South Wales Gas Pipeline Project
Site 26.06
Land East of Llechwen-dderi
Manordeilo and Salem
Carmarthenshire

Archaeological Excavation

for

Rhead Group

on behalf of

National Grid

CA Project: 9150
CA Report: 13282
Event: DAT108810

August 2013

South Wales Gas Pipeline Project
Site 26.06

Archaeological Excavation

CA Project: 9150
CA Report: 13282
Event: DAT102846

prepared by date	Daniel Sausins, Project Supervisor 23 August 2013
checked by date	Karen E Walker, Post-Excavation Manager 30 April 2015
approved by signed date	Martin Watts, Project Director, Head of Publications
issue	01

Cirencester	**Milton Keynes**	**Andover**
Building 11 Kemble Enterprise Park Kemble, Cirencester Gloucestershire, GL7 6BQ **t.** 01285 771022 **f.** 01285 771033	Unit 4 Cromwell Business Centre Howard Way, Newport Pagnell MK16 9QS **t.** 01908 218320	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 26.06, Land East of Llechwen-dderi, Manordeilo and Salem, Carmarthenshire
NGR: SN 6544 2547
Type: Excavation
Date: 5–10 June 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: FTB07

An archaeological excavation 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.

The natural substrate was overlain by colluvium which was itself overlain by the remains of a burnt mound. Radiocarbon dating of charcoal from the mound produced Middle Iron Age dates, making the mound the latest of those recorded during the pipeline scheme. A posthole and two probably associated stone surfaces found 100m to the north of the mound were undated. Part of a field boundary depicted on the 1st Edition Ordnance Survey map was also recorded.

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 CA (then Cotswold Archaeological Trust) during 2005–2007 with some additional excavation work carried out by CAP. The section of 89km, from Felindre to Brecon was investigated by CA during 2006–2007 and CAP during 2007. 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 In June 2007 CAP carried out an archaeological excavation at Site 26.06, Land East of Llechwen-dderi, Manordeilo and Salem, Carmarthenshire (centred on NGR: SN 6544 2547; Fig. 1). The objectives of the excavation were to record all archaeological remains exposed within the site during the pipeline construction.

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

The site

1.4 The site is located within a field on the south-facing slope of a hill overlooking the River Towy to the south and the River Dulais to the west (Fig. 1). It lies at approximately 60m AOD. The underlying solid geology of the area is mapped as the Nantmel Mudstone Formation of the Ordovician Period; no superficial deposits are recorded (BGS 2013).

Archaeological background

1.5 No archaeological remains were identified within the site during the preliminary *Archaeology and Heritage Survey* (CA 2006) and none are recorded by the HER. Documentary records suggest that a former medieval chapel lay 50m north-west of the site (PRN 12741). A possible historic bank following the river has also been identified, which may be of medieval or post-medieval date (CA 2006, ref. ID 1622). An Iron Age defended enclosure lies 1.2km to the north-west of the site (PRN 849).

1.6 The evaluation undertaken in advance of the pipeline construction included three trenches within the same field as Site 26.06 (at the time, this was known as Plot 26.07, so the evaluation trenches were within Evaluation Site 26.07). No archaeological remains were exposed within these trenches (CA 2009, Evaluation Site 26.07, trenches 1–3; Fig. 2, inset). Three trenches within the field immediately south of excavation Site 26.06 (Evaluation Site 26.06) exposed three pits and yielded a piece of possible prehistoric pottery (CA 2009, Evaluation Site 26.06, trenches 1–3). A subsequent excavation in that field (Site 26.05) revealed an Early Neolithic settlement (Fig. 2, inset). Undated pits were found at Sites 26.08, 26.10 and 26.11 and burnt mounds were recorded along the pipeline route 200–900m south-west of the site at pipeline Sites 26.01, 26.02, 26.03 and 26.04 (Fig. 1). Further burnt mounds were found elsewhere along the route (Hart *et al.* 2014).

Archaeological objectives

1.7 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

1.8 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).

1.9 The post-excavation analysis and reporting was undertaken following the production of the UPD (GA 2012) and included re-examination of the original site records.

Finds, environmental and radiocarbon-dating 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.

1.10 The archive and artefacts from the archaeological works 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 (FIGS 2–4)

2.1 This section provides an overview of the excavation results; detailed summaries of the recorded contexts, environmental samples (palaeoenvironmental evidence) and radiocarbon-dating evidence are to be found in Appendices A, B and C. Full, original versions of the specialist reports are contained within the archive. Two areas (Areas A and B) were exposed during the excavation.

Area A

2.2 The natural geological substrate (2606001), comprising orange-grey clay with stone, was covered by two layers of colluvium (2606006 and 2606004). These colluvial deposits were overlain by burnt mound 2606003/2606005 which consisted of burnt pebbles and charcoal within a dark clay silt matrix covering an oval area 5.8m wide and 0.15m thick (Figs 2 and 3). Samples from the lowest layer, 2606003, yielded fuelwood charcoal including two fragments radiocarbon dated to 400–210 and 370–170 cal. BC (SUERC-55504 and -55505). These are statistically consistent Middle Iron Age dates and may have been from the same event (see Appendix C).

Area B

2.3 Area B was 100m north of the burnt mound. The natural substrate was sealed by colluvium 2606015 which was itself cut by ditch 2606016. This ditch was aligned east/west with an irregular profile and flat base and corresponds to a boundary depicted on the 1st Edition Ordnance Survey map. Two stone layers (2606013/2606014) above the colluvium to the north of the ditch were undated. Immediately north of these, posthole 2606010 which contained a post-pad was found but this was also undated.

Discussion

2.4 The burnt mound in Area A was not located close to a current water course. However, there are small tributaries in the near vicinity and it is possible that a water course formerly ran near to the mound although no palaeochannel was exposed on site. It might also have been that a spring line was present on the hillside. No associated features such as troughs or hearths accompanied the mound, although this is potentially because the mound was only fifty percent excavated. The Middle Iron Age radiocarbon dates from the mound are relatively late and this was the latest dated mound discovered along the pipeline route. The majority of the other dated mounds along the route (Hart *et al.* 2014) and elsewhere are Bronze Age, although earlier and later examples are known from elsewhere in the British Isles. Oak and hazel were the main fuels used for the mound. Rackham in Appendix C notes that by the Iron Age, the site would probably have lain within a landscape largely cleared of woodland and used for cultivation, with the wood being gathered from hedgerows or wooded areas on the valley sides and valley floors.

2.5 For the undated stone layers and posthole 100m north of the mound, little can be said beyond suggesting that these formed a surface and part of an associated structure.

3. PROJECT TEAM

Fieldwork was undertaken by Cambrian Archaeological Projects. This report was written by Daniel Sausins with comments by Jonathan Hart and illustrations prepared by Daniel Bashford. 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 was managed for CA by Karen Walker.

4. REFERENCES

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APPENDIX A: CONTEXT DESCRIPTIONS

Context No.	Type	Fill of	Context interpretation	Description	L (m)	W (m)	Depth/ thickness (m)	Spot date
2606001	Layer		Natural	Stone in orange-grey clay matrix				
2606002	Layer		Subsoil	Grey-brown clay silt			0.20	
2606003	Layer		Burnt mound	Compacted brown-grey clay silt with high quantities of burnt stone and charcoal	4.50	5.80	0.15	IA
2606004	Layer		Colluvium	Mid grey clay			0.15	
2606005	Layer		Burnt mound	Burnt stone in a light yellow-orange silt			0.10	
2606006	Layer		Colluvium	Mid brown-orange silt			0.10	
2606007	Fill	2606008	Drain fill	Modern land drain		0.30	0.10	
2606008	Cut		Land drain	Modern land drain		0.30	0.10	
2606009				Context not used				
2606010	Cut		posthole	Sub-circular, moderate sides, flat base		0.45	0.05	
2606011				Context not used				
2606012	Fill	2606010	Post-pad	Fractured limestone slab		0.45	0.05	
2606013	Layer		Stone spread	Cobbled stones	1.15	0.6		
2606014	Layer		Stone spread	=2606013				
2606015	Layer		Colluvium	Mid-light brown silt				
2606016	Cut		Ditch	E/W aligned, irregular sides, flat base		1.4	0.25	
2606017	Fill	2606016	Ditch fill	Mid-dark brown silt		1.4	0.25	
2606018	Layer		Natural	Same as 2606001				

APPENDIX B: THE PALAEOENVIRONMENTAL EVIDENCE BY JAMES RACKHAM

Six samples were collected in 5cm spits from a test pit through burnt mound 2606003 (Table 1). The samples from the excavation were processed in the manner described in the assessment report (Carruthers 2008). The residues of all the samples were refloated to produce a second flot. Residues were sorted for finds, burnt stone and checked for a magnetic component (Table 2). The volume of the second flot is noted in Table 2 and these flots were scanned for identifiable charred plant remains.

Table 1. Bulk environmental samples from Site 26.06

sample no	context no	feature	description	Wt kg.	Vol. l.
2606001	2606003	Burnt mound	0-5cm	24	20*
2606002	2606003	Burnt mound	5-10cm	20	20*
2606003	2606003	Burnt mound	10-15cm	11	10*
2606004	2606003	Burnt mound	15-20cm	8	10*
2606005	2606003	Burnt mound	20-25cm	9	10*
2606006	2606003	Burnt mound	25-30cm	8.5	10*

* - volume recorded on site – not accurate

Table 2. Data for the environmental samples from Site 26.06

Sample no	Context no	Pro-cessed wt kg	1st flot vol ml	2nd flot vol	residue wt g	pottery	burnt clay wt g.	burnt stone wt g.	coal	flint	magnetic wt g.	burnt bone	comments
2606001	2606003	24	60	5	18514			18021	+		0.6		
2606002	2606003	20	50	10	12306			11500			1.2		
2606003	2606003	11	11	4	5900			4058			0		
2606004	2606003	8	7	2	3526			2006			0		
2606005	2606003	9	2	1	1891			571			0		
2606006	2606003	8.5	3	2	309								

* abundance rating – E= 1-10 items; D=11-50, C=51=100, B=101-200, A=>200; nd – no data; HNS – charred hazel nutshell

The samples from the burnt mound are dominated by burnt stone, with 75, 57.5, 36.9, 25.1 and 6.3%/kg of sample being the concentrations down through the spits, with the lowest spit, sample 2606006, recorded with just 309g of residue (>1mm) in which no burnt stone was recognised. Clearly this lowest spit sampled the colluvium (context 2606006) underlying the mound. Charcoal concentrations in this mound are low, with less than 1ml per kilogramme of sample in the lower samples, and the richest only 3ml/kg in the second spit. This is much lower than mounds elsewhere on the pipeline and suggests significant weathering of the deposits. The small magnetic fraction in the top two spits is composed of mineralised and concreted stone.

Charcoal *(Dana Challinor)*

Two samples from burnt mound 2606003 were submitted for charcoal analysis. The samples were medium in size, and tended to be heavily fragmented with few larger charcoal pieces >8mm in size. Twenty fragments were randomly selected from each sample and identified following standard procedures. The condition of the charcoal was quite poor, heavily infused with sediment and fragmentary. Four taxa were positively differentiated; *Quercus* sp. (oak), *Alnus glutinosa* (alder) *Corylus avellana* (hazel) and probable Maloideae (hawthorn group) (Table 3). The identification of the Maloideae could not be confirmed as there was only a single, small fragment and the Maloideae share similar diffuse porous characteristics with other taxa, but the taxon was clearly distinct from the others in the assemblage.

Table 3. Charcoal from burnt mound feature at site 26.06

	Feature type	burnt mound	
	Context number	2606003	
	Sample number	2606001	2606002
Quercus sp.	oak	10 (r)	12 (r)
Alnus glutinosa Gaertn.	alder	2	1
Corylus avellana L.	hazel	6 (r)	4 (r)
Alnus/Corylus	alder/hazel	2	2
cf. Maloideae	hawthorn group		1

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

The condition was too poor to confidently ascribe maturity, but there was some evidence for moderate to strong ring curvature among the oak and hazel fragments, which suggests that some small diameter roundwood had been used, in addition to larger branches/trunkwood. Oak formed the main taxon (55%), with hazel (min. 25%) and minor components of alder (min. 7.5%) and hawthorn group (2.5%). The two assemblages were comparable suggesting that there were no significant spatial differences in taxonomic composition within the deposit.

Discussion

The burnt mound covers an area of approximately 27.1 sq metres, and its average thickness, calculated from the section drawing, is 7.35cm, giving an approximate volume of 2 cubic metres. The total weight of burnt stone in the surviving mound can be estimated using the weight of burnt stone in the spit samples (excluding the lowest spit) and this gives a figure of 1.58 tonnes. This makes the site one of the 'medium' sized mounds along the pipeline route, although before truncation by agricultural activity was probably originally significantly bigger. The charcoal assemblages indicate the availability of oak and hazel as the main fuel source, with additionally alder and Maloideae (hawthorn group). There is a significant slope across the field and the apparent presence of colluvial deposits beneath the mound would imply that the site had been cleared of woodland prior to the formation of the mound, and that land upslope may even have been cultivated. By the Iron Age this landscape, previously probably wooded in the 2nd millennium BC, may have been cleared, and fuel would have been harvested from hedgerows or brought from stands of woodland still surviving along the steeper slopes or near the rivers.

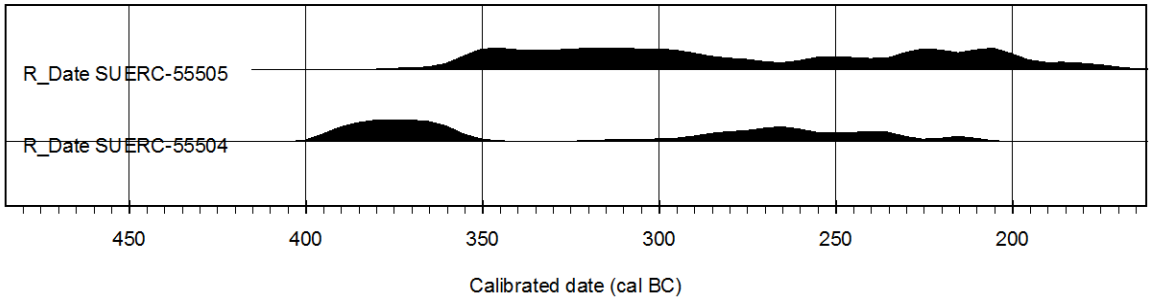
APPENDIX C: THE RADIOCARDON DATES BY SEREN GRIFFITHS

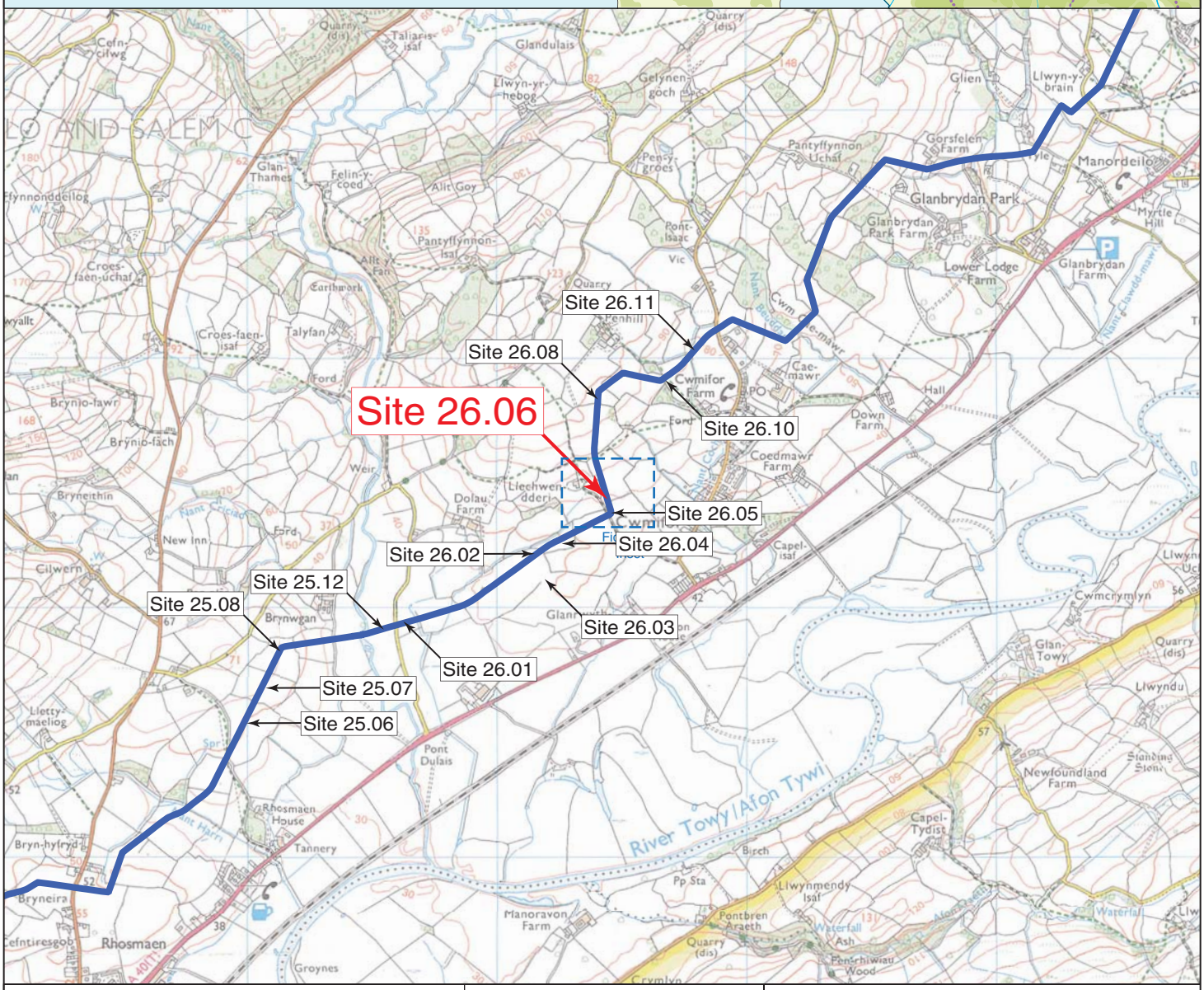
For the analysis, radiocarbon measurements were produced on short-life, single entity charred plant remains. Samples with the 'Beta-' laboratory code were pretreated as detailed here http://www.radiocarbon.com/. Samples with the 'SUERC-' laboratory code were pretreated using an acid-base-acid process. 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 radiocarbon results produced on shortlife samples from burnt mound layer 2606003 were statistically consistent (T'=3.4; T'5%=3.8; df=1; Ward and Wilson 1978; Fig. 5), and could be of the same actual age. If these results represented a single 'archaeological event', a weighted mean taken prior to calibration might suggest activity associated with the burnt mound in the 4th or 3rd centuries cal BC.

Context	Feature	Sampled material	Laboratory reference	Measured age	δ13C	Calibrated radiocarbon age (95%)
2606003	Burnt mound	*Corylus* sp. charcoal	SUERC-55504 (GU35193)	2269 +/- 30	-26.2	400–210 cal BC
2606003	Burnt mound	*Corylus* sp. charcoal	SUERC-55505 (GU35194)	2191 +/- 30	-25.6	370–170 cal BC

Fig. 5 The calibrated radiocarbon dates from Site 26.06.





- 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 26.06 Land East of LLechwen-dderi, Manordeilo and Salem, Carmarthenshire

FIGURE TITLE

Site location plan

PROJECT NO.	9150	DATE	11-07-2013	FIGURE NO.
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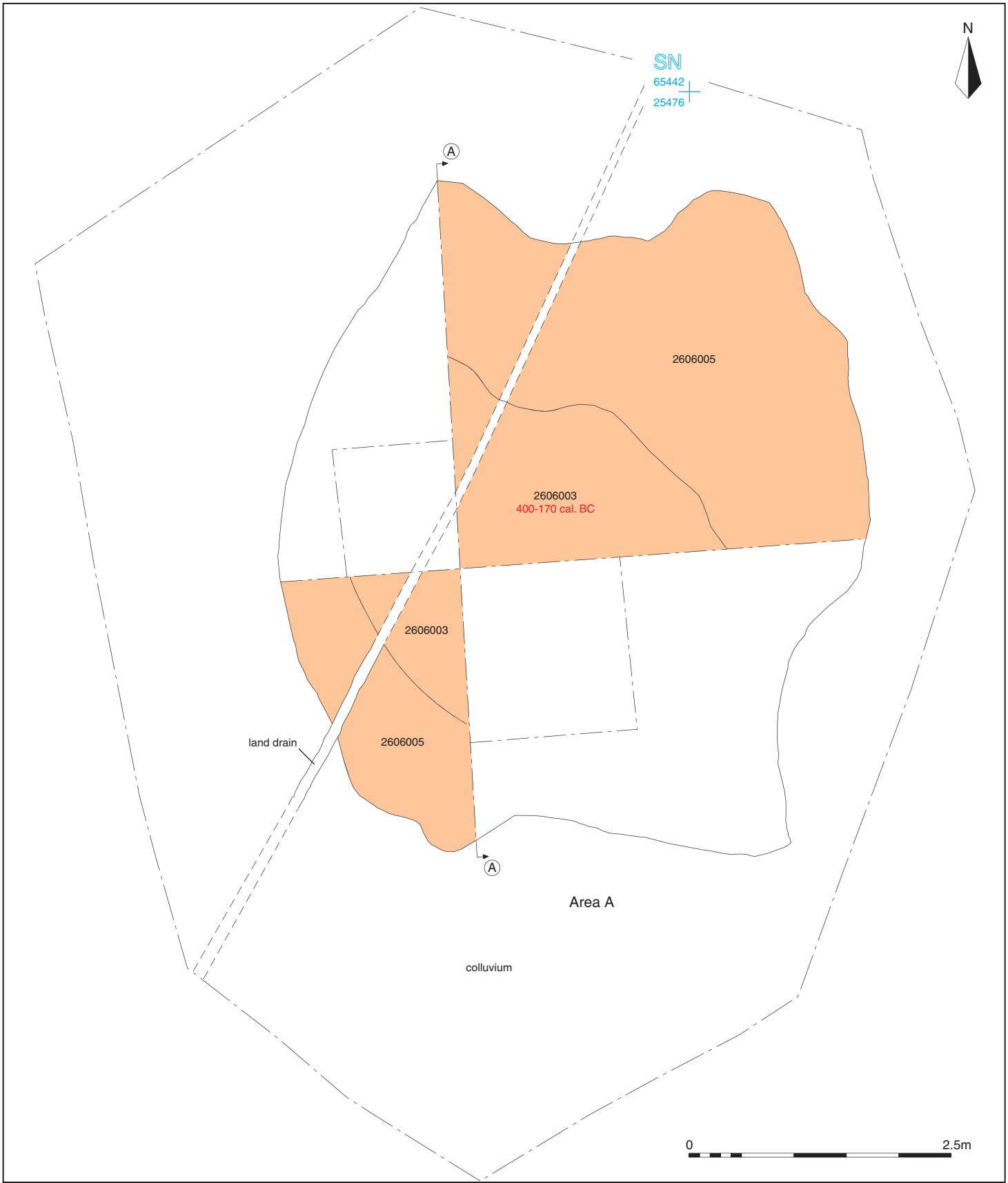
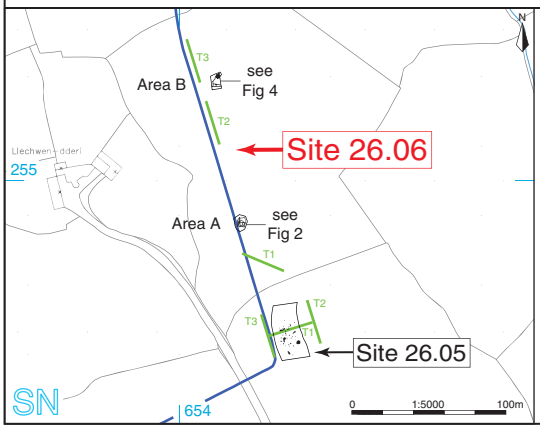
APPROVED BY	PJM	SCALE@A4	1:25,000	





burnt mound

pipeline centreline

T1 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 26.06 Land East of LLechwen-dderi, Manordeilo and Salem, Carmarthenshire

FIGURE TITLE

Plan of burnt mound 2606003

PROJECT NO.	9150	DATE	11-07-2013	FIGURE NO.
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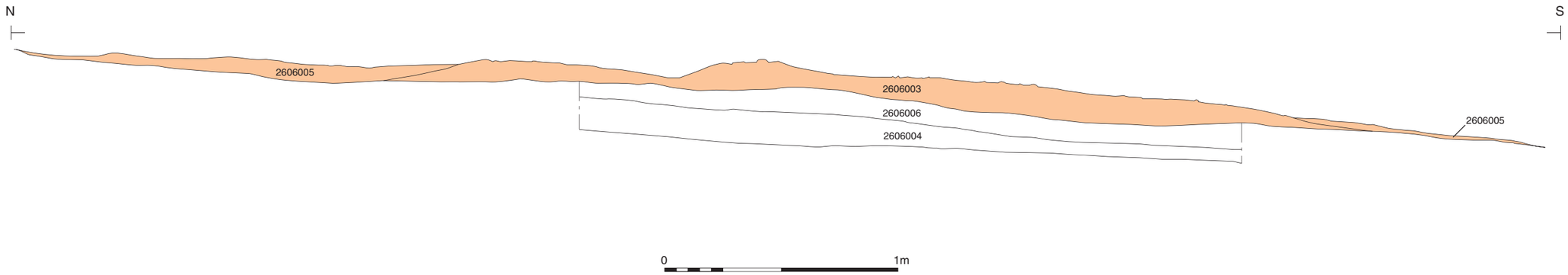
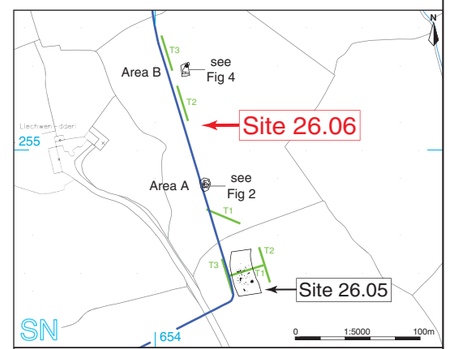
APPROVED BY	PJM	SCALE@A4	1:50	

Section AA





burnt mound

pipeline centreline

T1 evaluation trench

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 26.06 Land East of LLechwen-dderi, Manordeilo and Salem, Carmarthenshire

FIGURE TITLE

Section of burnt mound 2606003 in Area A

PROJECT NO.	**9150**	*DATE*	**12-07-2013**	*FIGURE NO.*
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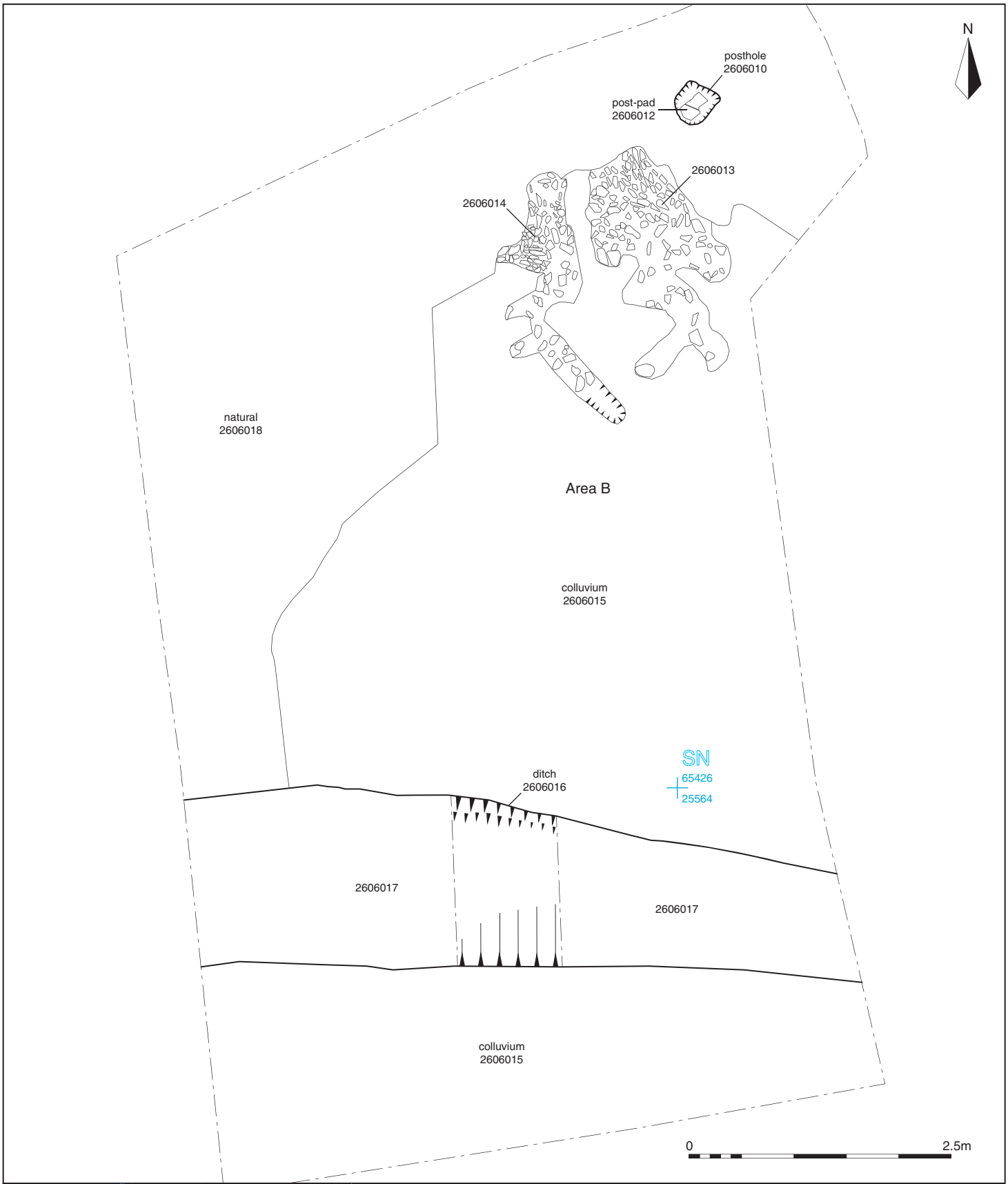
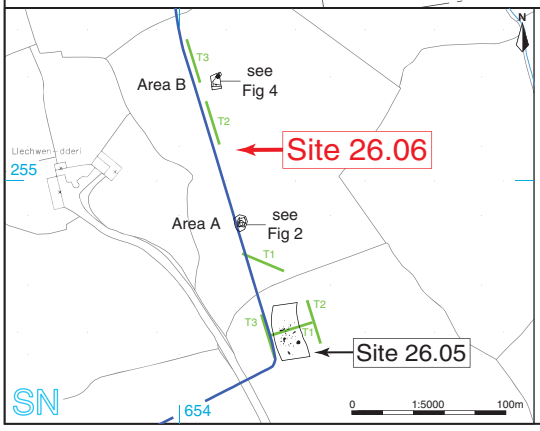
APPROVED BY	**PJM**	*SCALE@A3*	**1:20**	





pipeline centreline

T1 evaluation trench

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

PROJECT TITLE

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FIGURE TITLE

Plan of northernmost archaeological features within Area B

PROJECT NO.	**9150**	*DATE*	**11-07-2013**	*FIGURE NO.*
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APPROVED BY	**PJM**	*SCALE@A4*	**1:50**	