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Chatsworth District Heating Scheme, Chatsworth House, Bakewell, Derbyshire

Archaeological Watching Brief



Ref: 84410.03
February 2013



**Chatsworth District Heating Scheme,
Chatsworth House,
Bakewell, Derbyshire**

Archaeological Watching Brief

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February 2013

Report Ref 84410.03



Quality Assurance

Project Code	84410	Accession Code	N/A	Client Ref.	N/A
Planning Application Ref.	NP/DDD/0811/-0835	Ordnance Survey (OS) national grid reference (NGR)	426100 370200		

Version	Status*	Prepared by	Checked and Approved By	Approver's Signature	Date
v1.1	F	James Thomson	Richard O'Neill		08/02/13
File:	S:\PROJECTS\84410 (Chatsworth Biomass District Heating Scheme)\Reports				
File:					
File:					
File:					
File:					

* I = Internal Draft; E = External Draft; F = Final

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Chatsworth District Heating Scheme, Chatsworth, Bakewell, Derbyshire

Archaeological Watching Brief

Summary

Wessex Archaeology has been commissioned by LowC Communities Ltd., on behalf of the Trustees of Chatsworth, to undertake an archaeological watching brief during the excavation of a series of service trenches to facilitate a new biomass heating system to the northeast of Chatsworth House, Derbyshire.

The route of the new pipeline for the new Biomass heating system ran from the North Range of Chatsworth House (NGR SK 26051 70175), following footpaths within the north of the gardens beside the Conservative Wall glasshouse (NGR SK 26275 70208), and turning south around the Main Glasshouse and then north to the east of the Stables (NGR SK 26275 70324). The pipeline terminated at a new heating centre (NGR SK 26323 70362).

Groundworks were carried out between 20.02.12 and 11.12.12 using 3 and 6 ton tracked excavators fitted with toothless buckets. In total approximately 575m of trench were excavated to a maximum depth of 1.2m and width of 1m.

The archaeological watching brief encountered and recorded evidence of the historic development of the western gardens of Chatsworth House. Significantly the earliest structures and deposits encountered appear to comprise the walls of an orchard and the base deposit of a pond illustrated on plans and drawings of the 16th to 17th centuries. To the south of the present Conservative Wall glasshouse the Scheme crossed the remnants of a wall, surviving to three courses, which is possibly the northern wall of the old orchard. Its structure was of slightly rounded sandstone blocks drawing comparisons to the 17th century southern retaining wall of the east terrace. Whilst a portion of this wall was removed to accommodate the new heating system, the base course of the wall was left in situ.

A deposit of clay was encountered to the south of the Conservative Wall glasshouse and east of the Northern Range, which possibly represents the base deposit of a pond illustrated in the 17th century.

It was also possible to identify two successive phases of alterations represented by reworking of levels and improvements to drainage. These correlate with the established history of the gardens as associated with Capability Brown between 1755 and 1764 and Joseph Paxton between 1826 and 1856.



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Acknowledgements

This project was commissioned by LowC Communities Ltd., on behalf the Trustees of Chatsworth House. Ordnance Survey base mapping was provided by the Trustees of Chatsworth House. Oliver Jessop authored the WSI and reviewed this report.

The fieldwork was undertaken by James Thomson, Lucy Dawson, and Michael Hartwell. The report was compiled and researched by James Thomson. Specialist analysis was undertaken by Lorraine Mephram. Illustrations were by Chris Swales.

This project was managed for Wessex Archaeology by Richard O'Neill.



Chatsworth District Heating Scheme, Chatsworth, Bakewell, Derbyshire

Archaeological Watching Brief

1 INTRODUCTION

1.1 Project background

- 1.1.1 Wessex Archaeology has been commissioned by LowC Communities Ltd, on behalf of the Trustees of Chatsworth House, to undertake an archaeological watching brief during the excavation of a series of service trenches to facilitate a new biomass heating system to the northeast of Chatsworth House in Derbyshire (hereafter 'the Scheme').
- 1.1.2 This report presents a brief description of the methodology, a description of the results and the archaeological interpretation of the findings.

1.2 The Scheme

- 1.2.1 Chatsworth House is a Grade I Listed Building, situated within a working estate and landscaped gardens some 4km northeast of Bakewell, Derbyshire (**Figure 1**).
- 1.2.2 The excavated pipeline for the new Biomass heating system ran from the North Range of Chatsworth House (NGR SK 26051 70175), following footpaths within the north of the gardens beside the Conservative Wall glasshouse (NGR SK 26275 70208), and turning south around the Main Glasshouse and then north to the east of the Stables (NGR SK 26275 70324). The pipeline terminated at a new heating centre (NGR SK 26323 70362).
- 1.2.3 The Scheme lies on the boundary between the Ashover Grit-Sandstone and the Millstone Grit Group of mudstones, siltstone and sandstone. Overlying superficial deposits comprise clay, silt, sand and gravel deposits (BGS Geology of Britain viewer 2013).

2 ARCHAEOLOGICAL BACKGROUND

2.1 Introduction

- 2.1.1 A house at Chatsworth is reputed to have been built by the Leche family in the middle of the 15th century (Thompson 1949, 12). Whilst it is believed that the Leche's had built a house within the park, its exact location is unknown. Previous discussions on the matter have suggested that due to the nature of the River Derwent, which is subject to rapid and dangerous floods, the house would likely have been built above the flood-planes (Thompson 1949, 12). The site of the present house, attributed to Sir William Cavendish and Bess of Hardwick, dates to the mid-16th century.
- 2.1.2 The earliest depiction of the grounds around the house is represented by an 18th century painting by Wilson which is believed to have been copied from a lost 16th century original by Siebrachts (**Figure 2**). The painting illustrates a western perspective of the house with



a garden illustrated behind it to its left with a plain retaining wall and corner two storey pavilion.

- 2.1.3 Comparison of this painting with a schematic painting of the Chatsworth Estate by William Senior, dated 1617 (**Figure 3**) labels the garden as “The ould orchard” (sic): a rectangular enclosure with a large central pond. East of the orchard the grounds are shown as largely open with sparse woodland.
- 2.1.4 By the late 17th century the Elizabethan building was said to be “decaying and weake” and a great scheme was undertaken by the 4th Earl of Devonshire systematically renovating the house. A bird’s eye perspective of the house and grounds was commissioned by the Duke in 1699 (**Figure 4**) illustrating the extent to which the house and surrounding grounds had changed. The perspective drawing illustrates the “ould orchard” had been replaced with a large pond with an orchard towards the east, with a new structure along the northern boundary wall and several changes in level.
- 2.1.5 The stables were relocated during the 1756-60 to their current location northeast of the house and the wider landscape was redesigned by Capability Brown between 1755 and 1764. Possibly during this period of change the arrangement shown in 1699 was removed with a plan of the grounds from 1765 (**Figure 5**) illustrating the area to have been reinstated as open ground with the Flora’s Temple constructed. The gardens closest to the House and their associated infrastructure were further developed by Joseph Paxton between 1826 and 1856, including the construction of the Conservative Wall glasshouse in 1842. Between 1820 and 1842 the North Range, which bounds the Scheme to the west, was constructed for the 6th Duke of Devonshire by Sir Jeffery Wyatville.

2.2 Recent investigations in the area

- 2.2.1 A programme of archaeological monitoring was undertaken by Archaeological Research Services during the installation of sculptures in the lawn to the south of the Conservative Wall in 2008. This work recorded an in-filled ditch and a large assemblage of 19th century horticultural vessels including a residual medieval sherd (ARS 2008, 9).
- 2.2.2 To the west and northeast of the stables two service trenches (ARS 2009; ARCUS 2003) have been monitored, which observed minimal archaeological remains. The initial geotechnical investigations at the Biomass Centre were monitored in 2011 by Wessex Archaeology (Wessex 2011), although no features of note were observed.

3 METHODOLOGY

3.1 Aims and objectives

- 3.1.1 The principal aim of the watching brief is to allow for the collection and assessment/analysis of archaeological data impacted upon during groundworks associated with the biomass district heating scheme.
- 3.1.2 The general aims of the watching brief are:
 - 3.1.3 to accurately record the location and stratigraphy of areas excavated during groundworks;
 - 3.1.4 to record all archaeological remains disturbed by the groundworks;



- *to determine the extent, condition, character, importance and date of any archaeological deposits encountered;*
- *to provide information that will enable the archaeological remains to be placed with their local, regional and national contexts;*
- *to recover artefacts disturbed by the site works; and*
- *to produce an accurate and comprehensive record and report of any archaeological deposits disturbed by the site works.*

3.2 Fieldwork methodology

- 3.2.1 An intermittent archaeological watching brief was undertaken in accordance with a Written Scheme of Investigation approved by the Peak District National Park (Wessex Archaeology 2012).
- 3.2.2 Groundworks were carried out by 3 and 6 ton tracked excavators fitted with toothless buckets. In total approximately 575m of trench were excavated to a maximum depth of 1.2m and width of 1m.

3.3 Recording

- 3.3.1 All archaeological deposits were recorded using Wessex Archaeology's pro forma recording system. This written record is hierarchically based and centred on the context record. Each context record fully describes the location, extent, composition and relationship of the subject and is cross-referenced to all other assigned records. Context numbers used in recording the excavation were not repeated.
- 3.3.2 Each excavated context appears on at least one detailed plan at 1:50 or 1:20 scale and one section at 1:10 and co-ordinated on to the overall site plan as appropriate. A digital photographic record was maintained to illustrate both the detail and the general context of the principal features.
- 3.3.3 All artefacts were recorded by context, and washed, weighed, counted, identified, and assessed for conservation needs. All artefacts were examined and reported by specialists. Those classes of artefact which can be used for dating evidence, such as pottery, ceramic building materials, stone objects, clay pipes and glass, have been spot-dated where possible. A discussion of the finds is in **Section 5** below.

3.4 Best Practice

- 3.4.1 All works were conducted in compliance with the Institute for Archaeologists' Standards and Guidance for Archaeological Watching Brief (1994: revised 2008).



4 ARCHAEOLOGICAL RESULTS

4.1 Introduction

4.1.1 The following presents a summary of the results of the archaeological monitoring. Excavations for the heating scheme were undertaken in two sections:

- *Section 1 (228m excavated 22/02/12 to 27/02/12) comprised 4 runs (**Plates 1-4**) from the North Range to the south side of the Main Glasshouse.*
- *Section 2 (264m excavated 05/03/12 to 11/12/12) comprised 4 runs (**Plates 5-8**) from the south side of the Main Glasshouse to the energy centre to the north of the Kitchen Gardens.*

4.1.2 The location of structures and significant deposits encountered are illustrated on **Figures 6-7**.

4.1.3 Essentially four main phases of activity were encountered within the Scheme, dating from the 17th century to the modern period. All the phases relate to the gradual creation and adaption of the gardens situated to the east of Chatsworth House.

4.2 Phase 1 – The 17th Century

4.2.1 The earliest phase was represented by clay deposit **1005** encountered at a depth of 0.9m within the drive parallel to the east of the house and within the western half of the path to the south of the Conservative Wall glasshouse (**Plate 9**). Based on inclusions of organics and infrequent rubble fragments, the clay was evidently disturbed and may well represent the base of a large pond that was formed in this part of the gardens in the mid to late 17th century.

4.2.2 The clay deposit was bounded to the east by narrow loosely structured stone deposit **1025** that could represent the remains of a robbed out wall (**Plate 10**). Beyond **1025** the base deposit in the trench comprised orange brown sandy clay **1026**.

4.2.3 Approximately 30m east of **1025**, to the eastern side of the central staircase of the Conservative Wall glasshouse, was the base course of wall **1018** running north-south at a depth of 0.9m (**Plate 11**). Abutting this structure to the east was buried topsoil **1034** within which fragments of 19th century flower pot and window glass were recovered. The buried topsoil was approximately 10m wide, and bounded to the east by a possible sandstone structure, possibly a parallel structure to **1018**, that had been disturbed by the insertion of a modern drain (**1033**; **Plate 12**). The survival of vertical cut **1045** bounding the edge of the buried soil in line with the eastern edge of structure **1018** suggests it had been robbed out after the formation of the soil. Structure **1018** lies on the approximate line of the historic boundary between the pond and the orchard observed on the 1617 plan (**Figure 3**).

4.2.4 Also contemporary was structure **1042**: a 20m section of wall encountered at the eastern end of the path south of the Conservative Wall glasshouse (**Figure 8**; **Plate 13**). The wall, which ran at a slight angle to the surrounding structures, was of slightly rounded sandstone blocks bonded with a lime mortar. Three courses of stonework were exposed within the trench, with an additional projecting foundation course observed at the base of the excavation, possibly indicating that the ground surface at the time of construction was approximately 1m below the present. The alignment of the wall suggested it continued beneath the Conservative Wall glasshouse to the west, whilst at its eastern end the wall appeared to have been truncated by culvert **1014**. The wall either terminated west of the



main glasshouse or turned south to run parallel to it, however, interpretation was hampered by several modern intrusions relating to utility trenches for a gutter, data cable duct and water pipe. This wall is tentatively dated to the 17th century based on comparison to similarly constructed walls within the grounds, and may well represent the northern wall of the 'ould orchard' of William Senior's 1617 map of Chatsworth manor.

4.3 Phase 2 – The 18th Century

- 4.3.1 Overlying Phase 1 were made ground deposits **1003**, **1004**, **1021**, **1022**, **1024**, and **1027**. These deposits were of varying materials, although were consistent in not containing any brick or mortar fragments. It is probable that these deposits were largely contemporary, dating to a period in the mid to late 18th century in which the structures of Phase 1 were being removed and the area landscaped.
- 4.3.2 A thick overlying deposit of made ground (deposits **1002**, **1020**, **1032** and **1035**), likely reflecting the final level of the grounds in the 18th century, contained a network of culverts (locally known as soughs). No construction cuts were observed for these culverts, suggesting they were laid contemporaneously with the made ground. The earliest examples of these comprised stone built structures **1013**, **1014**, **1015**, **1017** (structure **1041** was possibly a continuation of this), **2013**, and **2014** which all comprised stone rubble built sides with large capstones (**Plates 14-17**).
- 4.3.3 Towards its eastern end, the Scheme rises up the hillside and passes the stables constructed 1750-60 for the 4th Duke of Devonshire by the architect James Paine. The deposits encountered in this area comprised rough large stone deposits **2007**, **2010**, **2011** and **2012** likely formed during the construction of the stables (**Plate 18**).

4.4 Phase 3 – The 19th Century

- 4.4.1 At its western end the Scheme exposed the curved profile of lime mortared sandstone block footings **1007** corresponding to a sub-ground level alcove within the North Range (**Plate 19**). The footings were abutted by mid-grey clay **1010**. It was not possible to determine whether there was a cut for the foundations due to extent of disturbance created in the vicinity from an existing plastic water main. The North Range was constructed 1820-1845.
- 4.4.2 Possibly contemporary with the North Range was **1009**, a north-south aligned brick lined culvert at the base of the bank. A reused piece of moulded masonry was incorporated within the cap of this structure (**Plate 1**).
- 4.4.3 The Conservative Wall glasshouse was constructed to the north of the Scheme in 1842 likely accounting for the presence of charcoal rich made ground deposit **1023**. Cut into the underlying made ground deposits of the previous phase were several culverts constructed of unfrosted redbrick (structures **1011**, **1012**, **1037**, **1038**, **1040**, and **1044**; e.g. **Plate 20**), likely corresponding to drainage from new glasshouses and paths constructed during Joseph Paxton's rearrangement of the gardens. In addition two lead pipes were encountered within the Scheme, which likely date from this period providing water for garden structures (structures **1039** and **4003**).
- 4.4.4 Overlying **1023**, and present within the western half of the Scheme was a deposit of sandy gravel **1001**, **1019** and **1030** that likely represent the formation of the current footpaths.
- 4.4.5 In the vicinity of the potting shed, main glass house and vinery the Scheme encountered deposits **2003** and **2004** containing 19th century rubble and clinker, as well as a short disturbed remnant of brick walling (structure **2002**). Behind the stables, the Scheme turns



east to the northwest of the kitchen gardens. Within this area the Scheme went through thick loose subsoil **3002** which contained a refuge deposit of glass and flower pot fragments dating to this period.

4.5 Phase 4 – Modern

- 4.5.1 Throughout the Scheme there had been several phases of improvements to the surfaces of the paths and drives comprising thin layers of grit in areas and tarmac (**1000**, **1028**, **2000**, **2001**, **2008**, and **2015**).
- 4.5.2 In addition there were a number of modern services encountered during the Scheme which were not recorded archaeologically.

5 ARTEFACTUAL EVIDENCE

5.1 All finds

- 5.1.1 A very small quantity of finds was recovered during fieldwork, deriving from two contexts (**1034**, **3002**), and apparently dating exclusively to the post-medieval period. Quantities are given by material type in **Table 1**.
- 5.1.2 The pottery consists entirely of coarse redwares, which are broadly dated as post-medieval. The sherd from **1034** is from an internally glazed bowl, probably of 18th century date or later, while the sherds from **3002** are from unglazed vessels, probably all horticultural vessels (flowerpots), and including two stamped with the manufacturer's mark of Sankey of Nottingham (company founded in 1855).
- 5.1.3 The glass includes both window and vessel. A fragment of window glass from **1034** is of 19th or 20th century date, while a second fragment, from **3002**, is 20th century, as is a complete colourless beverage bottle from the same context.
- 5.1.4 Other finds comprise ceramic building material (brick fragment) and iron (nail), neither of them closely datable.
- 5.1.5 Given the small quantity of finds recovered, their nature and date range, their retention for long-term curation is not recommended, although they could be included in any overall assemblage relating to other phases of work at Chatsworth.

Table 1: All finds by context (number / weight in grammes)

Context	Pottery	CBM	Glass	Iron
1034	1/68		1/4	1/20
3002	5/383	1/60	2/461	
TOTALS	6/451	1/60	3/465	1/20



6 DISCUSSION

6.1 Summary

- 6.1.1 The archaeological watching brief encountered and recorded evidence of the historic development of the western gardens of Chatsworth House. Significantly the earliest structures and deposits encountered appear to relate the walls of an orchard and base deposits of a pond illustrated on plans and drawings of the 16th to 17th centuries (**Figures 2-4**). To the south of the present Conservative Wall glasshouse the Scheme crossed the remnants of a wall, surviving to three courses, which is possibly the northern wall of the old orchard. Its structure was of slightly rounded sandstone blocks drawing comparisons to the 17th century southern retaining wall of the east terrace. Whilst a portion of this wall was removed to accommodate the new heating system, the base course of the wall was left in situ.
- 6.1.2 A deposit of clay was encountered to the south of the Conservative Wall glasshouse and east of the Northern Range, which possibly represents the base deposit of a pond illustrated in the 17th century.
- 6.1.3 It was also possible to identify two successive phases of alterations represented by reworking of levels and improvements to drainage. These correlate with the established history of the gardens as associated with Capability Brown between 1755 and 1764 and Joseph Paxton between 1826 and 1856.

7 STORAGE AND CURATION

7.1 Preparation

- 7.1.1 The project archive, consisting of all primary written documents, plans, sections, photographs, and electronic data, will be prepared by Wessex Archaeology staff in accordance with the requirements of the repository archive and in line with guidelines published by the United Kingdom Institute for Conservation (1990), Museums and Galleries Commission (1992), and Brown (2007).

7.2 Deposition

- 7.2.1 The physical site records will eventually be deposited with Chatsworth House for incorporation into their archives.
- 7.2.2 Copies of the report will be prepared for the client and additional copies will be distributed as instructed. In addition copies will be provided to the Peak District National Park Authority in Bakewell, and with the Derbyshire Historic Environment Record in Matlock.
- 7.2.3 An OASIS form will be completed at the conclusion of the project, <http://ads.ahds.ac.uk/project/oasis/>, for inclusion in the ADS database under the OASIS reference **wessexar1-14584**.



8 REFERENCES

8.1 Bibliography

- ARS (Archaeological Research Services Ltd). 2008. *Chatsworth House Sculpture Exhibition: Results of an Archaeological Watching Brief*, Unpublished report 2008 / 62.
- ARS (Archaeological Research Services Ltd). 2009. *Chatsworth House Car Park Service Trench: Results of an Archaeological Watching Brief*, Unpublished report 2009 / 2.
- ARCUS (Archaeological Research and Consultancy at the University of Sheffield) 2003. *Archaeological Watching Brief of a Water Main Extension at Chatsworth House, Derbyshire*, ARCUS unpublished report 741.1.
- Brown, D.H. 2007. *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation*.
- Institute for Archaeologists (IfA). 2005 (revised 2008). *Standard and Guidance for an Archaeological Watching Brief*.
- Museum and Galleries Commission (MGC). 1992. *Standards in the museum care of archaeological collections*.
- Thompson, F. 1949. *A History of Chatsworth, being a supplement to the sixth Duke of Devonshire's Handbook*, Country Life Limited, London
- United Kingdom Institute of Conservation (UKIC). 1990. *Guidelines for the Preparation of Excavation Archives for Long Term Storage*.
- Wessex Archaeology. 2011. *Chatsworth Biomass Project, Baslow, Derbyshire: Archaeological Watching Brief: Statement of Results*, Unpublished Report 78430.
- Wessex Archaeology 2012. *Chatsworth District Heating Scheme, Chatsworth, Derbyshire: Written Scheme of Investigation for Archaeological Watching Brief*, Unpublished Report 84410.01.



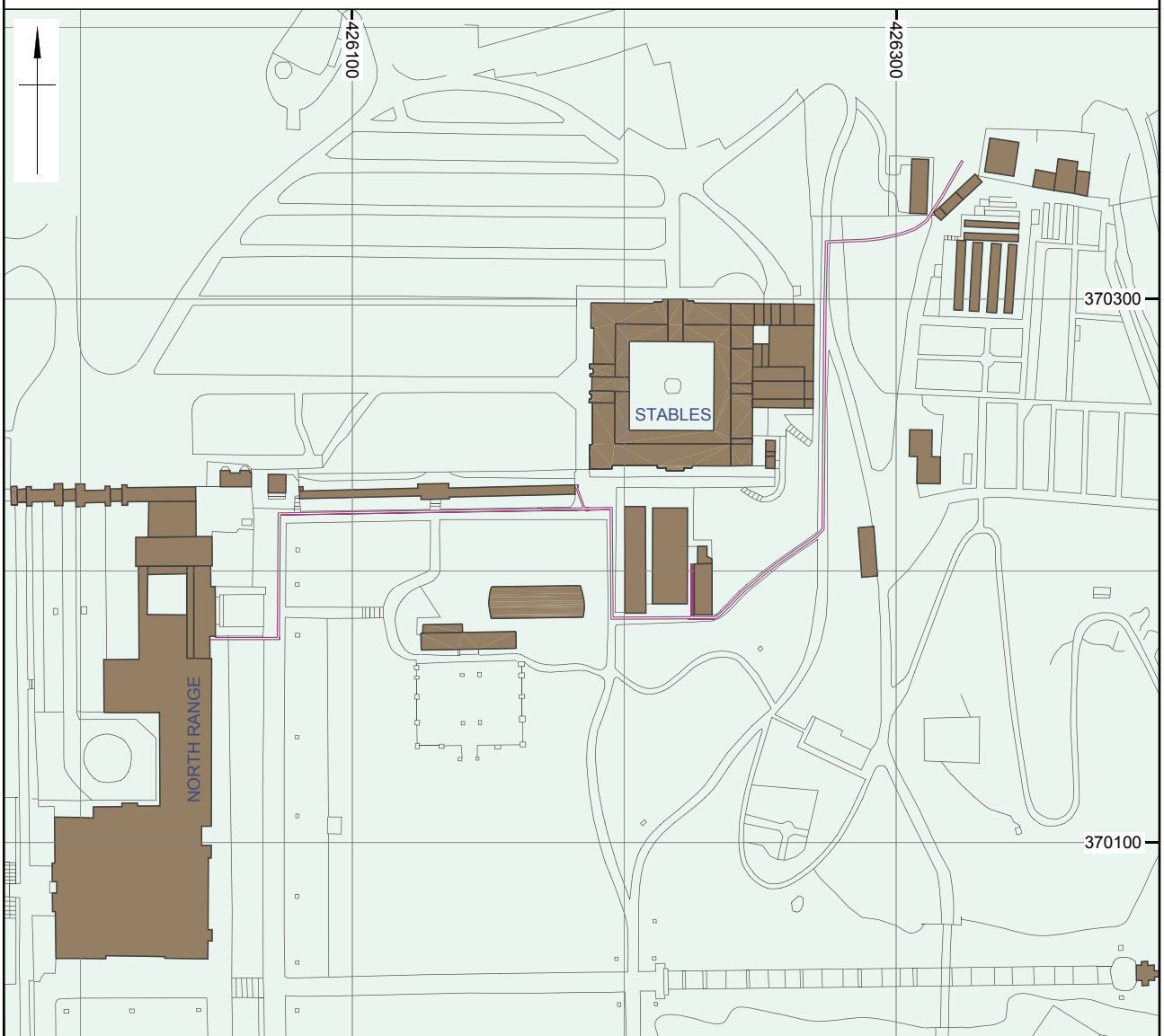
9 APPENDICES

9.1 Context Descriptions

Context	Category	Description	Depth bgl (m)
1000	Surface	Grey limestone gravel <4cm surface with light orange sandy dusting over and occasional patches of darker sand below.	0.00-0.10
1001	Deposit	Fine mid brown graely sand with sandstone <10cm	0.10-0.19
1002	Deposit	Light brown sandy gravel with frequent sandstone <10cm and occation <20cm	0.19-0.60
1003	Deposit	Mid brown sandy gravel with slight red hue	0.60-0.75
1004	Deposit	Large dense deposit of sandstone	0.75-0.90
1005	Deposit	Dark brown-black slightly sandy clay	0.90+
1006	Deposit	Orange brown sandy clay with frequent gravel	0.13-1.00
1007	Structure	Sandstone blocks, approx. 30-40cm in depth, with lime mortar. Forms curving profile. Footings for house.	0.2+
1008	Surface	Sandstone flags adjacent to east elevation	0.00-0.13
1009	Culvert	North-south aligned brick built culvert. Of unfrogged brick with reused moulded stone incorporated into cap	0.30-0.75
1010	Deposit	Re-deposited mid grey clay	1.00+
1011	Culvert	Redbrick lined (1 skin) with stone cap. Cut by modern drain.	0.24-0.50
1012	Culvert	Redbrick lined (1 skin) with stone cap.	0.20-0.50
1013	Culvert	Stone rubble lined with stone cap.	0.45-0.65
1014	Culvert	Stone rubble lined with stone cap.	0.36-0.70
1015	Culvert	Stone block lined with stone cap.	0.30-0.50
1016	Culvert	Redbrick lined (1 skin) with stone cap.	0.20-0.45
1017	Culvert	Stone rubble and block lined with large capstones	0.80-1.15
1018	Structure	Wall foundation of large sandstone blocks	0.70-0.90
1019	Deposit	Sandy grevel with sandstone rubble <20cm	0.10-0.35
1020	Deposit	Mixed dark brown sandy clay with occasional redbrick fragmenets <15cm and frequent sandstone <10cm.	0.42-0.65
1021	Deposit	Light brown sandy gravel with frequent sandstone <8cm and moderate <15cm	0.65-1.10
1022	Deposit	Reddish brown sandy clay	1.00-1.05
1023	Deposit	Black charcoal rich sand	0.35-0.42
1024	Deposit	Grey/black sandy clay	0.90+
1025	Deposit	Loose sandstone deposit (possible former structure)	0.70-1.10
1026	Deposit	Orange brown sandy clay	0.50+
1027	Deposit	Dark brown silty clay with occational charcoal and mottled with 1026	Rises from 0.80 to 0.42m east to west
1028	Surface	Tarmac	0.00-0.08
1029	Deposit	Sand with frequent crushed redbrick	0.08-0.12
1030	Deposit	Mid brown sand with moderate sandstone <15cm	0.12-0.37
1031	Deposit	Mid brown sandy clay loam	0.37-0.60
1032	Deposit	Orange clayey sand with rare mottling of grey sand	0.60+
1033	Structure	Truncated stone culvert with modern 5 ½ inch duct replacing	0.10-0.51
1034	Deposit	Dark brown silty clay with occational redbrick fragments <1cm, rare redbrick fragments <15cm, occational lime <1cm and charcoal <1cm	0.44-0.76
1035	Deposit	Mid grey mucky clay, similar to 1020	0.40-0.50
1036	Deposit	Mid brown sandy clay with inclusions of occational redbrick <2cm, sandstone <8cm and occational charcoal <1cm	0.50-1.00
1037	Culvert	Handmade redbrick lined and capped	0.72-0.96
1038	Culvert	Handmade redbrick lined and capped	0.66-0.86



Context	Category	Description	Depth bgl (m)
1039	Pipe	Lead pipe, approx 1 inch diameter	0.40-0.44
1040	Culvert	Handmade redbrick lined and stone capped	0.32-0.58
1041	Deposit/Culvert	Stone deposit, possibly the top of a culvert, encountered at base of dig	0.98+
1042	Structure	Sandstone wall of rounded blocks with lime mortar. Survived to 3 courses with additional wider course of foundations visible at base of dig. Wall faced on both sides with rubble core, approx. 50cm wide.	0.48+
1043	Cut	Cut in 1042 for 1044	0.20-0.50
1044	Culvert	Handmade redbrick sides and base. Base is of tiles where it crosses 1042 .	0.20-0.80
1045	Cut	Cut in 1034 possibly construction cut for 1018 .	0.50-0.80
2000	Surface	Mid grey grit sand and gravel	0.00-0.01
2001	Deposit	Light yellow sand and gravel – possible earlier surface	0.05-0.15
2002	Structure	Heavily disturbed redbrick wall running perpendicular to doorway of potting shed. 2 skins thick and surviving to at least 5 courses	0.02-0.60
2003	Deposit	Mixed rubble and clinker with inclusions of redbrick and mortar. Abutts eitherside of wall.	0.15-0.60
2004	Deposit	Mid greyish brown made ground of rubble, clinker and stone with yellow and orange patches.	0.70+
2005	Deposit	Mid brown sandy clay with frequent sandstone <10cm, occasional modern redbrick, moderate charcoal and rare modern rubbish (plastic bottles and pipe cut offs etc.)	0.15-0.54
2006	Deposit	Red sand – possibly fill of cut for drain just outside of dig	0.54-0.64
2007	Deposit	Mid brown sandy clay with moderate sandstone <10cm	0.64+
2008	Surface	Tarmac	0.00-0.05
2009	Deposit	Grey hardcore	0.05-0.33
2010	Deposit	Light yellow brown sand gravel <20cm	0.33-0.67
2011	Deposit	Dense limestone gravel	0.67-0.74
2012	Deposit	Rounded sandstone bounders <40cm in sand matrix with occasional grey patches	0.96+
2013	Culvert	Sandstone block sides and cap	0.96+
2014	Culvert	Sandstone block sides and cap	0.90+
2015	Tarmac	Buried tarmac surface	0.33-0.38
3001	Topsoil	Dark silty clay, humic.	0.00-0.10
3002	Subsoil	Loose dark brown very silty clay with large inclusions of flower pots, window glass and bottles (representative sample retained)	0.10-1.16
4001	Topsoil	Dark brown silty clay	0.00-0.25
4002	Natural	Yellow and grey clay	0.25-0.97
4003	Pipe	Lead pipe, aligned east-west.	0.25-0.29



- Site location
- Standing building
- Trenching

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Site location

Figure 1

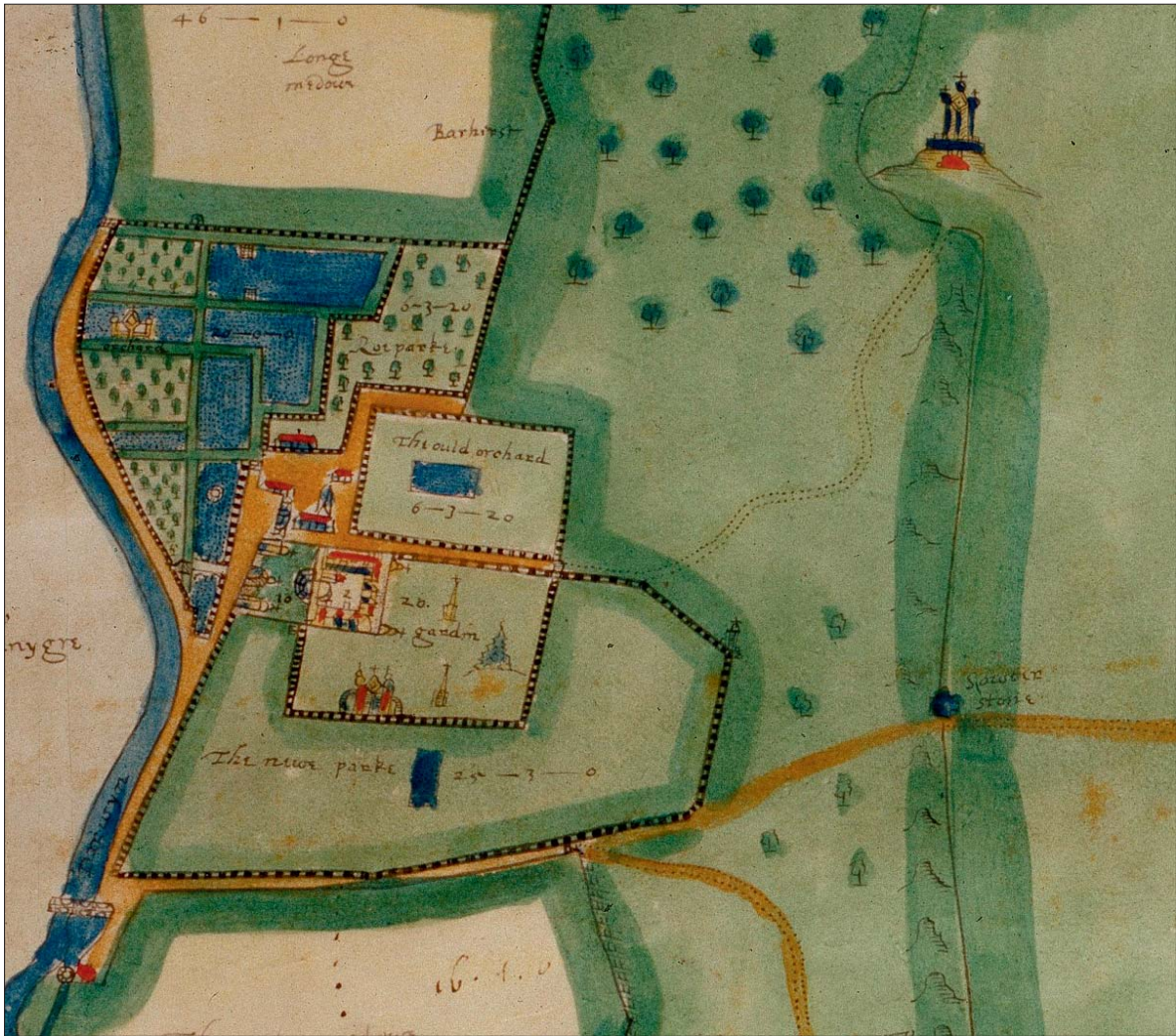


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Detail of the 18th century painting of Chatsworth House by Richard Wilson, copied from a lost original by Siebracht in the 16th century

Figure 2



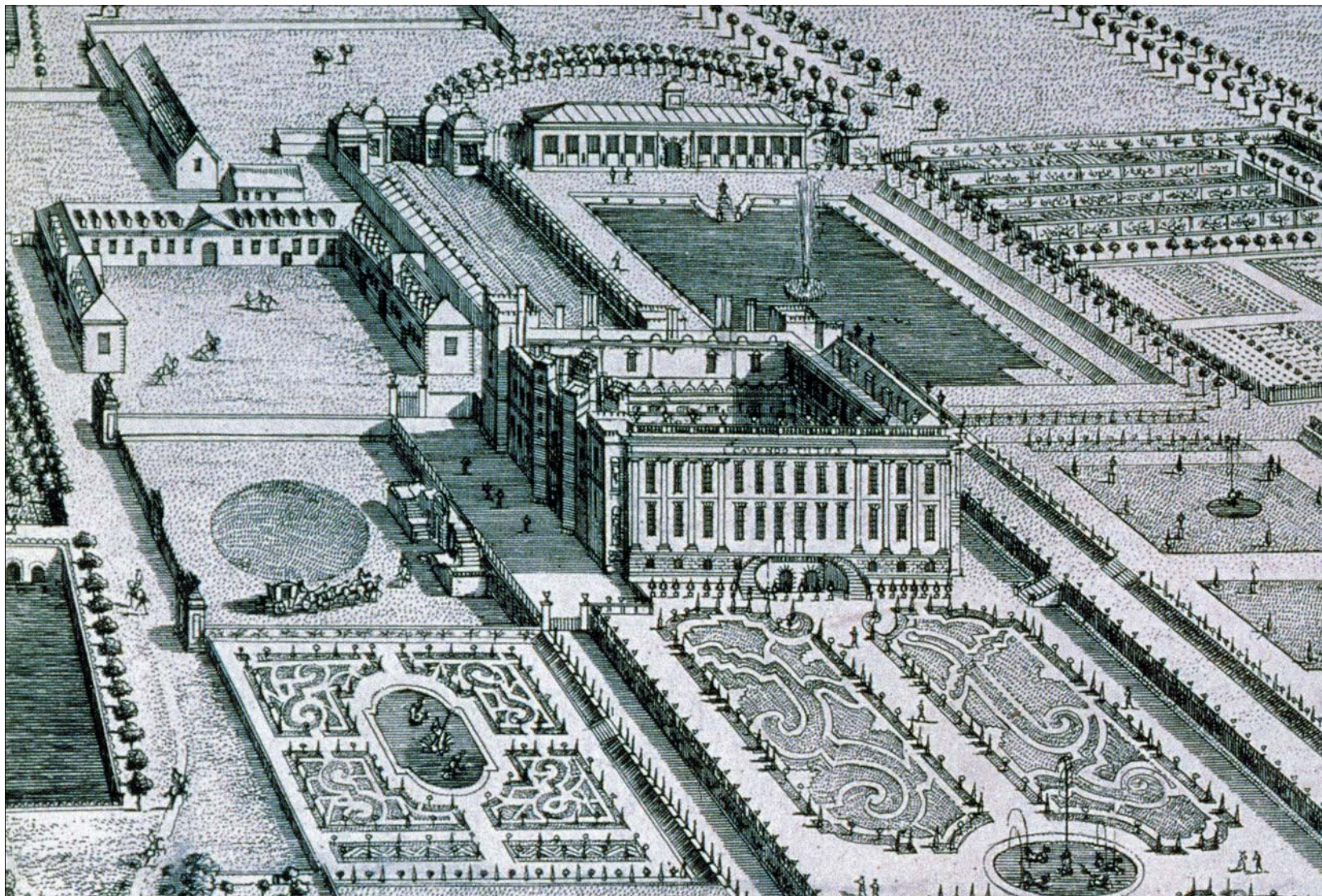
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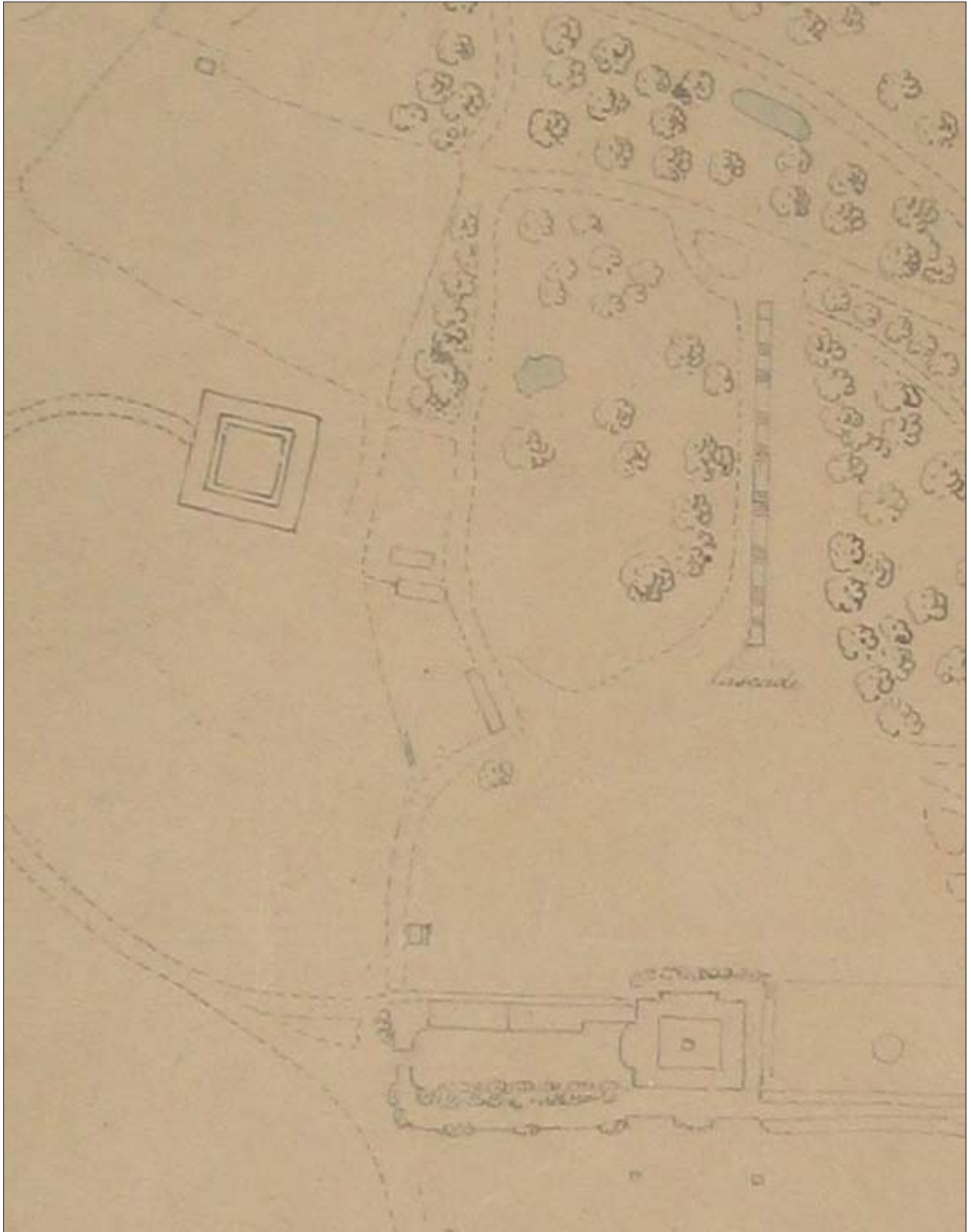
Extract from Survey of Chatsworth manor by William Senior, c.1617

Figure 3



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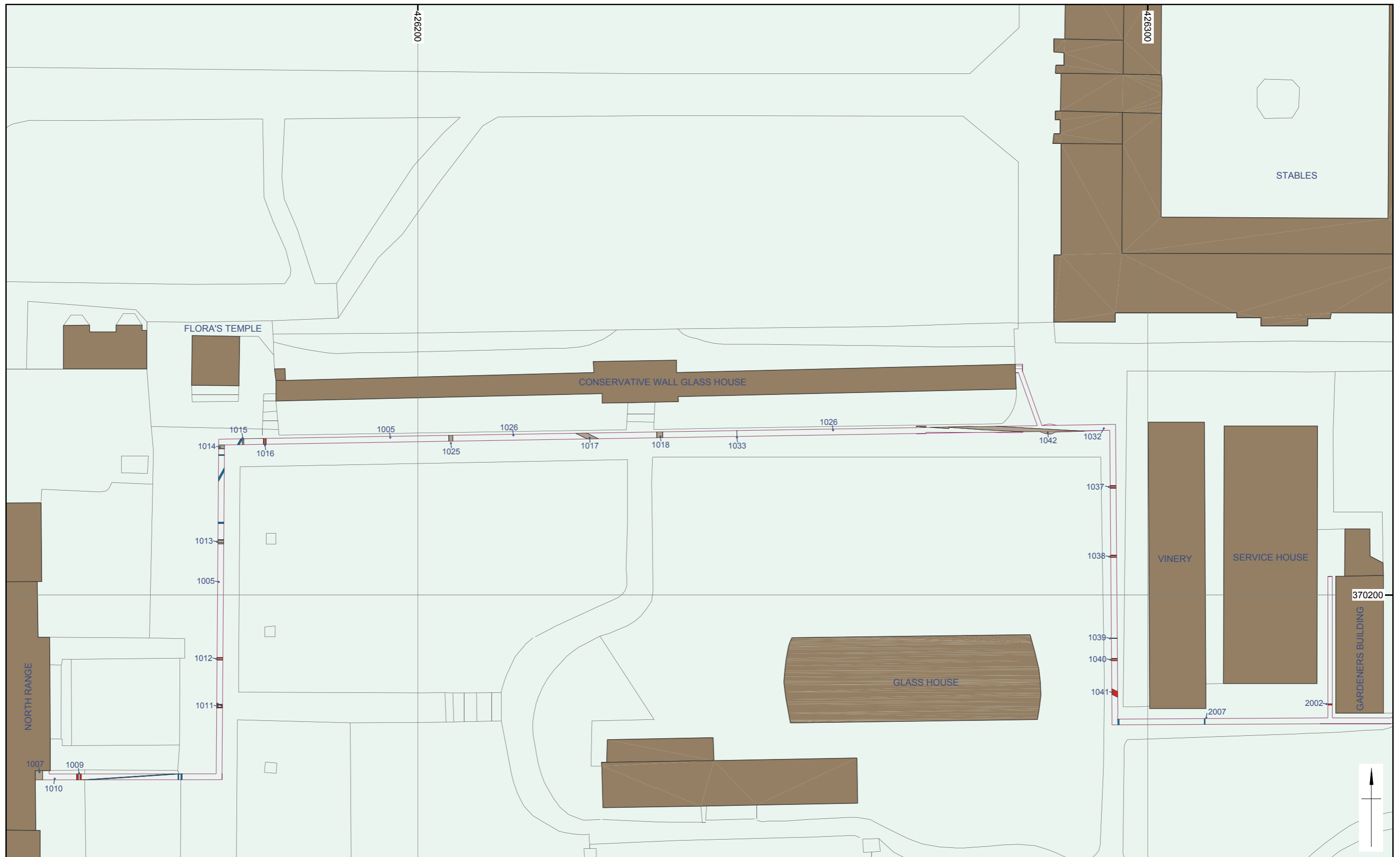
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Extract from c.1765 plan of Chatsworth

Figure 5

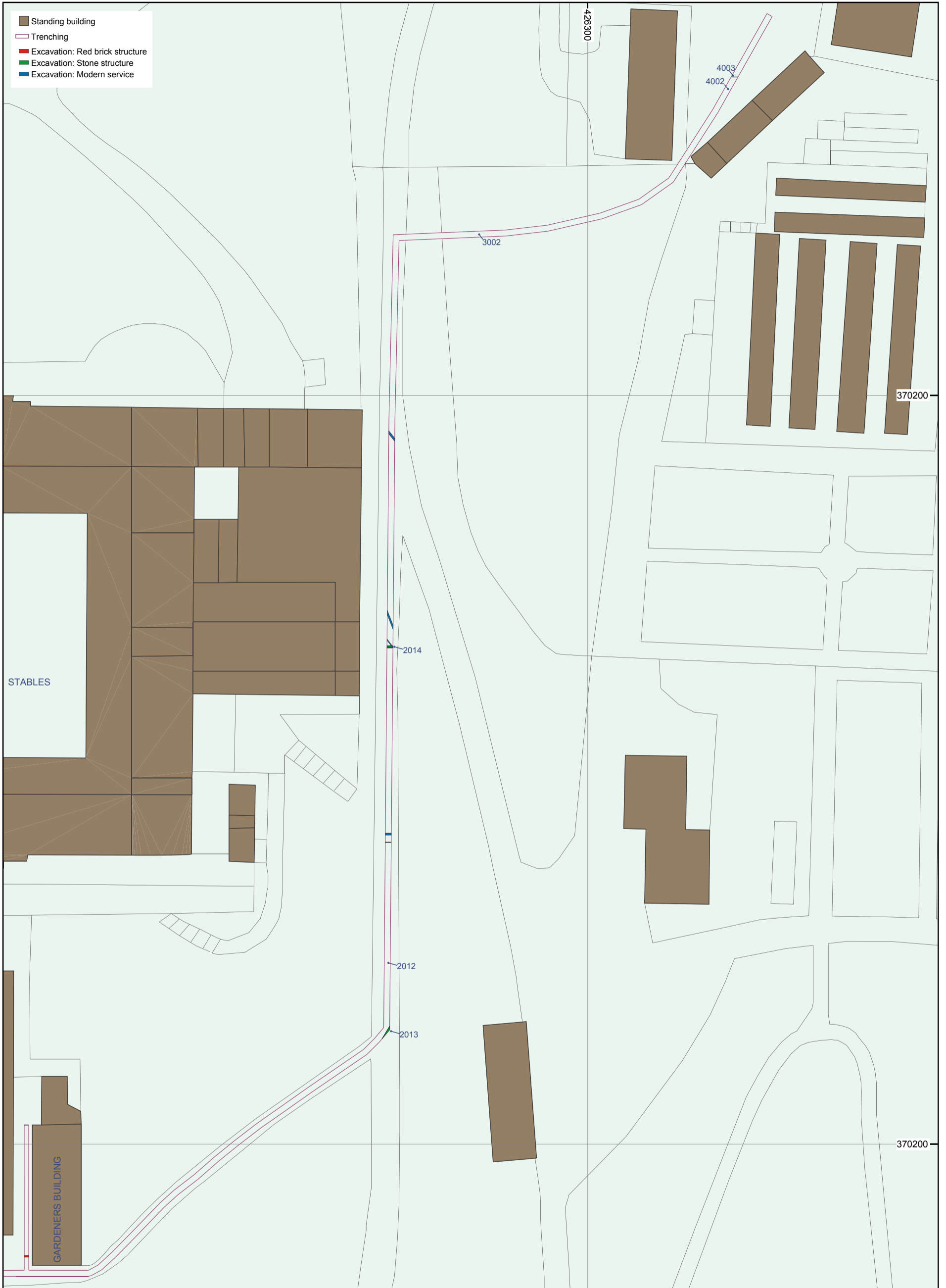


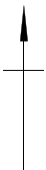
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Trench plan (eastern half of Trench)

Figure 6



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Trench plan (western half of Trench)

Figure 7

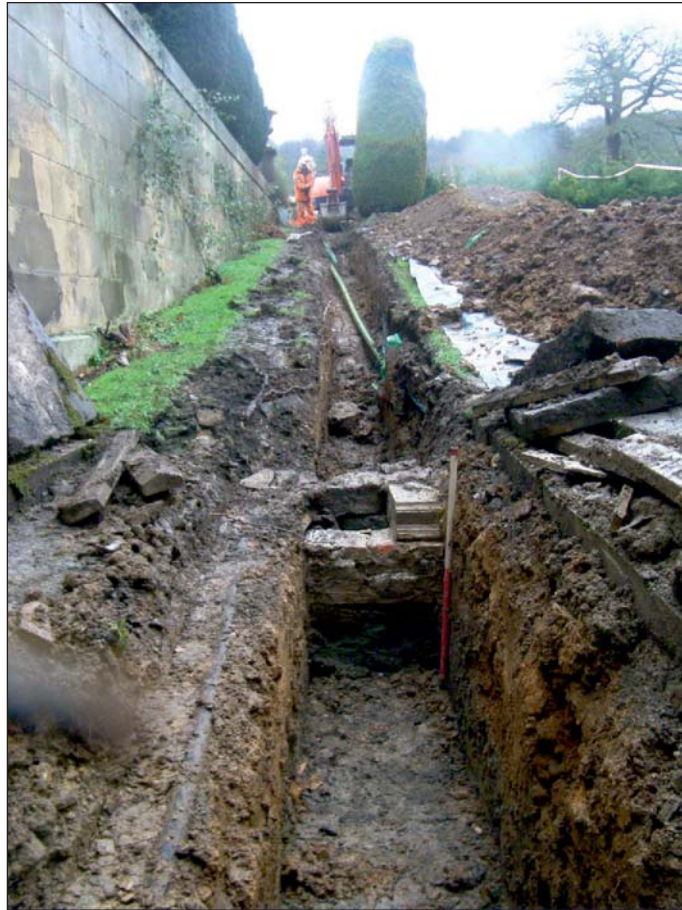


Plate 1: View of southern end of Trench, looking east from the North Range, noting culvert **1009** with reused stone



Plate 2: View of Trench, looking south along the drive from the Flora's Temple



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Plate 3: View of Trench, looking west along path beside the Conservative Wall greenhouse, noting wall **1042**



Plate 4: View of Trench, looking north along the path beside the vinery



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Plate 5: View of Trench, looking west beside the main glass house and vinery



Plate 6: View of Trench, looking north along drive east of the Stables

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Plate 7: View of Trench, looking east down the sloping bank northwest of kitchen gardens



Plate 8: View of northern end of Trench, looking north to the new energy centre


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Plate 9: Representative south facing section within Trench to the southwest of the Conservative Wall glasshouse; noting clay deposit **1005** at base



Plate 10: Detail of possible structure **1025**


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Plate 11: Detail of structure **1018**, noting vertical cut **1045** bounding dark buried soil deposit **1034**



Plate 12: Detail of possible disturbed structure **1033**, bounding eastern extent of **1034**


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Plate 13: View of wall **1042**, looking northeast



Plate 14: Detail of east-west aligned stone culvert **1013** in path south from Flora's Temple


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Plate 15: Detail of east-west aligned stone culvert **1014** at corner of Trench as it turns to run parallel with the Conservative Wall glasshouse



Plate 16: Detail of north-south aligned stone culvert **1015**, at western end of Trench parallel with the Conservative Wall glasshouse


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Plate 17: Detail of northwest-southeast aligned culvert **1017** towards centre of Trench, parallel with the Conservative Wall glasshouse



Plate 18: Representative section of Trench east of Stables (contexts **2008-2012 & 2015**)



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Plate 19: Detail of exposed curving foundations **1007** to North Range



Plate 20: Example of brick lined culvert **1012** in path south from Flora's Temple

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