South Wales Gas Pipeline Project
Site 23.07
Land South of Pen-y-banc
Manordeilo and Salem
Carmarthenshire

Archaeological Watching Brief

for

Rhead Group

on behalf of

National Grid

CA Project: 9150
CA Report: 13268
Event: DAT 108788

July 2013

South Wales Gas Pipeline Project
Site 23.07

Archaeological Watching Brief

CA Project: 9150
CA Report: 13268
Event: DAT102846

prepared by date	Jonathan Hart, Senior Publications Officer 5 July 2013
checked by date	Karen E Walker, Post-Excavation Manager 29/06/15
approved by signed date	Martin Watts, Project Director, Head of Publications
issue	01

Cirencester
Building 11
Kemble Enterprise Park
Kemble, Cirencester
Gloucestershire, GL7 6BQ
t. 01285 771022
f. 01285 771033

Milton Keynes
Unit 4
Cromwell Business Centre
Howard Way, Newport Pagnell
MK16 9QS
t. 01908 218320

Andover
Office 49
Basepoint Business Centre
Caxton Close, Andover
Hampshire, SP10 3FG
t. 01264 326549

e. enquiries@cotswoldarchaeology.co.uk

CONTENTS

LIST OF ILLUSTRATIONS

GLOSSARY

CA – Cotswold Archaeology

CAP – Cambrian Archaeological Projects

CPAT – Clwyd Powys Archaeological Trust

DAT – Dyfed Archaeological Trust

GGAT - Glamorgan Gwent Archaeological Trust

FTP – Felindre to Brecon gas pipeline

HER – Historic Environment Record

MHA – Milford Haven to Aberdulais gas pipeline

NAL – Network Archaeology Ltd

NLMJV – Nacap Land & Marine Joint Venture

UPD – Updated Project Design

SUMMARY

Project Name:	South Wales Gas Pipeline Project
Location:	Site 23.07, Land South of Pen-y-banc, Manordeilo and Salem, Carmarthenshire
NGR:	SN 6156 2375
Type:	Watching Brief
Date:	14–24 May 2007
Location of Archive:	To be deposited with RCAHMW (original paper archive) and Carmarthenshire Museum (material archive and digital copy of paper archive; accession number CAASG 2008.0282)
Site Code:	FTP06

An archaeological watching brief was undertaken by Cambrian Archaeological Projects during groundworks associated with construction of gas pipelines (part of the South Wales high pressure gas pipeline scheme) between Milford Haven and Aberdulais, and Felindre and Brecon, which were conducted between 2005 and 2007.

A group of early prehistoric pits was identified. One of the pits included evidence for *in situ* burning and all contained charcoal. Three examples contained burnt bone fragments, including fragments identified as the remains of a post-adolescent human. The function of these pits is unclear: they might represent a truncated cremation cemetery or a settlement. Middle Neolithic Impressed Ware was recovered from one pit, which also yielded radiocarbon determinations compatible with the pottery. A second pit returned an Early Bronze Age radiocarbon date. These results may suggest that the site had been memorialised and visited intermittently over a considerable period of time (at least 1400 years).

In addition to these pits, ditches and a hollow way were identified, at least some of which related to the medieval or later agricultural landscape.

1. INTRODUCTION

1.1 NACAP Land and Marine Joint Venture (NLMJV), on behalf of National Grid, commissioned RSK Environment (part of the RSK Group) to manage the archaeological works (non-invasive surveys, desk based assessment, evaluation, watching brief, and open area excavation) on a 216km-long section of pipeline from Milford Haven (Pembrokeshire) to Brecon (in Powys). The high pressure gas pipeline (part of the 316km-long pipeline route from Milford Haven to Tirley in Gloucestershire) was required to reinforce the gas transmission network. The archaeological work performed in advance of this pipeline was undertaken in a number of sections by a number of archaeological companies. The westernmost section of 122km, from Milford Haven to Aberdulais, was investigated by Cotswold Archaeology (CA; then Cotswold Archaeological Trust) during 2005–2007 with some additional excavation work carried out by Cambrian Archaeological Projects (CAP). The section of 89km, from Felindre to Brecon was investigated by CA during 2006–2007 and CAP during 2007. In May 2006 Cambrian Archaeological Projects (CAP) carried out an archaeological watching brief at Site 23.07, Land South of Pen-y-banc, Manordeilo and Salem, Carmarthenshire (centred on NGR: SN 6157 2375; Fig. 1). The objective of the watching brief was to record all archaeological remains exposed during the pipeline construction. Assessment reports on the works were completed in January 2012 (NLM 2012a, 2012b) and the current reporting stage was commissioned in February 2013.

1.2 The watching brief was carried out in accordance with professional codes, standards and guidance documents (EH 1991; IfA 1999a, 1999b, 2001a, 2001b and IfA Wales 2008). The methodologies were laid out in an *Archaeological Framework Document* (RSK 2007) and associated *Written Statements of Investigation* (*WSI*s) and *Method Statements*.

The site

1.3 The site is located within a field on a gentle north-east facing slope down to a minor tributary of the River Towy (Fig. 1). It lies at approximately 60m AOD. The underlying solid geology of the area is mapped as the Nantmel Mudstones Formation (Mudstone) of the Ordovician Period overlain by superficial deposits of Quaternary Devensian Till (BGS 2013).

Archaeological background

1.4 No archaeological remains were identified within the site during the preliminary *Archaeology and Heritage Survey* (CA 2006). A possible hillfort or enclosure is recorded at Cefnrhiwlas, 1.4km north-west of the site (PRN 836) and a ring-ditch is recorded 440m south of the site (PRN 11092). Recording during the pipeline construction works revealed undated ditches at Site 23.04, a possible burnt mound at Site 22.09, where undated pits, postholes and ditches were also present, and a post-medieval crop-processing hearth at Site 23.02 (Fig. 1).

1.5 A geophysical survey undertaken in advance of the pipeline construction revealed a number of linear anomalies within the site (BCC 2007). A subsequent evaluation identified two ditches related to these anomalies; these were undated by finds (CA 2009, trenches 23.9.1, 23.9.2 and 23.9.3). The results of the evaluation are included within this report.

Archaeological objectives

1.6 The objectives of the archaeological works were:-

- to monitor groundworks, and to identify, investigate and record all significant buried archaeological deposits revealed on the site during the course of the development groundworks; and
- at the conclusion of the project, to produce an integrated archive for the project work and a report setting out the results of the project and the archaeological conclusions that can be drawn from the recorded data.

Methodology

1.7 The fieldwork followed the methodology set out within the *WSI*. An archaeologist was present during intrusive groundworks comprising stripping of the pipeline easement to the natural substrate (Fig. 1).

1.8 The post-excavation work was undertaken following the production of the UPD (GA 2012) and included re-examination of the original site records. Finds and environmental evidence was taken from the assessment reports (NLM 2012b) except where the UPD recommended further work, in which case the updated reports were used. The archaeological background to the site was assessed using the following resources:-

- the *Archaeology and Heritage Survey* which was undertaken in advance of the pipeline construction and which examined a 1km-wide corridor centred on the pipeline centre line, including the then existing HER record (CA 2006);

- Dyfed Archaeological Trust HER data (received July 2014); and
- other online resources, such as Google Earth and Ordnance Survey maps available at http://www.old-maps.co.uk/index.html.

All monuments thus identified that were relevant to the site were taken into account when considering the results of the fieldwork.

1.9 The archive and artefacts from the watching brief are currently held by CA at their offices in Kemble. Subject to the agreement of the legal landowner, the artefacts will be deposited with Carmarthenshire Museum under accession number CAASG 2008.0282, along with a digital copy of the paper archive. The original paper archive will be deposited with the RCAHMW.

2. RESULTS (FIG. 2)

2.1 This section provides an overview of the evaluation and watching brief results; detailed summaries of the recorded contexts, finds, palaeoenvironmental evidence and radiocarbon dates are to be found in Appendices A, B, C and D. Full, original versions of the specialist reports are available within the archive.

Evaluation

2.2 Three trenches were located to investigate the geophysical anomalies identified in advance of the construction works (georeferencing data for these were not available and they have not been illustrated aside from a general location of the evaluation site (23.09) shown on Fig. 2, inset. It is therefore not known whether or not these features related to those found during the watching brief). Trench 23.09.T1 contained no archaeological features or deposits. Within trench 23.09.T2, ditch 23.09.T2.03 was exposed. This was aligned north/south and was 1.4m wide and 0.5m deep with an irregular profile. It was filled by a single gravelly clay deposit and contained no finds. Trench 23.09.T3 contained ditch 23.09.T3.04 which was aligned north-east/south-west and was 2.2m wide and 0.15m deep. The ditch had a single silt fill from which no finds were recovered. Both ditches correlate with strong linear geophysical anomalies arranged on co-axial alignments and likely to have been part of a field system, although the date of this is not known.

Site 23.07 watching brief

2.3 The natural geological substrate was cut by eleven pits, two ditches and a hollow way. The pits were all within 10m of one another and were similar in size and

morphology. They comprised circular cuts with gently sloping sides and flat bases and were between 0.5m and 1.7m in diameter and 0.05m to 0.2m deep. The substrate at the base of pit 237032 had been scorched.

2.4 The pits were all filled with single brown to grey-black silty clay deposits, all of which included small to moderate quantities of charcoal. Small numbers of flints were also present, all of which were flakes broadly dateable as prehistoric. Samples of the charcoal yielded charred fuelwood and charred hazelnut shell fragments. Fill 237044 of pit 237043 also contained moderate quantities of burnt pebbles. Three pits contained burnt bone. In two instances, (pits 237008 and 237010) this was found in very small quantities and was too highly fragmented to identify to species. The third burnt bone assemblage came from pit 237014 and was identified as the remains of a post-adolescent human, although less than 2% of the expected bone was present.

2.5 Pits 237008 and 237032 contained pottery. That from pit 237032 comprised small crumbs probably of Neolithic date whilst pit 237008 contained Middle Neolithic Impressed Ware found alongside an undiagnostic flint flake, charred plant remains and a small quantity of unidentifiable burnt bone. Radiocarbon dates of 3360–3090 cal. BC (SUERC-54700) and 3490–3120 cal. BC (Beta-257720) were obtained from pit 237008, date ranges compatible with the likely dating of the Middle Neolithic Impressed Ware which falls within the latter half of the 4th millennium BC (Appendix B).

2.6 A further radiocarbon date of 1690–1500 cal. BC (Beta-257721) was obtained from a hazelnut shell from pit 237010, which also yielded a small quantity of unidentifiable burnt bone along with charred plant remains. This date range falls within the later part of the Early Bronze Age.

2.7 Ditch 237016 (not georeferenced and not illustrated) was north/south aligned and was 1.45m wide and 0.7m deep with a U-shaped profile and contained a sequence of natural infills. Ditch 237024 (not georeferenced and not illustrated) was east/west aligned and was 1.8m wide and 0.25m deep with a flat-based profile. Hollow way 237024 (not georeferenced and not illustrated) was east/west aligned and had steep sides and a flat base into which cobble-sized stones had been set to form a surface. The hollow way was 1.25m wide and 0.25m deep and although undated, was close to a modern right of way and might be medieval or later in date. A U-shaped setting of small flat stones was identified beneath the end of a low hedge bank boundary. No dateable finds were recovered and it is likely to have been a feature associated

with the construction of the hedge bank. A halfpenny of George V, dated 1931, was found adjacent to this deposit but may not have been related.

Discussion

2.8 As a group with an apparently restricted spatial distribution, the pits would seem to have belonged to a distinct activity and the dating evidence from them clearly suggests that this activity occurred in the earlier prehistoric period. Beyond these observations however, interpretation is more problematic. The pits were shallow and further evidence of their function(s) may have been truncated.

2.9 The presence of cremated bone within three of the pits, including human remains may suggest that all formed part of a cremation cemetery. If so, the absence of bone within the other pits could be seen as the result of truncation given the shallow depth of the features, or perhaps of erosion of the bone, although cremated bone is more durable than uncremated bone. That only small quantities of burnt bone were found is paralleled on other prehistoric cremation sites, included those found along the pipeline (for example, at Site 513). This phenomenon is usually taken to suggest that only a fraction of each cremation was typically buried in any given pit; the remaining fractions may have been buried elsewhere, scattered, retained or indeed have been used for other purposes (such as to form tattoo pigments). The charcoal from the site was dominated by oak, which would have been a suitable fuel source for a cremation pyre since it burns at a high temperature; however, oak is equally suitable as domestic fuel. The small quantity of cereal grains and hazelnut shell fragments form the site do not rule out the possibility that this was a cemetery: such remains can enter cremation contexts as the remains of feasts or offerings associated with the burial ceremony, or as part of the fuel used.

2.10 An alternative possibility is that they belong to a form of Neolithic settlement recorded elsewhere which survives as small, scoop-like pits which do not seem to relate to storage and instead have been interpreted as having been specially excavated for the deposition of selected items to commemorate the end of a period of occupancy (for example, Smythe 2012; Garrow 2012; Thomas 2012, 2). With such interpretations, finds within these pits, which are typically mundane in character, are taken to be signifiers of a range of domestic activities, perhaps scooped up in handfuls from middens for placement within pits during closure ceremonies. Although most of the finds from the site would fit with this, clearly the human remains represent a special deposit, but special deposition of notable items also finds parallel within prehistoric pits on domestic sites.

2.11 The radiocarbon dates (3360–3090 cal. BC; SUERC-54700 and 3490–3120 cal. BC; Beta-257720) from pit 237008 are considerably earlier than the Early Bronze Age date (1690–1500 cal. BC; Beta-257721) from pit 237010. Since all these determinations were based on hazelnut shell fragments, it is possible that the two earlier dates came from residual fragments within later pits but this seems unlikely given the corroborating dating from pit 237008 provided by the Impressed Ware pottery. Based on these dates, the site would seem to have been visited intermittently over a very considerable period of at least 1400 years. Whilst this might be mere coincidence, the fact that the pits appear to form such a distinct cluster may reveal that the site was visually and conceptually memorialised and formed part of a long cultural tradition. One possibility, for example, is that the pits were sealed by a barrow of which no trace remains, although it should be noted that no quarry ditch for such a mound was present. If the site had been visually marked, it is interesting to note that it lies close to a corner of the current Community boundary although whether this means that a prehistoric feature was utilised when drawing up a medieval boundary or whether this is coincidence is not known.

2.12 The ditches and hollow way revealed during the evaluation and watching brief most probably formed part of the medieval or later agricultural landscape, although the possibility remains that the undated ditches found during the evaluation were earlier than this.

3. PROJECT TEAM

Fieldwork was undertaken by Cambrian Archaeological Projects. This report was written by Jonathan Hart with illustrations prepared by Anne Leaver (independent illustrator) and Daniel Bashford (CA). The archive has been compiled by Jonathan Hart and prepared for deposition by Hazel O'Neill. The fieldwork was managed for CAP by Kevin Blockley and the post-excavation work was managed for CA by Karen Walker.

4. REFERENCES

Anderson-Whymark, H. and Thomas, J. 2012 *Regional Perspectives on Neolithic Pit Deposition: Beyond the Mundane*, Neolithic Studies Group Seminar Papers **12**, Oxford, Oxbow, 216–225

Beamish, M.G. 2009 'Island Visits: Neolithic and Bronze Age Activity on the Trent Valley Floor. Excavations at Eggington and Willington, Derbyshire, 1998-1999' in *Derbyshire Archaeological Journal* **129**, 17-172

BCC (Bartlett-Clark Consultancy) 2007 Felindre to Tirley Proposed Gas Pipeline: Report on Archaeogyophysical Surveys. B-C C typescript report

BGS (British Geological Survey) 2013 *Geology of Britain Viewer*. Online resource at http://mapapps.bgs.ac.uk/geologyofbritain/home.html accessed 28 June 2013

CA (Cotswold Archaeology) 2006 *Felindre to Tirley Gas Pipeline: Archaeology and Heritage Survey*. CA typescript report **05140**

CA (Cotswold Archaeology) 2009 *Felindre to Brecon Natural Gas Pipeline: Archaeological Evaluation*. CA typescript report **09079**

Carruthers, W. 2008 'Assessment Report for Charred Plant Remains', in NLM 2012b

EH (English Heritage) 1991 *The Management of Archaeological Projects* 2

GA (Groundwork Archaeology) 2012 *Milford Haven to Aberdulais and Felindre to Brecon High Pressure Gas Pipelines: Updated Project Design*

Garrow, D. 2012 'Concluding discussion: pits and perspective', in Anderson-Whymark, H. and Thomas, J. *Regional Perspectives on Neolithic Pit Deposition: Beyond the Mundane*, Neolithic Studies Group Seminar Papers **12**, Oxford, Oxbow, 216–225

Gibson, A.M. 1995 'First Impressions: a review of Peterborough Ware in Wales' in I. Kinnes & G. Varndell (eds) *Unbaked urns of Rudely Shape – Essays on British and Irish Pottery for Ian Longworth*. Oxford, Oxbow Books 23-40

Gibson, A.M. 1999 *The Walton Basin Project: Excavation & Survey in a Prehistoric Landscape 1993-1997*. Research Report **118**. York, Council for British Archaeology & Cadw Welsh Historic Monuments.

Gibson, A.M. 2010 'Excavation and Survey at the Dyffryn Lane Henge Complex, Powys, and a reconsideration of the Dating of Henges' in *Proceedings of the Prehistoric Society* **76**, 213-248.

Gibson, A.M. and Kinnes, I. 1997 'On the Urns of a Dilemma: Radiocarbon and the Peterborough Problem' in *Oxford Journal of Archaeology* **16(1)**, 65-72.

Gibson, A. 2013 *Milford Haven to Aberdulais and Felindre to Brecon Gas Pipeline: The Neolithic and Bronze Age Pottery from the Archaeological Investigations*, Gibson typescript report no. **121**

IfA (Institute for Archaeologists) 1999a *Guidelines for Finds Work*. IfA, Birmingham

IfA (Institute for Archaeologists) 1999b *Standard and Guidance for Finds and Ecofact Studies and Curation*. IfA, Reading

IfA (Institute for Archaeologists) 2001a *Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials*. IfA, Reading

IfA (Institute for Archaeologists) 2001b *Standard and Guidance for an Archaeological Watching Brief*

IfA Wales (Institute for Archaeologists of Wales/Cymru) 2008 *Introducing a Research Framework for the Archaeology of Wales,* online resource at http://www.archaeoleg.org.uk/intro.html accessed December 2008

MacSween, A. 2007 'The Pottery' in J. Hunter (ed.) *Investigation in Pool, Sanday, Orknay: a Multi-Period Settlement from the Neolithic to the Late Norse Times*. Kirkwall, Orcadian/Historic Scotland

Marshall, P., Hamilton, W.D, van der Plicht, J., Bronk Ramsey, C., Cook, G. and Goslar, T. 2009 'Scientific Dating', in Beamish 2009

McKinley, J.I. 1994. 'Bone fragment size in British cremation burials and its implications for pyre technology and ritual', *Journal of Archaeological Science* 21: 339-342

NLM (Nacap Land and Marine) 2006 *Milford Haven to Aberdulais Natural Gas Pipeline: Scheme of investigation for a programme of archaeological works*

NLM (Nacap Land and Marine) 2012a *Milford Haven to Aberdulais High Pressure Gas Pipeline: Archaeology Assessment of Potential for Analysis*

NLM (Nacap Land and Marine) 2012b *Felindre to Brecon High Pressure Gas Pipeline: Archaeology Assessment of Potential for Analysis*

Pannett, A. 2009 'Assessment Report for Lithics', in NLM 2012b

RSK (RSKENSR) 2007 *Felindre to Tirley Natural Gas Pipeline: Archaeological Framework, v7*. Nacap Land and Marine Final, RSKENSR Environmental Ltd

Rackham, J., Challinor, D., Langdon, C. and Scaife, R. in prep *Palaeoenvironmental studies along the Milford Haven to Aberdulais and Felindre to Tirley Natural Gas Pipeline.* Southampton University Archaeology Monograph Series

Schmidl, A., Jaques, D. and Carrott, J. 2009 'Assessment Report for Charcoal', in NLM 2012b

Smythe, J. 2012 'Breaking Ground: an overview of pits and pit-digging in Neolithic Ireland', in Anderson-Whymark, H. and Thomas, J. *Regional Perspectives on Neolithic Pit Deposition: Beyond the Mundane*, Neolithic Studies Group Seminar Papers **12**, Oxford, Oxbow, 13-29

Thomas, J. 2012 'Introduction: beyond the mundane?', in Anderson-Whymark and Thomas 2012, 1–12

APPENDIX A: CONTEXT DESCRIPTIONS

Context No.	Type	Fill of	Context interpretation	Description	W (m)	Depth/ thickness (m)	Spot date
237001	Layer		layer	U-shaped layer of tabular stones overlying subsoil		Unexc.	
237002	Cut		Pit	Circular with gently sloping sides and flat base	1.0	0.1	
237003	Fill	237002	Pit fill	Grey-black silty clay with occasional charcoal inclusions	1.0	0.1	
237004	Cut		Pit	Circular with gently sloping sides and flat base	0.5	0.05	
237005	Fill	237005	Pit fill	Red-brown silty clay with rare charcoal inclusions	0.5	0.05	
237006	Cut		Pit	Circular with gently sloping sides and flat base	0.5	0.1	
237007	Fill	237006	Pit fill	Grey-black silty clay with occasional charcoal inclusions	0.5	0.1	
237008	Cut		Pit	Circular with gently sloping sides and flat base	0.8	0.1	
237009	Fill	237008	Pit fill	Yellow-brown silty clay with frequent charcoal inclusions	0.8	0.1	MNeo
237010	Cut		Pit	Circular with gently sloping sides and flat base	0.45	0.1	
237011	Fill	237010	Pit fill	Grey-black silty clay with occasional charcoal inclusions	0.45	0.1	EBA
237012	Cut		Pit	Circular with gently sloping sides and flat base	0.4	0.1	
237013	Fill	237012	Pit fill	Grey-black silty clay with frequent charcoal inclusions	0.4	0.1	
237014	Cut		Pit	Circular with gently sloping sides and flat base	1.1	0.1	
237015	Fill	237014	Pit fill	Mid brown silty clay with frequent charcoal inclusions	1.1	0.1	
237016	Cut		Ditch	N/S aligned with U-shaped profiled	1.45	0.7	
237017	Cut		Ditch	= 237016	1.45	0.8	
237018	Fill	237017	Ditch fill	= 237020	1.45	0.45	
237019	Fill	237017	Ditch fill	= 237022	0.3	0.35	
237020	Fill	237016	Ditch fill	Upper fill: grey-brown silty clay with occasional charcoal inclusions	1.45	0.45	
237021	Fill	237016	Ditch fill	2nd fill: dark brown silty clay	0.35	0.15	
237022	Fill	237016	Ditch fill	Upper fill: mid brown silty clay with frequent pebbles	0.3	0.45	
237023	Fill	237024	Ditch fill	Dark brown silty clay	1.8	0.25	
237024	Cut		Ditch	E/W aligned with steep sides and flat base	1.8	0.25	
237025	Cut		Ditch	= 237024	1.35	0.6	
237026	Fill	237025	Ditch fill	= 237023	1.35	0.6	
237027	Cut		Hollow way	E/W aligned with steep sides and flat base	1.25	0.25	
237028	Fill	237027	Hollow way fill	Orange-brown silty clay	1.25	0.25	
237029	Cut		Hollow way	= 237027	1.25	0.25	
237030	Fill	237029	Hollow way fill	Upper fill = 237028	1.25	0.15	
237031	Fill	237029	Hollow way fill	Lower fill: cobbled surface	1.25	0.1	

237032	Cut		Pit	Circular with gently sloping sides and flat base	0.8	0.2	
237033	Fill	237032	Pit fill	Scorched clay with charcoal flecks-possibly vitrified natural around pit base	0.8	0.2	Neo?
237034	Group number		Hollow way	Group number for Hollow way 237027 etc	1.25	0.25	
237035	Cut		Pit	Sub-rectangular with gently sloping sides and flat base	0.55	0.05	
237036	Fill	237035	Pit fill	Dark brown silty clay with charcoal flecks	0.55	0.05	
237037	Cut		Pit	Circular with gently sloping sides and flat base	1.25	0.15	
237038	Fill	237037	Pit fill	Upper fill: orange-brown silty clay with occasional charcoal inclusions	1.25	0.1	
237039	Fill	237037	Pit fill	Lower fill: charcoal	1.25	0.05	
237040				Context not used			
237041				Context not used			
237042				Context not used			
237043	Cut		Pit	Oval with gently sloping sides and flat base	1.7	0.15	
237044	Fill	237043	Pit fill	Dark orange-grey silty clay with frequent burnt pebbles and charcoal inclusions	1.7	0.15	

APPENDIX B: THE FINDS

Pottery (Gibson 2013)

Summary

Weight (g)	No of Contexts	Periods Represented
41	2	Middle Neolithic

Catalogue

Middle Neolithic Impressed Ware

P1 – 237009

10 sherds (40g). Black soft fabric with abundant crushed quartz inclusions reaching 5mm across. The material is very fragmentary and no sherd preserves both surfaces. The best preserved sherd reaches 10mm thick but the internal surface is absent. Seven fragmentary rim sherds are sufficiently well preserved to show that the rim has been rounded and elaborated with a flat expanded top or with a slightly sloping external collar. This has been decorated with at least 4 encircling lines of fine twisted cord impressions. Two lines of the same technique decorate the interior of the rim. The rim is sufficient to identify the vessel as Middle Neolithic Impressed Ware in the Mortlake substyle.

P2 – 237033

2 crumbs (1g). Black quartz-filled fabric. Very abraded. Neolithic?

Discussion

The fabric of these vessels is entirely in keeping with that observed at other Middle Neolithic Impressed Ware sites in Wales (Gibson 1995; 1999; 2010). The rounded rim with impressed decoration as well as a degree of internal decoration of P1 is typical of pottery in the Mortlake substyle of the Impressed Ware tradition and can be matched at sites such as Sarn-y-bryn-caled, Powys, Trefignath, Gwynedd and Ogmore, Glamorgan (Gibson 1995). Similar rounded rims may be found at Dyffryn Lane, Powys (Gibson 2010) though here the decoration is largely incised rather than impressed.

Dates for Welsh Impressed Ware are again few and some samples may lack integrity as many are on unidentified charcoal and therefore may well suffer from the old wood effect or from mobility in the soil. The late dates from Cefn Bryn, for example, almost certainly date residual material (Gibson 1995, table 3.1). Dates from the Impressed Ware phase at Upper Ninepence span the second half of the fourth millennium BC and exhibit a distinctly different date range to the Grooved Ware from the same site (Gibson 1999). At Dyffryn Lane, some dates on short-lived samples originally suffered from laboratory error and were re-run to provide a tight group dating to between 3350 and 3000 BC with two outliers extending the chronological range to 2900 BC (Gibson 2010). The dates obtained from a fragment of hazelnut shell and adhering carbonaceous residues from a sherd in the Fengate substyle at Brynderwen, Powys, also fall within this half millennium (Gibson & Kinnes 1997).

Elsewhere in Britain, Impressed Ware seems to have had a similar currency. It seems to have started as early as 3600 BC in Scotland (MacSween 2007) and to have gone out of use by the 30th C cal BC. The later dates from Meldon Bridge suffer from large margins of error. In England too, following sample scrutiny and Bayseian

modelling, it would appear that Impressed Ware can be dated to the second half of the 4th millennium with very few reliable dates extending beyond the 30th C cal BC (Marshall *et al.* in Beamish 2009).

Flints (Pannett 2009)

Fill 237009 pit 237008 one undiagnostic flint flake

Fill 237015 pit 237014 one undiagnostic flint microdebitage piece

Fill 237028 hollow way 237027 one undiagnostic flint flake

Unstratified: one undiagnostic flint flakes

APPENDIX C: PALAEOENVIRONMENTAL EVIDENCE BY JAMES RACKHAM

Cremated Human Remains *(Anna Fotaki and Malin Holst)*

Introduction

Eleven pits were identified and excavated, all within 10m of one another and all of similar size and cut. They were circular, with gently sloping sides and flat bases, between 0.5m and 1m in diameter and 0.05 to 0.2m deep. They were all filled with single brown to grey-black silty deposits, and contained small to moderate amounts of charcoal. Three pits contained burnt bone, two of which in minute quantities. Radiocarbon dating of charred plant remains was undertaken, suggesting a date range of the site between the Mid Neolithic to Early Bronze Age, which agreed with the Mid Neolithic Impressed Ware pottery sherds found on site. It is therefore possible that the site was occupied over a long period of time.

Fill 237015 of pit 237014 contained the largest quantity of cremated bone material and comprised of mid-brown silty clay with frequent charcoal inclusions, with a width of 1.1m and a depth of 0.1m. It also included an undiagnostic flint microdebitage piece. Fill 237011 of pit 237010 was 0.45m in width and 0.1m in thickness and was radiocarbon dated to the Early Bronze Age. It also consisted of grey-black silty clay with occasional charcoal inclusions. By contrast, fill 237009 of pit 237008 was dated to the earlier Mid Neolithic and contained yellow-brown silty clay and frequent charcoal inclusions, as well as Mid Neolithic Impressed Ware pottery. It was also 0.8m in width and 0.1m in thickness. Both of these pits contained a minute quantity of cremated bone, as well as charred plant remains, such as hazelnut shells. Pits 237014and 237010 were located less than 10m apart, whilst 237008 was just over 10m to the north-west of these.

Preservation

The bone from burial 237014 was in a poor condition. There was a high degree of fragmentation with a lot of bone surface detail lost and eroded. There was limited bone cracking, but no bone warping (Table 1). The other two pits 237008 and 237010 contained very small cremated fragments (Table 3).

Table 1 Summary of cremated bone assemblages

Context No	sample No	Feature Number	Feature Type	Period	Burial Type	Bone Colour	Preservation	Weight (g)	%of Expected Quantity of Bone
237015	2373000	237014	Pit	Early prehistoric	Un-urned	Grey	Poor	24.7	1.54%
237011	2373003	237010	Pit	MBA	Un-urned	Grey/white	Very poor	0.2	0.01%
237009	2373001	237008	Pit	MNeo	Un-urned	White	Very poor	0.1	0.01%

The larger cremated bone assemblage (from pit 237014) contained a few (9.3%) bone fragments that were 10mm in size or larger (Table 2). In this burial the largest quantity of bone was derived from the 2mm sieve (59.1%). By contrast, the two other pits containing cremated bone (237010) and (237008) only contained two and one fragments of cremated bone respectively (Table 3). As such, very little information could be gained from these two pits.

In the case of all the pits, it is unclear whether post-depositional or post-burning disturbance of the bone caused fragmentation and loss of material. Taking into account the shallow depth of all the pits examined this is quite likely the case.

Table 2 Summary of cremated bone fragment size

Cremation Burial	**10mm (g)**	**10mm (%)**	**5mm (g)**	**5mm (%)**	**2mm (g)**	**2mm (%)**	**< 2mm (g)**	**< 2mm (%)**	**Weight (g)**
237014	2.3g	9.30%	7.1g	28.7	14.6	59.1	0.7	2.8	24.7

Table 3 Summary of smaller cremated bone fragment size

Cremation Burial	**Max fragment length(mm)**	**Total number of fragments**	**Weight (g)**
237010	6.9mm	2	0.2
237008	6.3mm	1	0.1

The quantity of cremated bone recovered from the cremation burials varied in weight from 0.1g to 24.7g (see Tables 1 and 2), with an overall mean weight of 8.3g.

The majority of the bones were very well burnt, causing the complete loss of the organic portion of the bone and producing a white colour, while a number of bones exhibited blue-grey inner surfaces.
It was possible to identify 36% of the skeletal elements in Cremation Burial 237014 (Table 4) and the burial was positively identified as human. None of the bone retrieved from 237010 and 237008 could be confidently identified.

The majority of identifiable bone from burial 237014 comprised of skull fragments, including three tooth root fragments. Since the cranial vault is very distinctive and easily recognisable, even when severely fragmented, it often forms a large proportion of identified bone fragments in cremated remains (McKinley 1994).

Table 4 Summary of identifiable elements in the cremation burials

Cremation Burial	**Skull (g)**	**Skull (%)**	**Axial (g)**	**Axial (%)**	**UL (g)**	**UL (%)**	**LL (g)**	**LL (%)**	**UIL (g)**	**UIL (%)**	**Total ID (g)**	**Total ID (%)**	**Total UID (g)**	**Total UID (%)**
237014	5.4g	21.7	0.6	2.4	-	-	-	-	2.9	11.7	8.9	36%	16.4	64%

MNI

Burial 237014 appeared to contain the remains of one individual.

Age

Age could not be accurately determined from the assemblages, because the ageing criteria, which are normally used, did not survive. Burial 237014 contained one almost complete incisor tooth root, suggesting an age older than adolescent (16 and over).

Table 5. Summary of osteological results

Cremation No.	Preservation	MNI	Species	Age	Sex	Weight (g)	Period
237014	Poor	1	Human	Older than adolescent (16+)	-	24.7	Early Prehistoric
237010	Very Poor	-	Unknown	-	-	0.2	Early Prehistoric
237008	Very Poor	-	Unknown	-	-	0.1	Early Prehistoric

Sex

There were no skeletal elements which were sexually dimorphic.

Non-Metric Traits

Non-metric traits were not identified in the cremated material.

Pathology

No pathology was observed in the cremated remains.

Dentition

Three tooth root fragments were identified from cremation 237014, including a well preserved incisor root.

Summary and Funerary Ritual

The osteological analysis of the cremated bone from the Land South of Pen-y-Banc, Manordeilo and Sale, Carmarthenshire, has revealed that one of the pits (237014) contained cremated human bone, with well burnt, white to grey colouring, suggesting that calcination of the bone had been achieved. The remains in this larger cremated pit do not represent a complete individual. By contrast, the two smaller pits containing cremated bone were too small in quantity to sufficiently identify as human.

Pit 237014 contains the remains of at least one individual older than sixteen years of age. Sex could not be estimated for this individual. The small quantity of bone perhaps suggests that only a portion of the cremated individual was interred, or that later disturbances resulted in the truncation of the burials. The nature and use of the site is undetermined as of yet, but based on the analysis at least one of the pits was used to deposit human cremated material.

Environmental Soil samples

A total of eleven environmental samples were taken on this site (Table 6), all of which derived from pits. 100% of the surviving deposits were collected in all the pits except 237006 (50%) and 237043 (10%). Pits 237008 and 237032 produced pottery assigned to the Middle Neolithic and Neolithic(?) respectively, while radiocarbon dates on hazel nutshell from 237008 confirmed the middle Neolithic date. A radiocarbon date on hazel nutshell from pit 237010 indicates a middle Bronze Age date. The remainder of the pits are 'undated' but are tentatively assigned to the Neolithic or early Bronze Age on the basis of their association with the two dated pits. One of the pits, 237014, contains human bone and is interpreted as a cremation pit, while the two radiocarbon dated pits produced very small quantities of unidentifiable cremated bone (see above) but insufficient to suggest they are cremation pits.

Table 6 Bulk environmental samples from Site 23.07.09

sample no	context no	feature	description	Wt kg.	Vol. l.*
2373000	237015	237014	Cremation pit fill	22	30
2373001	237009	237008	Primary pit fill	42	60
2373002	237003	237002	Primary pit fill	34	30
2373003	237011	237010	Primary pit fill	20	35
2373004	237013	237012	Primary pit fill	13	nd
2373005	237005	237004	Primary pit fill	22	30
2373006	237007	237006	Primary pit fill	15	7
2373007	237033	237032	Fill of pit	25	40
2373008	237036	237035	Primary pit fill	18	30
2373009	237039	237037	Primary pit fill	24	50
2373010	237044	237043	Primary pit fill	18.5	30

* - volume recorded on site – not accurate; HNS- hazel nutshell

The samples were processed in the manner described in the assessment report (Carruthers 2008), with the additional refloating and sorting of the dried sample residues whose flot volume (2nd flot) is indicated in Table 7. The second flots were then sorted for charred macrofossils and the residue for other finds. The processing sheets for these samples do not include any record of finds and all the finds noted in Table 2 were recovered during the sorting of the residues at the time they were refloated.

Table 7 Data for the environmental samples from Site 23.07

sample no	context no	pro-cessed wt kg	1st flot vol ml	2nd flot vol	residue wt g	pottery	burnt clay g.	burnt stone g.	flint g.	magnetic g.	burnt bone g.	comments
2373000	237015	22	6	5	14057	+			<1	13.6	25g	
2373001	237009	42	500	9	21795	11g		888	1.2	9.4	0.1	HNSx418/3g
2373002	237003	34	450	7	15686		+			2		HNSx3; indet cereal fragment
2373003	237011	20	100	7	9081		102	780		1.8	0.2	HNSx10/0.2g Wheat/barley grain x1
2373004	237013	13	280	3	5156+		78	380		7.8		
2373005	237005	22	8	3	8581							HNSx1; large grass?
2373006	237007	15	50	10	9256	+				7.6		HNSx12; indet grain frag x2, cf large grass
2373007	237033	25	25	2	6926	3g		4623		91.6		HNSx19; indet grainx2
2373008	237036	18	80	6	4414			40		3		HNSx2
2373009	237039	24	3000	12	4100			2473		26.6		HNSx1
2373010	237044	18.5	50	1	5248			5079		0.6		HNSx15; burnt pebbles

+ small pot crumbs in flot/occasional fired earth crumb in residue – not weighed; HNS- hazel nutshell fragment – fragment count and weight;

Finds from the samples include pottery, a little burnt clay/earth, burnt stone, rare flint, a little burnt bone and a magnetic fraction (Table 7). The one identified cremation pit, 237014, produced cremated human bone, pot crumbs and flint chips and a relatively high magnetic component but no burnt stone or fired earth. The two other contexts with burnt bone (Table 7) have a burnt stone content, with hazel nutshell and grain (in one). The high magnetic fraction, largely composed of heat affected reddened mudstone, in samples 2373001 and 2373007, is indicative of burning, but the other samples have just traces of reddened mudstone in this fraction. The high fraction from pit 237032, which was recorded as scorched in the field, confirms this relationship and suggests probable *in situ* burning in this pit and 237008. The samples with relatively high burnt stone content may also reflect *in situ* burning although this could as easily be debris from hearths that have not survived.

Most of the samples consistently produced small numbers of charred hazel nutshell, although these were much more abundant in pit 237008. This sample also produced burnt bone, but given the abundance of nutshell this is more likely to be animal bone than human. Traces of charred cereal were recorded in four of the pits, but none was identifiable to species although a single grain has been classified to wheat or barley. Charcoal, although the most abundant environmental evidence in the samples varied appreciably in density with a very rich charcoal assemblage in pit 237037, and somewhat lesser concentrations in pits 237008, 237002 and 237012. The remaining samples had relatively low concentrations. The assessment (Schmidl *et al* 2009) identified alder/hazel roundwood and oak stemwood from samples 2373001, 2373004 and 2373009, but no other taxa. Detailed study of the charcoal has been restricted to the two radiocarbon dated contexts, 237009 and 237011, which produced a little burnt bone and the large assemblage from pit 237037 (sample 2373009). These were selected as a contribution to the overall study across the whole pipeline, to see if the charcoal from the dated pits might reflect some aspect of their function and to establish the character of the large assemblage in pit 237037. The charcoal assemblage from cremation pit, 237014 was too small and fragmented to warrant study.

Charcoal *(Dana Challinor)*

Three samples of charcoal were studied from Site 23.07: two from Neolithic and Bronze Age pits 237008 and 2337010 with a little burnt bone (possibly cremation debris) and hazel nutshell and one from pit 237037 with a large charcoal assemblage, but technically undated. The assemblages were very similar, producing two taxa; *Quercus* sp. (oak) and *Corylus avellana* (hazel). The charcoal was abundant in all three samples, especially sample 2373009, which contained very large fragments (>20mm in size). Condition was generally fair, with minimal infusion of sediment. Tyloses were distinct and abundant, indicating large components of heartwood in all samples, with some sapwood confirmed in sample 2373009. Sample 2373003 also produced some burrwood fragments, which is also indicative of older age. No ring curvature was recorded in the oak pieces, but the hazel mostly came from small diameter roundwood. Some high levels of vitrification were noted. Some round(ish) insect tunnels were observed in hazel fragments from sample 2373001.

Table 8 Charcoal from Site 23.07 pits

	Date	MNeo	MBA	Undated:Neo/BA?
	Feature no.	237008	237010	237037
	Context no.	237009	237011	237039
	Sample no.	2373001	2373003	2373009
Quercus sp.	oak	23 (h)	30 (hb)	28 (hs)
Corylus avellana L.	hazel	7 (r)		2r

h=heartwood; r=roundwood; b=burrwood; s=sapwood (brackets denotes presence in some frags only)

The use and dominance of oak is common in Bronze Age cremation assemblages, reflecting both its availability and suitability for efficient cremation, so these assemblages would be consistent with cremations. If they are cremations then the hazel charcoal probably represents kindling, while mature oak formed the main fuel and pyre structure. Equally the similarity of the assemblages suggests that while pit 237037 did not contain burnt bone, the charcoal, nonetheless, could be derived from a cremation-related deposit. However the features cannot be confirmed as cremations and the nutshell and cereal remains may indicate a more 'domestic' function. Although the sample from 237008 was dated to the earlier period of Middle Neolithic, there was nothing to distinguish the charcoal (in character or taxonomic composition) from the Early Bronze Age assemblage.

Discussion

The site lies on the south side of a small stream valley at approximately 50m AOD in a gently undulating local landscape with a smaller tributary stream some 80m to the west. The nearest pollen studies conducted along the pipeline contemporary with the Neolithic and Bronze Age are just under 20km south (RDX05) and 14km to the north east (RDX31.16). These show an oak and hazel dominated woodland in the Neolithic although with local birch wood on the bog at RDX05 (Rackham *et al* in prep). There is little trace of grasslands, although the landscape beings to open up in the Bronze Age with cereal pollen appearing around about the Middle Bronze Age. Unfortunately we have no information that allows us to consider whether the site lay in woodland or already cleared land, although by the middle Bronze Age one might suppose it was cleared. No cereal was found in the Middle Neolithic pit, but it does occur in others pits including the dated Middle Bronze Age one. The dominance of oak, with a little hazel and no light favouring tree species in the charcoal assemblages might suggest a wooded landscape, but since this assemblage could be functionally specific it may not be a good indicator of the available resources around the site.

A major question concerns the character of the site; a cremation cemetery or a scatter of Neolithic and/or Bronze Age pits of unresolved function. We can be fairly confident of one undated cremation pit, 237014, which has produced cremated human bone, a few small crumbs of pottery, a piece of undiagnostic flint debitage (Appendix B) and no food debris. The residue from this sample contained no burnt stone, and it may be appropriate to view pits with abundant burnt stone as unlikely to be cremation pits, on the grounds that pyres are unlikely to have been built on a stone floor or had stone in their make-up. Stones are more likely to be associated with a hearth where they are used to contain the fire or heated to heat water or bake/roast food. The two dated samples with burnt bone both include burnt stone (Table 7) and food debris, in the form or hazelnuts or cereal grain, while pits 237032, 237037 and 237043 all include burnt stone and hazelnuts. Pit 237032 with an abundance of heat reddened mudstone and visible scorching during excavation indicates a fire within the pit, and the same may be true for pit 237008. The association suggests that these pits are more likely to be domestic in character than cremation pits. Four pits with no burnt stone (or very little) and no burnt bone produced one or two fragments of nutshell, two also with cereal grain, and these could also be seen as related to occupation activity.

Three issues should also be considered. We tend to assume that a cremation pit will include burnt bone, but the studies on the cremated human bone from the sites along the pipeline show that often very little of the cremated body occurs in the deposit and often the cremated bone is in poor condition, powdery and fragile. It is clear that this material was undergoing erosion in the soil and may have been completely lost from some contexts. An absence of burnt bone does not therefore indicate the feature was not a burial pit. Secondly occasional traces of nutshell and cereal do occur in pits with cremated human bone, so their presence is not a definitive indication of 'occupation' features. Finally the oak dominated charcoal assemblages, with large proportions of heartwood, noted above are characteristic of cremation features where substantial oak branches and split older wood are

used in the pyre rather than smaller roundwood, but this does not rule out other fires. Fires that are kept in all day or overnight will need bulkier fuel than those used purely for cooking and split oak heartwood is much better than hazel for such fires.

The consistent occurrence of hazel nutshell in most of the pits (but not the one with identified human bone), the occasional presence of charred cereal grain, the quantity of burnt stone (also absent from the pit with cremated human bone), and the absence of burnt bone are nevertheless suggestive of occupation rather than funerary contexts. This occupation, based on these criteria, occurred both in the middle Neolithic and the middle Bronze Age. Unfortunately owing to a lack of suitable charcoal no date was obtained for the pit with cremated human bone, although a number of Early Bronze Age cremation pits are recorded elsewhere along the pipeline. There are no good clues to help phase the undated pits, although the pottery from 237032 is tentatively assigned to the Neolithic (Appendix B). An abundance of hazel nutshell in samples along the pipeline has generally proved to be Neolithic as occurs here, most often also in the absence of charred cereals. Only dated pit 237008 has abundant hazelnut fragments with no cereal grain at this site, but it would be a mistake to extrapolate this and suggest the other pits are Bronze Age.

One might therefore tentatively conclude that the bulk of the pits at this site are 'occupation' features, including 'fire-pits', of Neolithic and Bronze Age date with traces of food debris, with at least one adult cremation burial pit, probably contemporary with one of the occupation episodes. During the Neolithic the site could have lain in woodland, but by the middle Bronze Age it is more likely to have been cleared.

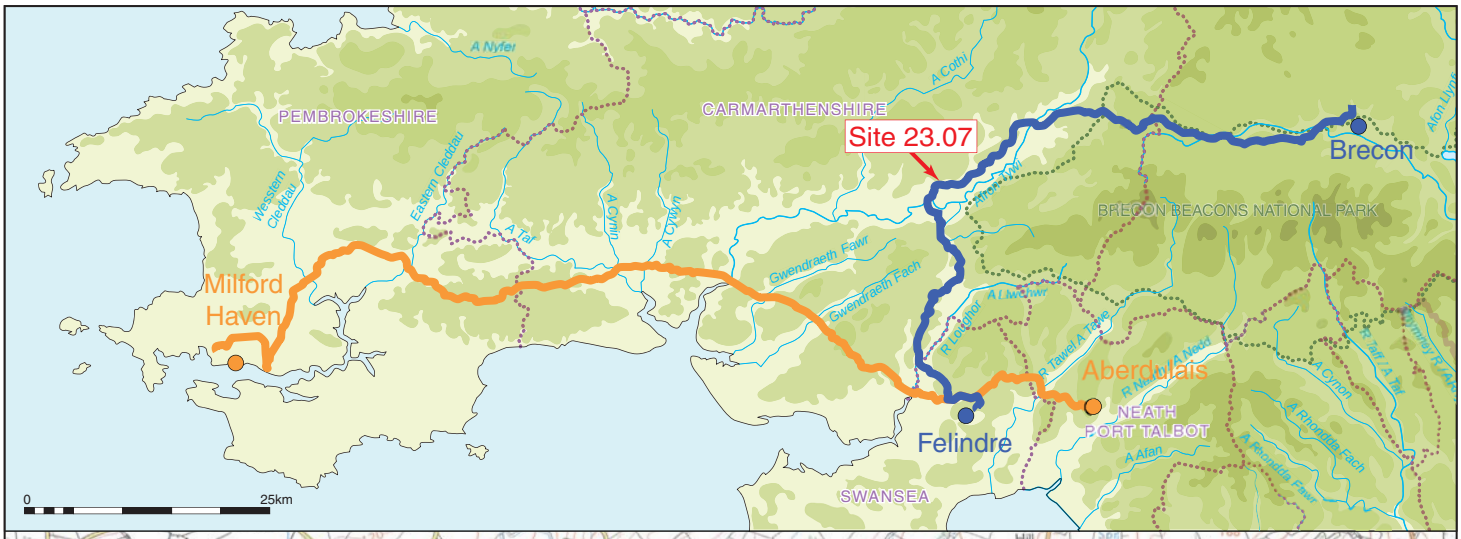
APPENDIX D: RADIOCARBON DATING BY SEREN GRIFFITHS

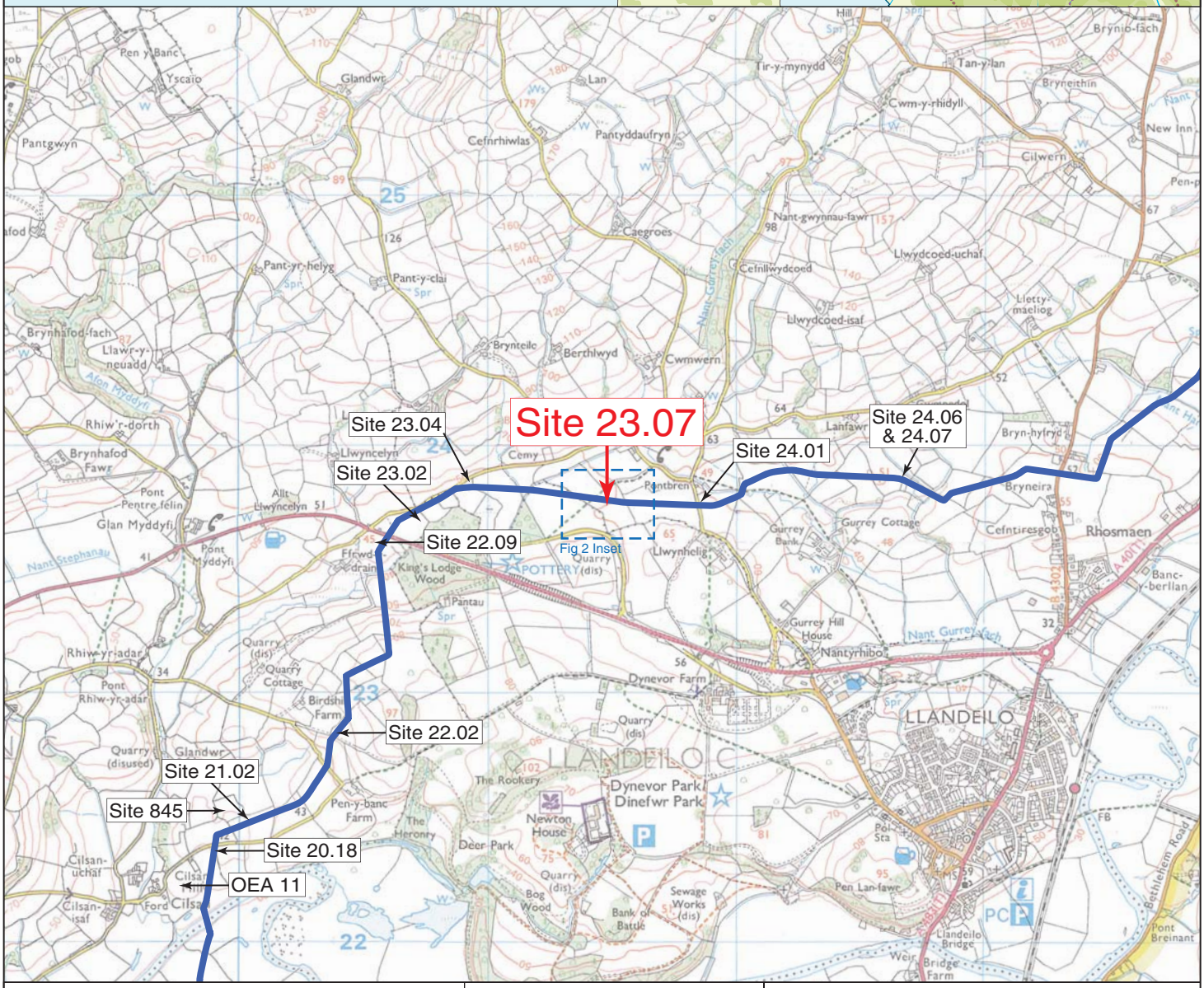
For the analysis, radiocarbon measurements were produced on short-life, single entity charred plant remains. Samples with the 'Beta-' laboratory code were pretreated as detailed here http://www.radiocarbon.com/. Samples with the 'SUERC-' laboratory code were pretreated using an acid-base-acid process. Samples were combusted and graphitized and then dated by Accelerator Mass Spectrometry (AMS). The results are conventional radiocarbon ages, quoted according to the international standard set at the Trondheim Convention. The results have been calibrated using IntCal13, and OxCal v4.2. The date ranges have been calculated using the maximum intercept method, and have the endpoints rounded outward to 10 years.

Two results were produced on hazel nutshell from context 237009, which contained Middle Neolithic Impressed Ware. The result may date the use of the pottery to the last quarter of the 4th millennium cal. BC, in 3360–3090 cal. BC (95% confidence; SUERC-54700).

Context No.	Feature	Sampled material	Laboratory ref	Measured age	Calibrated date
237009	Pit 237008	Hazelnut shell	Beta-257720	4580 +/-40	3490-3120 cal BC
237009	Pit 237008	Hazelnut shell	SUERC-54700	4515 +/-29	3360–3090 cal BC
237011	Pit 237010	Hazelnut shell	Beta-257721	3310 +/-40	1690-1500 cal BC

Dating undertaken by Beta Analytic Miami and Scottish Universities Environmental Research Centre





- Milford Haven to Aberdulais pipeline
- Felindre to Brecon pipeline
- 0-75m contour
- 75m contour
- 200m contour
- 400m contour
- 600m contour

N

0 1km

Cotswold Archaeology
Cirencester 01285 771022
Milton Keynes 01908 218320
Andover 01264 326549
w www.cotswoldarchaeology.co.uk
e enquiries@cotswoldarchaeology.co.uk

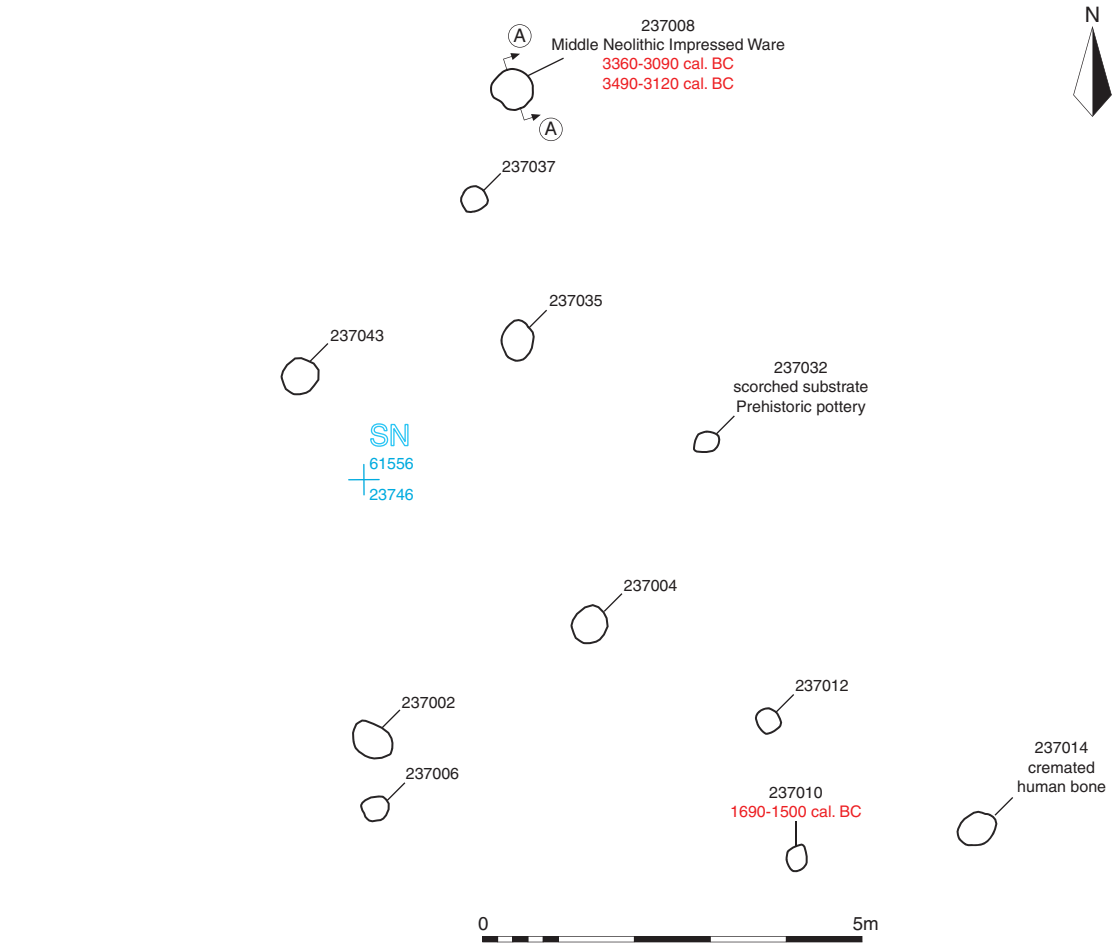
PROJECT TITLE

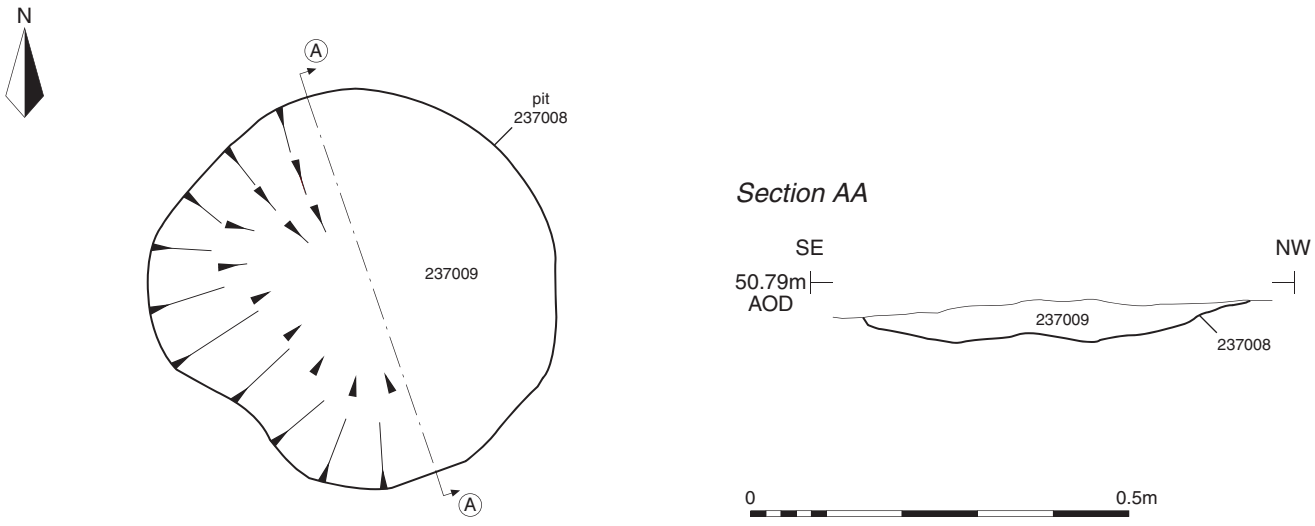
South Wales Pipeline. Site 23.07, Land South of Pen-y-banc, Manordeilo and Salem, Carmarthenshire

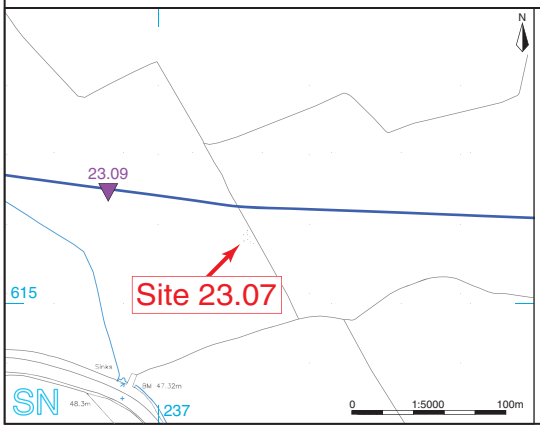
FIGURE TITLE

Site location plan

PROJECT NO.	9150	DATE	15-07-2013	FIGURE NO.
DRAWN BY	DJB	REVISION	00	1
APPROVED BY	PJM	SCALE@A4	1:25,000	







pipeline centreline

2005-6 evaluation trench

Cotswold Archaeology
Cirencester 01285 771022
Milton Keynes 01908 218320
w www.cotswoldarchaeology.co.uk
e enquiries@cotswoldarchaeology.co.uk

PROJECT TITLE

South Wales Pipeline. Site 23.07, Land South of Pen-y-banc, Manordeilo and Salem, Carmarthenshire

FIGURE TITLE

Plan of archaeological features with detailed plan and section of pit 237008

PROJECT NO.	9150	DATE	15-07-2013	FIGURE NO.
DRAWN BY	DJB	REVISION	00	2
APPROVED BY	PJM	SCALE@A4	1:100 1:10	