

**FORMER CHAIN TEST WORKS
GREAT WESTERN RAILWAY
ENGINEERING WORKS
SWINDON
WILTSHIRE**

ARCHAEOLOGICAL WATCHING BRIEF

For

FEILDEN CLEGG BRADLEY STUDIOS

on behalf of

BRITISH POSTAL MUSEUM ARCHIVE

CA PROJECT: 3337
CA REPORT: 11020

FEBRUARY 2011


**COTSWOLD
ARCHAEOLOGY**



FORMER CHAIN TEST WORKS
GREAT WESTERN RAILWAY
ENGINEERING WORKS
SWINDON
WILTSHIRE

ARCHAEOLOGICAL WATCHING BRIEF

CA PROJECT: 3337
CA REPORT: 11020

prepared by	David Parry, Project Supervisor
date	11 February 2011
checked by	Richard Young, Project Manager
date	14 February 2011
approved by	Mark Collard, Head of Contracts
signed	
date	28 February 2011
issue	01

This report is confidential to the client. Cotswold Archaeology accepts no responsibility or liability to any third party to whom this report, or any part of it, is made known. Any such party relies upon this report entirely at their own risk. No part of this report may be reproduced by any means without permission.

CONTENTS

SUMMARY	2
1. INTRODUCTION	3
2. RESULTS (FIGS 2-4)	7
3. DISCUSSION.....	7
4. CA PROJECT TEAM	8
5. REFERENCES	8
APPENDIX A: CONTEXT DESCRIPTIONS.....	9
APPENDIX B: OASIS REPORT FORM	11

LIST OF ILLUSTRATIONS

- Fig. 1 Site location plan (1:25,000)
- Fig. 2 Test pit location plan (1:500)
- Fig. 3 Test Pit 4: section and photograph (1:10)
- Fig. 4 Test Pit 14: plan, section and photograph (1:10)

SUMMARY

Project Name: Former Chain Test Works
Location: Great Western Railway Engineering Works, Swindon, Wiltshire
NGR: SU 1430 8507
Type: Watching Brief
Date: 18-19 January 2011
Location of Archive: To be deposited with Swindon Museum
Site Code: FCS 11

An archaeological watching brief was undertaken by Cotswold Archaeology during geotechnical groundworks associated with the development of premises for the British Postal Museum Archive at the Former Chain Test Works, Great Western Railway Engineering Works, Swindon, Wiltshire.

On removal of the existing tarmac and concrete floors within the buildings, two test pits revealed cast iron pipes associated with the former engineering works, while excavation of another test pit revealed an earlier brick-built floor. The three external test pits contained no significant archaeological features or deposits. No artefactual material was recovered.

1. INTRODUCTION

1.1 In January 2011 Cotswold Archaeology (CA) carried out an archaeological watching brief for Feilden Clegg Bradley Studios on behalf of the British Postal Museum Archive during geotechnical works at the Former Chain Test Works, Great Western Railway Engineering Works, Swindon, Wiltshire (centred on NGR: SU 1430 8507; Fig. 1). The objective of the watching brief was to record all archaeological remains exposed during the geotechnical works.

1.2 The watching brief was carried out at the request of Liz Smith-Gibbons, Senior Conservation Officer, Swindon Borough Council, and in accordance with a subsequent detailed *Written Scheme of Investigation* (WSI) produced by CA (2011). The fieldwork also followed the *Standard and Guidance for an archaeological watching brief* (IfA 2008), the *Statement of Standards and Practices Appropriate for Archaeological Fieldwork in Wiltshire* (WCC 1995), the *Management of Archaeological Projects II* (EH 1991) and the *Management of Research Projects in the Historic Environment (MORPHE): Project Manager's Guide* (EH 2006).

The site

1.3 The geotechnical works took place around the former Chain Test Works, which lies within the Swindon Railway Works Conservation Area (SRWCA), 21ha of the historic core of the former Great Western Railway (GWR) works. The Chain Test Building is located to the north-west part of the site. It is bounded to the north by the service road to the National Monuments Record Centre (NMRC) which is owned and managed by English Heritage. Beyond the service road is the north-west branch of the railway line which runs from Swindon to Cheltenham (Fig. 1). The site lies at approximately 102m AOD.

1.4 The Former Chain Test Works have been largely abandoned since 1986, though part has more recently been used as an indoor go-kart track. The area within which the geotechnical test pitting occurred covers an area of approximately 0.5ha (Fig. 2).

1.5 The underlying solid geology of the area is mapped as Kimmeridge Clay of the Upper Jurassic (BGS 2011). The natural substrate was observed in only one test pit, Test Pit 4.

Archaeological background

- 1.6 A Desk-Based Assessment was compiled for previous work carried out at the nearby National Trust Central Office (CA 2002). It is not intended to repeat the findings of this report, however a summary is presented below.
- 1.7 There is no evidence for prehistoric or Roman activity within the vicinity of the site. The first documentary reference to the town is in the Domesday Book of 1086, and the site lies within the northernmost part of the parish which was centred around the early settlement at Old Town. Little is known of the activity within the parish during the medieval period, and it is likely that it formed part of the wider agricultural landscape.
- 1.8 The earliest detailed records of land use around the site comprises the Tithe Apportionment survey for Swindon Parish completed in 1841 which shows the site as an areas of pasture.
- 1.9 In 1833 the company of the GWR, was established to obtain an Act of Parliament (passed in 1835) for the rail link between London and Bristol. In 1836 the Cheltenham and Great Western Union Company obtained a separate Act for a line to meet the Great Western at Swindon. In 1840 land formerly purchased by the Cheltenham and Great Western Union Railway was made over for the engine house for both companies in the area between the junction of the two lines (Cattell and Falconer 1995), the current SRWCA.
- 1.10 A number of buildings associated with the construction and maintenance of the railway and its rolling stock then occupied the site. By the mid 1960s the GWR works were struggling, and were closed in 1986. The buildings within the site had been demolished by the end of the 1980s (CA 2002).
- 1.11 Feilden Clegg Bradley Studios have supplied the detailed background history of the Chain Test House and associated buildings, as follows.
- 1.12 The earliest workshop complex at Swindon was constructed in 1843 and consisted of buildings arranged around three sides of a large square courtyard. The buildings at the core of the works were originally built as stabling, maintenance and heavy

repair for locomotives, with no provision for their manufacture. A second building campaign, completed in 1847, involved closing the courtyard by the provision of a range of new machine, fitting and smiths shops to the west and the addition of a courtyard to the north of the quadrangle to house the smithies and steam-hammers needed for locomotive construction. The oldest section of the Chain Test building is the south-east wing of the Smiths' Range which was erected in 1843. This building was constructed using single leaf stonework walls with a timber queen-post roof truss of 45ft (13.7m) span. The single storey building was originally some 600ft (183m) long and comprised a Smiths' Shop which itself incorporated a Spring Shop plus the Boilermakers' Shop and a Tyre Shop. The Smiths' Shop contained 18 hearths and a small foreman's office and was ventilated by louvered wooden vents, as was the adjoining Spring Shop with its 8 hearths.

- 1.13 In 1846 the Smiths' Range was extended to its current 'Z' configuration. The buildings of the early phases were of pier-and-panel construction with stone from quarries in Old Swindon, Bath and Corsham. The pier-and-panel construction may have been employed to save on materials and minimise weight on rather uncertain clay foundations. The piers are connected at foundation level on inverted brick arches to give longitudinal stability.
- 1.14 This extension, to house further forges, retains its original metal-framed hipped roof trusses. These are extremely early examples of wrought iron roof trusses and were supplied by Fox Henderson, fabricators of Crystal Palace. They are rare survivals and, when compared with the timber queen-post roof structures in use during the first building phase of the works only three years earlier, demonstrate the rapid technological development of the 1840s. The chain testing house was built in 1874 as a narrow range bisecting the remaining piece of open courtyard in the northern quadrangle. The entire building was, in effect, a very sophisticated machine, with wrought iron roof trusses incorporating lifting pulleys and a central channel accommodating the test bed for the hydraulically operated 130-ton-load Ransome Chain Testing Machine. The chain testing house has not changed to any great extent in appearance equipment or function since its construction. It retains its original fittings and most of its original machinery which, at its peak in the 1950s, could test some 300,000ft (914km) chain and rope annually. Some loss of plant and fittings has occurred since the works closed in 1986, but the complex still retains its Victorian atmosphere and is listed Grade II*.

1.15 The Spring Shop operated until 1986. In the 1950s this shop supplied British Rail Western Region's entire requirement for springs, with an annual output of some 45,000 laminated springs and 93,000 coil springs. In 1984 springs were still being manufactured by hand using skills unchanged since the beginning of the century. Little now survives other than a section of the southern wall, the bearing box of the drive from the beam engine in the range to the south, and, to the west, the gable wall of the original boilermaker's shop. Nothing, apart from the extra wide gable wall survives of the hammer shop; this building, together with the boilermakers' shop, was demolished in the reorganisation of the works in the 1960s.

1.16 The Chain Test House itself is Listed Grade 2* and the Listing description reads:

Metal Testing House. 1873. Long single storey brick structure built on to an older building and thus having only one external wall. Wrought iron roof construction sash windows. The testing room at the south end is lit from above, the chain tester is in the floor of the corridor to the north. The testing room has largely original fittings and a very Victorian atmosphere. The Ransome's chain tester of 1874 has a hydraulic pull of 130 tons and is probably the oldest such working machine in the country. There are also a later tensile tester and an Izod's Patent tester by Avery's. A fine collection of Victorian testing machinery in original setting and in working order, the whole now extremely rare. Part of the great expansion of the works in the 1870's and one of an important group of industrial buildings at the GWR works.

1.17 Previous archaeological works indicated that remains of the 19th-20th century GWR works are likely to be found at levels of less than 0.3-0.5m bpgl, probably very close to the modern tarmac surfacing (CA 2002).

Methodology

1.18 The fieldwork followed the methodology set out within the WSI (CA 2011). An archaeologist was present during intrusive groundworks comprising the hand digging of six geotechnical test pits (Fig. 2). Non-archaeologically significant deposits were removed by the contractors under archaeological supervision.

- 1.19 Where archaeological deposits were encountered written, graphic and photographic records were compiled in accordance with CA Technical Manual 1: *Fieldwork Recording Manual* (2007).
- 1.20 The archive from the watching brief is currently held by CA at their offices in Kemble. Subject to the agreement of the legal landowner the site archive will be deposited with Swindon Museum. A summary of information from this project, set out within Appendix B, will be entered onto the OASIS online database of archaeological projects in Britain.

2. RESULTS (FIGS 2-4)

- 2.1 The natural geological substrate consisting of Kimmeridge Clay was observed in only one test pit, TP4, at a depth of 0.68m below present ground level (bpgl) (Fig. 3). Test Pit 4 was located in the car park against the south-west elevation of the Chain Testing House. Test Pits 1 and 9, both external to the buildings and excavated to a depth of 1.2m bpgl, revealed only modern made ground abutting the foundations of the walls. Excavation of Test Pits 13 and 15 was halted when *in situ* cast iron pipes associated with the former works were reached at a shallow depth. The two pipes in TP 13 and one in TP 15 were aligned north-west/south-east. Test Pit 14 was excavated to a maximum depth of 0.77m bpgl, where an earlier brick floor was revealed (Fig. 4).
- 2.2 No artefactual material was recovered and no deposits suitable for palaeoenvironmental sampling were observed.

3. DISCUSSION

- 3.1 The limited observations afforded by the geotechnical test pits suggest a low potential for archaeological remains external to the buildings. No significant depths were reached within the test pits internal to the buildings, but evidence of earlier phases of the railway engineering works appear to be preserved beneath the present floor levels.

4. CA PROJECT TEAM

Fieldwork was undertaken by David Parry. The report was written by David Parry. The illustrations were prepared by Peter Moore. The archive has been compiled by David Parry, and prepared for deposition by James Johnson. The project was managed for CA by Richard Young.

5. REFERENCES

BGS http://maps.bgs.ac.uk/geologyviewer_google/googleviewer.html accessed 21 January 2011

CA (Cotswold Archaeology) 2002 *National Trust Central Office Project: Archaeological Desk-Based Assessment*. CAT Report **02071**

Cattell, J. and Falconer, K. 1995 *Swindon, The Legacy of a Railway Town*

APPENDIX A: CONTEXT DESCRIPTIONS

Levels obtained from client drawings

Test Pit 1 102.02m AOD

No.	Type	Description	Length (m)	Width (m)	Depth (m)	Spot-date
100	Masonry	Limestone block wall			>1.2 bpgl	Modern
101	Layer	Made ground of mixed material			>1.2 bpgl	Modern

Test Pit 4 102.05m AOD

No.	Type	Description	Length (m)	Width (m)	Depth (m)	Spot-date
400	Layer	Tarmac – car park surface			0.05	Modern
401	Layer	Make-up below 400			0.2	Modern
402	Layer	Gravel levelling layer for 401			0.2	Modern
403	Layer	Earlier external surface, 80% cinders			0.08	
404	Layer	Red brick rubble make-up layer for 403			0.15	Modern
405	Layer	Natural – mottled blue grey and yellow brown clay			n/a	
406	Masonry	Stone wall set on footing 408			0.35 bpgl	Modern
407	Cut	Cut for footing 408	u/k	u/k	0.42	
408	Structure	Footing of concreted rubble for wall 406			0.65	Modern

Test Pit 9 102.02m AOD

No.	Type	Description	Length (m)	Width (m)	Depth (m)	Spot-date
900	Masonry	Limestone block wall			>1.2 bpgl	Modern
901	Layer	Made ground of mixed material			>1.2 bpgl	Modern

Test Pit 13 102.14m AOD

No.	Type	Description	Length (m)	Width (m)	Depth (m)	Spot-date
1300	Layer	Tarmac – surface for indoor go-kart track			0.05	Modern
1301	Layer	Concrete floor below 1300			0.15	Modern
1302	Layer	Rubble make-up layer for 1301			0.15	Modern
1303	Layer	Black deposit of mixed industrial waste			>0.4	Modern
1304	Layer	Concrete pad for steel roof support 1305			0.08	Modern
1305	Structure	Steel roof support			0.3	Modern
1306	Deposit	Cast iron pipe below 1304	u/k	0.15	0.05 bpgl	Modern
1307	Deposit	Cast iron pipe within 1302	u/k	0.15	0.38 bpgl	Modern

Test Pit 14 102.25m AOD

No.	Type	Description	Length (m)	Width (m)	Depth (m)	Spot-date
1400	Masonry	Coursed limestone block footing below 1403			>0.37	Modern
1401	Masonry	Brick base of culvert butting 1400			0.77 bpgl	Modern
1402	Masonry	Red brick floor – bricks measure 220x140x100mm			0.14/ 0.63 bpgl	Modern
1403	Masonry	Limestone/sandstone block wall			0.4 bpgl	Modern
1404	Layer	Concrete floor			0.18	Modern
1405	Layer	Make-up – dark brown waste material			0.59	Modern
1406	Deposit	Concrete casing around ceramic waste pipe	u/k	0.3	0.3 bpgl	Modern
1407	Deposit	Ceramic waste pipe within 1406	u/k	0.14	0.14	Modern

Test Pit 15 102.10m AOD

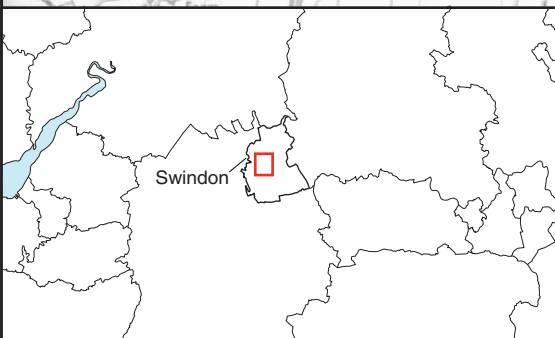
No.	Type	Description	Length (m)	Width (m)	Depth (m)	Spot-date
1500	Layer	Tarmac – surface for indoor go-kart track			0.04	Modern
1501	Layer	Concrete floor below 1500			0.15	Modern
1502	Deposit	Cast iron pipe below 1501	u/k	0.3	0.3	Modern


bpgl = below present ground level

APPENDIX B: OASIS REPORT FORM

PROJECT DETAILS		
Project Name	Former Chain Test Works	
Short description	<p>An archaeological watching brief was undertaken by Cotswold Archaeology during geotechnical groundworks associated with the development of premises for the British Postal Museum Archive at the Former Chain Test Works, Great Western Railway Engineering Works, Swindon, Wiltshire.</p> <p>On removal of the existing tarmac and concrete floors within the buildings, two test pits revealed cast iron pipes associated with the former engineering works, while excavation of another test pit revealed an earlier brick-built floor. The three external test pits contained no significant archaeological features or deposits. No artefactual material was recovered.</p>	
Project dates	18-19 January 2011	
Project type	Watching Brief	
Previous work (reference to organisation or SMR numbers etc)	None	
Future work	Unknown	
PROJECT LOCATION		
Site Location	Great Western Railway Engineering Works, Swindon, Wiltshire	
Study area (M ² /ha)	c. 0.5ha	
Site co-ordinates (8 Fig Grid Reference)	SU 1411 8485	
PROJECT CREATORS		
Name of organisation	Cotswold Archaeology	
Project Brief originator	Swindon Borough Council	
Project Design (WSI) originator	Cotswold Archaeology	
Project Manager	Richard Young	
Project Supervisor	David Parry	
MONUMENT TYPE	None	
SIGNIFICANT FINDS	None	
PROJECT ARCHIVES		
	Intended final location of archive	Content
Physical	n/a	None
Paper	Swindon Museum	Context sheets, registers, permatrace drawing
Digital	Swindon Museum	Digital photos
BIBLIOGRAPHY		
CA (Cotswold Archaeology) 2011 <i>Former Chain Test Works, Great Western Railway Engineering Works, Swindon, Wiltshire</i> . CA typescript report 11020		

Reproduced from the 2008 Ordnance Survey Explorer map with the permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office © Crown copyright Cotswold Archaeological Trust 100002109



 COTSWOLD ARCHAEOLOGY			
PROJECT TITLE Former Chain Test Works, Great Western Railway Engineering Works, Swindon			
FIGURE TITLE Site location plan			
DRAWN BY	SCALE	PROJECT NO.	FIGURE NO.
PJM	1:25,000@A4	3337	1



Kemble Drive

Railway

8510

TP 1

TP 9

Chain Test Works

TP 15

TP 13

TP 14

8505

TP 4

SU

1425

1430

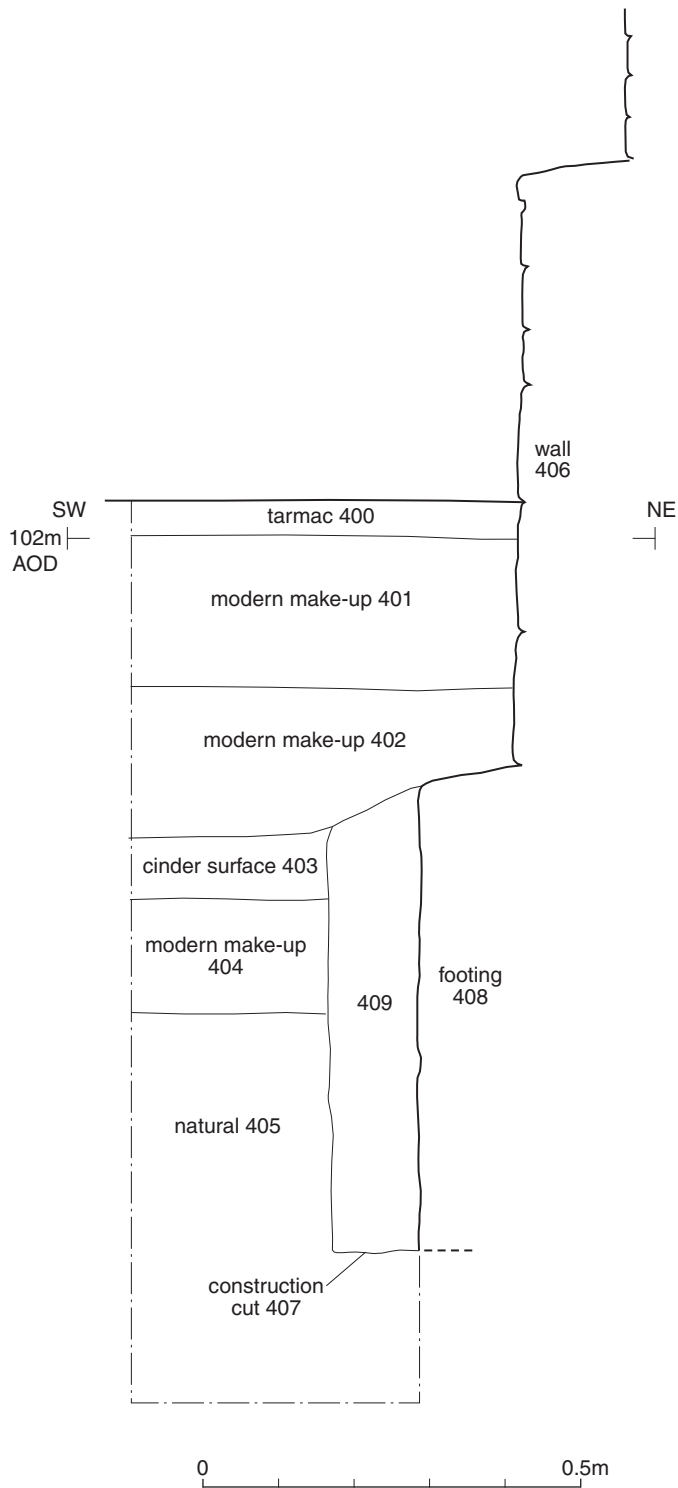
1435



PROJECT TITLE
Former Chain Test Works, Great Western
Railway Engineering Works, Swindon

FIGURE TITLE
Test pit location plan

DRAWN BY	SCALE	PROJECT NO.	FIGURE NO.
PJM	1:500@A3	3337	2



Test Pit 4, looking north west (scale 1m)



COTSWOLD ARCHAEOLOGY

PROJECT TITLE

Former Chain Test Works, Great Western Railway Engineering Works, Swindon

FIGURE TITLE

Test Pit 4: section and photograph

DRAWN BY

PJM

SCALE

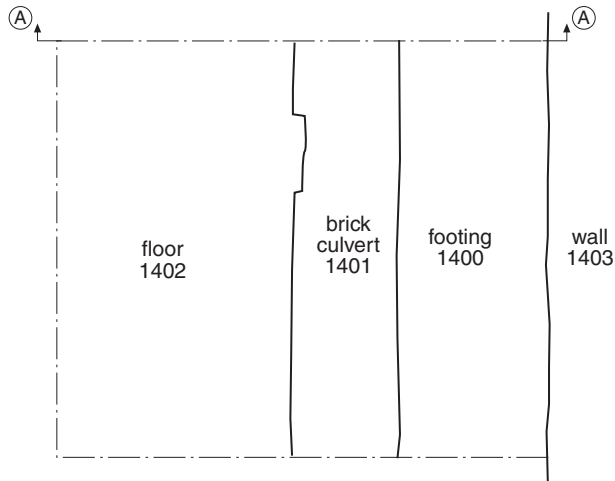
1:10@A4

PROJECT NO.

3337

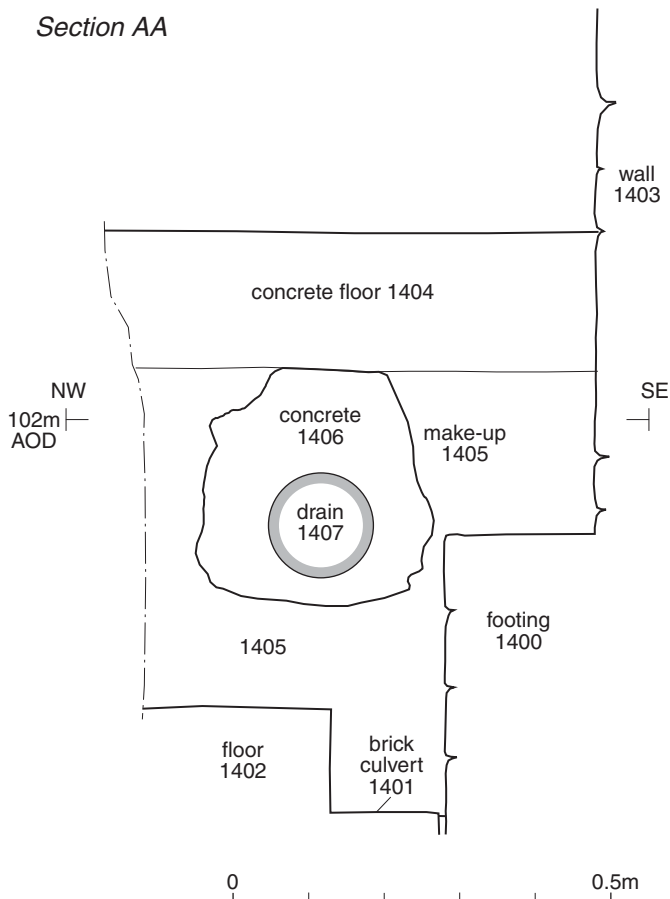
FIGURE NO.

3



Test Pit 14, looking north-east (scales 1m & 0.4m)

Section AA



COTSWOLD ARCHAEOLOGY

PROJECT TITLE

Former Chain Test Works, Great Western Railway Engineering Works, Swindon

FIGURE TITLE

Test Pit 14: plan, section and photograph

DRAWN BY

PJM

SCALE

1:10@A4

PROJECT NO.

3337

FIGURE NO.

4