RAVENSBURY ESTATE, RAVENSBURY GROVE, MITCHAM, MORDEN, LONDON BOROUGH OF MERTON: AN ARCHAEOLOGICAL ASSESSMENT

LOCAL PLANNING AUTHORITY: LONDON BOROUGH OF MERTON

SITE CODE: RVG19

NOVEMBER 2019

PRE-CONSTRUCT ARCHAEOLOGY

Assessment of an Archaeological Excavation at the Ravensbury Estate, Ravensbury Grove, Mitcham, Morden, London Borough of Merton CR4 4DU

Site Code: RVG19

Central National Grid Reference: TQ 26562 68227

Written and Researched by Tanya Jones

Pre-Construct Archaeology Limited, November 2019

Project Manager: Helen Hawkins (MCIfA)

Post-Excavation Manager: Lucy Whittingham

Commissioning Client: CgMs Heritage (part of the RPS Group)

Contractor:

Pre-Construct Archaeology Limited

Unit 54 Brockley Cross Business Centre

96 Endwell Road

Brockley

London

SE4 2PD

Tel: 020 7732 3925

Email: hhawkins@pre-construct.com

Website: www.pre-construct.com

CONTENTS

FIGURES:

PLATES

DOCUMENT VERIFICATION

Ravensbury Estate, Ravensbury Grove, Mitcham,

London Borough of Merton

AN ARCHAEOLOGICAL EXCAVATION

Quality Control

Pre-Construct Archaeology Limited Project Code		K5924
	Name	Date
Text Prepared by:	T Jones	28.11.2019
Graphics Prepared by:	R Murphy	27.11.2019
Graphics Checked by:	M Roughley	27.11.2019
Project Manager Sign-off:	H Hawkins	29.11.2019

Revision No.	Date	Checked	Approved
CgMs comments	6.12.19	L Whittingham	Helen Hawkins
CgMs comments	10.12.19	L Whittingham	Helen Hawkins

Pre-Construct Archaeology Ltd
Unit 54
Brockley Cross Business Centre
96 Endwell Road
London
SE4 2PD

1 ABSTRACT

1.1 Following an earlier archaeological evaluation (Green 2019), an archaeological excavation was undertaken between 17th April and 4th June 2019 on land at Ravensbury Grove, Mitcham, Morden, London Borough of Merton CR4 4DU. The works were commissioned by CgMs Heritage (part of the RPS Group) on behalf of Circle Housing, Merton Priory.

1.2 The project design was to carry out a watching brief on the foundation removal, ground reduction and service runs. During the foundation removal a number of structural remains were found in the north-west corner of the site which needed further investigation. A mitigation area around these remains was therefore designed and excavated whilst the watching brief continued on the larger site area.

1.3 The excavation found structural building elements which dated to the 18th and 19th centuries relating to the Calico Printing Works and former watermill (Ravensbury Mill) which were known to have been active on the site during this period.

2 INTRODUCTION

2.1 This report details the results and working methods of an archaeological watching brief and field excavation undertaken by Pre-Construct Archaeology Ltd. between 17th April and 4th June 2019 on land at the Ravensbury Estate, Mitcham, Morden, London Borough of Merton CR4 4DU, TQ 26562 68227 (Figure 1).

2.2 The site lies within the London Borough of Merton, in the parish of Mitcham. The River Wandle runs to the south-west of the site, and the site lies within the river valley area. The site is located at the southern end of Ravensbury Grove.

2.3 The site was previously the subject of an Archaeological Desk-Based Assessment (Cotswold Archaeology 2016), and an evaluation report (Green 2019) which revealed post-medieval remains comprising 18th and 19th century pits, walls, foundations and drainage culverts identified in four trenches.

2.4 An archaeological watching brief on the removal of foundations and construction of the new buildings was therefore recommended by the Archaeological Adviser to the London Borough of Merton to form the Stage 2 mitigation works for the site. During the watching brief it became apparent that former mill buildings survived intact in the west of the site. This resulted in an open area of excavation around these buildings being added to the mitigation strategy.

2.5 The archaeological investigations were commissioned by CgMs Consulting (part of the RPS Group). The field excavation was undertaken by Pre-Construct Archaeology Ltd. under the supervision of Tanya Jones and the project manager Helen Hawkins. The work was additionally monitored by Louise Davies of Historic England, Archaeological Advisor to the London Borough of Merton.

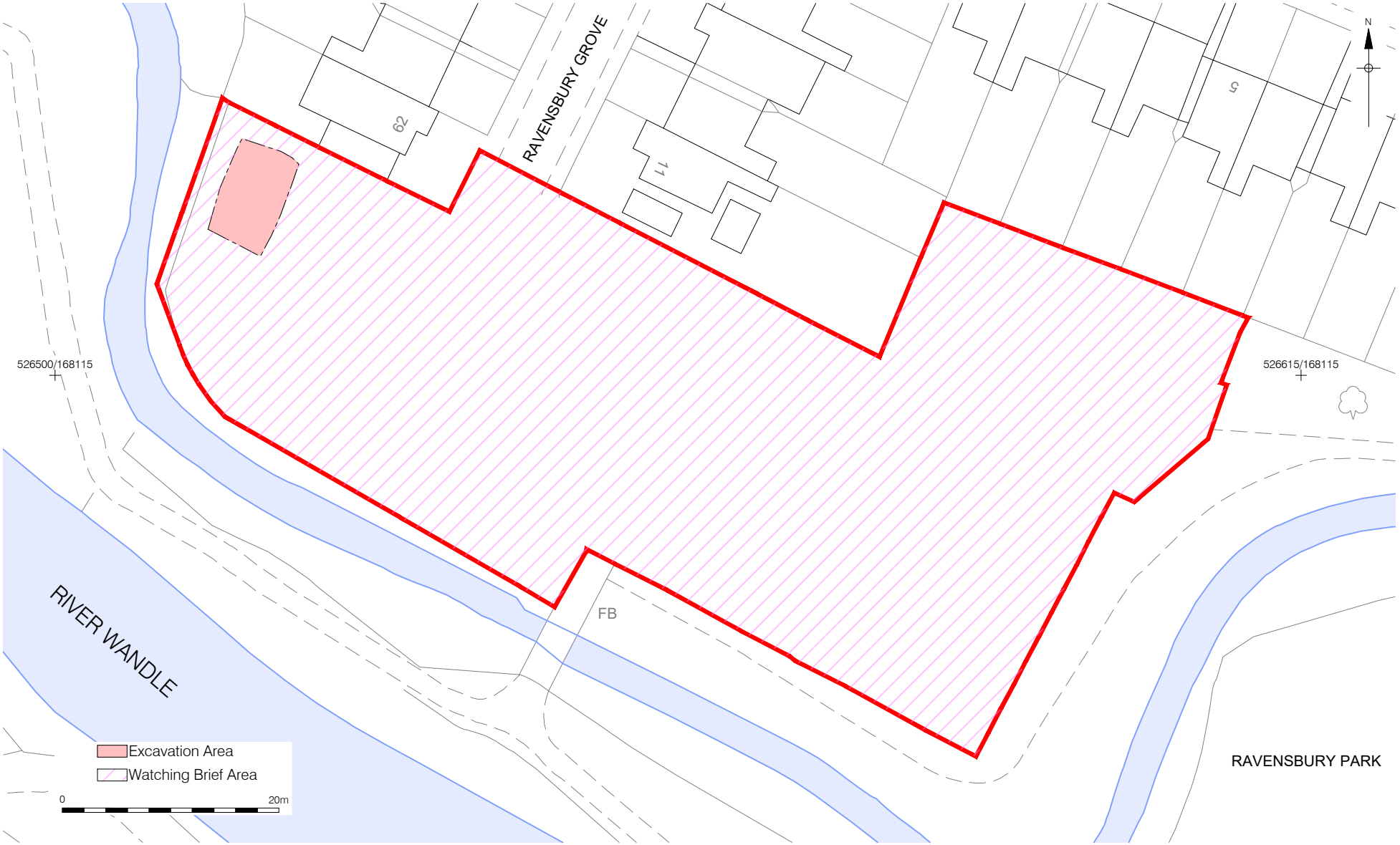
2.6 A site-specific Written Scheme of Investigation for the Stage 2 works (Hawkins 2019) detailing the methodology and work programme for the archaeological investigation was prepared prior to the fieldwork and approved by Louise Davies, Archaeological Advisor for the Greater London Archaeology Advisory Service (GLAAS) on behalf of the London Borough of Merton.

2.7 The completed archive comprising written, drawn and photographic records will be deposited at the Museum of London Archaeological Archive (LAA), 46 Eagle Wharf Road, London N1 7ED.

2.8 The site was allocated the unique site code RVG19.

28/11/19 RM

Figure 1
Site Location
1:800,000, 1:250,000, 1:25,000 at A4



27/11/19 RM

Figure 2
Trench Location Plan
1:500 at A4

3 PLANNING BACKGROUND

National Planning Policy Framework (NPPF)

3.1.1 The National Planning Policy Framework (NPPF) was adopted on 27 March 2012, (updated and revised February 2019) and now supersedes the Planning Policy Statements (PPSs). The NPPF constitutes guidance for local planning authorities and decision-takers both in drawing up plans and as a material consideration in determining applications.

3.1.2 In considering any planning application for development, the local planning authority will be guided by the policy framework set by government guidance, in this instance the NPPF, by current Local Plan policy and by other material considerations.

3.1.3 Section 16 of the NPPF concerns the conservation and enhancement of the historic environment, with the following statements being particularly relevant to the proposed development:

189. In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

190. Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal.

199. Local planning authorities should require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible64. However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted.

Annex 1: Implementation

212. The policies in this Framework are material considerations which should be taken into account in dealing with applications from the day of its publication. Plans may also need to be revised to reflect policy changes which this replacement Framework has made. This should be progressed as quickly as possible, either through a partial revision or by preparing a new plan.

213. However, existing policies should not be considered out-of-date simply because they were adopted or made prior to the publication of this Framework. Due weight should be given to them, according to their degree of consistency with

this Framework (the closer the policies in the plan to the policies in the Framework, the greater the weight that may be given).

214. The policies in the previous Framework published in March 2012 will apply for the purpose of examining plans, where those plans were submitted69 on or before 24 January 2019. Where such plans are withdrawn or otherwise do not proceed to become part of the development plan, the policies contained in this Framework will apply to any subsequent plan produced for the area concerned.

3.2 Regional Policy: The London Plan

3.2.1 The relevant Strategic Development Plan framework is provided by the London Plan updated in March 2016. It includes the following policies of relevance to archaeology within London:

Policy 7.8 Heritage assets and archaeology

Strategic

A London's heritage assets and historic environment, including listed buildings, registered historic parks and gardens and other natural and historic landscapes, conservation areas, World Heritage Sites, registered battlefields, scheduled monuments, archaeological remains and memorial should be identified, so that the desirability of sustaining and enhancing their significance and of utilising their positive role in place shaping can be taken into account.

B Development should incorporate measures that identify, record, interpret, protect and, where appropriate, present the site's archaeology.

Planning decisions

C Development should identify, value, conserve, restore, re-use and incorporate heritage assets, where appropriate.

D Development affecting heritage assets and their settings should conserve their significance, by being sympathetic to their form, scale, materials and architectural detail.

E New development should make provision for the protection of archaeological resources, landscapes and significant memorials. The physical assets should, where possible, be made available to the public on-site. Where the archaeological asset or memorial cannot be preserved or managed on-site, provision must be made for the investigation, understanding, recording, dissemination and archiving of that asset.

LDF preparation

F Boroughs should, in LDF policies, seek to maintain and enhance the contribution of built, landscaped and buried heritage to London's environmental quality, cultural identity and economy as part of managing London's ability to accommodate change and regeneration.

G Boroughs, in consultation with English Heritage, Natural England and other relevant statutory organisations, should include appropriate policies in their LDFs for identifying, protecting, enhancing and improving access to the historic environment and heritage assets and their settings where appropriate, and to archaeological assets, memorials and historic and natural landscape character within their area.

3.3 Local Policy: Archaeology in the London Borough of Merton

3.3.1 The planning policy within the London Borough is included within the Merton Local Plan, formed of a number of documents. Policies which relate to the historic environment include the Core Planning Strategy, adopted in 2011 and have been set out in the Heritage desk-based assessment report (Cotswold Archaeology 2016).

3.3.2 The justification text accompanying this Policy states that 'where the Heritage Statement identifies the potential of archaeological remains within an archaeological priority zone, an Archaeological Evaluation Report (and where necessary a field evaluation) will also be required in accordance with the requirements set out in the Archaeology SPG.'

3.3.3 Planning consent (16/P1968) has been given for the demolition of the garages on Ravensbury Grove and the existing flats at 64-70 Ravensbury Grove and the redevelopment of the site to provide 21 residential units. Two archaeological planning conditions were attached to the site:

Condition 39 and 40
(Part 1) No demolition or other development shall take place until a stage 1 written scheme of investigation (WSI) has been submitted to and approved by the local planning authority in writing. For land that is included within the WSI, no demolition or other development shall take place other than in accordance with the agreed WSI, and the programme and methodology of site evaluation and the nomination of a competent person (s) or organisation to undertake the agreed works. If heritage assets of archaeological interest are identified by stage 1 then for those parts of the site which have an archaeological interest a stage 2 WSI shall be submitted to and approved by the local planning authority in writing.

(Part 2) For land that is included in the stage 2 WSI, no demolition/development shall take place other than in accordance with the agreed stage 2 WSI which shall include: A The statement of significance and research objectives, the programme and methodology of site investigation and recording and the nomination of a competent person (s) or organisation to undertake the agreed works. B The programme for post-investigation assessment and subsequent analysis, publication and dissemination and deposition of resulting material. This part of the condition shall not be discharged until these elements have been fulfilled in accordance with the programme set out in the stage 2 WSI. Reason: to ensure that the development hereby approved would not have a detrimental impact on heritage or archaeological items in accordance with policy 7.8 of the London Plan (2015) and policy DM D4 of the sites and policies plan.

3.3.4 Subsequent to the archaeological evaluation being completed under the Stage 1 WSI, a review of the proposed groundworks showed that the below ground impact was limited to grubbing out of below ground obstructions within the footprint of the new pile cap locations, piling and new service runs (pers comm CgMs Heritage). The Archaeology Adviser to the London Borough of Merton, Louise Davies of Historic England, therefore advised that an archaeological watching brief was a suitable mitigation strategy for the archaeology on the site, as the majority of it will be preserved in situ.

3.3.5 This document reports on the results of the archaeological watching brief and area excavation for the site. This work was carried out under the Stage 2 WSI (Hawkins 2019) as referenced in the archaeological condition.

3.3.6 The site lies within the Wandle/Mitcham Archaeology Priority Zone (APZ), and directly adjacent to the Morden Hall and Park APZ

4 GEOLOGY AND TOPOGRAPHY

4.1 Geology

4.1.1 The solid geology of the site comprises clay and silt of the London Clay Formation, sedimentary bedrock formed in the Palaeogene Period. Across the site this bedrock is overlain by alluvial deposits of clay, silt, sand and gravel formed during the Quaternary period (British Geological Survey 2013).

4.2 Topography

4.2.1 Natural gravel was identified in the evaluation phase of this site in all of the trenches, ranging in depth from 15.25m OD in Trench 1 to 16.55m OD in the south of Trench 3 (Green 2019). A possible natural channel/leat was identified at the eastern end of Trench 4 which had filled up with peat. Alluvium overlaid the natural gravel in most of the evaluation trenches. Natural gravel (a greenish yellow sandy gravel context [182]) was encountered in the excavation area at approximately 16.33m OD. This was sealed by a blueish grey clay [178] and [181] approximately 0.3m thick. Both comprised alluvial deposits.

4.2.2 The site was located on relatively flat land adjacent to the River Wandle, directly to the south of the site, at a height of 17.60m OD to 18.26m OD. A former mill leat ran just to the north of the main river and formed the southern boundary of the site.

5 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

5.1 Introduction

5.1.1 The following background is taken from the desk-based assessment report prepared for the site (Cotswold Archaeology 2016).

5.2 Prehistoric

5.2.1 Early prehistoric faunal remains including species such as elephant or mammoth, great ox and bones of horses and rhinoceros were recorded at a depth of 10 to 12 feet in a sandy deposit near the Wandle in 1909-10. The bones of an elephant are also recorded from a deposit to the south of the river. The species represented indicate a pre-Holocene date, and are comparable with assemblages from Palaeolithic sites. The recorded location of these remains, from a sandy deposit, suggests that they may originate from the superficial deposits of sands and gravels recorded within the study area. The site is characterised by alluvial deposits, rather than sands and gravels and thus the potential for Palaeolithic remains within the site is not directly indicated by these findings.

5.2.2 A Palaeolithic flint flake has also been recorded within the study area, although the grid reference associated with this record is a very general one, and the precise location is unknown.

5.2.3 Possible evidence of the Mesolithic environment has been recorded by excavations to the north-east of the site. These excavations recorded a deposit of tufa spring chalk, formed during climatic amelioration possibly during the Mesolithic period. This deposit may have formed in a channel or pond/lake as indicated by underlying alluvium and dips in the natural gravel. A thin deposit of peat was found to underlay this tufa, which may contain well preserved environmental remains. This occurred in the southern part of the evaluation area and is likely to have accumulated due to its valley floor location.

5.2.4 Bronze Age barrows, forming burial mounds, are known to lie in association with rivers in some locations. The presence of a Saxon cemetery within the vicinity of the site, and near to the river, may support this general potential based on the known associations within Bronze Age burial sites. Flint flakes were found in association with this cemetery, and thus it is possible that these remains indicate the former presence of a Bronze Age barrow.

5.2.5 Excavations at Mitcham Grove recorded an Iron Age bone shuttle, although the exact location and provenance of this find are in question. However, if correct, the record of a bone shuttle from Mitcham Grove may indicate that the artefact was redeposited from settlement upstream, or that an Iron Age settlement was located at Mitcham. Iron Age coins have also been recorded from within the study area, although the exact location of these is not known.

5.2.6 Prehistoric flints and arrowheads were recovered during 19th century excavations to the south-west of the site and the evaluation to the north-east of the site recorded two pieces of prehistoric fire cracked flint which may derive from further upslope.

5.3 **Roman**

5.3.1 Excavations 500m to the north-east of the site recorded pottery and animal bone from within probable drainage ditches, possibly suggesting the presence of Romano-British field systems within this area. Rescue excavations 480m to the south-east recorded Roman period roof tile and pottery, but no features were recorded, and these finds were made in association with remains from later periods. Given the location of these artefacts, adjacent to the River Wandle, it is possible that they were redeposited from a Romano-British settlement site further upstream, however, this is not verified. Finds of a Romano-British date were also recovered during excavations of the Saxon cemetery to the east of the site.

5.4 **Saxon and Medieval**

5.4.1 The site lies within the parish of Mitcham, of which the principal settlement may be of Saxon date. The original Saxon settlement is thought to lie to the south-west of the proposed development site and is first mentioned in an 8th century charter. The Manor of Morden is also thought to have early medieval origins.

5.4.2 A large Saxon cemetery recorded to the north of the River Wandle may have served this settlement. The cemetery has seen numerous excavations and periods of disturbance since the 19th century, and the 238 graves recorded may be matched by as many again which were destroyed without record. The first graves were discovered in the 19th century by workers involved in planting liquorice, and later burials were disturbed in gravel quarrying activities and road widening. Deliberate excavation of the remains was undertaken during the period 1891- 1922.

5.4.3 The Ravensbury Grove site lies on alluvial deposits and does not include ground lying on or above the 20m OD contour, which was the elevation of the Saxon cemetery. Evaluations directly to the north-east of the site and thus lying in the area between the recorded Saxon cemetery and the proposed development site, recorded no indications that the cemetery continued this far westward. Thus, taking into account the geological and topographical position of the cemetery, and the differences compared with the geology and topography of the site, in addition to the absence of any remains within the intervening areas there is considered to be only a limited potential for remains of the Saxon cemetery to extend to within the site.

5.4.4 Excavations c. 500m to the north-east of the site recorded ditches oriented toward the River Wandle, thought to represent drainage ditches. Pottery dating to the 10th-11th century was recorded from these ditches. Additionally a horse burial, showing possible signs of butchery, was also recorded in this area, supporting the evidence for early

medieval activity within the vicinity of the site. A bowl dating to the early medieval period has also been recorded from an area to the south of the parish church, although the exact location is unknown.

5.4.5 The Domesday book refers to Mitcham as Michelham, meaning 'the great dwelling'. It has been suggested, on the basis of documentary evidence, that the site lay within an area of undeveloped farmland during the medieval period and medieval plough soils have been recorded at the Travis Perkins site, around 290m to the east of the proposed development site.

5.4.6 Medieval pottery has been recorded c. 60m to the south of the site during excavations at Ravensbury Manor. The manor is thought to date to the 13th century. This pottery derived from river silt deposits in the vicinity of a former manor house. Ravensbury House is shown on historic maps, just to the north of the River Wandle, and adjacent to the southern site boundary. Surviving remains are recorded within this area and relate to the 18th-century Manor House. Excavations conducted in 1973 recorded evidence of an 18th-century yard and outbuildings in the direct vicinity of the manor house. It has been suggested that the 18th century manor house lay on the site of an earlier, medieval, house, of which documentary evidence dating from the 16th century is known.

5.4.7 The proximity of this manor house to the site suggests the potential for associated remains. However, the Tithe map of 1847 shows the large house in the area where remains have been recorded, clearly situated beyond the stream which runs around the south-eastern corner of the site. This stream may have formed a boundary, with the manor house situated on one side and the site on the other. The straight, regular course of the stream indicates it has been altered, probably in association with industrial activities in this area. Although the natural course of the stream may not have formed a boundary between the manor house and site, the HER indicates that the manor house was moated, and the moat supplied with water from the Wandle. Thus it is likely that the remains of the manor house were separated from the site by a watercourse, first by the moat, and later the stream. However, the site retains some potential for associated features and remains.

5.5 **Post-Medieval**

5.5.1 Senex's map dating to 1729 shows the landscape around the site. The River Wandle is shown, separated into three courses in the area of the site. Rocque's map of 1768 shows the landscape around the site in more detail and suggests that one of the channels ran through the site.

5.5.2 A line of buildings is depicted on this map, possibly extending to within the site, and situated in the area between two channels of the River Wandle. During the 17th and

18th century the Wandle was an important focus for industrial activities, including calico bleaching, printing, flour and snuff milling, the manufacture of flock, felt and paper, copper and leather working, the remains of which form the partial basis for the Mitcham/ Wandle APZ. Factory remains have been recorded to the north-east of the site, and other factory remains are recorded within the area.

5.5.3 Given the location of the buildings on Rocque's map, depicted between the channels of the River Wandle, it appears likely that they relate to industrial activities. Ravensbury Mill is also depicted on this map as a snuff mill. Other snuff mills are recorded within the study area. Additionally the later tithe map of Mitcham, dating to 1847, shows buildings named as a printing factory within the southern part of the site. This map also shows canalised channels crossing the site, probably associated with these industrial operations.

5.5.4 The buildings are also shown on Lindley's map of 1793, and Mudge's Ordnance Survey map of 1819. On the former addition to the buildings in between the channels of the Wandle, the northern part of the site appears to have been under cultivation at this time. During the 18th and 19th centuries the stretch of the River Wandle in which the site lies formed the focus for market gardens geared towards the production of medicinal and aromatic plant species. It is possible that the dots arranged in lines across the site represent evidence of market gardening.

5.5.5 A series of post-medieval remains have been recorded within the wider vicinity of the site. These comprise post-medieval structural remains (walls and buildings) and associated drainage, evidence of quarrying, and made-ground and a landfill site. Post-medieval plough-soils are also recorded within the Morden Hall area.

5.5.6 The 1804 Ordnance Surveyor's draft shows the site area, and the adjacent River Wandle. The site is primarily occupied by a large field, around which the road bends much as it does today. A road leading from a structure in the south-western corner of the site (named on the Tithe map of 1847 as a printworks) leads to a large building, beyond the site area, to the south east, probably representing Ravensbury Manor. A road originally ran to this manor along the edge of the river. Ravensbury manor is known to have been connected with the printworks and bleaching.

5.5.7 The 1819 map indicates that a lane ran towards the printworks within the site. A structure is also shown within the north-western corner of the site on this map (also shown on the 1804 map), and along the northern boundary. The former is recorded on the Tithe map of 1847 as a farm building, and the latter appears to have been demolished by this time. Given its location and size this may have represented a small farmstead or agricultural building.

5.5.8 The Tithe Map of 1847 (Figure 4) shows the site in detail. In addition to the printworks within the southern part of the site, there are also depictions of features associated with

a bleaching ground, and associated buildings, in addition to sluices and channels crossing the site. In the north-west corner of the site the farm building is shown, adjacent to a small house and garden.

5.5.9 Historic Ordnance Survey maps indicate that the site lay just to the north of an area named as 'The Grove' characterised by enclosed fields and woodland belts shown on the First Edition Ordnance Survey map. Water channels and sluices are shown running across the site, probably associated with the workings of the Ravensbury Printworks within the southern part of the site, or with Ravensbury Mill to the south-west of the site.

5.5.10 Short rows of terraced housing are first shown within the site boundary on the 1897 Ordnance Survey map, adjacent to the Mitcham Linoleum and Floorcloth Works, which had been constructed directly to the east of the site. The pattern of water channels and associated sluices within the site had altered since the production of the First Edition Ordnance Survey map. Although structures associated with Ravensbury Print Works are depicted on this map within the southern part of the site, they are not labelled as such on this map and may have been disused at this time.

5.5.11 The 1913 and 1938 Ordnance Survey maps show little change within the site area. However, major changes to the wider landscape occurred during the first half of the 20th century. Maps pre-dating and post-dating this period show a rapid increase in the numbers of houses present. In 1919 the area of Morden had been characterised by field systems, with activity focused on the River Wandle (although for the most part this activity did not result in dense concentrations of structures). This was also the case in 1938. However by the post-war period Morden was heavily populated and expanses of housing had covered the vast majority of fields in this area.

5.5.12 Aerial photographs dating to 1946 and 1947 show construction activities within the site associated with the present housing estate. The terraces were retained until c. 1955, when an aerial photograph indicates they were demolished.

6 ARCHAEOLOGICAL METHODOLOGY

6.1 A Stage 2 mitigation scheme for archaeological watching brief was designed to monitor the removal of foundations, ground reduction and drainage runs (Hawkins 2019). During the foundation removal brickwork was exposed in the west of the site which related to the former mill buildings. Having cleaned and identified the area it was decided, in discussion with the archaeological adviser and CGMS that an excavation around these remains would be required, in accordance with the methodology outlined in the watching brief WSI. The ground reduction and drainage runs carried on being observed as a watching brief.

6.2 The ground reduction was undertaken by a mechanical 360o excavator with a flat bladed bucket under archaeological supervision in controlled spits of up to 100mm until archaeological deposits, features or structures were encountered. These were where possible then cleaned, investigated and recorded by archaeological staff using hand tools.

6.3 All works were undertaken in accordance with the approved Written Scheme of Investigation (Hawkins 2019).

6.4 All site records were identified using the unique Museum of London site code RVG19, which was allocated to the site by the Museum of London Archaeological Archive (LAA) at the start of the initial phase of evaluation. All numbering (i.e. trenches, contexts, sections etc) was sequential from the previous phase of work to ensure no duplication.

6.5 The investigation of all significant archaeological deposits, features and structures was undertaken by full-time archaeologists employed by PCA. All significant deposits and features were assigned individual context numbers and recorded using the standard Museum of London single context recording system. Context information was recorded on pro-forma context sheets and all plans and sections were drawn at a scale of 1:20 and 1:10 respectively on polyester based drawing film (permatrace).

6.6 A full photographic record of the site was maintained in HQ digital photography.

6.7 All finds from the site were retained for off-site assessment. Samples were taken from appropriate contexts for off-site processing and assessment.

6.8 Feature and site plans were drawn from a site grid established by PCA and surveyed to the OS grid. The site grid was checked by PCA's surveyor at regular intervals.

6.9 Site levels and datums were established from spot heights installed on the site at various locations by the PCA surveyor using dGPS survey equipment.

6.10 Upon completion of all phases of work the archive will be submitted to Museum of London Archaeological Archive for deposition under the site code RVG19.

7 PHASED ARCHAEOLOGICAL SEQUENCE

7.1 **Phase 1: Natural**

7.1.1 The earliest deposit was encountered during the watching brief, consisting of a greenish yellow sandy gravel [182] at 16.33m OD. This was sealed by a blueish grey clay [178] and [181] approximately 0.3m thick. These deposits were likely to be part of the river deposits (alluvium) from the Wandle which runs alongside the site.

7.2 **Phase 2: Mid-Late 18**th **Century (Figures 3 and 4)**

7.2.1 The earliest feature in the north-west corner of the excavation site was a large solid red brick structure [140]/[126] which appeared to have two separate phases of construction. These appeared to have been built within a short timeframe as both were parts of the same feature which acted as a brick foundation to the dye furnaces. The lower part of the brick base [140] was 2.32m x 4.20m+ and 0.75m high and overlain by a second phase of solid brick construction [126] of similar size on a slightly different alignment (Plate 2). The handmade bricks used in the construction of this feature dated from between 1700–1900 using post great fire bricks and RVG1 indicative of a later 18th century date (Appendix 4)

7.2.2 Overlying the brick foundation base [140] were two brick floors [163] and [164] (Plate 3) which, due to being on the edge of the excavation area, were not investigated to their full extent. These floors were constructed of frogged post-great fire brick (fabric 3032) indicative of a later 18th -century date (Appendix 4).

7.2.3 Partially overlying brick floors [163] and [164] the second phase of the brick foundation/structure [126] incorporated two circular ‘furnaces’ [105] and [106] as part of the same structure (Plate 4), again likely to be later 18th century in date, constructed of gently frogged brick (fabric 3032, Appendix 4). Thought likely to be dye furnaces they were both constructed slightly differently. Base [105] was constructed entirely of brick with a rectangular insert facing in a north-west direction with a brick floor. Base [106] was also constructed of brick but with a stone base included at the time of construction. The alignment of the insert in furnace [106] faced directly north but both inserts fed into a brick-lined channel or path [163/164] used to gain access to the furnaces (Plate 3). The full extent of this path/channel was not investigated as it ran beyond the LOE.

7.2.4 The furnace structures [105] and [106] were typical brick-built circular features each approximately 1.6m in diameter with rectangular inserts used as possible fire/raking out pits for use during the manufacturing process. At the entrance to the raking out pits the brickwork was deliberately shaped into small buttresses possibly to support baffles/ doors (?metal) which would have controlled air flow and firing temperature. These

furnaces were typical of late 18th/ early 19th -century furnaces used to heat the raw materials from which dye was extracted for use in the printing works.

7.3 Phase 3: 19th Century (Figure 4)

7.3.1 To the south and alongside the brick foundation base [126] for the dye furnaces an east-west brick culvert [103] sloped away from the river and was likely part of the water management system for the mill. Brick samples taken from this culvert were identified as locally made frogged sandy bricks dated as between 1750 and 1850 (fabric 3032, Appendix 4). This culvert respected the layout of brick structure [126] and therefore post-dated it. Pottery associated with the construction cut for culvert [103] was of an early post-medieval character (PMR; 1600-1800, Appendix 3). The continued use of this feature into the 19th century is shown by a collection of finds found in sediments collected from within the culvert (bulk samples <2> and <3>, Appendix 10), producing well-dated finds. Of note were a George III halfpenny (SF 2) minted in Birmingham in 1806 or 1807, a small pottery assemblage dated 1820–1900 and a clay tobacco pipe stamped Smith and in a style typical of the 1830s (Appendix 5). The construction of this culvert in similar bricks to the dye furnaces might have been in the late 18th century but appears to have been is use in the early 19th century.

7.3.2 To the south of culvert [103] and partially overlying it was an 'L' shaped brick wall [121] and [131]. On its south side it butted up against the wheel pit (walls [102] and [130]) forming a small rectangular ?washroom or tank/cistern with brick-lined internal floor [132] (Figure 4, Plate 2 and 9). Pottery from within the fill [120] of this feature was from a non-local red earthenware collecting jar (1650–1900, Appendix 3) and though usually associated with sugar refining may have had a secondary use at this site as a container associated with the raw materials used to make dye or for the storage of dyes being used in the calico printing process. An unusual collection of animal bone including cattle, sheep, fallow deer and chicken were found within the fill [120] of this feature (Appendix 9).

7.3.3 A wheel pit is formed between walls [102]/[130] and [180]/[114] (Figure 4). In the base of the wheel pit was a compacted mid greyish yellow sandy gravel surface [160] cemented with a mid brownish grey lime mortar [161] which formed the base of the wheel pit towards its eastern end. This abutted a red brick masonry ramp [123] at the western end of the wheel pit which sloped away to the north-west (towards the river) and likely formed the curved base for a water wheel (Plate 10). Wall [102] had some damage along the brickwork which suggested that machinery had been attached to it.

7.3.4 The south wall of the wheel pit was used to create brick structure [118] which appeared to contain a cistern/tank from which iron pipes ran into a missing structure on brick base [119] and out southwards below the stone floor surface [101] (Plates 11 and 12). The function of the iron pipes is unknown but may have carried steam generated by the wheel pit around the building to drive other machinery. Adjacent to the wheel pit and

cistern/tank [118] a brick base [119] had been constructed to support ?machinery (now missing) and contained Fletton bricks date 1850—1950 (Appendix 4). At each end of brick base [119] were two short channels leading out into the wheel pit on the north side and on the south side, created two indents leading down to compacted rubble floor/mortar surface [162] .

7.3.5 On the eastern side of structure [119] was a wall containing two iron rods [114] (Plate 12) which appeared to have had machinery attached and later removed.

7.3.6 The remining part of the mill structure in this southern extent was contained within two wall [100] and [115] (Figure 4). Wall [100] appeared to have a small section cut out and repaired in order for the iron pipes which connected to the cistern/tank [118] to run through it. Wall [115] defined the eastern extend of this room/building which contained a working floor surface [101] comprised of reused Yorkstone slabs, reused Niedermendig lava stone and yellow stock bricks (1770–1940) with a covering of concrete.

7.3.7 The southernmost part of the investigation contained a small section of wall [143] with the remains of a brick surface [151] which was likely part of a now demolished structure. This appeared to be a very similar date to the main structure.

7.3.8 A sub-rectangular pit [158] cut adjacent to wall [130] is of an unknown function (Figure 4) and contained animal bone from cattle and sheep but no dateable finds.

7.3.9 With the exception of culvert [103] all of these Phase 3 features were associated with the Mill building and the introduction of machine bricks (3261, 3038 fabrics) bonded with very hard cemented mortars, considered to be of a 19th -century date.

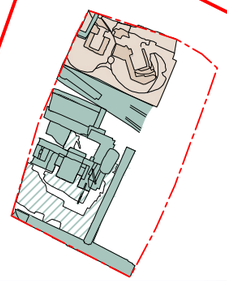
7.3.10 During the watching brief there were a number of brick features identified primarily associated with the factory building. These comprised one course from brick walls [110], [111], [112] and [172] possibly from the same building and various stretches of brick wall [113], [165], [166], [167], [168], [172] and [173] which were left mostly in situ. Four brick postpads were recorded in the area of the new attenuation tank (context [114]). All of these features were likely part of the 19th century development of site.

7.4 **Phase 4: Modern**

7.4.1 Sealing the archaeological sequence was the modern made ground [+], [174], [175] and [179].

N

Figure 4



[166]

[167]

[113]

[165]

[168]

[173]

[114]

[172]

[110]

[111]

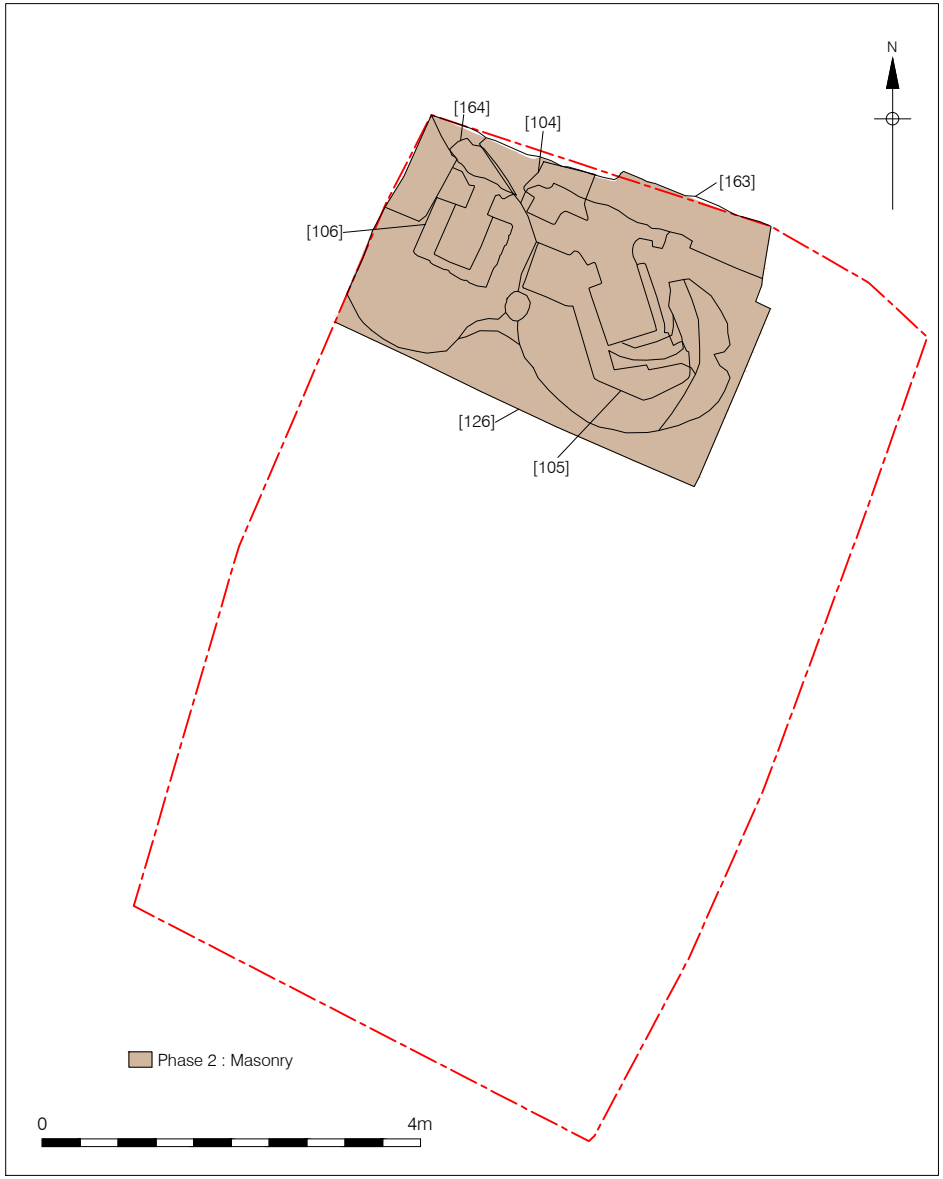
[112]

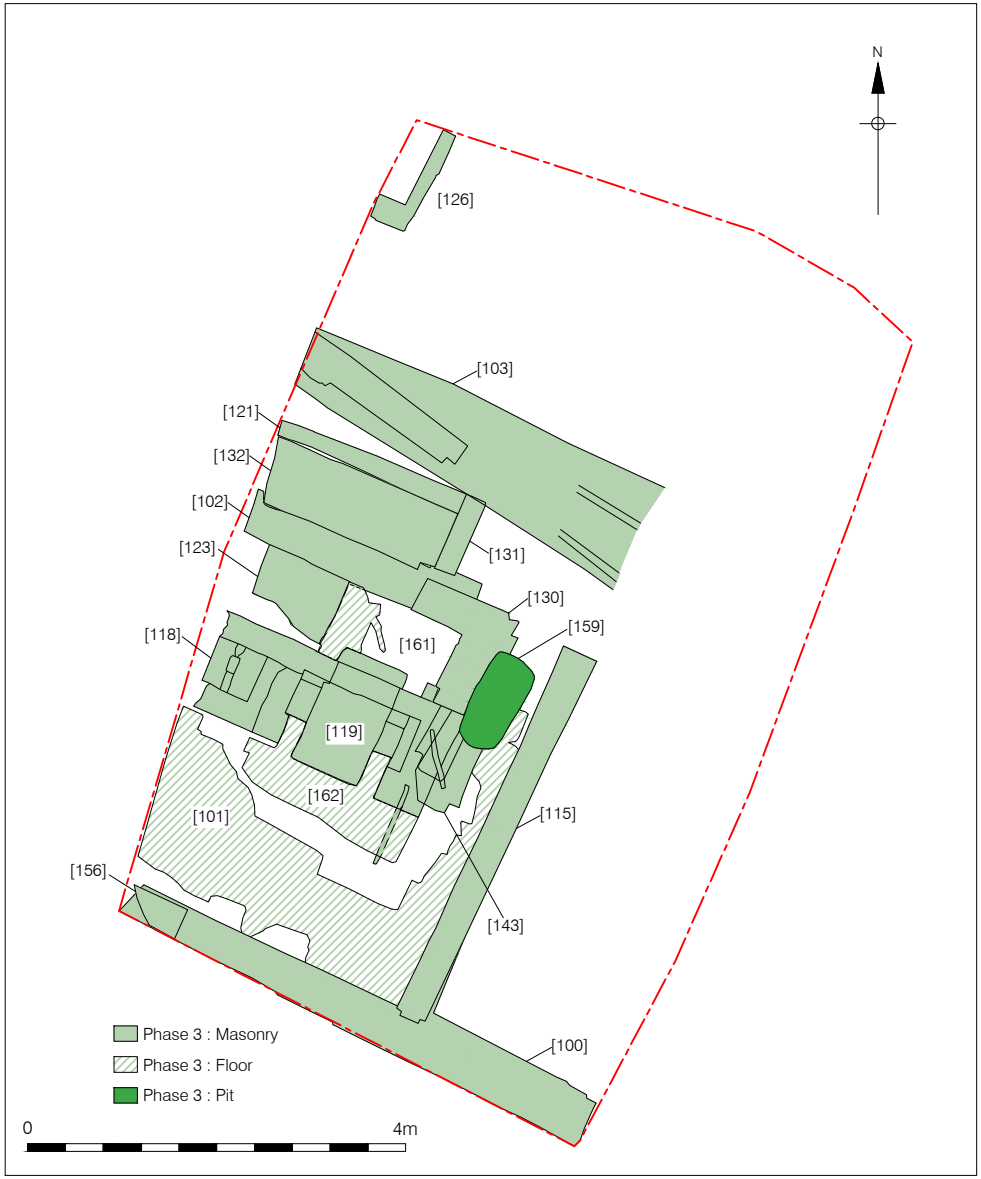
Phase 2: Masonry
Phase 3: Wall
Phase 3: Pit
Phase 3: Floor
Watching Brief Masonry

0 10m

25/11/19 RM

Figure 3
All Features Plan
1:250 at A3





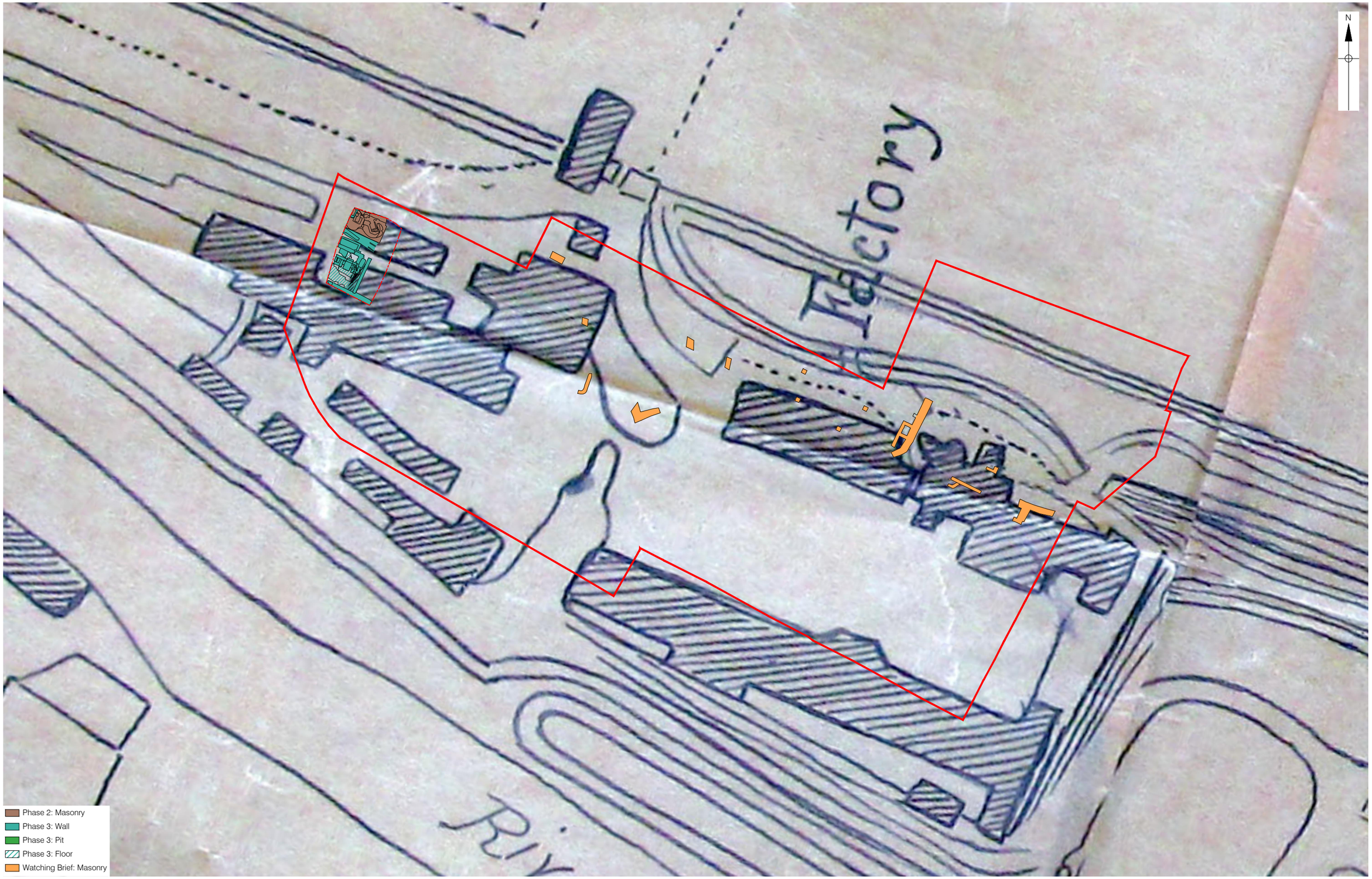
22/11/19 RM

Figure 4
Plan of Western Excavation Area
1:80 at A4

0 25m

25/11/19 RM

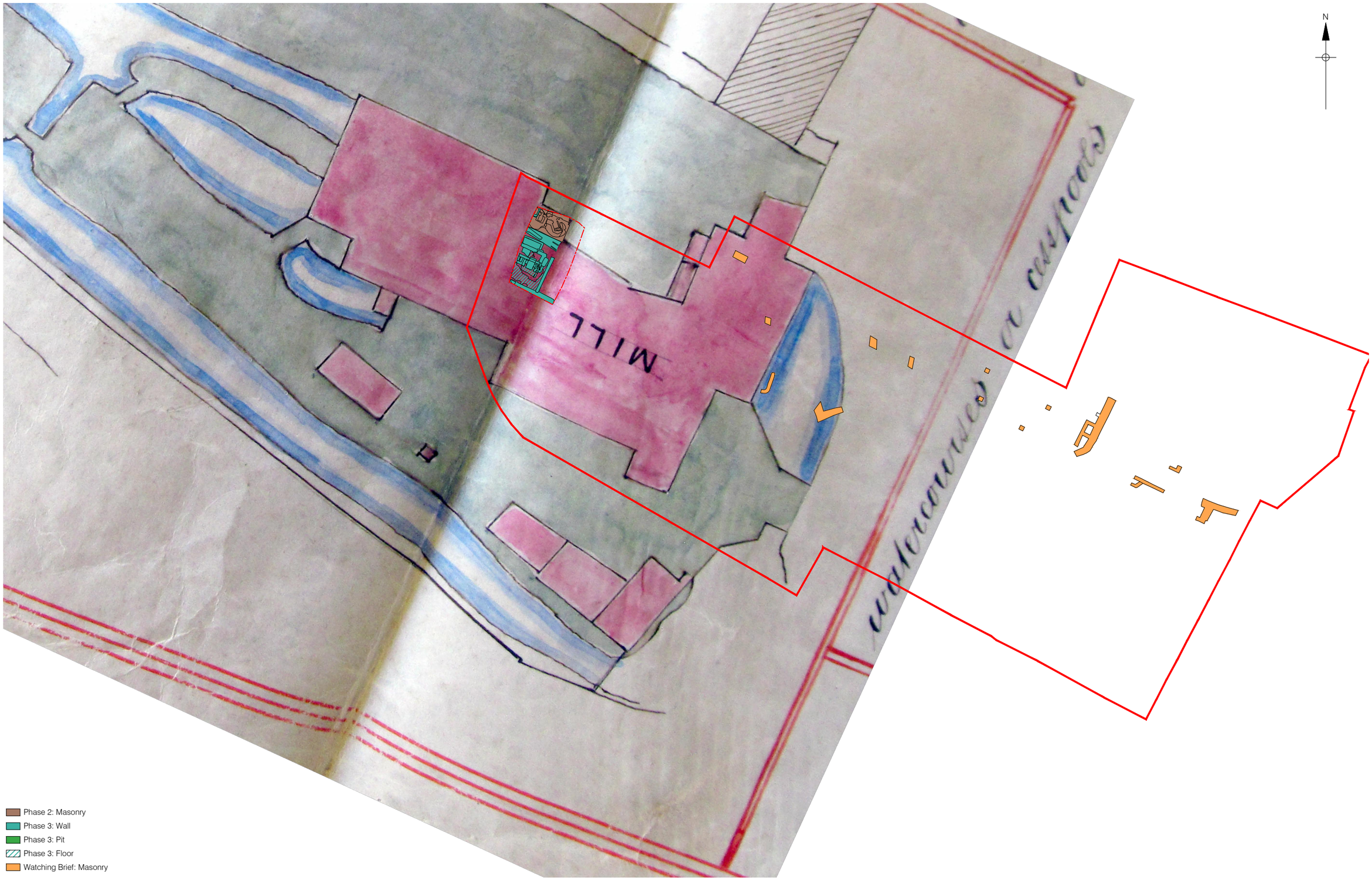
Figure 5
Features overlain on the Mitcham Tithe Map, 1847
1:400 at A3



0 25m

25/11/19 RM

Figure 6
Features overlain on Sales Particulars Plan, 1855
1:400 at A3



25/11/19 RM

Figure 7
Features overlain on the Lease Plan,1868
1:400 at A3

PLATES

Plate 1: Overview of the excavation area showing the late 18th and 19th -century remains of the Mill from the Calico printing works, looking south-west.

Plate 2: Phase 2 brick base foundation [140] and [126] to the dye furnaces, showing the slightly different alignment of the two parts of this structure, looking north-west.

Plate 3: Detail of brick foundation [140] overlain by brick base [126] on a slightly different alignment and brick furnace [106]. Looking north-west. (0.5m scale)

Plate 4: Overview of the two furnaces [105] and [106] used to extract dye for the printing works. Looking south-east. (0.5m scale)

Plate 5: Dye furnaces [106] showing the brick buttresses at the entrance to the flue/rake-out pit, leading to a brick-lined floor [163/164]. Looking south-east. (0.5m scale).

Plate 6: Dye furnace [106] showing the stone slab floor and buttressed brickwork at the entrance to the flue/rake-out pit. Looking north-east. (0.5m scale).

Plate 7 Dye furnace [105] showing the brick floor and buttressed brickwork at the entrance to the flue/rake-out pit. Looking south-east. (0.5m scale)

Plate 8: Brick culvert [103] (Phase 2) from the late 18th century Calico Printing works, looking south-east. (0.5m scale)

Plate 9: small ?washroom or tank created from L-shaped walls [121] and [131] abutting the wheel-pit wall [102]. Looking south-east. (0.5m scale)

Plate 10: The chamfered base of wheel pit [123] showing the water channel sloping away to the north-west. (0.5m scale)

Plate 11: Brick tank [118] with pipes leading into a missing structure supported on brick base [119] to the south-east. Note the pipes leading out of tank [118] to the south-west and under floor [101]. Looking north-west (0.5m scale)

Plate 12: Brick structure [119] with flues leading into the wheel pit to the north-east and onto floor [162] to the south-east. Looking north-east (0.5m scale)

8 ARCHAEOLOGICAL PHASE DISCUSSION

8.1 **Phase 1: Natural (Figure 3)**

8.1.1 The solid geology of the site comprises clay and silt of the London Clay Formation, sedimentary bedrock formed in the Palaeogene Period. Across the site this bedrock is overlain by alluvial deposits of clay, silt, sand and gravel formed during the Quaternary period (British Geological Survey 2013). Natural deposits were encountered in the watching brief, consisting of a greenish yellow sandy gravel [182] at 16.33m OD. This was sealed by a blueish grey clay [178] and [181] approximately 0.3m thick. These are likely to be the river deposits (alluvium) relating to the Wandle which runs alongside the site.

8.2 **Phase 2: 18th** C**entury**

8.2.1 Between the 17th and 18th century this area of the Wandle was subject to a huge growth in industry with a number of different factories and mills being constructed in order to allow for industrial development. The site is on the known location of Ravensbury Mill used as a calico printing works, for which there are documentary references suggesting this first appeared in the 17th century and was continually in use until the 19th century. The earliest phase of the building found during the excavation was from the mid to late 18th century/early 19th century (c 1750-1800/1850) and identified two dye furnaces that were used to extract dye from raw materials as part of the printing process belonging to the calico printing works. The brick-built culvert/drain is also considered to be of a similar date constructed from hand made bricks (pre-1850) and presumed to be related to water management associated with the processes of washing and dying calico which required a supply of running water to be available. Other culverts were identified previously in the evaluation (Green 2019, Trenches 1 and 3) in an area associated with both the Mill and the factory buildings. These were dated as 1780–1900 and therefore were key features within an industrial process which required copious amounts of clean water. Both the dye furnaces and culvert identified in the excavation continued in use into the 19th century as shown by the associated finds in sediments within the culvert [103] dating from c. 1830.

8.3 **Phase 3: 19**th **Century**

8.3.1 A second phase of buildings of 19th -century date and later are associated with the calico printing works in the Mill and Factory building as clearly referenced on the historic maps of 1855 (Figure 6) and 1868 (Figure 7). The archaeological remains of various washrooms/tanks (121/131] (Plate 9) and [118] (Plate 11) , a wheel pit ([102/130], Plate 10), brick machine base [119] (Plates 11 and 12) and iron piping running between tank-like features and under floor [101] (Plate 12) are all industrial features associated with processes from the calico printing works known to be connected with Ravensbury from the 19th century. The alignment of the wheel pit identified by walls [102/[130] potentially

relates to the water channels which come into the Mill building as clearly depicted (watercourses and cesspools) on the 1868 lease plan (Figure 7). All of these features are constructed of machine-made bricks (3261, 3038 fabrics) bonded with very hard cemented mortars of c 1850. Under the ownership of Dempsey and Heard (shawl and linen printers) the print works were in business in the mid 1850's to c. 1862 (Montague 2008, 75), being the last period in which they were associated with textile printing.

8.3.2 Evidence of iron piping may be associated with the transporting of steam for power around the premises and various iron bars found close to brick structure [119] (Plates 11 and 12) maybe associated with 19th -century industrial machinery.

8.3.3 In the watching brief area, remnants of walls dating from the 19th century were identified as primarily associated with the factory building, as shown on the 1847 and 1855 maps (Figures 5 and 6). These comprised brick walls [110], [111], [112] and [172] which were possibly from the same building, but have clearly been truncated by clearance of this building at a later date. Similar features were identified within the evaluation phase of investigation (Green 2019) and may also be related to the factory building as shown in the 1846 Mitcham Tithe map (Figure 5) and in the 1855 sale map (Figure 6).

8.4 **Phase 4: Modern**

8.4.1 The last business practising in the Mill is documented as 1884 after which it was used in the 1930's and early 1940's as a warehouse and workshop for the Hatfield Estate (Montague 2008, 165). In the mid-20th century the mill had fallen out of use and after being bombed during the Second World War was demolished and the site was redeveloped for housing and garages which were on site until the most recent work was started.

9 ORIGINAL RESEARCH AIMS AND OBJECTIVES AND REVISED RESEARCH QUESTIONS

9.1 A number of research aims were identified subsequent to the evaluation phase which were detailed within the specific Written Scheme of Investigation documents for the mitigation phase (watching brief and excavation) (Hawkins 2019). These research aims and questions are addressed below.

General Research Objectives

- **To determine the natural topography of site, and the height at which it survives.**

  Natural deposits were encountered in the watching brief, consisting of a greenish yellow sandy gravel [182] at 16.33m OD. This was sealed by a blueish grey clay [178] and [181] approximately 0.3m thick. These are likely to be part of the river deposits (alluvium) from the Wandle which runs alongside the site.

- **To establish the presence or absence of archaeological activity on the site.**

  There was evidence for a number of buildings which appear to have been part of the 18th and 19th -century development of the site. The most significant of these was the structure remaining to the west of the site which was likely part of the main mill building which appears to have been built in the mid–late 18th century and then additional structures built during the 19th century.

Specific Research Questions

- **To establish the presence or absence of post-medieval activity at the site relating to the mill and other former buildings shown on the Tithe map, including former leats.**

  Further documentary research carried out at the Surrey History Centre has been able to examine sales particulars from 1855 (Figure 6) and mortgage particulars for a lease of Ravensbury Mill of 1868 (Figure 7) which both show detailed representations of the site. The archaeological remains relate particularly well to the outline of building shown in 1855 (Figure 6). Further documents were examined, such as a schedule of buildings listed for a mortgage lease dated 1836 (K 85/4/89 Appendix 2) and a sales particular dated 1862 which both have detailed reference to the various buildings on site.

- **To establish the nature, date and survival of activity relating to any archaeological periods at the site.**

  In the western part of the site an area excavation was carried out where more substantial remains of the mid-late 18th and 19th century mill survived. These were fully excavated and recorded.

- **To establish the extent of all past post-depositional impacts on the archaeological resource.**

  Recent impacts on the site appear to have levelled the remains of the calico printing works at Ravensbury Mill. The most substantial of the brick-built remains surviving in the western area have been recorded and interpreted in this report.

Revised Research Aims

The results of the archaeological excavation did not raise any issues that warrant further research.

10 IMPORTANCE OF THE RESULTS, FURTHER WORK AND PUBLICATION PROPOSALS

10.1 Importance of the Results

10.1.1 The results of this watching brief and excavation have been successful in identifying parts of the Ravensbury Mill, specifically associated with a calico printing works which formed part of the Mill and the Factory in the late 18th and 19th centuries. These results are considered to be of local significance and interest and contribute to the wider picture of the post-medieval industrial landscape populated by numerous mills from the 18th to 20th centuries in the Wandle valley and particularly associated with Mitcham.

10.1.2 From the late 17th century onwards Ravensbury was an important centre associated with textile bleaching and the printing industry on the banks of the River Wandle at Mitcham (Montague,2008, 61). The remains discovered in the watching brief and excavation area date from the mid-late 18th century (Phase2) and the 19th century (Phase 3) and are associated with the Factory and Mill which formed parts of the calico printing works at this time.

10.1.3 From printed sources (Montague 2008) and further research into documents held at the Surrey History Centre (Appendix 2) it has been possible to associate the structures found in this excavation with the calico printing works which were first established in the mid 18th century and associated with the Arbuthnot family from c. 1755 (Montague 2008, 65). The earliest structures on site, the dye furnaces [105] and [106] and culvert [103] constructed of hand-made bricks (1750–1800) would appear to date from the mid–late 18th century and continued in use into the 19th century.

10.1.4 The calico printing works continued as a successful business into the 19th century, changing ownership at various times and by 1868 became a flock manufacturer. By 1874 it was let as two premises (the former mill and the former Factory) to businesses trading as lace merchants (Appendix 2). The last business associated with these premises as working industrial buildings was a ‘skirt and fancy manufacturer’ who leased Ravensbury Mill until 1884.

10.1.5 The various archaeological remains dating from the 19th century (Phase 3, Figure 4) have been identified as washrooms/tanks, a wheel pit, brick machine bases and iron piping which potentially carried steam (as power for machinery). These were industrial features associated with textile production and the processes involved in the calico printing works. The finds assemblage associated with culvert [103] suggests that these features and their use date from after c.1830. Documents such as those associated with the arrangement of a mortgage on the property in 1836 (K 85/4/89, Appendix 2) list a premises of 46 rooms and, in particular, the Mill House containing various features which could be those found in the archaeological record. Similarly the 1855 sale of particulars for the Ravensbury printing works included a map (Figure 6, Appendix 2)

showing a detailed layout of the Mill and Factory and a sales notice of 1862 which describes the works as 'very extensive and conveniently arranged", suitable for a wide range of uses including 'Bleaching, washing, dyeing, paper making, calico or fancy printing, brewing, color or drug grinding, or any business requiring water or steam power' (Appendix 2, Croydon Chronicle and East Surrey Advertiser 12/04/1862).

10.1.6 The presence of similar brick-built buildings, culverts/drains and water channels/leats found in the evaluation phase of investigation (Green 2019) supplement the archaeological evidence for these remains being associated with the Ravensbury print works in operation till c 1862. The alignment of the wheel pit [102]/[130] is similar to the direction of watercourses indicated on the lease plan of 1868 (Figure 7) suggesting this was a water powered wheel within the Mill building, used to power machinery. Water management was a key component to the textile printing process which involved bleaching, dyeing and washing with access to fresh water supplied from the River Wandle.

10.1.7 Evidence of iron piping (Plate 11) may be associated with transporting steam for power around the premises or for the copious amounts of water necessary for the various dyeing processes involved. Various iron bars, for example, in a position close to brick structure [119] (Plate 12) are remnants of 19th -century industrial machinery and structures.

10.1.8 The various finds assemblages from this site are small but have elements which are relevant to the interpretation of these industrial structures. Elements of the post-medieval pottery may be related to the storage of dye substances or raw materials associated with dying as in the pottery from the fill [120]. The collection of copper-alloy pins in culvert [103] are possibly related to textile processing rather than just personal dress accessories. More obvious connections with the industrial nature of the site were collected in unstratified fragments of iron machinery which included a pulley wheel and two machinery components consisting of pins fitted with cogwheels or gears. Two small fragments of possible pigment, one vivid yellow and the other blue were collected from inside the culvert [103] as were a collection of finds (pottery, a coin and CTP) which could be more closely dated as c.1830.

10.2 Further Work

10.2.1 The results of the archaeological excavation, combined with the evaluation (Green 2019) have recorded structural elements of the Factory and Mill buildings at Ravensbury Mill. As those associated with the Factory have been reduced and truncated to a single course of brickwork and no historical plans confirming the function of the Mill building have been found to date, there is little further analysis work which could contribute to a publication. This site remains of local significance as evidence of

the late 18th to mid 19th -century Mill but contributes little information to further our understanding of the printing and textile industries within this historical area of Mitcham.

10.2.2 Documentary research has recovered various mid 19th century find sales and lease details which list the particulars comprising the Ravensbury Mill estate. It is doubtful, however, that the exact function of the structures (other than the dye furnaces and the wheel-pit) or internal plan of these buildings exists for the mid 19th century layout of these buildings. No further documentary research is therefore recommended. An online search of the Mill Archive (http:/the millsrchive.org) has failed to produce any relevant documentation.

10.2.3 The range of pottery recovered during the excavation can be well-paralleled in the greater London region and locality. The pottery probably originates from households and industries in the vicinity but occurs in such small groups that little can be determined about the nature of activity. Indeed, with the exception of the syrup-collecting jar in context [120] there is little of note and no functionally specific groups. The primary significance of the assemblage is in providing dating evidence for the features from which it was recovered and having little intrinsic merit no further work is recommended.

10.2.4 In summary, the building material found during the excavation very much reflects the construction, alterations and rebuilding of the structures related to the mill between early-mid 18th century to beginning of the 20th centuries. No further work is recommended.

10.2.5 The clay tobacco pipe stems have no significance at a local level, particularly as the material occurs in a small, fragmentary quantity and with little meaning. It is assumed that the assemblage is derived from sources on the site. The main potential for the clay tobacco pipes is to broadly date the contexts in which they were found. There are no recommendations for further work on the clay tobacco pipes and it is further recommended that the non-diagnostic fragments are discarded.

10.2.6 The fragments of glass have no or little significance as it occurs in such a small quantity and has very little meaning. The glass does have the potential to date the contexts it was recovered from. There are no recommendations for further work on the glass, which, as it has been fully recorded, can be discarded at the archive stage of the project.

10.2.7 The assemblage of metal finds from Ravensbury Grove provide a small glimpse of the material culture of 19th-century industrial activities, more specifically to the calico printing works, or possibly the flock manufacturers, operating on site in the 19th century. The finds include dress accessories such as copper-alloy pins and probable work-related items in the form of a crude lead vessel and possible fragments of colour pigments together with iron machinery components. However, the iron machinery

components were unstratified and with the finds were found primarily in the drain/culvert [103] meaning the exact location of these finds in relation to any industrial processes being carried out at the Mill is lost. No further work is therefore recommended.

10.2.8 Two fragments of worked stone incorporated in the stone and brick floor [101] include a substantial piece of heavily worn imported lava quern stone. The piece is almost certainly the remains of a millstone and may originate from the nearby Snuff Mills where it would have been employed in the crushing of tobacco to manufacture snuff. It is possible that the dressed paving slab of York stone also represents secondary use, but this is more difficult to establish. No further work is recommended for these pieces of stone.

10.2.9 The animal bone, comprising a small, well preserved assemblage shows some trends typical of a late post-medieval assemblage i.e. large individuals resulting from stock improvement, use of sawing in butchery and the presence of rat gnawing. An interesting aspect of the assemblage is the presence of fallow deer skull and mandibles found in fill [120] of the tank [121/131] though the provenance of the remains is unclear (do they represent a high-status household or are they the result of poaching). The assemblage is significant as few assemblages of this date have been studied and although late post-medieval animal bones are known from Merton Priory only the earlier assemblages were previously studied. It is recommended that a summary report of this assemblage is included with the site archive as the origin of this material may be related more to the owners of the mill rather than to this industrial premises.

10.2.10 As assessment of the environmental remains recovered from this assemblage has shown that preservation of archaeobotanical material was poor, with the bulk of the samples being comprised of industrial waste; as a result, no further work is suggested on these samples.

10.3 Publication Proposal

10.3.1 The results of the archaeological excavation are of local significance but of limited value for any further interpretation of industrial mills. Their significance lies in being a record of one of the Mills within this area of Mitcham which is particularly associated with the late 18th and 19th - century textile and printing industry and the River Wandle. A detailed note will be submitted to the London Archaeologist fieldwork roundup. This report will be uploaded to GLHER as a means of public access to the results.

11 CONTENTS OF THE ARCHIVE

11.1 Paper Records

Context Sheets	182 sheets
Plans	65 plans
Sections	3 section, 6 sheets

11.2 The Finds

Pottery	0.5 box
Animal Bone	0.25 box
Ceramic Building Material	1 box
Clay Tobacco Pipe	0.25 box
Metal and small finds	2 boxes
Environmental Samples	3 bulk samples
Glass	0.5 box

11.3 Digital archive

Photographs	526 digital images

12 ACKNOWLEDGEMENTS

12.1 Pre-Construct Archaeology Ltd would like to thank CgMs (part of the RPS Group) for commissioning this work on behalf of Circle Housing Merton Priory.

12.2 Pre-Construct Archaeology Ltd would like to thank Louise Davies (Greater London Archaeology Advisory Service - GLAAS) Archaeological Advisor to the London Borough of Merton, for monitoring the work.

12.3 The author would also like to thank Helen Hawkins for managing the fieldwork project and Lucy Whittingham for the post-excavation management and editing. Thanks are also extended to Strephon Duckering for the photography and Ray Murphy for the illustrations. Thanks also to the following for assessment reports: Berni Sudds (post-Roman pottery), Chris Jarrett (Glass and clay tobacco pipe), Amparo Valcarcel, (ceramic building material), Karen Deighton (animal bone), Kate Turner (environmental), Marit Gaimster (metal and small finds) and Murray Andrews (coins)

12.4 A special thank you must go to the supervisor of the excavation Tanya Jones, along with the field team without whose hard work the site would not have been possible.

13 BIBLIOGRAPHY

British Geological Survey http://mapapps.bgs.ac.uk/geologyofbritain/home.html (accessed 25-07-2018)

Cotswold Archaeology, 2016. *Ravensbury Estate First Phase, Ravensbury Grove, Mitcham, Morden, London Borough of Merton CR4 4DU. Heritage Desk-Based Assessment***.** Unpublished CA Report 14480

Green, E. 2019. *Ravensbury Estate First Phase, Ravensbury Grove, Mitcham, Morden, London Borough of Merton CR4 4DU: An Archaeological Evaluation*. Pre-Construct Archaeology Ltd, Report Number R13567.

Hawkins, H. 2019. *Ravensbury Estate First Phase, Ravensbury Grove, Mitcham, Morden, London Borough of Merton CR4 4DU. Written Scheme of Investigation for an archaeological watching brief.*

Montague, E.N. 2008. *Mitcham Histories 10: Ravenbury* : Merton Historical Society

The Mills Archive. https://millsarchive.org (accessed 19/11/2019)

APPENDIX 1: CONTEXT INDEX

Site Code	Ctx	Ctx Type	Fill of	CTX equal to	Area	Trench	Ctx Interpretation	Ctx Category	Phase
RVG19	100	Masonry			105/205		East west aligned brick wall with step foundation	Wall	PH03
RVG19	101	Masonry			105/205		Floor related to [100] and [102]	Floor	PH03
RVG19	102	Masonry			100/205		East west aligned wall with recess	Wall	PH03
RVG19	103	Masonry			100/210		Brick-lined culvert	Drain	PH03
RVG19	104	Masonry			105/210		Stone surface	Floor	PH02
RVG19	105	Masonry			105/210		Base of furnace	Machine Base	PH02
RVG19	106	Masonry			105/210		Base of furnace	Machine Base	PH02
RVG19	107	Masonry			105/210		Section of enclosed wall built above [126]	Wall	PH03
RVG19	108	Fill	105		105/210		Fill of [105]	Backfill	PH02
RVG19	109	Fill			105/210		Fill of 106		PH02
RVG19	110	Masonry			Watching Brief		L-shaped wall	Wall	PH03
RVG19	111	Masonry			Watching Brief		E-W aligned wall	Wall	PH03
RVG19	112	Masonry			Watching Brief		T-shaped wall	Wall	PH03
RVG19	113	Masonry			Watching Brief		N-S aligned wall	Wall	PH03
RVG19	114	Masonry			Watching Brief		Four brick footings	Foundation	PH03
RVG19	115	Masonry			105/205		External wall	Wall	PH03
RVG19	116	Layer			105/205		Made ground for [101]	Levelling	PH03
RVG19	117	Layer			100/205		Made ground	Dump	PH03
RVG19	118	Masonry			105/205		Brick built cistern	Machine Base	PH03

Site Code	Ctx	Ctx Type	Fill of	CTX equal to	Area	Trench	Ctx Interpretation	Ctx Category	Phase
RVG19	119	Masonry			105/205		Machine base with machine slots	Machine Base	PH03
RVG19	120	Fill	121		105/205		Backfill of [121]	Backfill	PH03
RVG19	121	Masonry			105/205		L-shaped wall	Wall	PH03
RVG19	122	Masonry			105/205		Stepped wall	Wall	PH03
RVG19	123	Masonry			105/205		Masonry ramp	Machine Base	PH03
RVG19	124	Masonry			105/205		Floor	Floor	PH03
RVG19	125	Layer			105/210		Part of the culvert construction	Levelling	PH03
RVG19	126	Masonry			105/205		Base for [105] and [106]	Machine Base	PH02
RVG19	127	Layer			105/210		Levelling for floor [104]	Levelling	PH02
RVG19	128	Fill	129		105/210		Fill of [129]	Backfill	PH03
RVG19	129	Cut			105/210		Linear cut of possible modern building foundation	Construction Cut	PH03
RVG19	130	Masonry			105/210		Corner wall	Wall	PH03
RVG19	131	Masonry			105/210		Red brick wall	Wall	PH03
RVG19	132	Masonry					Floor abutting wall [102]	Floor	PH03
RVG19	133	Layer					Levelling for brick wall [115]	Levelling	PH03
RVG19	134	Layer					Made ground deposit	Levelling	PH03
RVG19	135	Layer					Made ground layer	Levelling	PH03
RVG19	136	Layer					Made ground layer	Make-up	PH03
RVG19	137	Layer					Made ground layer	Make-up	PH03
RVG19	138	Cut					Construction cut for culvert [103]	Construction Cut	PH03
RVG19	139	Fill	138				Lower backfill of construction cut [138]		PH03
RVG19	140	Masonry					Part of machine base	Machine Base	PH02
RVG19	141	Fill	142				Backfill of construction cut [142]	Backfill	PH02
RVG19	142	Cut					Construction cut for [140]		PH02

Site Code	Ctx	Ctx Type	Fill of	CTX equal to	Area	Trench	Ctx Interpretation	Ctx Category	Phase
RVG19	143	Masonry			105/200		Truncated wall	Wall	PH03
RVG19	144	Masonry			105/205		Part of the machine base	Machine Base	PH03
RVG19	145	Void							
RVG19	146	Fill					Silting deposit inside culvert [103]	Accumulation	PH03
RVG19	147	Layer					Demolition deposit	Demolition	PH03
RVG19	148	Void							
RVG19	149	Layer					Bedding layer for [101]	Bedding	PH03
RVG19	150	Cut			105/210		Cut for wall and floor surface [121]	Construction Cut	PH03
RVG19	151	Masonry			105/200		Remains of possible brick floor for wall [143]	Wall	PH03
RVG19	152	Cut					Construction cut for [151] and [143]	Construction Cut	PH03
RVG19	153	Fill					Back fill on surface [151]	Backfill	PH03
RVG19	154	Fill	155		105/205		Backfill of pipe trench [155]	Backfill	PH03
RVG19	155	Cut			105/205		Cut of pipe trench	Construction Cut	PH03
RVG19	156	Masonry			105/205		Repair of earlier wall [100]	Wall	PH03
RVG19	157	Fill					Accumulation at the base of culvert [103]	Accumulation	PH03
RVG19	158	Fill		159	105/205		Backfill of possible pit [159]	Backfill	PH03
RVG19	159	Cut			105/205		Cut for possible pit	Pit	PH03
RVG19	160	Layer			105/205		Levelling/ made ground deposit	Levelling	PH03
RVG19	161	Layer			105/205		Possible mortar floor surface	Surface (Internal)	PH03
RVG19	162	Layer			105/205		Possible mortar floor surface	Floor (Internal)	PH03
RVG19	163	Masonry			105/210		Floor with structure [126]	Floor	PH02
RVG19	164	Masonry			105/210		Floor with structure [126]	Floor	PH02

Site Code	Ctx	Ctx Type	Fill of	CTX equal to	Area	Trench	Ctx Interpretation	Ctx Category	Phase
RVG19	165	Masonry				Drainage	N-S aligned Foundation	Foundation	PH03
RVG19	166	Masonry				Drainage	E-W aligned Wall	Foundation	PH03
RVG19	167	Masonry				Drainage	E-W aligned Wall	Foundation	PH03
RVG19	168	Masonry				Ground Reduction	Curved Wall	Foundation	PH03
RVG19	169	Masonry				Ground Reduction	E-W aligned Wall with returns at either end.	Foundation	PH03
RVG19	170	Masonry				Drainage	E-W aligned Wall	Foundation	PH03
RVG19	171	Masonry				Drainage	E-W aligned Wall		PH03
RVG19	172	Masonry				Ground Reduction	N-S aligned Wall		PH03
RVG19	173	Masonry				Ground Reduction	'L'-Shaped Foundation	Foundation	PH03
RVG19	174	Layer				Attenuation Tank	Made Ground	Make-up	PH04
RVG19	175	Layer				Attenuation Tank	Gravel levelling layer	Levelling	PH04
RVG19	176	Layer				Attenuation Tank	post-med Occupation/ Levelling layer	Occupation	PH03
RVG19	177	Layer				Attenuation Tank	post-med made ground	Make-up	PH03
RVG19	178	Layer				Attenuation Tank	possible water deposited clay layer	Alluvial	PH01
RVG19	179	Layer				Drainage	Made ground	Demolition	PH04
RVG19	180	Layer				Drainage	Post-med made ground	Make-up	PH03
RVG19	181	Layer				Drainage	Possible water deposited clay	Alluvial	PH01
RVG19	182	Natural				Drainage	Possible natural gravel	Natural	PH01

APPENDIX 2: DOCUMENTARY RESEARCH

Guy Thompson

Ravensbury Print Works, 1817-1875

On 27 October 1817, Bailey Austin, a calico printer was granted a 21-year lease from Michaelmas 1817 by the freeholder, the Hon. Hugh Arbuthnot. The premises demised by the lease comprised "all that Messuage or Tenement with the Mill-houses, Buildings, Stable and Appurtenances only thereto situate… at or near Ravensbury in and upon a certain field or parcel of Ground commonly called or known by the name of the Whitstring, otherwise the Whitening Ground and also all that said piece or parcel… known as the Whitstring… containing 10 acres 1 rood 10 perches" (SHC K 80/4/43)

In his will (proved 13 August 1823), Bailey Austin bequeathed most of his estate to his brother-in-law Frederick Benjamin King (TNA PROB 11/1674/180). Austin instructed King to continue his existing business as a calico printer at Ravensbury.

King was succeeded by one Edward Walmsley, a calico printer, who was in occupation of the mill by 1828. On 31 August 1836 Walmsley was granted a new lease on the premises by Arbuthnot (SHC K80/4/47). Less than a month later, Walmsley mortgaged the lease to the executors of his late uncle, John Bonus Child, to secure £4,750 (SHC K 85/4/89). A schedule appended to the mortgage agreement listed the following buildings at Ravensbury:

1. The erection of **new** Block House with two floors &c supported by Stone caps and Brick piers about 70' long and 27' wide.
2. The erection of Town House and Loft over, supported by Stone pediments and Brick piers, about 40' long and 18'6" wide, and the lean-to loft adjoining.
3. NOT the walls opposite Boiler House, NOR the brickwork at back
4. The erection of one Winch House about 25'9" long by 14'9". [Transcript of schedule given in separate document].

By the mid-1850s, Ravensbury Print Works was in the occupation of Dempsey & Heard, shawl printers (Post Office Directory of Essex, Herts, Kent &c, 1855: 727). Following the failure of Peter Dempsey's shawl printing business in the early 1860s, the Ravensbury Print Works was advertised for sale by auction in two lots in April 1862 (Croydon Chronicle & East Surrey Advertiser 12/04/1862). A sales notice described the works as "very extensive and conveniently arranged", suitable for a wide range of uses including "Bleaching, washing, dyeing, paper making, calico or fancy printing, brewing, color or drug grinding, or any business requiring water or steam power". The existing mill could generate approximately 20 horsepower and the premises comprised "ranges of substantially built, commodious and well-lighted workshops and premises, large yards, drying grounds, capital stabling, coach-house, sheds… an excellent residence, extensive lawns, shrubberies, pleasure and kitchen gardens and grounds, a

foreman's house and a cottage, together with several enclosures of exceedingly rich meadow and market garden ground".

On 15 February 1868 James Thorne Roe signed a lease on the Ravensbury Mills for a term of 21 years (SHC K 85/4/148). In accordance with the terms of the lease, William Pape Esq, James Richard Whitehead Esq and James Terry Esq assigned "all that piece or parcel of ground, factory buildings, millhead, water wheel, land, garden ground, cottage and premises situate in the parish of Mitcham…known as the Ravensbury Mills" to Roe, a flock manufacturer of 3 Ashurst Villas, Merton Road Wandsworth. The lease was worth £640 per annum, payable in quarterly payments of £160. It was due to expire on 25 March 1889. An accompanying plan indicated that Roe's lease comprised the mill, the cottage and some outbuildings.

Roe carried on his trade as a flock manufacturer in partnership with Jacob Morris Harris until 1872, when the latter retired from the business (SHC K 85/4/149). This left Roe the sole owner of the lease of Ravensbury Mill and of "the machinery, steam engine, fittings and trade fixtures on the premises". On Harris' retirement, Roe established a new partnership with William Edward Lewis Hooper of Mitcham, which entitled the latter to a half share in the business. Roe subsequently resigned from the partnership, leaving Hooper to continue the business in his own right. A directory of 1878 lists Louis [sic] Hooper as a flock manufacturer of Morden Lane, Lower Mitcham (Post Office Directory of Surrey 1878**:** 2291).

In 1874 the freehold of the site was acquired by Henry Hoare, a wealthy banker. On 14 April 1875, Hoare sold the property to Gilliat Hatfeild of Morden Hall (SHC K 85/4/123). A schedule to the agreement between the two parties lists the following premises:

1. A piece of land 1 acre 3 roods 4 perches at Mitcham on the High Road, with frontage to Ravensbury Grove. Also the Water Mill and Manager's House and other buildings all now on lease to Mr Roe for 21 years from 25 March 1868 (£160 p.a.)
2. A piece of land containing 3 acres 3 roods 14 perches at Mitcham near the last-mentioned property. Together with the Factory and Manager's residence and other buildings thereon, all now on lease to Messrs Lamprell for 9 years from 17 January 1875 (£150 p.a.)
3. The Ravensbury Arms Public House
4. A piece of land containing 1 acre 0 rood 4 perches with 270' frontage to Ravensbury Grove
5. Eight dwelling houses, nos. 2 to 16 Ravensbury Grove
6. 13 dwelling houses, nos. 1-23 Ravensbury Grove
7. A piece of land 3 acres 2 roods 33 perches

The schedule confirms that the former Ravensbury Print Works was let in two separate lots, the former mill buildings to Roe and Hooper and the former factory to Messrs Lamprell. The latter business traded as lace merchants under the name Lamprell and Company. Lamprell lived Fountain Ash Villa, Merton Road, South Wimbledon (Post Office Directory of Surrey 1878**:** 2448).

Ravensbury Print Works, 1836

K 85/4/89 Mortgage to secure £4,750 between 1) Edward Walmsley of Ravensbury, Calico Printer and 2) Mary Child, Thomas Dimsdale, John B Child, William Dimsdale, executors of John Bonus Child, deceased. A messuage, with mill houses at Ravensbury, land called Whitstring Ground adjoining. 31 August 1836.

Schedule (3 buildings listed; fixtures and utensils in trade listed separately in 46 rooms/spaces)

Buildings

5. The erection of new Block House with two floors &c supported by Stone caps and Brick piers about 70' long and 27' wide.
6. The erection of Town House and Loft over, supported by Stone pediments and Brick piers, about 40' long and 18'6" wide, and the lean-to loft adjoining.
7. NOT the walls opposite Boiler House, NOR the brickwork at back
8. The erection of one Winch House about 25'9" long by 14'9".

Fixtures and utensils-in-trade

1. New Block House: Upper Floor
2. New Block House: Lower Room
    a. 15 block tables
    b. The railed staging over the **flues**
    c. The **brick erection of flue with furnace, iron tube** &c
    d. The collers [sic] and frames as fixed to ceiling
3. Mill House
    a. Two wood wash wheels, each about 7' diameter, wood shafts and the whole of the fixing to ditto
    b. A deal cistern and wash wheel, lined with lead
    c. A brass river cock and two lead pipes as fixed in ditto, to supply wheels with water
    d. A single throw lift and force pump with the sheer posts and fixing to ditto
    e. The iron shafts and wheels connected with water wheel and driving wheel about 30" diameter. Plummer box and fixing to drive the cylinder
    f. Two iron wheels as fixed on main wheel and driving the wash wheel
    g. A square iron shaft with plummer boxes, shifting clutches and the iron wheel as geared to Main Wheel on Water Wheel driving the calenderers
    h. The iron shafts, wheels, carriages &c as fixed to Main Wheel on Water Wheel and driving the Squeezers
    i. A 5' diameter Iron Wheel on one end of shaft driving Madder Mill and Color Mills
    j. A 44" morticed Iron Wheel on the other end of the shaft
    k. A 5' square iron shaft with plummer box and brasses and the sheer posts and fixing driving the Wheels before mentioned
    l. A set of paste blue and color mills with four cast iron morticed Wheels each 3' diameter the shafts, three smaller wheels and the whole of the fixing to ditto
    m. Two calenderers with iron and wood rollers about 4' long and the whole of the expensive Machinery and framing to ditto
    n. A Pair of Squeezers 21" long and 16" diameter, with the sheer posts and fixing to ditto
    o. An iron Cistern to ditto
    p. An iron Windlass and frame
    q. The 4" copper Main from Liquor Pump with cylinder to Water Back on roof

    r. A branch pipe from main with a River Cock to supply cistern over Wash Wheel
    s. Three dumb wheels with leather strap as fixed to shaft on floor over and driving the drying machine
4. Copper House
5. Ash House
6. Yard by Blue House
7. Blue Room
    a. A Water Back about 12’ square lined with lead and the six bearers for ditto
    b. The copper main from Water Back to branch pipes
    c. Branch pipes from main to Drying Backs, brass cock &c as fixed against wall
    d. A copper pump and suction from Drying Backs
    e. A branch pipe and brass cock from Main under Water Back
    f. A branch pipe from Main by pump and extending along the Building on the right of the Boiler House
    g. The steam pipe from Small Boiler with brass cocks &c extending along the wall on the right
    h. A copper waste pipe from Liquor Back
    i. A ditto ditto 12 Cement Dipping and Drying Backs, five wood ditto
    j. The deal Planking and Staging between a false frame for Dipping Frames
    k. Six Dipping Frames
    l. The iron gratings over **flue**
    m. The **brick setting of flue** undercased with iron
    n. The railed staging and frames over Drying Backs
    o. A deal cistern lined with lead and a division in centre about 8’ long and 4’ wide
    p. The railed staging and supports by pump
8. Cylinder Room
    a. A new cylinder for printing and padding complete with blanket frame extending to the adjoining room
    b. The whole of the iron shafts, wheels, machinery, sheer posts and fixing to ditto
    c. A pair of wood rollers by wall and framing to ditto
    d. A pair of iron ditto iron frame and fixing the flues for heating the rooms as fixed on arches and the iron plates on top
    e. The iron frames and rollers over ditto
9. Padding House
10. Drying Room
11. Cistern Room
12. Copper Plate Room
13. Room over Cistern Room
14. Plate Room
15. Blacksmiths Shop
    a. A pair of bellows
    b. The **brick setting of forge, chimney shaft** &c
    c. Two iron troughs
    d. A turning lathe with rilling [?] machine &c
    e. A bench with iron vice
16. Silk Room
17. Shed Adjoining
18. Yard by ditto
19. Chrome Shed
20. Small Boiler House
21. Steam Room
22. Town House: Upper Floor
23. Town House: Lower Floor

24. Shed Adjoining
25. Winch House
26. Madder House
27. Drug/Dwg Room
28. Color Shop
    a. An iron furnace set in brickwork
29. Color Shop
30. Color Shop
    a. Furnace with iron plate and brickwork
31. Stove Room
    a. **Dome head furnace** with circular iron frame, brickwork and iron dome on top, Scray [?] fixed round
32. Plate Shop
33. White Room
34. Printing Shop
    a. 16 block tables
    b. The railed staging in centre of room with seven tables on top
    c. Racks and frames as fixed to ceiling
    d. The **brick flue** running round the stages
35. Print Room
36. Lower Print Room
37. Small Lot Room
38. Upper Stove Room
39. Cutting Shop
40. Room Adjoining
41. Engraving Shop
42. Drawing Shop
43. Cold Mount
44. Hot Mount
45. Pencilling Shop
46. New Print Room
47. Counting House

Sources

Ravensbury Manor Mill

TNA

PROB 11/1674/180 Will of **Bailey Austin**, Calico Printer of Ravensbury Mitcham , Surrey

Date: 13 August 1823

MAF 20/148/2286 (MAF 20/148/2287) Manor file: Enfranchisement of copyhold land at Ravensbury, Surrey

Date: [1840-1900]

Surrey History Centre

K80/4/43 Counterpart lease for 21 years

1) Hon Hugh Arbuthnott, Lieutenant Colonel, Companion of the most Honourable Military Order of the Bath

2) **Bailey Austin** of Mitcham, calico printer.

Messuage with mill houses near Ravensbury and land called the Whitstring alias the Whitening ground, 10a 1r 10p, with 2a 27p abutting, Mitcham. [Land part of Carew Estate from 1829].

Endorsed: surrender of term (uncompleted), 11 Aug 1836

1) **Edward Walmsley** of Ravensbury near Mitcham, calico printer

2) Hugh Arbuthnott, now Major General

Date: 27 Oct 1817

K80/4/47 Counterpart lease

1) Major General the Hon Hugh Arbuthnott, CB

2) **Edward Walmsley** of Ravensbury, near Mitcham, calico printer.

Messuage, mill, houses, buildings, stables and appurtenances at Ravensbury, Mitcham, on ground called Whitstring alias Whitening ground, 10a 1r 10p, with 2a 27p adjoining ground

Date: 31 Aug 1836

K85/4/89 Mortgage to secure £4750 and interest

1) **Edward Walmsley** of Ravensbury near Mitcham, calico printer

2) Mary Child of Artillery Place, Finsbury Square, Middlesex, widow, Thomas Dimsdale of Hadley, Middlesex, esq, John Bonus Child of Stoney Street, Southwark, distiller, and William Dimsdale Child of Artillery Place, gent, executors of John Bonus Child late of Hadley, esq, deceased.

APPENDIX 3: POST-ROMAN POTTERY ASSESSMENT

Berni Sudds

A small assemblage of 21 sherds were recovered during the excavation phase, weighing 1,407g and was collected both by hand and from environmental samples. Together with the pottery collected during the evaluation (Sudds 2019), this brings the site total to 27 sherds, representing some 21 vessels (ENV) and weighing 1,640g. The post-Roman pottery dates entirely to the 17th to 19th century. The majority is in good condition, with little evidence for abrasion and was probably deposited fairly rapidly after breakage.

The assemblage was examined macroscopically and microscopically using a binocular microscope (x20), and recorded in an Access database, by fabric, form and decoration. The classification of the pottery types is according to the Museum of London Archaeology typology (MOLA 2014). The forms were identified in accordance with the Medieval Pottery Research Group's guide to the classification of forms (MPRG 1998). The pottery was quantified by sherd count (SC), estimated number of vessels (ENV's) and weight. Pottery was recovered from 8 contexts all of which are of small size (less than 30 sherds). A summary catalogue of the pottery by context appears below in Table 1, including date ranges and suggested spot dates.

Distribution

Cxt	Cxt type	Fabric name	Fabric	Date range		SC	ENV	Wg	Form	Comments	CCD
120	Backfill of [121]	Miscellaneous unsourced post-medieval pottery	MISC	900	1500	1	1	617	Syrup collect-ing jar	Base from a non-local red earthenware syrup collecting jar. Internal clear glaze.	1650 - 1900
125	Part of the culvert construction	London-area post-medieval redware	PMR	1580	1900	2	1	455		Base and body sherd from a deep large bowl or possibly a jar. Heavy wear to external base.	1600 - 1800
125	Part of the culvert construction	London-area post-medieval redware	PMR	1580	1900	1	1	142		Body sherd from a large jar or deep bowl. Combed diagonal bands. Internal and external clear glaze.	1600 - 1800
133	Levelling for brick wall [115]	London tin-glazed ware with plain pale blue glaze	TGW BLUE	1630	1846	2	1	21	Oint-ment pot	Base and rim sherd. Thickened narrow base, rounded body, slightly everted rim. L.18th century shape.	1750 - 1800
133	Levelling for brick wall [115]	Surrey-Hampshire border redware	RBOR	1550	1900	1	1	9		Body sherd.	1750 - 1800
146	Silting deposit inside culvert [103]	Refined whiteware with under-glaze	TPW	1780	1900	1	1	19	Plate, dessert	Complete profile, flat base. Willow pattern dated from	1789–1900

Cxt	Cxt type	Fabric name	Fabric	Date range		SC	ENV	Wg	Form	Comments	CCD
		transfer-printed decoration								*c.* 1789. Iron-stained. Conjoins vessel in context [157], environmental sample <2>.	
146	Silting deposit inside culvert [103]	Refined whiteware with under-glaze transfer-printed decoration	TPW	1780	1900	1	1	1		Small body shred with external possible landscape design. Environmental sample <2>.	
149	Bedding layer for [101]	Surrey-Hampshire border redware	RBOR	1550	1900	1	1	26		Body sherd. Rounded form.	1550 - 1900
154	Backfill of pipe trench [155]	Yellow ware with slip decoration	YELL SLIP	1820	1900	1	1	4		Body sherd. White slip bands.	1820 - 1880
154	Backfill of pipe trench [155]	Glazed black basalt ware	BBASG	1770	1880	1	1	6		Rounded form. Body sherd. Internal glaze. External 'rib' decoration.	1820 - 1880
157	Accumulation at the base of culvert [103]	Refined white earthenware	REFW	1805	1900	1	1	11		Body sherd.	1820 - 1900
157	Accumulation at the base of culvert [103]	Refined white earthenware with under-glaze polychrome-painted decoration in 'earth' colours	REFW ERTH	1805	1820	1	1	2	Saucer	Rim sherd, decorated internally with a dark brown band on the rim above an uncertain design consisting of brown straight and wavy lines shaded green and ochre Environmental sample <3>.	1820 - 1900
157	Accumulation at the base of culvert [103]	Refined whiteware with under-glaze transfer-printed decoration	TPW	1780	1900	4	1	70	Plate, dessert	Complete profile, flat base. Willow pattern dated from *c.* 1789. Iron-stained. Conjoins vessel in context [146], environmental sample <3>.	1820 - 1900
157	Accumulation at the base of culvert [103]	Refined whiteware with under-glaze transfer-printed decoration	YELL SLIP	1820	1900	1	1	3		body sherd decorated with a white slip band and a brown slip line. Environmental sample <3>.	1820 - 1900
158	Backfill of possible pit [159]	London stoneware	LONS	1670	1926	1	1	21	Bowl	Thickened rim sherd from a bowl. Clear/brown glaze. Internal residue. Limescale/ mortar?	1700 - 1900

Table 1: Pottery catalogue. Cxt = Context; SC = Sherd count; ENV = Estimated number of vessels: Wg = Weight in grams; CCD = Context considered date.

The assemblage was recovered entirely from Phase 3 deposits, distributed in small groups. The earliest pottery includes two 17th to 18th century London-area post-medieval redware (PMR) vessels from layer [125] and a late 18th century London tin-glazed ware ointment pot with plain pale blue glaze (TGW BLUE) and Surrey-Hampshire border redware (RBOR) from

levelling layer [133]. Of some note is the base of a non-local redware syrup collecting jar (MISC) from the backfill of [121]. This could indicate the existence of sugar-refining in the vicinity, particularly given the location of the site on the River Wandle. Refineries were often sited in close proximity to rivers, with a number identified in London on the Thames including at Battersea, Shad Thames and Bermondsey, where they had ready access to raw materials and the water required for refining. It is also possible the sherd is re-deposited from elsewhere. The remainder of the pottery is comprised of mass produced refined earthenwares and stonewares, ubiquitous throughout London and the rest of the country during the 18th and 19th century.

Potential and recommendations for further work

The range of types recovered during the evaluation and excavation can be well-paralleled in the greater London region and locality (Jarrett 2019). The pottery probably originates from households and industries in the vicinity but occurs in such small groups that little can be determined about the nature of activity. Indeed, with the exception of the syrup-collecting jar there is little of note and no functionally specific groups. The primary significance of the assemblage is in providing dating evidence for the features from which it was recovered and having little intrinsic merit no further work is recommended.

References

Jarrett, C., 2019. 'Appendix 3: Pottery assessment' in T. Jones 'Wilson Hospital, Cranmer Road, Mitcham CR4 4TP: An Archaeological Evaluation'. Pre-Construct Archaeology Limited Report Number R13637.

MPRG 1998. A Guide to the Classification of Medieval Ceramic Forms. Medieval Pottery Research Group, Occasional Paper No.1.

Museum of London Archaeology, 2014. Medieval and post-medieval pottery codes. http://www.mola.org.uk/resources/medieval-and-post-medieval-pottery-codes

Sudds, B. 2019. 'Appendix 3: Pottery' in E. Green 'Ravensbury Estate First Phase, Ravensbury Grove, Mitcham, Morden, London Borough of Merton CR4 4DU: An Archaeological Evaluation'. Pre-Construct Archaeology Limited Report Number R13567.

APPENDIX 4: CERAMIC BUILDING MATERIAL ASSESSMENT

Amparo Valcarcel

INTRODUCTION

One crate of ceramic building material was retained from the archaeological excavation at Ravensbury Grove, Merton. The assessment consists of the result of the material collected from the excavation and the visit conducted to the site for recording the material *in situ* and identifying the different phases of the structures recovered.

The quantification is indicative and does not represent the real number of building materials found during the excavation due to the high number of structures remaining. This assemblage (62 examples, 94.09 kg) was assessed in order to:

- Identify (under binocular microscope) the fabric and forms of post-medieval ceramic building material recovered from RVG19.
- Identify the fabric and form of whole bricks and mortar used in the post-medieval structures from RVG19.
- Identify the different construction phases of the building
- Identify the fabric of the unworked and worked stone in order to determine what the material was made of and from where it was coming from.
- Make recommendations for further study.

METHODOLOGY

One site visit was conducted to examine the date and form of some structures of post-medieval date. Two whole brick samples were taken from each structure in accordance with the Pre-Construct Archaeology Ltd building material sampling guidelines.

The application of a 1kg masons hammer and sharp chisel to each example ensured that a small fresh fabric surface was exposed. The fabric was examined at x20 magnification using a long arm stereomicroscope or hand lens (Gowland x10). The appropriate Museum of London building material fabric code was then allocated to each item.

A limited number of masonry samples were also collected as well as the *in-situ* recording from selected groups of post-medieval structures. Most of the surviving masonry contexts were found in two phases of the site (phases 2 and 3), however building material was also recovered from layers and dump deposits, mostly consisting of post-medieval roof tiles and brick fragments.

CERAMIC BUILDING MATERIAL

The building material consists of roofing tiles and bricks made of different fabrics indicating different phases of construction and re-building related to the maintenance of this type of building and new uses of spaces or work.

Bricks are the dominant forms, especially post great fire fabrics followed by a fabric (RVG1) which were found to be from local clays of the red sandy fabric. The earliest bricks with any quantifiable dimensions came from the period AD1700 to 1800/1850. The building material is in a good condition, preserved in the remaining structures. Some examples are clearly reused. Roofing tiles were found in various layers although some fragments were used in levelling of brick wall courses.

Bricks (41 examples, 84.31 kg)

RGV1; (1700-1900) Sandy fabric with frequent 'grog' inclusions of cream and red tile fragments, 11 examples, 22.08 kg.

3032; (1666-1900) Post Great Fire purple clinker rich fabric; 20 examples, 41.05 kg.

3034; (1666-1900) Post Great Fire yellow clinker rich fabric; 4 examples, 8 kg.

3035 (1770-1940) Yellow stock, frequent fine specks of ash and charcoal inclusions; 2 examples, 4kg

3038 (1850-1950) Fletton bricks, distinctive granular fabric with frequent fine white inclusions, 2 examples, 5.17 kg.

3261 (1800-1950) well fired brick, Gauld fabric, machine brick, 2 examples, 4 kg.

Six different brick fabrics were identified in the structures, associated with alterations or rebuilding of the walls and floors. Post great fire bricks were the principal fabric, and a small quantity were gently frogged. The dimensions of the bricks indicate a 1700-1900 date. Fabric RGV1 is a very fine sandy fabric with cream clay and red tiles/bricks inclusions, showing a grog aspect. This fabric was identified in several structures in the site, and it seems that could be a local production, manufactured between 1700 and 1900. The bricks made of RGV1 are hand-made, wider, sometimes with sunken margins and are always stratigraphically associated to the earliest phases of the mill. The earliest fabrics (RGV1, 3032 and 3034) were found in walls and in floors.

The structures constructed with fabrics 3035, 3038 and 3261 belonged to the latest phases of construction in the late 19th century and early 20th centuries. These bricks are commonly bonded with hard cemented mortars.

Roofing tiles (17 examples 3.57 kg)

2276 (1480-1900) Hard, well fired fine texture with few visible inclusions, occasional quartz, calcium carbonate and red iron oxide, 10 examples, 736 g.

2279 (1630-1830) Fine well fired texture, sandy fabric with moderate quartz, occasional black/red iron oxide and calcium carbonate inclusions, 7 examples, 2.83 g.

Roofing tiles consist of peg and pan tiles. Peg tiles belonging to the sandy red fabric 2276 were a very common post-medieval roofing tile. All the fragments were unglazed. Peg tiles were used sometimes for levelling the bricks on the walls as seen in the walls [105] and [117]. Pan tiles were collected from layers and fills. This curved, nibbed roofing tile came into use only during the mid 17th century. The different types of roofing tiles recovered from different features suggests a rebuilding of the roofing.

Mortar

The mortar types identified from the excavations at RVG19 provide the basis for a simplistic chronological sub-division of the structures. Soft mortars were used in the beginning of the 18th and early 19th century, associated with post great fire and local sandy bricks. The latest phases of the structures were bonded with concrete and hard cemented mortars, related to machine bricks (3038, 3261).

PHASE SUMMARY

The fabric and form ceramic building material (peg tile; brick) and mortar retained from the excavations at Ravensbury Grove, Merton (RVG19), forms the basis of a broad chronological subdivision. The date ranges represented by the fabrics suggest two relatively distinct construction phases, beginning with a phase of construction in the mid 18th century (Phase 2). The second phase of construction is noted at the mid/late 19th and beginning of the 20th centuries (Phase 3). Phase 3 preserved the larger amount of building materials.

	Quantity	Weight
Phase 2	7	14645
Phase 3	31	45733

Phase 1 Natural

No material preserved

Phase 2 Mid-Late 18th Century (7 fragments, 14.64 kg)

A small amount of structures remained from Phase 2, located in the north-west corner of site. The main structure was the large solid red brick foundation structure [126] built up using post great fire and RVG1 bricks. The lower part of the structure had been built in a slightly different alignment using same fabrics indicating two separate phases of construction that may have been constructed within a short timeframe using peg tiles for levelling. The possible dye furnaces [105] and [106] are constructed by gently frogged 3032 bricks bonded with a white hard lime mortar with small rounded pebbles. The base of the furnaces is made of brick rubble. Associated with this structure was brick floor [163]. The bricks used to construct the floor were post-great fire bricks bonded with a hard lime mortar. The structures preserved are the earliest associated with the construction of the mill

Phase 3 19th Century (31 fragments, 45.73 kg)

Phase 3 is characterised by a major construction phase in the mill, where several walls were constructed. A culvert [103] that possibly provided water to the mill was constructed using some frogged local sandy (RVG1) and 3032 bricks bonded with a white hard mortar with pebbles. At the north side of the culvert was found a surface made of a very hard pinkish mortar with smashed cbm, for waterproofing the area.

A space was formed by a L shaped wall [121] and [131] built up with local sandy fabric (RVG1), well- made bricks with sharp arises bonded with a yellowish hard sandy mortar. At the south, a space for locating possibly the wheel pit [102], was constructed by well made and sharp arises local sandy bricks (RVG19), bonded with a hard concrete made of grey with pebbles and charcoal inclusions. A furnace [119] of this structure was constructed using Fletton bricks bonded with concrete.

Two walls [100] and [115] were found at the south of the area, Wall [100] preserved a stepped foundation built up with local unfrogged sandy red fabric (RVG1), bonded with a yellowish mortar very hard mixed with pebbles. The space between these walls was made up with concrete suggesting a surface. Re-used fragments of lava quernstone and Yorkstone were found in the structure.

A floor [101] related to wall [100], made of concrete with stones incorporated yellow stock bricks and York stone.

Phase 4: Modern

No material was collected from this phase

Summary/Recommendations

The ceramic building material recovered from RVG19 very much reflects construction episodes associated with building and remodelling structures related to the mill. The building material identified from the first phase of the mill between the 17th and 18th century, suggests that the building was principally constructed using bricks, with less quantity of stone. The structures from Phase 2 were associated to the industry in the area of the Wandle, and probably were part of the dye furnaces of the printing process of the calico printing mill.

Later phases are indicated by the construction of new structures (wheel pit, culvert) on the south and central area of the site, with the introduction of machine bricks (3261, 3038 fabrics) bonded with very hard cemented mortars.

In summary, the building material found during the excavation very much reflects the construction, alterations and rebuilding of the structures related to the mill between early-mid 18th century to beginning of the 20th centuries.

Context	Fabric	Form	Size	Date range of material		Latest dated material		Spot date	Spot date with mortar
4	2276	Post-medieval peg tiles	2	1480	1900	1480	1900	1700-1900	No mortar
10	**3032**	**Unfrogged post great fire bricks**	**3**	**1666**	**1900**	**1666**	**1900**	**1780-1900**	**1780-1900**
17	**3032**	**Gently frogged post great fire bricks**	**2**	**1666**	**1900**	**1666**	**1900**	**1800-1900**	**1800-1900**
21	**3032**	**Unfrogged post great fire bricks**	**4**	**1666**	**1900**	**1666**	**1900**	**1700-1900**	**1700-1900**
22	**3032**	**Unfrogged post great fire bricks**	**2**	**1666**	**1900**	**1666**	**1900**	**1780-1900**	**1780-1900**
34	**3032**	**Unfrogged post great fire bricks**	**1**	**1666**	**1900**	**1666**	**1900**	**1780-1900**	**1780-1900**
39	2276; RVG1;2279	Post-medieval roofing tiles; post-medieval local sandy brick	5	1450	1900	1480	1900	1630-1900	No mortar
100	**3035; 3034; 3032**	**Unfrogged post great fire and yellow stock bricks**	**4**	**1666**	**1940**	**1770**	**1940**	**1850-1950**	**1850-1950**
101	**3035; 3032**	**Unfrogged and frogged post great fire and yellow stock bricks**	**2**	**1666**	**1940**	**1770**	**1940**	**1850-1950**	**1850-1950**
102	**3046**	**Post-medieval local sandy bricks**	**1**	**1450**	**1900**	**1450**	**1900**	**1800-1900**	**1800-1900**
103	**3046**	**Post-medieval local sandy bricks**	**1**	**1450**	**1900**	**1450**	**1900**	**1750-1850**	**1750-1850**
105	**3046; 3032; 3034**	**Frogged post-medieval sandy red and post great fire bricks**	**3**	**1666**	**1900**	**1666**	**1900**	**1750-1850**	**1750-1850**
106	**3046; 3032**	**Post-medieval sandy red and post-great fire bricks**	**2**	**1666**	**1900**	**1666**	**1900**	**1750-1850**	**1750-1850**
107	**3046**	**Post-medieval sand red bricks**	**1**	**1450**	**1900**	**1450**	**1900**	**1800-1950**	**1800-1950**
115	**3046; 3032**	**Unfrogged post-medieval sandy red and post great fire bricks**	**2**	**1450**	**1900**	**1850**	**1950**	**1800-1900**	**1800-1900**
Context	**Fabric**	Form	**Size**	**Date range of material**		**Latest dated material**		**Spot date**	**Spot date with mortar**
117	**3261; 3046; 2276**	**Post medieval peg tiles; post-medieval sandy red bricks; modern machine bricks**	**3**	**1450**	**1950**	**1850**	**1950**	**1850-1950**	**1850-1950**
119	**3038**	**Unfrogged Fletton bricks**	**1**	**1850**	**1950**	**1850**	**1950**	**1850-1950**	**1850-1950**
121	**3046**	**Post-medieval sandy red bricks**	**1**	**1450**	**1900**	**14450**	**1900**	**1800-1900**	**1800-1900**
131	**3046**	**Post-medieval sandy red bricks**	**1**	**1450**	**1900**	**14450**	**1900**	**1800-1900**	**1800-1900**
133	**2279**	**Post-medieval pan tiles**	**6**	**1630**	**1850**	**1630**	**1850**	**1630-1850**	**1630-1850**
143	**3261; 3032; 3034**	**Post great fire bricks; modern machine bricks**	**3**	**1666**	**1950**	**1850**	**1950**	**1850-1950**	**1850-1950**
144	**3038**	**Frogged Fletton brick**	**1**	**1850**	**1950**	**1850**	**1950**	**1850-1950**	**No mortar**
145	**3046**	**Post-medieval sandy red brick**	**1**	**1450**	**1900**	**1850**	**1950**	**1800-1900**	**No mortar**
154	2276	Post-medieval peg tiles	4	1480	1900	1850	1950	1700-1900	No mortar
163	**3032**	**Frogged post-great fire bricks**	**2**	**1666**	**1900**	**1850**	**1950**	**1750-1900**	**No mortar**

BIBLIOGRAPHY

Evans, S. 2016. *Ravensbury Grove: London Borough of Merton, Heritage desk-based assessment,* Unpublished Cotswold Archaeology report

Jones, T. 2019: *Assessment of an Archaeological Excavation at the Ravensbury Estate Ravensbury Grove, Mitcham, Morden London Borough of Merton CR4 4DU,* unpublished PCA report.

APPENDIX 5: CLAY TOBACCO PIPE ASSESSMENT

Chris Jarrett

Introduction

Clay tobacco pipes from an earlier archaeological phase of work (contexts [38] and [49]) have already been reported upon (Jarrett 2019) and this report considers finds only from deposits [133], [146], [154], [157] and [158]. A small sized assemblage of clay tobacco pipes was recovered from the site by hand and from environmental samples (less than one box). Most fragments are in a good condition, indicating that they had been deposited soon after breakage. Clay tobacco pipes occur in five contexts as small (under 30 fragments) sized groups.

All the clay tobacco pipes (eight fragments, of which none are unstratified) were recorded in a database format. The tobacco pipes are discussed as an index and consist of only four stems and a mouthpiece and these could only be broadly dated, except for one maker marked example.

Index

Context [133], spot date: c. 1580–1700

X2 stems of a medium thickness and wide bores. Dated c. 1580–1700

Context [146], spot date: c. 1830's

X1 stem of a thin thickness and a fine bore. Dated c. 1730–1810. Environmental sample <2>

Context [154], spot date: c. 1730–1910

X1 mouthpiece, thin with a fine bore and the tip is cut straight with a slight bevel. Dated c. 1730–1910

X1 stem of a thick thickness with a medium bore. Probably early 18th century in date. Partially covered in a mortar deposit

Context [157], spot date: c. 1730–1910

X2 stems of a thin thickness and fine bores. Dated c. 1730–1810. Environmental sample <3>

X1 stem of a thin thickness and a fine bore with moulded c. 1830's dated relief decoration consisting of foliage borders on each side and the name 'SMITH on the left side and 'PECKHAM' on the right side. Environmental sample <3>, Small Find 1. The item was probably

made by John Smith, working at Meeting House Lane, Peckham who appears in trade directories during the period 1803–33 and was dead by c. 1839 (Peter Hammond pers. comm.)

Context [158], spot date: c. 1730–1910

X1 stem, thin with a fine bore. Dated c. 1730–1910

Significance, potential and recommendations for further work

The clay tobacco pipe stems have no significance at a local level, particularly as the material occurs in a small, fragmentary quantity and with little meaning. It is assumed that the assemblage is derived from sources on the site. The main potential for the clay tobacco pipes is to broadly date the contexts in which they were found. There are no recommendations for further work on the clay tobacco pipes and it is further recommended that the non-diagnostic fragments are discarded.

References

Jarrett, C. 2019, 'Clay tobacco pipes', in: E. Green, *Ravensbury Estate First Phase, Ravensbury Grove, Mitcham, Morden, London Borough of Merton CR4 4DU: An Archaeological Evaluation*. Pre-Construct Archaeology Ltd Unpublished Report no. R13567

APPENDIX 6: GLASS ASSESSMENT

Chris Jarrett

Glass finds recovered from an earlier archaeological phase of work (context [4]) has already been reported upon (Jarrett 2019) and this report considers finds only from deposits [101] and [149], which was all recovered by hand. In total there are four fragments (10g) of glass recorded. Deposit [101] produced a single fragment (1g) of clear vessel glass that survives as a narrow cylindrical piece that either represents the neck of a probable bottle or the body of a phial and could be of an 18th-20th century date. Context [149] produced three fragments of modern window glass that probably date to the late 19th-20th century.

The fragments of glass have no or little significance as it occurs in such a small quantity and has very little meaning. The glass does have the potential to date the contexts it was recovered from. There are no recommendations for further work on the glass, which, as it has been fully recorded, can be discarded at the archive stage of the project.

References

Jarrett, C. 2019, 'Glass', in: E. Green, *Ravensbury Estate First Phase, Ravensbury Grove, Mitcham, Morden, London Borough of Merton CR4 4DU: An Archaeological Evaluation.* Pre-Construct Archaeology Ltd Unpublished Report no. R13567.

APPENDIX 7: METAL AND SMALL FINDS ASSESSMENT

Märit Gaimster, with coin identification by Murray Andrews

Some sixteen metal objects were recovered from the excavations; they are listed in the catalogue below. Two small pieces of possible colour pigments are also included.

The vast majority of metal finds came from Phase 3 context [157], an accumulation at the base of culvert [103]. This assemblage produced a halfpenny of George III (SF 2), from Boulton's Soho mint in Birmingham in 1806 or 1807 which fits well with the pottery date of 1805–1900 for this context. A second coin (SF6), is a silver sixpence of George III's Last Issue, struck in 1818 and found unstratified in context [0]. A cache of seven copper-alloy pins (SF 3), where complete, have wound-wire heads cramped into a spherical shape (Caple Type C), a form that became predominant after around 1700 (Caple 1991, 246). These small everyday objects reflect the laborious manufacture where each pin was filed to a point at one end with the aid of a pinner's bone, before it was furnished with a head (cf. MacGregor 1985, 171). Even in the late 18th and early 19th centuries, much of the work such as sharpening and heading of the pins would have been outsourced as cottage industry (cf. Peaucelle and Manin 2006, 14). Other finds from this context include a probable disc button of copper alloy (SF 4) and a small brass plug or fitting. An interesting find is provided by a roughly shaped shallow vessel formed of lead sheet (SF 5). The function of this vessel is unclear, but it is likely to be related to some industrial activity. Also of interest are two small fragments of possible pigment, one vivid yellow and the other blue. It is possible that they originate from the use of the building as calico printing works, a function that continued until 1862. In addition, lead sheet fragments were recovered from silting deposits [146] in the same culvert.

Besides these finds, unstratified fragments of iron machinery were also recovered. They include a pulley wheel and two machinery components consisting of pins fitted with cogwheels or gears. A longer pin, measuring 495mm, has a small cogwheel at each end together with a looped and moveable cast-iron plate, each with two bolts and the remains of wooden components they would have held. One of the plates had the wooden component fitted in plane with the revolving pin; the other at right-angles. The second machinery component is a bit shorter, at 330mm, with a pair of cogwheels of different size; spikes and remains of wood show that they would have held a wooden cylinder of 45–50mm in diameter. At either side of the cylinder pairs of plates indicate other wooden components, with one end of the pin fitted with an oval iron ring and the other of a bare threaded finial having perhaps lost a further metal component, or originally fixed to other machinery parts. The function of these machinery parts is not clear at this stage, but again it is possible that they originate from the calico printing works, although they could also relate to the later flock manufacturer operating on site until 1874.

Significance and recommendations for further work

The assemblage of metal finds from Ravensbury Grove provide a small glimpse of the material culture of 19th-century industrial activities, more specifically to the calico printing works, or possibly the flock manufacturers, operating on site in the 19th century. The finds include dress accessories such as copper-alloy pins and probable work-related items in the form of a crude lead vessel and possible fragments of colour pigments together with iron machinery components. However, the iron machinery components were unstratified and with the finds being found primarily with the drain culvert [103] the exact location of these finds in relation to any industrial processes being carried out in the Mill is lost. No further work is therefore recommended.

References

Caple, C. 1991. 'The Detection and Definition of an Industry: The English Medieval and Post Medieval Pin Industry', *Archaeological Journal* 148, 241–55.

MacGregor, A. 1985. *Bone, Antler, Ivory and Horn. The Technology of Skeletal Materials Since the Roman Period, London & Sydney:* Croom Helm.

Peaucelle, J. L. and Manin, S. 2006. 'Billettes and the economic viability of pin-making in 1700', in: *Eleventh World Congress of Accounting Historians, July 2006, Nantes* http://adamsmithslostlegacy.com/ftp.adamsmithslostlegacy.com/Pinmaking-Billettes.pdf

Catalogue

context	SF	description	pot date	recommendations
0		Cast-iron pulley wheel; incomplete with four spikes; diam. 250mm; band W 50mm	n/a	
		Iron machinery component; pin with small cogwheel/gear at each end; one end fitted with looped iron plate in plane; two in-situ bolts with square nuts and remains of wood; similar plate at other end for wood at right-angle to pin; pin L 495mm; cogwheel diam. 50mm; wood components 45mm thick	n/a	
		Iron machinery component; pin with pair of cogwheels/gears of different size, both with three pins at right-angle for wooden cylinder; one end of pin fixed with oval loop outside pair of rectangular plates for holding wooden component, remains of nails and wood; other end similar but with one thin plate and one solid-cast; pin L 330mm; cogwheel diam. 80 and 105mm; wood cylinder diam. 45-50mm	n/a	
	6	Silver sixpence of George III. 1818. Last Issue. Obverse: GEOR III D G BRITT REX F D//1818, Laureate head right. Reverse: H[ONI SOIT] Q MAL [Y PEN]SE, Crowned shield in garter. Die axis 0°, weight 2.46g. Heavy wear. Slight corrosion.	n/a	
146		Lead sheet; three pieces; the largest c 20 x 50mm	1789+	

context	SF	description	pot date	recommendations
157	2	Copper-alloy coin; George III halfpenny; fourth coinage; Boulton's Soho mint, Birmingham; 1806 or 1807; complete but heavily worn and corroded	1805-1900	
		Brass plug or fitting; complete cast with slightly tapering sides; central ?threaded opening filled with ferrous remains; diam.(base) 27mm; ht. 9mm; central opening 15mm diam.	1805-1900	
	3	Copper-alloy pins; seven; five Caple Type C of which four complete; L 34mm; gauge 1.15-1.35mm	1805-1900	
	4	Copper-alloy ?button; sturdy, slightly irregular disc with corroded cavity at the back; diam. 15mm	1805-1900	
	5	Lead sheet vessel; crudely 55 x 65mm oval and shallow for with neat and slightly concave base; ht. 15-17mm	1805-1900	
		Pigments?; two small pieces of vivid yellow and blue	1805-1900	
		Ferrous concretion; including large fragments of pottery, tile, claypipe, a base-mateal coin and metal objects (see above); several large lumps	1805-1900	discard

RVG19: metal finds

APPENDIX 8: THE STONE OBJECTS; ASSESSMENT

Märit Gaimster and Kevin Hayward

Two pieces of worked stone were recovered from the excavations, both incorporated in Phase 3 Floor [101]; they are listed in the catalogue below. One of the pieces is an incomplete paving slab of York stone, a material used for this purpose in particular during the 19th century (Godwin 1984). The slab has a nicely dressed upper surface and retains part of two original sides. The second piece is a substantial fragment of Niedermendig lava stone. This stone was imported from the Rhineland in large quantities as quern stone roughs, in particular during the Roman and medieval periods. Known in the Middle Ages as 'cullens', after the city of Cologne from where they were exported (Farmer 1992, 97–98), the trade in lava quern stone continued also in the later post-medieval period (cf. Tucker 1977, 8 and Figure 3a). The inferiority of this stone, in terms of its susceptibility to wear and contamination as a 'dark powder', making it unsuitable for grinding white flour, was highlighted by Robert Townson in 1799; cullen stones were however used in other contexts such as cider and malt making (Watts, 2002, 142). The lava stone fragment from Ravensbury grove is heavily worn, with no traces of its original dressing as a functional quern or millstone. It is possible that it was originally an edge runner, where the stone worked from a vertical rather than horizontal position, to crush or pulp matter. Besides cider making, edge runners would also have been used in snuff mills so it is possible the stone originates from the nearby Ravensbury Mill (Saxby 2008, 20–21).

Significance and recommendations for further work

Two fragments of worked stone incorporated in the stone and brick floor [101] include a substantial piece of heavily worn imported lava quern stone. The piece is almost certainly the remains of a millstone and may originate from the nearby Ravensbury mill where it would have been employed in the crushing of tobacco to manufacture snuff. It is possible that the dressed paving slab of York stone too represents secondary use, but this is more difficult to establish. No further work is recommended for these finds at this stage.

References

Farmer, D. L. 1992. 'Millstones for medieval manors', *Agricultural History Review* **40 II**, 97–111.

Godwin, C.G. (1984). Mining in the Elland Flags: a forgotten Yorkshire Industry, *BGS Report Vol. 16, No. 4, 1–14*

Saxby, D. 2008. *The Mills of the River Wandle*, Wandle Industrial Museum.

Tucker, D.G. 1977. 'Millstones, Quarries and Millstone-Makers', *Post-Medieval Archaeology* **11**, 1–21.

Watts, M. (2002). *The archaeology of mills and milling,* Stroud: Tempus.

Catalogue

context	description	pot date
101	Paving slab of York stone; incomplete in roughly triangular shape with dressed upper surface and part of two original sides; L 340mm+; W 280mm+; 75mm thick	n/a
101	Niedermendig lava quernstone; c 260 x 300mm fragment with rough base and smooth, heavily worn upper surface; tapering thickness from 90 to 70mm	n/a

RVG19: worked stone

APPENDIX 9: ANIMAL BONE ASSESSMENT

Karen Deighton

Introduction

Animal bone was hand collected from a small number of 19th century features which were associated with a culvert and a mill.

Method

The material was firstly sorted into recordable and non-recordable fragments and bones with fresh breaks were reassembled. Identification was aided by Schmid (1972); Prummel (1987) was consulted for neonates of the major domesticates, Lawrence and Brown (1974) for small mammals and Cohen and Serjeantson (1996) for birds. Sheep/goat distinction follows Boesneck (1969).

The following were recorded for each element: context, anatomical element, taxa, proximal fusion, distal fusion, side, burning, butchery, pathology and erosion. Ribs and Vertebra were recorded as horse, pig, dog, sheep size or cattle size but not included in the quantification as their multiple numbers introduce bias. Recording of fusion follows Silver (1969). Cattle and pig teeth were aged after Grant (1982) and sheep teeth after Payne (1973). Recognition and recording of butchery are after Binford (1981). The material was recorded onto an access database.

Condition of bone

Fragmentation was at a low level with 84% of bone 50% or more complete. No surface erosion was noted. Evidence for canid gnawing was noted on two bones along with evidence for rat gnawing. Butchery is evidenced by both the presence of chop and saw marks. The latter is indicative of the late date of the assemblage as sawing as a butchery technique was not introduced until the lateC18th/early C19th.

Taxa present

Table1: Taxa by context (fragment count)

Context	**120**	**133**	**149**	**158**	**Total**
Cut	**121**	**NA**	**NA**	**159**	
Feature type	**Wall**	**Levelling layer**	**Bedding layer**	**Pit**	
Cattle			2		2
Cattle size	3	1		1	5

Sheep/goat	18		1	2	21
Sheep size	1				1
Pig			6		6
Dog			1		1
Cat			1		1
Fallow deer	4				4
Rat sp			2		2
Small mammal			1		1
Chicken	21		9		30
Indeterminate bird			2		2
Total	**47**	**1**	**25**	**3**	**76**

The assemblage was dominated by common food domesticates with traces of the non- food taxa dog and cat. Wild taxa were represented by rat and fallow deer. Chicken formed 39.4% of the assemblage, predominantly leg bones. Evidence for male(spur) and female (medullary bone) and juveniles, could suggest on site production. Sheep/goat is second most abundant at 27.6%. A range of body parts were noted. A large portion (43%) were juveniles, maybe suggesting a preference for lamb. The skull showed a hornless animal. Pig remains were largely a partial piglet skeleton tooth eruption suggesting an animal of between 2 and 8 months. This can be interpreted as either evidence for local production or a taste for suckling pig Cat was represented by the partial mandible of a kitten; the presence of deciduous teeth suggests an animal of 6 weeks to 3.5months. Along with a single dog bone the presence of cat could suggests links with fur production although this remains inconclusive within the evidence of knife marks. Fallow deer is represented by skull, atlas and mandibles representing a minimum of two individuals. These elements could suggest primary butchery waste. The presence of rat is attested to by both bones and gnawing on bones. The origin of the assemblage is a little problematic; deposition of refuse after the building falls into disuse cannot be ruled out.

Significance, potential and recommendations

This small, well preserved assemblage shows some trends typical of a late post medieval assemblage i.e. large individuals resulting from stock improvement, use of sawing in butchery and the presence of rat gnawing. An interesting aspect of the assemblage is the presence of fallow deer skull and mandibles as the provenance of the remains is unclear (do they represent a high-status household or are they the result of poaching). The assemblage has the potential to provide evidence for improvements in domestic fowl as many bones were complete permitting a suite of measurements to be taken. The range of taxa and body parts present will also give some indication of dietary preferences in a late post medieval London suburb. The assemblage is of local significance as few assemblages of this date have been studied (for example the St Giles Rookery (Pipe 2011) and furthermore none from this area for this date

(for example although late post-medieval animal bones are known from Merton Priory only the earlier assemblages were studied (Pipe 2007)).

It is recommended that a full report is included with the site archive.

Bibliography and references

Boessneck, J. 1969. Osteological differences between sheep (*Ovis Aries* Linne) and goat (*Capra hircus* Linne) in Brothwell, D R. and Higgs, E (eds), *Science in archaeology,* London: Thames and Hudson, 331-58.

Binford, L. 1981 *Bones ancient man and modern myths.* New York: Academy Press

Brothwell, D and Higgs, E. (eds) 1969 *Science in Archaeology* 283-302 London: Thames and Hudson

Grant, A. 1982 'The use of tooth wear as a guide to a guide to the age of domestic ungulates' in Wilson, Grigson and Payne

Lawrence, M, J and Brown, R.W. 1973 *Mammals of Britain their tracks, trails and signs* London: Blandford Press

Payne, S. 1973 'Kill-off patterns in sheep and goats: the mandibles from Asvan Kale' *Anatolian Studies* 23 281-303

Pipe, A, 2007 'The vertebrate remains', in P, Miller and D, Saxby, *The Augustinian priory of St Mary Merton, Surrey: excavations 1976-90,* MoLAS Monograph Ser 34, London, 246-250

Pipe, A 2011 'Animal bone' in S. Anthony *Medieval settlement to 18th/19th century rookery. Excavations at Central St Giles,* London Borough of Camden 2006-8 Archaeological Studies series 23

Prummel, W. 1987; Atlas for the identification of foetal elements of Cattle, Horse, Sheep and pig Part 2' *Archaeozoologia* vol1 (2) pp11-41
Schmid, E 1972 Atlas of animal bones London: Elsevier press

Serjeantson, D. and Cohen, A. 1996 *A manual for the identification of the Bird Bones from Archaeological Sites.* London: Archetype Publications Ltd

Silver, I.1969 'The ageing of domestic animals' in D. Brothwell and E. Higgs (Eds)

APPENDIX 10: ENVIRONMENTAL ASSESSMENT

Kate Turner

INTRODUCTION

This report summarises the findings of the assessment of two environmental bulk samples taken during archaeological mitigation work on land at Ravensbury Grove, Merton. These samples were taken from two fills of a 19th -century culvert, (146) and (157).

The aim of this assessment is to:

1. Give an overview of the contents of the assessed samples;
2. Determine the environmental potential of these samples;
3. Establish whether any further analysis is necessary.

METHODOLOGY

Two environmental bulk samples, of thirteen and fourteen litres in volume, respectively, were processed using the flotation method; material was collected using a 300 µm mesh for the light fraction and a 1 mm mesh for the heavy residue. The heavy residue was then dried, sieved at 1, 2 and 4 mm and sorted to extract artefacts and ecofacts. The abundance of each category of material was recorded using a non-linear scale where '1' indicates occasional occurrence (1-10 items), '2' indicates occurrence is fairly frequent (11-30 items), '3' indicates presence is frequent (31-100 items) and '4' indicates an abundance of material (>100 items).

The flot (>300 µm), once dried, was scanned under a low-power binocular microscope at 10x magnification, to quantify the level of environmental material, including seeds, chaff, charred grains, molluscs and charcoal. Abundance was recorded as above. A note was also made of any other significant inclusions, for example roots and modern plant material. Molluscs were identified with reference to Kerney (1999).

Cultural material collected from the heavy residues has been catalogued and passed to the relevant specialists for further assessment. A full account of the sample contents is given in Table 1.

RESULTS

Preservation

Preservation of ecofacts was poor in this assemblage; only a small amount of wood charcoal, and modern seeds, roots and rhizomes was reported. Terrestrial and freshwater molluscs shells were also recovered, in low to moderate concentrations.

Phase 3: 19th Century

Sample <2>, context (146), fill of Culvert [103]

Sample <2>, consisting of thirteen litres of sediment, was taken from a silting deposit associated with culvert [103]. Archaeobotanical remains were poorly preserved in this sample, with only a minimal amount of wood charcoal, less than one-hundred specimens in total, reported, the bulk of which was recovered from the lowest sieved fraction (<2mm). Shells of the terrestrial burrowing snail *Cecilioides acicula* were observed in moderate concentrations, along with lesser numbers of *Aegopinella/Oxychilus* spp., snail eggs and juvenile specimens. Industrial waste, in the form of coal and slag was present throughout the flot fraction, with mortar, CBM, pottery, clay pipe, and lead and iron finds found in the retent. Roots, modern plant material and intrusive seeds were relatively common, indicating the likelihood of post-depositional disturbance in this context.

Sample <3>, context (157), fill of Culvert [103]

Sample <3>, consisting of fourteen litres of soil, was taken from an accumulation layer at the base of culvert [103]. The bulk of this context was comprised of combustion waste, including coal, slag and clinker/coke, as well as a small concentration of heavily fragmented charcoal. Seeds and grains were absent, with only a minimal abundance of intrusive plant material being recognised. The mollusc assemblage contained specimens of *Cecilioides acicula*, along with shells of *Aegopinella/Oxychilus* spp. and *Vitrea* spp., and a single specimen of the freshwater species *Pisidium* spp. Fragmented bone, and modern insect remains were reported in the flot, and small animal bone, tile, mortar, pottery, clay pipe, glass and a single coin in the retent.

Taphonomic Considerations

Moderate concentrations of roots/rhizomes and intrusive seeds were recognised throughout this assemblage; these remains are likely to be evidence of post depositional disturbance, and the potential for re-working of smaller ecofacts should be considered.

CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER WORK

As assessment of the environmental remains recovered from this assemblage has shown that preservation of archaeobotanical material was poor, with the bulk of the samples being comprised of industrial waste; as a result, no further work is suggested on these samples.

BIBLIOGRAPHY

Kerney, M. (1999) *Atlas of the land and freshwater molluscs of Britain and Ireland*. Colchester: Harley Books.

Table 1: Assessment of environmental samples from Ravensbury Grove, Merton

Sample Number		**2**	**3**
Context Number		**146**	**157**
Cut Number		103	103
Context Type		Accumulation	Accumulation
Feature Type		Culvert	Culvert
Period		19th C	19th C
Volume of bulk (litres)		13	14
Volume of flot (millilitres)		37	52
RETENT			
Bone			
Small animal bone			1
Building Materials			
Tile			1
Mortar			1
CBM		1	
Finds			
Pottery		1	1
Clay pipe		1	1
Coin			1
Glass			1
Metal pins/nails		1	
Lead vessel		1	
Industrial Residue			
Coal			4
Slag			4
FLOT			
Charcoal			
Charcoal >4 mm		1	
Charcoal 2 - 4 mm		1	
Charcoal <2 mm		3	3
Intrusive Seeds			
Chenopodium album	Fat-hen	1	
Other Plant Macrofossils			
Roots/rhizomes	.	2	2
Modern plant material		1	1
Molluscs	**Habitat**		
Aegopinella/Oxychilus spp.	Terrestrial	1	1
Cecilioides acicula	Terrestrial	3	3
Pisidium spp.	Freshwater		1
Vitrea spp.	Terrestrial		1
Snail eggs		3	3
Juveniles - indeterminate		2	2
Bone			
Bone fragments			1
Biological remains			
Insect remains		1	2
Sample Number		**2**	**3**

Industrial residue		
Coal		4
Slag	1	1
Black vitreous remains	4	4
Clinker/coke		3

Key: 1- Occasional, 2- fairly frequent, 3- frequent, 4- abundant.

APPENDIX 11: OASIS FORM

OASIS ID: preconst1-375663

Project details

Project name	Ravensbury Grove, Mitcham LB Merton CR4 4DU
Short description of the project	A watching brief and small area excavation took place between April and June 2019 on the site of the calico printing works (Ravensbury Mill) at Mitcham, Merton. Work was undertaken by PCA for CgMs. Across the wider area truncated brick walls were recorded from the 19th century factory. A small area excavation recorded brick structures believed to date from the late 18th and 19th century which included dye furnaces, a brick culvert/water drain, various washrooms/tanks and a wheel pit
Project dates	Start: 17-04-2019 End: 04-06-2019
Previous/future work	Yes / No
Any associated project reference codes	RVG19 - Sitecode
Type of project	Field evaluation
Site status	Local Authority Designated Archaeological Area
Current Land use	Residential 1 - General Residential
Monument type	WALL Post Medieval
Significant Finds	POTTERY Post Medieval
Significant Finds	COIN Post Medieval

Project location

Country	England
Site location	GREATER LONDON MERTON MITCHAM Ravensbury Grove
Postcode	CR4 4DU
Study area	2215 Square metres
Site coordinates	TQ 26562 68227 51.398431389562 -0.180472691054 51 23 54 N 000 10 49 W Point
Height OD / Depth	Min: 15.25m Max: 16.33m

Project creators

Name of Organisation	Pre-Construct Archaeology Limited
Project brief originator	CGMS Heritage (part of the RPS Group)
Project design originator	Pre-Construct Archaeology Limited
Project director/manager	Helen Hawkins

Project supervisor	Tanya Jones

Project archives

Physical Archive recipient	LAA
Physical Archive ID	RVG19
Physical Contents	"Animal Bones","Ceramics"
Digital Archive recipient	LAA
Digital Archive ID	RVG19
Digital Media available	"Images raster / digital photography","Spreadsheets","Survey","Text"
Paper Archive recipient	LAA
Paper Archive ID	RVG19
Paper Media available	"Context sheet","Drawing","Matrices","Photograph","Report","Survey","Unpublished Text"

Entered by	archive (archive@pre-construct.com)
Entered on	29 November 2019

P C A

PCA CAMBRIDGE
THE GRANARY, RECTORY FARM
BREWERY ROAD, PAMPISFORD
CAMBRIDGESHIRE CB22 3EN
t: 01223 845 522
e: cambridge@pre-construct.com

PCA DURHAM
UNIT 19A, TURSDALE BUSINESS PARK
TURSDALE
DURHAM DH6 5PG
t: 0191 377 1111
e: durham@pre-construct.com

PCA LONDON
UNIT 54, BROCKLEY CROSS BUSINESS CENTRE
96 ENDWELL ROAD, BROCKLEY
LONDON SE4 2PD
t: 020 7732 3925
e: london@pre-construct.com

PCA NEWARK
OFFICE 8, ROEWOOD COURTYARD
WINKBURN, NEWARK
NOTTINGHAMSHIRE NG22 8PG
t: 01636 370410
e: newark@pre-construct.com

PCA NORWICH
QUARRY WORKS, DEREHAM ROAD
HONINGHAM
NORWICH NR9 5AP
T: 01223 845522
e: cambridge@pre-construct.com

PCA WARWICK
UNIT 9, THE MILL, MILL LANE
LITTLE SHREWLEY, WARWICK
WARWICKSHIRE CV35 7HN
t: 01926 485490
e: warwick@pre-construct.com

PCA WINCHESTER
5 RED DEER COURT, ELM ROAD
WINCHESTER
HAMPSHIRE SO22 5LX
t: 01962 849 549
e: winchester@pre-construct.com

REGISTERED ORGANISATION CIfA