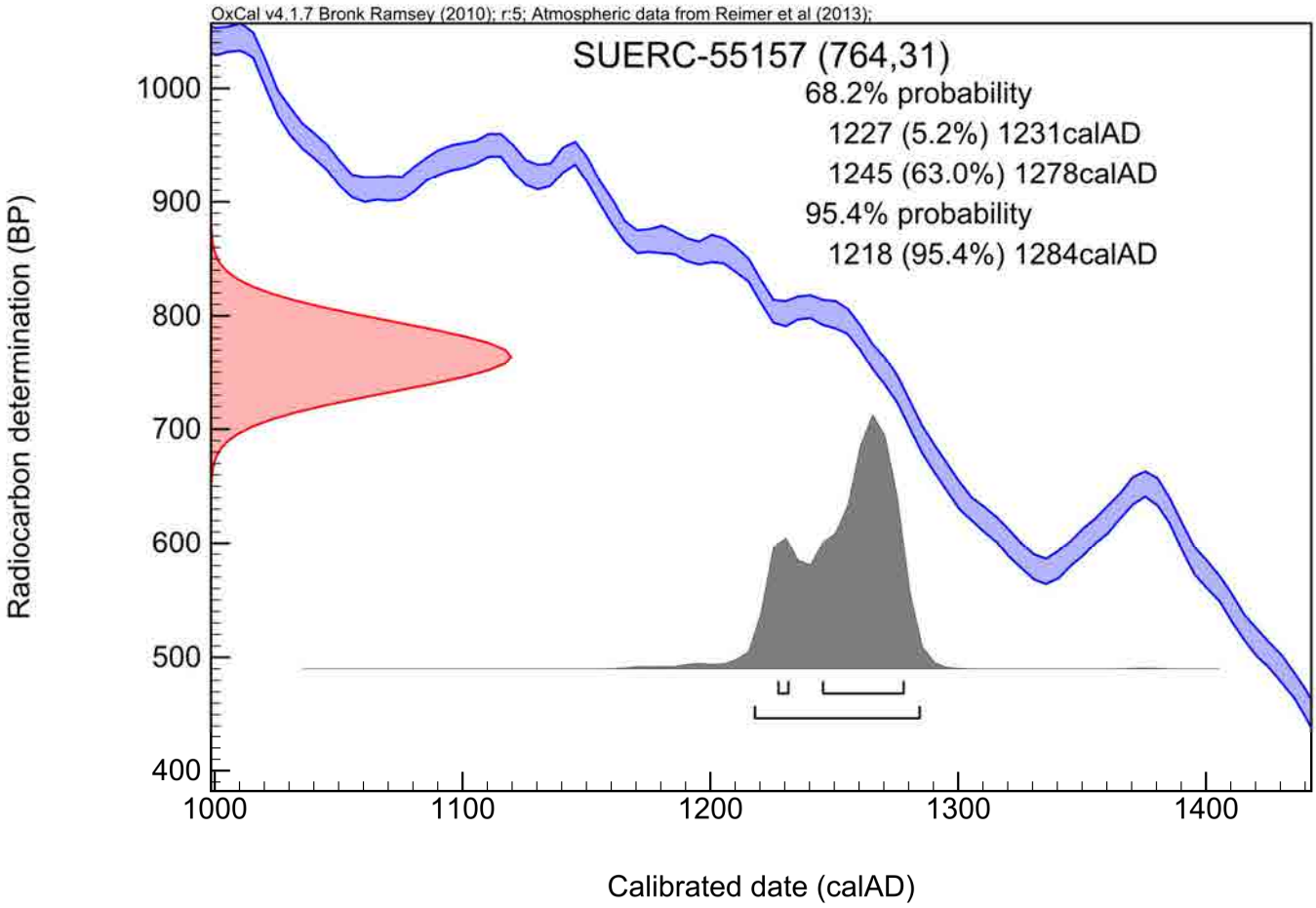
The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :- N. Rudd Date :- 18/09/2014

Checked and signed off by :- E Dunbar Date :- 18/09/2014

**Calibration Plot**



# Appendix V: Pottery Report

# REPORT ON POTTERY FROM EXCAVATIONS (G2192) NORTH OF COED DOLWYD RESERVOIR, LLANSANFFRAID GLAN CONWY.

**Context**

All the pottery came from a single feature, 1017, with a uniform fill (1011) which also contained a small chert core. This was worn and might be residual. The four sherds all came from the same Collared Urn but, apart from recent breaks, they do not join and the pot must have been extensively broken before it reached the amorphous hollow in which it was found. There is no indication that the pot had been used to contain bones and the presence of a hearth nearby would suggest a domestic context for the large jar which may have been used for food storage (see Stackpole Warren (Benson *et al* 1990)). Some of the nearby features may have been postholes, but no building plan could be recognised.

**Summary**

The urn was a large one, probably some 260-270mm in diameter and perhaps 280mm tall, decorated with lightly incised cross-hatching on the outside of the rounded collar and with three lines of more carelessly and deeply incised herring bone on the inside. Two sherds of this collar survive (SF 001 and 004). A single decorated sherd (part of SF 002) may come from the sloping neck of the urn, though the band of rather tentative decoration ends before it reaches the shoulder and there is no sign of decoration below the collar on SF004. The rest of SF 002 consists of four joining pieces and some scraps (all recent breaks) from the undecorated body of the urn. A slight curve at one point may indicate a rounded shoulder.

The fabric is fairly typical of Collared Urns, hard and well-fired with a lot of small-medium angular stone grit. The colour is a pale pink/beige on the outside where the surface is well-smoothed with few grits protruding from it. The inner surface is much rougher with a lot of visible grits in places. It is dark grey in colour. The darker coarse interior and the finer pink exterior surface have separated in some instances, suggesting two different batches of clay. Certain pots look as if they have an added slip to create a finer surface, but this looks like more than a slip, and since the walls are not more than 14-12mm thick the unfired pot would be fragile and difficult to add a lining to.

**SF 001**

1 section of collar 65 x 70mm x 10-16mm thick; smooth pink/beige outer surface, rough darker inner surface. The collar (47mm deep) is convex with a very slightly in-turned rounded rim; the overhang of the collar is not very sharply defined, nor is the internal ledge. All the decoration is incised, with a thin sharp tool on the outside, more deeply cut on the rough inner surface where there a three unequal lines of herring bone decoration on the concave surface.

1 undecorated sherd (40 x 35 x 13mm), pink outer surface and dark interior. This is clearly part of the same pot but does not join the larger section of undecorated body (SF 002)

**SF 002**

1 decorated sherd (66 xx 40 x 11-14mm), with smooth rather greyer outer surface and dark inner surface. The contrast of surfaces is particularly clear on this sherd. The decoration looks like the end of a band of cross-hatching as on the collar with a row of small stab marks below it. Urns in North Wales often have a row of pits at the angle of the shoulder, but there is no sign of such an angle here.

4 sherds and several fragments for a single piece from the undecorated body of the urn (95 x 88 x 11-14mm). At what is assumed to be the top there is a curve which may indicate a shoulder, but too little remains for certainty.

**SF 004**

1 sherd (broken into three) (35 x 43 x 14mm) from the base of the collar. Decoration and fabric as SF 001, but it does not join that segment. The outer surface is slightly more abrasive and the definition of the collar overhang is rather sharper than SF 001. More of the outer surface of the neck survives than on SF 001 and there is no sign of decoration.

**Comparisons**

This is a classic Collared Urn of Longworth's Primary Series (Longworth 1984). It has the gently curved collar and internal moulding with internal herringbone decoration, all of which are characteristic of the Series throughout Britain. The use of incision rather than twisted cord and the use of cross-hatching on the collar are less common in this early group but it does not have any of the notable features of the later series.

No samples for C14 dating were directly associated with the sherds but three dates on hazelnut shells from the hearth and from another nearby pit gave very tightly clustered results focussed in the mid 17th century cal BC (1757-41 +/- 31 cal BC GU 34986, 34987 and 34989). Such a date is well within the currency of Collared Urns, the barrows in which they are normally found and the domestic use demonstrated at Stackpole Warren, but it is perhaps a little later than the term 'Primary Series' might suggest (Garwood 2007). However it must be admitted that typological classifications are not necessarily chronological indicators.

The hills on the east side of the Conwy Valley contain several barrows but few have been excavated. The one at Eglwysbach excavated by Willoughby Gardner (1913) produced an early collared urn but it does not bear close comparison with this one, having a more conical profile and bearing cord decoration. The few urns and Vase Food Vessels from this region between the Conwy and the Clwyd (Lynch 1993, 152-4) are quite various and no particular local styles have yet emerged. This find is a useful addition to the catalogue, especially as it may come from a domestic context.

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Benson, D.G., Evans, J.G, Williams, G., Darvill, T and David, A, 1990: Excavations at Stackpole Warren, Dyfed*, Proceedings of the Prehistoric Society*, 56, 179-245.
Garwood, P, 2007: Before the Hills in Order Stood: chronology, time and history, in Last, J (ed) *Beyond the Grave New Perspectives on Barrows*, Oxbow 2007, 30-52.
Longworth, I H, 1984: *Collared Urns of the Bronze Age in Britain and Ireland*, Cambridge
Lynch, F M, 1993: *Excavations in the Brenig Valley, a Mesolithic and Bronze Age Landscape in North Wales.* CAA Monographs No.5.
Willoughby Gardner, J, 1913: Excavation of Tumuli, Eglwysbach, Denbighshire, *Arch. Camb.* 6th ser XII, 317-37

Frances Lynch
19th July 2013

# Appendix VI: Lithics Report

**GWYNEDD ARCHAEOLOGICAL TRUST**

**COED DOLWYD SERVICE RESERVOIR**
**GAT PROJECT G2192**

**LITHIC ARTEFACTS**

**GH Smith, 01-10-2014**

## FLINT AND CHERT

### 1. INTRODUCTION

Seven pieces of worked flint and chert were recovered from the excavation of an area along the route of the new water pipe. The small number of pieces and the lack of diagnostic objects make it impossible to make any conclusive observations about the period of use or site function but fortunately other finds and radiocarbon dates provided useful supporting evidence.

### 2. SUMMARY AND CONTEXT

Of the seven pieces, six came from Area B, a closely related group of pits and post-holes around a hearth. One very small fragment came from Area C a group of shallow inter-cutting features a few metres away from Area B. The object basic identifications are summarised in Table 1 and the contexts in which they were found are summarised in Table 2.

**Table 1 Summary identification of the objects**

| ***Find no.*** | ***Material*** | ***Flake*** | ***Flake Under 10mm max.*** | ***Core /frag*** | ***Retouched piece*** |
|---|---|---|---|---|---|
| 003 | Chert | | | 1 | |
| 007 | Flint | | | | 1 |
| 008 | Flint | | | 1 | |
| 009.1 | Flint | 1 | | | |
| 009.2 | Flint | 1 | | | |
| 010 | Flint | | | 1 | |
| 018 | Flint | | 1 | | |
| | ***Total*** | ***2*** | ***1*** | ***3*** | ***1*** |

**Table 2 Summary description and provenance**

| | ***Pit*** | ***Layer No*** | ***Find No*** | ***Description*** | ***Provenance*** |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Area B | 1017 | 1011 | 003 | Core fragment | Shallow feature, possibly a natural hollow, containing Early Bronze Age collared urn fragments |
| Area B | 1021 | 1023 | 007 | Bulbar segment of blade with marginal retouch | Large cut feature, possible storage pit |
| Area B | 1021 | 1024 | 008 | Partly prismatic core | ditto |
| Area B | 1021 | 1023 | 009.1 | Tertiary chip from core trimming | ditto |
| Area B | 1021 | 1023 | 009.2 | Small tertiary chip | ditto |
| Area B | 1045 | 1046 | 010 | Burnt core remnant | Small pit, possible post-hole |
| Area C | 1068 | 1069 | 018 | Tertiary chip | Small oval pit with soft silty fill and some burnt inclusions and possible bone fragments |

## 3. RAW MATERIAL

The material is varied, with grey chert, dull opaque grey flint, mottled opaque cherty flint and finer translucent mid grey flint. One core fragment has some rounded pebble cortex, indicating use of pebble flint from a local beach or glacial till source.

## 4. TECHNOLOGY

All three core fragments are small and struck from multiple directions, showing rather uncontrolled casual manufacture of flakes and from a limited quality of available raw material.

The small thin chip of finer flint from Area C could indicate some fine invasive flaking of more elaborate tools, but it is too small to be sure.

## 5. DISCUSSION

### Area C

Find 018, from Area C came from a group of pits from which Medieval radiocarbon dates have been produced. The flint is therefore clearly residual in its context and may derive from more extensive earlier activity in the same area.

### Area B

These six pieces came from a small group of features comprising pits, post-holes and a hearth. There is only one retouched piece (Fig. X, Find 007) which is a thick, broad flake with fine retouch along one sharp straight edge and is clearly a cutting tool although there is no visible use-wear evidence. The core (Fig. X, Find 008) and two chips came from pit 1021 which contained a charcoal-rich fill including quantities of hazelnut shells, two pieces of which produced closely matching radiocarbon dates in the first quarter of the 2$^{nd}$ millennium cal BC.

Two other pieces came from other features. One is a burnt core remnant from a small pit 1045. The other, another core fragment, came from a shallow pit or hollow 1017. This pit/hollow also produced a few pieces from a decorated Early Bronze Age collared urn (Lynch, above). The style

of pottery accords with the radiocarbon dates from Pit 1021 and another similar radiocarbon date came from hazel nutshell from the nearby hearth 1020.

The radiocarbon dates and the pottery provide good evidence for the period of use of the site and of the lithics. There is nothing technologically or typologically to confirm that but at least do not disagree with it. The cores are rather randomly worked and the single retouched piece is on a broad thick flake and, although one piece is not much evidence, broad, thick flakes became the norm in second millennium flint working as well as casual use of flakes, in this area partly the result of the small size and poor quality of the raw material. The casual use of only locally available, if poor quality, raw material also demonstrates the temporary nature of the settlement at a time when imported raw materials of better quality would have been expected, as found in Later Neolithic contexts near Bangor (Smith 2008) and in Early Bronze Age contexts on the Denbigh Moors (Healey 1993).

The confined group of features suggests a temporary occupation area or camp-site and the presence of hazel nutshells indicates that this was an autumn seasonal camp, probably in a woodland clearing, possibly as part of a herding circuit. The presence of pottery and of some cereal grain shows that, although short-term, the camp probably belonged to a permanent farming settlement elsewhere. No such settlements are known but the presence of activity, and presumably settlement is attested by a number of Bronze Age burial monuments on the uplands on both sides of the Conwy Valley.

The small number of lithic pieces is somewhat misleading because it is only those that became incorporated in the cut features that survived. The majority would have been present as a surface scatter and would have been incorporated in the Post-medieval topsoil and spread by cultivation. However, the absence of small fragments of debitage in the soil samples sieved for environmental information shows that flint and chert working and use here was probably very minor.

## REFERENCES

Healey, E. 1993. The Neolithic and Bronze Age flintwork. In F.M. Lynch, *Excavations in the Brenig Valley*, Cambrian Archaeology Monograph 5. Cardiff, 187-91.
Smith, G. 2008. Flint associated with the Mid and Later Neolithic pit groups. In J. Kenney, Recent excavations at Parc Bryn Cegin, Bangor, *Archaeologia Cambrensis* 157, 46-7.

## OBJECT RECORD

### Summary of the worked flint

Dimensions mm to nearest 0.5mm. L Length. B Breadth. D Depth. ( ) incomplete (broken) flake dimension

| ***Find No.*** | ***Pit No.*** | ***Context No.*** | ***Raw material*** | ***Colour*** | ***Dimensions (mm)*** | | | ***Description*** |
|---|---|---|---|---|---|---|---|---|
| | | | | | ***L*** | ***B*** | ***D*** | |
| 003 | 1017 | 1011 | Chert | Patchy mottled cream/buff | 36.5 | 41.0 | 27.0 | Irregular core fragment or reject, struck from multiple directions. No cortex. Not local material, could be from glacial cobble |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 007 | 1021 | 1023 | Cherty flint | Dull, streaky mottled buff/grey-brown | (25.5) | 20.5 | 7.5 | Bulbar end segment of a straight-snapped thick broad flake with a single dorsal ridge and a plain platform. The strong bulb shows heavy impact. Some fine marginal retouch on one straight side indicates function as cutting toll although there is no visible use wear. Some microchipping on the non-retouched edge could be from use or to facilitate hafting |
| 008 | 1021 | 1024 | Flint | Patchy mottled mid-grey/light grey | 33.0 | 30.0 | 17.0 | Quite fine flint. Small, partly prismatic core but other flakes struck from two other directions. The main platform is plain and shows small, fine impact marks of unsuccessful removals, probably from use of a punch |
| 009.1 | 1021 | 1023 | Cherty flint | Light grey | 17.5 | 10.5 | 3.5 | Distinctive opaque flint with small slightly darker speckles. Small tertiary chip, probably from core trimming rather than tool shaping. Plain platform with scar of previous attempt at flake removal |
| 009.2 | 1021 | 1023 | Cherty flint | Light grey | 13.0 | 11.0 | 2.5 | Small tertiary chip |
| 010 | 1045 | 1046 | Flint | Light grey (burnt) | 32.5 | 25.0 | 14.0 | Core remnant or reject. Fine flint. Remnant of beach pebble cortex. Burnt, probably prior to flaking, so possibly deliberate heat treatment. |
| 018 | 1068 | 1069 | Flint | Mid-grey | 9.0 | 7.0 | 1.5 | Fine, translucent flint, so possibly an import from a chalk area. A thin small, broken tertiary chip. Probably from tool shaping by shallow invasive flakes with subsequent ?trample damage |

# Appendix VII: Bone Analysis

**G2192 Coed Dolwyd Conwy**
**Burnt Bone and Shell**

The processing of the soil samples from the excavation of a series of intercutting pits at Coed Dolwyd Conwy led to the recovery of a small number of small fragments of burnt bone (calcined), burnt to a white and brittle condition. The find of a fragment of Bronze Age collared urn nearby raises the possibility that these intercutting pits may date to this period.

The finds are unfortunately characterised by heavy fragmentation and the small size of the surviving pieces, such that no fragments exceed a gramme in weight and the majority are a small fraction of a gramme (Table 1). The fragments have been individually observed under the microscope and where possible identified to an animal size class or species. Very few of the fragments could even be identified to an animal size class, most being indeterminate small fragments of 2-6mm diameter with no anatomical characteristics that allow any level of identification. One of the samples (021) from context 1081 is primarily 'burnt earth', such as might derive from a hearth, with a small number of fragments of 'chalky' material which may be weathered burnt bone. Context 1081 also produced a few fragments of burnt shell.

The results are summarised in Table 1.

**Table 1**. Catalogue of burnt bone, shell and 'earth' from contexts in the inter-cutting pit group.

| Sample | Context | Weight in g. | Comments |
|---|---|---|---|
| 012 | 1073 | 2 | 30 x indeterminate fragments of burnt (calcined) bone<br>4 indeterminate fragments of burnt tooth enamel.<br><br>Fragments include an indet. skull fragment, an indet. articulation fragment.<br>Also present two small 'globules' of vitrified fuel ash slag |
| 015 | 1075 | 1 | 30 indeterminate burnt bone fragments, including one small fragment of sheep sized long bone shaft |
| 017 | 1069 | 3 | 61 indeterminate burnt bone fragments.<br>Including an indet. sheep sized long bone shaft fragment; a cf sheep/goat distal tibia epiphysis (unfused) from an immature individual. |
| 019 | 1081 | 1 | 18 indeterminate burnt bone fragments.<br>Including two sheep sized long bone shaft fragments |
| 021 | 1081 | 8 | Mainly heavily fired earth concretions with a little vitrifaction. |
| | | 5 | 6 indeterminate fragments of 'chalky' material, possibly weathered burnt bone |
| 022 | 1081 | 1 | Burnt mussel shell fragments – cf *Mytilus edulis* – common mussel.<br>The sample included a small fragment of grey plastic. |

Context 1073 (from pit 1072) produced 30 small fragments of burnt bone and four fragments of burnt indeterminate tooth enamel. A single fragment clearly derived from a skull but could not be identified further. Two small 'globules' of vitrified

silicaceous material indicates fairly high temperatures were present in the fires that generated this material.

Context 1075 (from pit 1074) produced a similar number of small burnt bone fragments, which included one small fragment of long bone shaft, identifiable as from an animal of sheep size, but not to species.

Context 1069 (from pit 1068) produced 61 small fragments of burnt bone including a small fragment of long bone shaft from a sheep sized animal. This context produced a burnt fragment of the distal epiphysis of a sheep or goat tibia. The epiphysis was unfused indicating a juvenile animal.

Context 1081 (from pit 1080). Sample 019 produced 18 indeterminate fragments of burnt bone, with two being identified as deriving from a sheep sized long bone shaft. The material submitted from sample 021 is primarily fired earth, suggesting hearth material, but a few fragments of chalky material may derive from weathered burnt bone. The material from sample 022 is almost certainly the burnt fragments of the shell of the marine mollusc *Mytilus edulis*, the common mussel, a commonly harvested shellfish eaten throughout prehistory and the historic period. A small fragment of grey plastic was also present in this sample.

**Conclusions**

Unfortunately these finds offer little useful information for the site. The survival of only burnt bone indicates that unburnt animal bone has not survived on the site owing to unsuitable soil conditions. The burnt bones are therefore likely to reflect only those bones that got thrown into the fires and may not be representative of the whole bone assemblage originally deposited. Only sheep sized animals and sheep/goat have been identified, but some of the tiny burnt bone fragments could derive from larger animals. The burnt mussel shell indicates exploitation of the coastal resources some 2km to the west.

No further work needs to be undertaken on this material. Burnt bone can be used for radiocarbon dating, but the material from these contexts would necessitate the amalgamation of all the burnt bone from any one sample to get sufficient for a date, and charcoal or charred material from the same sample may be more appropriate.

James Rackham
26th February 2014

Environmental Archaeology Consultancy

# Appendix VIII: Photo metadata

| File reference | Phase | Sub area | Description | View from | Scale (s) | Date |
|---|---|---|---|---|---|---|
| G2192_Mitigation_001.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Working shot - haul road construction | SW | N/A | 27/06/12 |
| G2192_Mitigation_002.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Working shot - haul road construction | SW | N/A | 27/06/12 |
| G2192_Mitigation_003.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Working shot - topsoil strip for compound area | SE | N/A | 27/06/12 |
| G2192_Mitigation_006.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Working shot - stone extraction | N | N/A | 27/06/12 |
| G2192_Mitigation_007.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Haul road stripping | SE | N/A | 29/06/12 |
| G2192_Mitigation_008.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Haul road stripping | SE | N/A | 29/06/12 |
| G2192_Mitigation_009.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Compound strip | NE | N/A | 29/06/12 |
| G2192_Mitigation_010.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Compound strip | NE | N/A | 29/06/12 |
| G2192_Mitigation_011.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Compound strip-lower SW corner | SSW | 1x1m | 03/07/12 |
| G2192_Mitigation_012.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Compound strip-lower SW corner | SSW | 1x1m | 03/07/12 |
| G2192_Mitigation_004.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Working shot - topsoil strip for compound area | SE | N/A | 27/06/12 |
| G2192_Mitigation_005.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Working shot - stone extraction | N | N/A | 27/06/12 |
| G2192_Mitigation_013.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Compound strip-lower SW corner - section | W | 1x1m | 03/07/12 |
| G2192_Mitigation_014.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Compound strip - central area - bedrock | E | 1x1m | 03/07/12 |
| G2192_Mitigation_015.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Compound strip - central area - bedrock | E | n/a | 03/07/12 |
| G2192_Mitigation_016.jpg | Mitigation - Partial | Compound and | Extending compound strip to the S, to | W | n/a | 03/07/12 |

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| | Watching Brief | Reservoir Area | look for more bedrock | | | |
| G2192_Mitigation_017.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Extending compound strip to the S, to look for more bedrock | W | n/a | 03/07/12 |
| G2192_Mitigation_018.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Reservoir area - pre stripping | NE | n/a | 16/07/12 |
| G2192_Mitigation_019.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Reservoir area - pre stripping | NE | n/a | 16/07/12 |
| G2192_Mitigation_020.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Reservoir area topsoil strip | NE | n/a | 17/07/12 |
| G2192_Mitigation_021.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Reservoir area topsoil strip | NE | n/a | 17/07/12 |
| G2192_Mitigation_022.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Reservoir area topsoil strip | SW | n/a | 17/07/12 |
| G2192_Mitigation_023.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Reservoir area topsoil strip | SW | n/a | 17/07/12 |
| G2192_Mitigation_024.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Reservoir area topsoil strip | SW | n/a | 17/07/12 |
| G2192_Mitigation_025.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Reservoir area topsoil strip | SW | n/a | 17/07/12 |
| G2192_Mitigation_026.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Reservoir area topsoil strip | NE | n/a | 17/07/12 |
| G2192_Mitigation_027.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Reservoir area topsoil strip | NE | n/a | 17/07/12 |
| G2192_Mitigation_028.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Reservoir area topsoil strip | NE | n/a | 17/07/12 |
| G2192_Mitigation_029.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Reservoir area topsoil strip | NE | n/a | 17/07/12 |
| G2192_Mitigation_030.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Haulroad alongside overflow pipe | NE | n/a | 02/08/12 |
| G2192_Mitigation_031.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Compound Area | SW | n/a | 02/08/12 |
| G2192_Mitigation_032.jpg | Mitigation - Partial | Plot 8 | Haulroad alongside overflow pipe | NE | n/a | 02/08/12 |

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| | Watching Brief | | | | | |
| G2192_Mitigation_033.jpg | Mitigation - Partial Watching Brief | Plot 8 | Topsoil strip for overflow pipe | SW | n/a | 02/08/12 |
| G2192_Mitigation_034.jpg | Mitigation - Partial Watching Brief | Compound and Reservoir Area | Compound Area | S | n/a | 02/08/12 |
| G2192_Mitigation_035.jpg | Mitigation - Partial Watching Brief | Plot 8 | Topsoil strip and haul road for overflow pipe | S | n/a | 08/08/12 |
| G2192_Mitigation_036.jpg | Mitigation - Partial Watching Brief | Plot 8 | Topsoil strip and haul road for overflow pipe | S | n/a | 08/08/12 |
| G2192_Mitigation_037.jpg | Mitigation - Partial Watching Brief | Plot 8 | Topsoil strip for overflow pipe | S | 1m | 08/08/12 |
| G2192_Mitigation_038.jpg | Mitigation - Partial Watching Brief | Plot 8 | Topsoil strip for overflow pipe | S | 1m | 08/08/12 |
| G2192_Mitigation_039.jpg | Mitigation - Partial Watching Brief | Plot 1 | Topsoil strip at southern end of haul road | NW | 1x1m | 22/08/12 |
| G2192_Mitigation_040.jpg | Mitigation - Partial Watching Brief | Plot 1 | Topsoil strip at southern end of haul road | SE | 1x1m | 22/08/12 |
| G2192_Mitigation_041.jpg | Mitigation - Partial Watching Brief | Plot 1 | Topsoil strip at southern end of haul road | SE | 1x1m | 22/08/12 |
| G2192_Mitigation_042.jpg | Mitigation - Partial Watching Brief | Plot 1 | Topsoil strip at southern end of haul road | NW | 1x1m | 22/08/12 |
| G2192_Mitigation_043.jpg | Mitigation - Partial Watching Brief | Plot 1 | Topsoil strip at southern end of haul road | SE | 1x1m | 22/08/12 |
| G2192_Mitigation_044.jpg | Mitigation - Partial Watching Brief | Plot 1 | Haul road diversion towards the north | NW | 1x1m | 23/08/12 |
| G2192_Mitigation_045.jpg | Mitigation - Partial Watching Brief | Plot 1 | Haul road diversion towards the north | NW | 1x1m | 23/08/12 |
| G2192_Mitigation_046.jpg | Mitigation - Partial Watching Brief | Plot 1 | Haul road diversion towards the north-NW of control strip area | NW | 1x1m | 24/08/12 |
| G2192_Mitigation_047.jpg | Mitigation - Partial Watching Brief | Plot 1 | Haul road diversion towards the north-NW of control strip area | NW | 1x1m | 24/08/12 |
| G2192_Mitigation_048.jpg | Mitigation - Partial | Plot 1 | Haul road diversion towards the north- | NW | 1x1m | 24/08/12 |

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| | Watching Brief | | NW of control strip area | | | |
| G2192_Mitigation_049.jpg | Mitigation - Partial Watching Brief | Plot 1 | Haul road diversion towards the north-NW of control strip area | N | 1x1m | 24/08/12 |
| G2192_Mitigation_050.jpg | Mitigation - Partial Watching Brief | Plot 2 | Topsoiling over HP gas main within haul road area | SSE | - | 03/09/12 |
| G2192_Mitigation_051.jpg | Mitigation - Partial Watching Brief | Plot 2 | Topsoiling over HP gas main within haul road area | S | - | 03/09/12 |
| G2192_Mitigation_052.jpg | Mitigation - Partial Watching Brief | Plot 2 | Topsoiling over HP gas main within haul road area-location shot | SE | - | 03/09/12 |
| G2192_Mitigation_053.jpg | Mitigation - Partial Watching Brief | FB05 | Western side of the cut in the southern hedgebank on the minor road to Glan Conwy. | E | 1x1m | 27/09/12 |
| G2192_Mitigation_054.jpg | Mitigation - Partial Watching Brief | FB05 | Western side of the cut in the southern hedgebank on the minor road to Glan Conwy. | N | 1x1m | 27/09/12 |
| G2192_Mitigation_055.jpg | Mitigation - Partial Watching Brief | FB05 | Eastern side of the cut in the southern hedgebank on the minor road to Glan Conwy. | W | 1x1m | 27/09/12 |
| G2192_Mitigation_056.jpg | Mitigation - Partial Watching Brief | FB05 | Eastern side of the cut in the southern hedgebank on the minor road to Glan Conwy. | SW | 1x1m | 27/09/12 |
| G2192_Mitigation_057.jpg | Mitigation - Partial Watching Brief | Plot 8 | Shot of the bedrock cuts over high pressure gas main. | N | - | 03/10/12 |
| G2192_Mitigation_058.jpg | Mitigation - Partial Watching Brief | Plot 7 | General shot of haul road | E | - | 03/10/12 |
| G2192_Mitigation_059.jpg | Mitigation - Partial Watching Brief | Plot 5+6 | General shot of haul road | NW | - | 03/10/12 |
| G2192_Mitigation_060.jpg | Mitigation - Partial Watching Brief | Plot 8 | Topsoiling on far side of HP gas main for haul road, N of Glan Conwy minor road | E | - | 08/10/12 |
| G2192_Mitigation_061.jpg | Mitigation - Partial Watching Brief | Plot 3 | Full easement topsoiling south of the minor road to Glan Conwy | W | - | 08/10/12 |
| G2192_Mitigation_062.jpg | Mitigation - Partial Watching Brief | Plot 3 | Full easement topsoiling south of the minor road to Glan Conwy | W | - | 08/10/12 |

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| G2192_Mitigation_063.jpg | Mitigation - Partial Watching Brief | Plot 3 | Full easement topsoiling south of the minor road to Glan Conwy | E | - | 08/10/12 |
| G2192_Mitigation_064.jpg | Mitigation - Partial Watching Brief | | Topsoiling for haul road - STP10 | W | - | 09/10/12 |
| G2192_Mitigation_065.jpg | Mitigation - Partial Watching Brief | | Topsoiling for haul road - STP10, general view | N | - | 09/10/12 |
| G2192_Mitigation_066.jpg | Mitigation - Partial Watching Brief | FB01 | Shot of breakthrough at field boundary - FB01 | NW | 1x1m | 10/10/12 |
| G2192_Mitigation_067.jpg | Mitigation - Partial Watching Brief | FB01 | Shot of breakthrough at field boundary - FB01 | SW | 1x1m | 10/10/12 |
| G2192_Mitigation_068.jpg | Mitigation - Partial Watching Brief | FB02 | Shot of breakthrough at field boundary - FB02 | SE | 1x1m | 10/10/12 |
| G2192_Mitigation_069.jpg | Mitigation - Partial Watching Brief | FB02 | Shot of breakthrough at field boundary - FB02 | SW | 1x1m | 10/10/12 |
| G2192_Mitigation_070.jpg | Mitigation - Partial Watching Brief | FB03 | Shot of breakthrough at field boundary - FB03 | NNW | 1x1m | 10/10/12 |
| G2192_Mitigation_071.jpg | Mitigation - Partial Watching Brief | FB03 | Shot of breakthrough at field boundary - FB03 | N | 1x1m | 10/10/12 |
| G2192_Mitigation_072.jpg | Mitigation - Partial Watching Brief | FB04 | Shot of breakthrough at field boundary - FB04 | SW | 1x1m | 10/10/12 |
| G2192_Mitigation_073.jpg | Mitigation - Partial Watching Brief | FB04 | Shot of breakthrough at field boundary - FB04 | N | - | 10/10/12 |
| G2192_Mitigation_074.jpg | Mitigation - Partial Watching Brief | FB07-FB08 | Working shot - excavation of pipe trench | W | - | 18/10/12 |
| G2192_Mitigation_075.jpg | Mitigation - Partial Watching Brief | FB07-FB08 | Working shot - excavation of pipe trench | W | - | 18/10/12 |
| G2192_Mitigation_076.jpg | Mitigation - Partial Watching Brief | FB07-FB08 | Excavated section of pipe trench showing bedrock (at the base of the hill) | S | - | 18/10/12 |
| G2192_Mitigation_077.jpg | Mitigation - Partial Watching Brief | FB09-FB10 | Working shot of topsoiling of area NE of the haulroad | SE | - | 18/10/12 |
| G2192_Mitigation_078.jpg | Mitigation - Partial Watching Brief | FB09-FB10 | Working shot of topsoiling of area NE of the haulroad | SE | - | 18/10/12 |

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| G2192_Mitigation_079.jpg | Mitigation - Partial Watching Brief | Plot 2 | General shot of topsoiling | E | - | 26/10/12 |
| G2192_Mitigation_080.jpg | Mitigation - Partial Watching Brief | Plot 2 | General shot of topsoiling | NE | - | 26/10/12 |
| G2192_Mitigation_081.jpg | Mitigation - Partial Watching Brief | Plot 8 | Benched area on steep slope during pipe laying | NW | - | 02/11/12 |
| G2192_Mitigation_082.jpg | Mitigation - Partial Watching Brief | Plot 8 | Benched area on steep slope during pipe laying | SE | - | 02/11/12 |
| G2192_Mitigation_083.jpg | Mitigation - Partial Watching Brief | Plot 8 | Extent of current works as at 12th November | SE | - | 12/11/12 |
| G2192_Mitigation_084.jpg | Mitigation - Partial Watching Brief | Plot 8 | Re-instated area | WSW | - | 12/11/12 |
| G2192_Mitigation_085.jpg | Mitigation - Partial Watching Brief | Plot 8 | Topsoiled area awaiting pipe trenching near 4" steel HP gas main | NE | - | 12/11/12 |
| G2192_Mitigation_086.jpg | Mitigation - Partial Watching Brief | Plot 8 | Pipe installation near 4" HP gas main | NE | - | 12/11/12 |
| G2192_Mitigation_087.jpg | Mitigation - Partial Watching Brief | Plot 2 | Pipe trenching north of 10" HP gas main | SW | - | 12/11/12 |
| G2192_Mitigation_088.jpg | Mitigation - Partial Watching Brief | Plot 2 | Topsoiled area-after machine disturbance | SSE | - | 12/11/12 |
| G2192_Mitigation_089.jpg | Mitigation - Partial Watching Brief | Plot 2 | Topsoiled area-after machine disturbance | NNW | - | 12/11/12 |
| G2192_Mitigation_090.jpg | Mitigation - Partial Watching Brief | Plot 2 | Removal of field boundary | S | - | 12/11/12 |
| G2192_Mitigation_091.jpg | Mitigation - Partial Watching Brief | Plot 2 | Trenching/re-instating work in progress | NNW | - | 12/11/12 |
| G2192_Mitigation_092.jpg | Mitigation - Partial Watching Brief | Plot 8 | Pipe trenching near HP gas main | SW | - | 13/11/12 |
| G2192_Mitigation_093.jpg | Mitigation - Partial Watching Brief | Plot 8 | Pipe trenching near HP gas main | W | - | 13/11/12 |
| G2192_Mitigation_094.jpg | Mitigation - Partial Watching Brief | Plot 2 | Trenching/re-instating work in progress | NW | - | 13/11/12 |

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| G2192_Mitigation_095.jpg | Mitigation - Partial Watching Brief | Plot 1 | Final area before reservoir, completed | NW | - | 03/12/12/ |
| G2192_Mitigation_096.jpg | Mitigation - Partial Watching Brief | Plot 1 | Final area before reservoir, completed | SE | - | 03/12/12/ |
| G2192_Mitigation_097.jpg | Mitigation - Partial Watching Brief | Plot 5 | Completion of pipe trenching north of minor Glan Conwy road | NW | - | 03/12/12/ |
| G2192_Mitigation_098.jpg | Mitigation - Partial Watching Brief | Plot 5 | Completion of pipe trenching north of minor Glan Conwy road | WNW | - | 03/12/12/ |
| G2192_Mitigation_099.jpg | Mitigation - Partial Watching Brief | Plot 11 | Shot showing depth of topsoil mid-field | SW | 1x1m | 16/01/13/ |
| G2192_Mitigation_100.jpg | Mitigation - Partial Watching Brief | Plot 5 | Completion of pipe trenching north of minor Glan Conwy road | SE | - | 03/12/12/ |
| G2192_Mitigation_101.jpg | Mitigation - Partial Watching Brief | Plot 9 | Topsoil stripping for haul road | | - | 11/01/13/ |
| G2192_Mitigation_102.jpg | Mitigation - Partial Watching Brief | Plot 9 | Topsoil stripping for haul road | | - | 11/01/13/ |
| G2192_Mitigation_103.jpg | Mitigation - Partial Watching Brief | Plot 9 | Topsoil stripping for haul road | | - | 11/01/13/ |
| G2192_Mitigation_104.jpg | Mitigation - Partial Watching Brief | Plot 11 | Topsoiled area for haul road (top of field) | NW | 1x1m | 16/01/13/ |
| G2192_Mitigation_105.jpg | Mitigation - Partial Watching Brief | Plot 11 | View to main road and river | SE | - | 16/01/13/ |
| G2192_Mitigation_106.jpg | Mitigation - Partial Watching Brief | Plot 11 | Topsoiled area for haul road (top of field) | NW | 1x1m | 16/01/13/ |
| G2192_Mitigation_107.jpg | Mitigation - Partial Watching Brief | Plot 9 | Area to be stripped | SE | - | 11/01/13/ |
| G2192_Mitigation_108.jpg | Mitigation - Partial Watching Brief | Plot 11 | General view of topsoiled area | N | 1x1m | 23/01/13 |
| G2192_Mitigation_109.jpg | Mitigation - Partial Watching Brief | Plot 11 | General view of topsoiled area | SW | 1x1m | 23/01/13 |
| G2192_Mitigation_110.jpg | Mitigation - Partial Watching Brief | Plot 11 | General view of topsoiled area | S | 1x1m | 23/01/13 |

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| G2192_Mitigation_111.jpg | Mitigation - Partial Watching Brief | Plot 11 | General view of topsoiled area | WNW | 1x1m | 23/01/13 |
| G2192_Mitigation_112.jpg | Mitigation - Partial Watching Brief | Plot 11 | Machine loading dumper with bedrock | WNW | - | 23/01/13 |
| G2192_Mitigation_113.jpg | Mitigation - Partial Watching Brief | Plot 11 | General view of topsoiled area | S | - | 23/01/13 |
| G2192_Mitigation_114.jpg | Mitigation - Partial Watching Brief | Plot 11 | General view of topsoiled area | W | - | 23/01/13 |
| G2192_Mitigation_115.jpg | Mitigation - Partial Watching Brief | Plot 11 | General view of topsoiled area | SW | - | 23/01/13 |
| G2192_Mitigation_116.jpg | Mitigation - Partial Watching Brief | Plot 11 | General view of topsoiled area | S | - | 23/01/13 |
| G2192_Mitigation_117.jpg | Mitigation - Controlled Strip | | Location shot-Conwy Castle and Deganwy in background | SE | - | 20/08/12 |
| G2192_Mitigation_118.jpg | Mitigation - Controlled Strip | | Location shot-Conwy Castle in background | ESE | - | 20/08/12 |
| G2192_Mitigation_119.jpg | Mitigation - Controlled Strip | | Mid-ex of haul road | NW | 1x1m | 20/08/12 |
| G2192_Mitigation_120.jpg | Mitigation - Controlled Strip | | Mid-ex of haul road | NW | 1x1m | 20/08/12 |
| G2192_Mitigation_121.jpg | Mitigation - Controlled Strip | | Mid-ex of haul road | SE | 1x1m | 20/08/12 |
| G2192_Mitigation_122.jpg | Mitigation - Controlled Strip | | Close up of fragmented limestone | SW | 1x1m | 20/08/12 |
| G2192_Mitigation_123.jpg | Mitigation - Controlled Strip | | Working shot | NNW | - | 21/08/12 |
| G2192_Mitigation_124.jpg | Mitigation - Controlled Strip | | Working shot | N | - | 21/08/12 |
| G2192_Mitigation_125.jpg | Mitigation - Controlled Strip | | Post-ex of haul road | NW | 1x1m | 21/08/12 |
| G2192_Mitigation_126.jpg | Mitigation - Controlled Strip | | Post-ex of haul road | NW | 1x1m | 21/08/12 |

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| G2192_Mitigation_127.jpg | Mitigation - Controlled Strip | | Post-ex of haul road | SE | 1x1m | 21/08/12 |
| G2192_Mitigation_128.jpg | Mitigation - Controlled Strip | | Post-ex of haul road | SE | 1x1m | 21/08/12 |
| G2192_Mitigation_129.jpg | Mitigation - Controlled Strip | | Working shot | | - | 05/09/12 |
| G2192_Mitigation_130.jpg | Mitigation - Controlled Strip | | Pre-Ex of burnt feature | | - | 05/09/12 |
| G2192_Mitigation_131.jpg | Mitigation - Controlled Strip | | Working shot | | - | 05/09/12 |
| G2192_Mitigation_132.jpg | Mitigation - Controlled Strip | | Working shot | | - | 05/09/12 |
| G2192_Mitigation_133.jpg | Mitigation - Controlled Strip | | General View | | - | 05/09/12 |
| G2192_Mitigation_134.jpg | Mitigation - Controlled Strip | | General View | | - | 05/09/12 |
| G2192_Mitigation_135.jpg | Mitigation - Controlled Strip | | General View | | - | 05/09/12 |
| G2192_Mitigation_136.jpg | Mitigation - Controlled Strip | | Working shot | | - | 05/09/12 |
| G2192_Mitigation_137.jpg | Mitigation - Controlled Strip | | Pre-Ex shot of features | | - | 05/09/12 |
| G2192_Mitigation_138.jpg | Mitigation - Controlled Strip | | Pre-Ex shot of features | SW | - | 05/09/12 |
| G2192_Mitigation_139.jpg | Mitigation - Controlled Strip | | Pre-Ex shot of features | S | - | 05/09/12 |
| G2192_Mitigation_140.jpg | Excavation | Area A | Pre-excavation shot of cleaned sub area A showindg several possible features | NE | 2 x 2m | 11/09/12 |
| G2192_Mitigation_141.jpg | Excavation | Area A | Pre-excavation shot of cleaned sub area A showing several possible features | NW | 2 x 2m | 11/09/12 |
| G2192_Mitigation_142.jpg | Excavation | Area A | Section through pit [1004] | | - | 11/09/12 |
| G2192_Mitigation_143.jpg | Excavation | Area A | Section through pit [1004] | | - | 11/09/12 |

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| G2192_Mitigation_144.jpg | Excavation | Area A | Section through pit [1006] | | - | 11/09/12 |
| G2192_Mitigation_145.jpg | Excavation | Area A | Section through pit [1006] | | - | 11/09/12 |
| G2192_Mitigation_146.jpg | Excavation | Area A | Post-excavation shot of pit [1006] | | - | 12/09/12 |
| G2192_Mitigation_147.jpg | Excavation | Area A | General shot of root disturbance | | - | 12/09/12 |
| G2192_Mitigation_148.jpg | Excavation | Area B | Pre-excavation shot of cleaned sub area B showindg several possible features | N | 2 x 2m | 12/09/12 |
| G2192_Mitigation_149.jpg | Excavation | Area B | Pre-excavation shot of cleaned sub area B showindg several possible features | N | 2 x 2m | 12/09/12 |
| G2192_Mitigation_150.jpg | Excavation | Area B | West facing section through pits [1008], [1010] &[1011] | W | 1 x 1m | 12/09/12 |
| G2192_Mitigation_151.jpg | Excavation | Area B | West facing section through pits [1008], [1010] &[1011] | W | 1 x 1m | 12/09/12 |
| G2192_Mitigation_152.jpg | Excavation | Area B | South facing section through pit [1015] and post hole [1013] | S | 1 x 1m | 12/09/12 |
| G2192_Mitigation_153.jpg | Excavation | Area B | South facing section through pit [1015] and post hole [1013] | N | 1 x 1m | 12/09/12 |
| G2192_Mitigation_154.jpg | Excavation | Area B | Post-excavation shot of pit [1015] and post hole [1013] | N | 1 x 1m | 14/09/12 |
| G2192_Mitigation_155.jpg | Excavation | Area B | West facing section through [1018] and [1017] | W | 1 x 1m | 14/09/12 |
| G2192_Mitigation_156.jpg | Excavation | Area B | Post-excavation shot of pit [1008] and [1010] | SW | 1 x 1m | 14/09/12 |
| G2192_Mitigation_157.jpg | Excavation | Area B | Pre-excavation shot of hearth [1020] | N | 1 x 1m | 14/09/12 |
| G2192_Mitigation_158.jpg | Excavation | Area B | Pre-excavation shot of pit [1021] | N | 1 x 1m | 14/09/12 |
| G2192_Mitigation_159.jpg | Excavation | Area B | East facing section throughf pit [1021] | E | 1 x 1m | 14/09/12 |
| G2192_Mitigation_160.jpg | Excavation | Area B | Post-excavation shot of pit [1021] | N | 1 x 1m | 17/09/12 |
| G2192_Mitigation_161.jpg | Excavation | Area B | Post-excavation shot of pit [1021] | N | 1 x 1m | 17/09/12 |
| G2192_Mitigation_162.jpg | Excavation | Area B | Post-excavation shot of pit [1018] & [1017] | N | 1 x 1m | 17/09/12 |
| G2192_Mitigation_163.jpg | Excavation | Area B | Post-excavation shot of pit [1018] & [1017] | N | - | 17/09/12 |
| G2192_Mitigation_164.jpg | Excavation | Area B | Post-excavation shot of pit | S | - | 17/09/12 |

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| | | | [1018]showing undercutting | | | |
| G2192_Mitigation_165.jpg | Excavation | Area B | S facing section through hearth [1020] | S | 1 x 1m | 17/09/12 |
| G2192_Mitigation_166.jpg | Excavation | Area B | S facing section through hearth [1020] | S | 1 x 1m | 17/09/12 |
| G2192_Mitigation_167.jpg | Excavation | Area B | S facing section through hearth [1020] | S | 1 x 1m | 18/09/12 |
| G2192_Mitigation_168.jpg | Excavation | Area B | S facing section through pit [1030] | S | 1 x 1m | 18/09/12 |
| G2192_Mitigation_169.jpg | Watching brief | | Shot of possible stone gatepost/boundary marker | SSW | - | 18/09/12 |
| G2192_Mitigation_170.jpg | Watching brief | | Shot of possible stone gatepost/boundary marker | SSW | Jess | 18/09/12 |
| G2192_Mitigation_171.jpg | Watching brief | | Shot of possible stone gatepost/boundary marker | NW | - | 18/09/12 |
| G2192_Mitigation_172.jpg | Watching brief | | Shot of possible stone gatepost/boundary marker | NW | - | 18/09/12 |
| G2192_Mitigation_173.jpg | Watching brief | | Shot of possible stone gatepost/boundary marker | SW | - | 18/09/12 |
| G2192_Mitigation_174.jpg | Watching brief | | Shot of possible stone gatepost/boundary marker | NE | - | 18/09/12 |
| G2192_Mitigation_175.jpg | Watching brief | | General shot of haul road | NE | - | 18/09/12 |
| G2192_Mitigation_176.jpg | Excavation | Area B | Northeast facing section through small pit [1032] | NE | - | 20/09/12 |
| G2192_Mitigation_177.jpg | Excavation | Area B | Northeast facing section through small pit [1032] | NE | - | 20/09/12 |
| G2192_Mitigation_178.jpg | Excavation | Area B | Section through linear feature [1033] | ? | 1 x 1m | 20/09/12 |
| G2192_Mitigation_179.jpg | Excavation | Area B | Flooding on site | SE | - | 20/09/12 |
| G2192_Mitigation_180.jpg | Excavation | Area B | Section of natural feature containing shale - [1037] | SSW | 1 x 1m | 01/10/12 |
| G2192_Mitigation_181.jpg | Excavation | Area B | Section of natural feature containing shale - [1037] | SSW | 1 x 1m | 01/10/12 |
| G2192_Mitigation_182.jpg | Excavation | Area B | Post-ex of shallow linear - [1033] | S | 1 x 1m | 01/10/12 |
| G2192_Mitigation_183.jpg | Excavation | Area B | Post-ex of shallow linear - [1033] | S | 1 x 1m | 01/10/12 |
| G2192_Mitigation_184.jpg | Excavation | Area B | Large spread before excavation - [1038] | SSW | 2 x 1m | 01/10/12 |
| G2192_Mitigation_185.jpg | Excavation | Area B | NE facing section through pit [1032] | NE | 1 x 1m | 01/10/12 |

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| G2192_Mitigation_186.jpg | Excavation | Area B | Post-ex shot of pit [1032] | NE | 1 x 1m | 01/10/12 |
| G2192_Mitigation_187.jpg | Excavation | Area B | Post-ex shot of pit [1032] | NE | 1 x 1m | 01/10/12 |
| G2192_Mitigation_188.jpg | Excavation | Area B | N facing section through pit [1043] | N | 1 x 2m | 01/10/12 |
| G2192_Mitigation_189.jpg | Excavation | Area B | N facing section through pit [1043] | N | 1 x 2m | 01/10/12 |
| G2192_Mitigation_190.jpg | Excavation | Area B | General shot of large spread - [1038] | SSW | 1 x 2m | 02/10/12 |
| G2192_Mitigation_191.jpg | Excavation | Area B | General shot of large spread - [1038] | SSW | 1 x 2m | 02/10/12 |
| G2192_Mitigation_192.jpg | Excavation | Area B | E facing section of [1038] | E | 1 x 2m | 02/10/12 |
| G2192_Mitigation_193.jpg | Excavation | Area B | E facing section of [1038] | E | 1 x 2m | 02/10/12 |
| G2192_Mitigation_194.jpg | Excavation | Area B | N facing section of [1042] | N | 1 x 1m | 02/10/12 |
| G2192_Mitigation_195.jpg | Excavation | Area B | N facing section of [1042] | N | 1 x 1m | 02/10/12 |
| G2192_Mitigation_196.jpg | Excavation | Area B | Mid-ex of natural feature [1041] and pit [1045] | S | 1 x 1m | 02/10/12 |
| G2192_Mitigation_197.jpg | Excavation | Area B | Mid-ex of natural feature [1041] and pit [1045] | N | 1 x 1m | 02/10/12 |
| G2192_Mitigation_198.jpg | Excavation | Area B | W facing section of pit/post-hole [1045] | W | 1 x 1m | 02/10/12 |
| G2192_Mitigation_199.jpg | Excavation | Area B | W facing section of pit/post-hole [1045] | W | 1 x 1m | 02/10/12 |
| G2192_Mitigation_200.jpg | Excavation | Area B | Post-ex shot of pit [1043] | SE | 1 x 2m | 02/10/12 |
| G2192_Mitigation_201.jpg | Excavation | Area B | Post-ex shot of pit [1043] | NE | 1 x 2m | 02/10/12 |
| G2192_Mitigation_202.jpg | Excavation | Area B | Post-ex of [1045] | NNE | 1 x 1m | 03/10/12 |
| G2192_Mitigation_203.jpg | Excavation | Area B | Post-ex of [1045] and [1041] | NNE | 1 x 1m | 03/10/12 |
| G2192_Mitigation_204.jpg | Excavation | Area B | E facing sections of [1050] [1052] and [1054] | E | 1 x 1m | 04/10/12 |
| G2192_Mitigation_205.jpg | Excavation | Area B | E facing sections of [1050] [1052] and [1054] | E | 1 x 1m | 04/10/12 |
| G2192_Mitigation_206.jpg | Excavation | Area C | Temporary section through pit [1055] | NW | 1 x 2m | 04/10/12 |
| G2192_Mitigation_207.jpg | Excavation | Area C | NE facing section through pit [1055] | NE | 1 x 1m | 04/10/12 |
| G2192_Mitigation_208.jpg | Excavation | Area C | NE facing section through pit [1055] | NE | 1 x 1m | 04/10/12 |
| G2192_Mitigation_209.jpg | Excavation | Area B | Section of small post-hole [1059] | NE | 1 x 0.3m | 05/10/12 |
| G2192_Mitigation_210.jpg | Excavation | Area B | Section of small post-hole [1061] | SE | 1 x 0.3m | 05/10/12 |
| G2192_Mitigation_211.jpg | Excavation | Area B | Post-ex of small pit [1061] | SE | 1 x 0.3m | 05/10/12 |
| G2192_Mitigation_212.jpg | Excavation | Area B | Post-ex of small pit [1059] | NE | 1 x 0.3m | 05/10/12 |
| G2192_Mitigation_213.jpg | Excavation | Area C | Post-ex shot of small pit [1063] - one of a | NE | 1 x 1m | 05/10/12 |

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| | | | cluster that intercut | | | |
| G2192_Mitigation_214.jpg | Excavation | Area C | Post-ex shot of NW part of large pit [1055] | SE | 1 x 1m | 05/10/12 |
| G2192_Mitigation_215.jpg | Excavation | - | General views over Conwy | SW | - | 05/10/12 |
| G2192_Mitigation_216.jpg | Excavation | - | General views over Conwy | SW | - | 05/10/12 |
| G2192_Mitigation_217.jpg | Excavation | - | General views over Conwy | SW | - | 05/10/12 |
| G2192_Mitigation_218.jpg | Excavation | - | General views over Conwy | SW | - | 05/10/12 |
| G2192_Mitigation_219.jpg | Excavation | Area C | Post-ex shot of large pit [1057] | NW | 1 x 2m | 09/10/12 |
| G2192_Mitigation_220.jpg | Excavation | Area C | Post-ex shot of large pit [1057] | NE | 1 x 2m | 09/10/12 |
| G2192_Mitigation_221.jpg | Excavation | Area C | Post-ex shot of large pit [1057] | SE | 1 x 2m | 09/10/12 |
| G2192_Mitigation_222.jpg | Excavation | Area C | Pre-ex shot of features located southeast of the evaluation trench, including the trench section. [1065], [1068] & [1070] | NW | 1 x 2m | 10/10/12 |
| G2192_Mitigation_223.jpg | Excavation | Area C | Pre-ex shot of features located southeast of the evaluation trench, including the trench section. [1065], [1068] & [1070] | NW | 1 x 2m | 10/10/12 |
| G2192_Mitigation_224.jpg | Excavation | Area C | Post-ex shot of pit [1070] | NW | 1 x 1m | 10/10/12 |
| G2192_Mitigation_225.jpg | Excavation | Area C | Post-ex shot of pit [1070] | NE | 1 x 1m | 10/10/12 |
| G2192_Mitigation_226.jpg | Excavation | Area C | Shot of large cobbles removed from fill (1071) | - | 1 x 1m | 10/10/12 |
| G2192_Mitigation_227.jpg | Excavation | Area C | Post-ex shot of pit [1068] | NE | 1 x 1m | 10/10/12 |
| G2192_Mitigation_228.jpg | Excavation | Area C | Running section through pit [1072] | NE | 1 x 1m | 10/10/12 |
| G2192_Mitigation_229.jpg | Excavation | Area C | Post-ex of pit [1072] | SW | 1 x 1m | 10/10/12 |
| G2192_Mitigation_230.jpg | Excavation | Area B | Trench section inc alluvial deposits, shots running from NW to SE 1 of 4 | SW | 2 x 1m | 10/10/12 |
| G2192_Mitigation_231.jpg | Excavation | Area B | Trench section inc alluvial deposits, shots running from NW to SE 2 of 4 | SW | 2 x 1m | 10/10/12 |
| G2192_Mitigation_232.jpg | Excavation | Area B | Trench section inc alluvial deposits, shots running from NW to SE 3 of 4 | SW | 2 x 1m | 10/10/12 |
| G2192_Mitigation_233.jpg | Excavation | Area B | Trench section inc alluvial deposits, shots running from NW to SE 4 of 4 | SW | 2 x 1m | 10/10/12 |
| G2192_Mitigation_234.jpg | Excavation | Area B | Trench section inc alluvial deposits, shots | SW | 2 x 1m | 10/10/12 |

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| | | | running from NW to SE 1 of 4 (with board) | | | |
| G2192_Mitigation_235.jpg | Excavation | Area B | Trench section inc alluvial deposits, shots running from NW to SE 2 of 4 (with board) | SW | 2 x 1m | 10/10/12 |
| G2192_Mitigation_236.jpg | Excavation | Area B | Trench section inc alluvial deposits, shots running from NW to SE 3 of 4 (with board) | SW | 2 x 1m | 10/10/12 |
| G2192_Mitigation_237.jpg | Excavation | Area B | Trench section inc alluvial deposits, shots running from NW to SE 4 of 4 (with board) | SW | 2 x 1m | 10/10/12 |
| G2192_Mitigation_238.jpg | Excavation | Area B | Trench section inc alluvial deposits, oblique full section | NW | 2 x 1m | 10/10/12 |
| G2192_Mitigation_239.jpg | Excavation | Area B | Trench section inc alluvial deposits, oblique full section | S | 2 x 1m | 10/10/12 |
| G2192_Mitigation_240.jpg | Excavation | Area C | Running section through pit [1072] & [1074] | NE | 1 x 1m | 10/10/12 |
| G2192_Mitigation_241.jpg | Excavation | Area C | Post-ex shot of pit [1065] | SE | 1 x 1m | 12/10/12 |
| G2192_Mitigation_242.jpg | Excavation | Area C | Post-ex shot of pit [1074] | SE | 1 x 1m | 12/10/12 |

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