SALISBURY LAWN CHATSWORTH HOUSE

DERBYSHIRE

Archaeological Evaluation Report

Oxford Archaeology North

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SUMMARY

The Landscape Agency invited Oxford Archaeology North to submit proposals for a geophysical survey and evaluation at Salisbury Lawn, Chatsworth House (NGR SK 2614 7006) to inform the proposed installation of 86 Antony Gormley sculptures that will be installed across the lawn. It is proposed that these are either buried up to 1.8m depth, set on the surface or set on top of plinths in order to achieve a consistent height irrespective of the topography.

This report presents the results of the archaeological evaluation which was undertaken in accordance with a project brief, prepared by Peak District National Park Authority, and a project design, prepared by OA North. The geophysical survey was undertaken by Archaeophysica, and is the subject of a separate report (Archaeophysica 2008); however, the results of the work served as the basis of the present archaeological investigation.

The programme of archaeological evaluation allowed for the excavation of ten trenches (Fig 2). Eight of the trenches (1-8) were positioned to the north of a central path, while Trenches 9 and 10 were positioned to the south. The trenches, all of which measured 5m by 2m, were positioned so as to examine features that had been identified by the geophysical survey or areas where parterre features might be located based on the Kip and Knyff engraving overlaid onto the present plan of the Salisbury Lawn. The geophysical survey indicated the survival of the principal upper and lower terrace for the parterre gardens and this was confirmed by the evaluation which showed that these retaining walls survived partially intact. The more ephemeral features, however, such as the parterres themselves, had been destroyed when Salisbury Lawn was landscaped in the 1730s.

Trenches 6 and 9 revealed the remains of kerbs for the parterres, though not the parterres themselves. These kerbs comprised alignments of unworked stone, which corresponded with the positions of the parterres shown on a "rubber-sheeted" plan (see *section 2.2.2*) based on the Kip and Knyff engraving. A third possible kerb was noted within Trench 10; although this was only a single stone, its alignment and position accord with a parterre depicted on the Kip and Knyff plan. A fourth feature, thought to be part of the garden, was seen in Trench 10, in the form of an alignment of stone slabs within a shallow cut.

The excavation also revealed that once the parterre gardens had been landscaped (in the 1730s) the foundation of the lower terrace retaining wall, in Trenches 2 and 3, was utilised as a bed for a gravel path. The clearing of the parterre gardens also heralded the implementation of drainage work, as evidenced by the soughs or stone drains and culverts found in Trenches 2-4, 6-7 and 9-10.

The proposed sculptures will have four different foundation designs depending upon their position on the Salisbury Lawn slope. Those at the top (Zone 1) will simply be sunk into the ground. Those below the 133.25m contour (Zone 2) will be on steel plates and then partly sunk into the ground. Those below the 132.5m contour (Zone 3) will either be on the surface or on steel plinths and will be set on steel plates set just below the ground surface. Finally, those at the bottom will be on concrete plinths over 3m high and will be set on concrete foundations set up to 0.5m into the ground. The locations of the sculptures have been revised so as to minimise the impact on the underlying archaeology. However, the sculptures within Zones 1, 2 and 4 will have the potential to impact as yet unidentified archaeological remains.

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OA North would also like to thank Martin Roseveare, Archaeophysica, for undertaking the geophysical survey and for initiating the work at very short notice.

The evaluation was undertaken by Jeremy Bradley, aided by Alex Beben, Tom Mace, Kieran Power and Rebekah Pressler. The report was written by Jeremy Bradley and Anne Stewardson produced the illustrations. The project was managed by Jamie Quartermaine, who, with Alan Lupton, edited the report.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF PROJECT

1.1.1 The Landscape Agency invited Oxford Archaeology North to submit proposals for a geophysical survey and evaluation at Salisbury Lawn, Chatsworth House (SK 2614 7006; Fig 1) to inform the proposed installation of Antony Gormley sculptures across the lawn. This project follows on from earlier topographic surveys undertaken by the Peak District National Park Authority. The sculptures will either be buried up to 1.8m depth, set on the surface or will be set on top of cast concrete plinths. Those set on the surface and on the plinths will be mounted on steel plates to minimise disturbance to the ground.

1.1.2 This report presents the results of the archaeological evaluation which was undertaken in accordance with a project brief, prepared by Peak National park Authority, and a project design prepared by OA North. The geophysical survey was undertaken by Archaeophysica, and is the subject of a separate report (Archaeophysica 2008); however, the results of the work served as the basis of the present archaeological investigation, and the graphic results of it are incorporated as part of the evaluation figures (Figs 6-10).

1.2 SITE LOCATION, TOPOGRAPHY AND GEOLOGY

1.2.1 The site of the proposed installation lies (NGR SK 2614 7006; Fig 1) within the Peak District National Park on the Chatsworth House Estate. Chatsworth House lies within the Derwent Valley, and the site itself is situated immediately to the east of the house, near to the base of a steep wooded slope; beyond this is a further scarp slope, that ascends to the East Moors, which rise steeply to over 250m OD. These uplands are composed of coarse Carboniferous sand stones, known as Millstone Grit (Barnatt and Williamson 2005 14; British Geological Survey 1982). The soil coverage is a mixture of typical brown earths and Cambic Stagnogley soils (Soil Survey of England and Wales 1983 Sheet 1).

1.3 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

1.3.1 The chronology of the gardens presented here has relied heavily on the detailed account given in Barnatt and Williamson's 'Chatsworth: A landscape History' (2005). This work gives a very informative and incisive narrative of the Chatsworth estate and particularly the gardens, including much original research, and is probably the most up to date and complete work on the development and evolution of the landscape.

1.3.2 The house and particularly the gardens, which form the focal point of this report, date back to the mid sixteenth century with the construction of a grand Elizabethan house by William Cavendish and his wife Elizabeth. Elaborate formal gardens were associated with the house from this time (Barnatt and Williamson 2005 21). These gardens are not illustrated in any great detail, but William Senior's plan of Chatsworth, made in 1617, clearly shows the area of the later Salisbury Lawn, adorned with obelisks, fountains and turrets, but not the 'knots' or complex

interlaced patterns of parterre box hedge work and paths that Barnatt and Williamson suggest would have existed at the time (*op cit,* Fig 10, 44). A further glimpse of the garden can be seen in an eighteenth century copy of a lost seventeenth century original painting, which appears to indicate that the garden laid out to the south of the house, below and west of the area of the later Salisbury Lawn, had the same layout as was later depicted on the later Kip and Knyff (1707 (drawn in 1699)) engraving (Fig 2). Unfortunately, the area of the Salisbury Lawn is not depicted in any great detail (*op cit* Fig 16*)*.

1.3.3 After the accession of the first Duke of Devonshire in 1684 the house and grounds were completely transformed. The house was rebuilt in the fashionable Baroque manner, with extensive new gardens featuring parterres, terraces and elaborate waterworks. The gardens went through several stages of development, and are depicted on the Kip and Knyff engraving (Fig 3). These gardens can be considered to be an amalgam of contemporary English, French and Dutch styles that were prevalent at the end of the seventeenth century (*op cit,* 59), containing as they do, parterres of boxhedge, formally arranged trees or *bosquets*, terraces, canals and elaborate waterworks. There also appears to be no single mind behind the gardens at this date, rather they were the creation of several individuals, whose work is recorded not only as a whole on the Kip and Knyff engraving, but also in personal accounts left by the likes of Celia Fiennes writing in 1697, as well as the accounts for the construction of the various parts of the gardens (*op cit*, 65).

1.3.4 The gardens in this form certainly survived into the first few decades of the eighteenth century; Sandy's painting (Fig 3), dating to the second decade of the eighteenth century, still shows the parterres, as well as the new cascade and Cascade House, the latter being completed in 1712. Another painting by *Tillemans,* in the 1720s, certainly shows the parterres to the south of the house intact and it is implied from William Stukeley's description that the gardens were more or less as they were in the late seventeenth century (*op cit* 95, Fig 40).

1.3.5 This formal landscape was quite short lived, however, as the area, later known as Salisbury Lawn, was landscaped in the 1730s (*op cit,* 21, Figs 32-33). Certainly, there is documentary evidence of considerable change in the gardens during the 1730s; for instance, there are expenses for removing statuary, as depicted in the Kip and Knyff engraving. Other expenses tell of 'removing earth to make part of the slope below the cascade steps' and for laying drains and levelling the gardens (*op cit,* 96). This can clearly be seen on Smith's painting of *c*1743, where it is evident that the parterre-type gardens east of the house have disappeared, as have the upper terraces that were located directly below the cascade and a further terrace below that. Thus, it is by this date that the Salisbury Lawn was established, and not in the 1760s, when Capability Brown was traditionally seen as its creator. William Kent may be the man responsible for these changes, as it was he who pioneered a more naturalistic garden design, without formal groupings of trees or straight lines and Kent was certainly at Chatsworth in the 1730s (*op cit,* Fig 41, 94, 96-97).

1.3.6 This less geometrically-laid out garden, and the wider landscape created by Brown in the 1760s, can be seen on Barker's map of 1773. This shows the area of the Salisbury Lawn clear of any earlier garden traces and backed by broad curving stands of trees and tracks (*op cit,* Fig 48). Although the gardens continued to be added to during the early nineteenth century, including the re-introduction of parterres in other areas of the garden, the area of the Salisbury Lawn remained

largely as it did in the mid-eighteenth century. Some alterations did take place, such as the removal of the steps from the lawn to the east of the house and the replacement of the lower terrace retaining wall with the present grassed slope. The retaining wall, perhaps, being a survivor from the original seventeenth gardens (*op cit,* 129, 131).

1.3.7 Campbell's plan of 1858 neatly records all the major landscaping undertaken around the house and gardens up until that date, it also records the positions of the complex series of pipes / drains that were needed to provide water to the various water features (Fig 4). The map again suggests that the Salisbury Lawn continued to be an open space; however, the insertion of the pipes and the drainage work, carried out a century before and work subsequently carried out, when the pipes for the various fountains were inserted, indicate that the lawn was still affected by below-ground works. The 1879 Ordnance Survey map of the house and gardens continues to show that little was altered within the Salisbury Lawn area, barring the planting of trees on the southern lawn, which were visible on Campbell's plan (1858). For the rest of nineteenth century and twentieth century the lawn appears to have remained intact, with the exception of further excavation for services, until the present plans for Antony Gormley's sculptures were proposed.

2. METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 A project design (*Appendix 2*) was issued by OA North, in accordance with a project brief (*Appendix 1*) prepared by the Peak District National Park Authority, for a geophysical survey and archaeological evaluation at Salisbury Lawn, Chatsworth. This was required in order to inform a planning application due to be submitted to the Peak District National Park Authority for the erection of sculptures by Antony Gormley across the lawn. The geophysical survey was undertaken by Archaeophysica and is the subject of a separate report (Archaeophysica 2008) and the methodology for the geophysical survey is outlined within that report.

2.2 HISTORIC MAPPING PROCESSING

2.2.1 A detailed documentary study had previously been undertaken by Barnatt and Williamson (2005) and there was no need to repeat this work. There was, however, a need to create a GIS-based collation of geo-referenced historic mapping and illustrations to inform the landscape analysis. To this end, it was necessary to obtain accurate digital copies of the following engraving by Kip and Knyff (1707: Fig 3) which is an oblique aerial view of Chatsworth and the formal gardens.

2.2.2 ***Rubber Sheeting of Historic Maps:*** the Kip and Knyff engraving is the most detailed view of the gardens available, but its oblique distortion makes it difficult to use with any reliability to determine the location of the historic parterres. It was therefore decided to undertake a programme of adjustment to remove the oblique distortion by a means of 'Rubber Sheeting' in ArcMap. This method of transformation is most suitable when the area in question is relatively small, for example, an archaeological site or a park or garden, as opposed to transforming an historic map of a whole town. In a smaller area, local accuracy is required and was achieved by identifying multiple control points extant on both the historic scans and current mapping. Most notably this included the terrace edges and paths, which have provided some degree of constancy between then and the present. Once transformed the historic mapping was overlain with a contour survey provided by Chatsworth Estate and the geophysical survey provided by Archaeophysica.

2.3 EVALUATION TRENCHING

2.2.1 The programme of archaeological evaluation provided for the excavation of ten trenches (Fig 5) to be located on the Salisbury Lawn. The trenches were to be placed either to target features highlighted by the geophysical survey as possible parterre or associated garden features, or areas that were thought likely to yield features depicted on the Kip and Knyff engraving. All the trenches were de-turfed manually (Plate 1), with topsoil and subsoil deposits removed either by hand or with the aid of a small tracked excavator fitted with a toothless ditching bucket. All mechanical removal was supervised by a suitably experienced archaeologist. The trenches were then subject to manual excavation and cleaning to expose any archaeological features, which were then subject to manual excavation.

2.2.2 The turf, topsoil and subsoil were all stored separately and placed back in their appropriate trenches upon completion of the project. The positions of the trenches were surveyed using a Leica GPS 1200 Satellite Global Positioning System (GPS). This GPS is a real time differential survey instrument, which can achieve accuracies of +- 0.03m.

2.2.3 All information identified in the course of the site works was recorded stratigraphically, using a system adapted from that used by the Centre for Archaeology Service of English Heritage, with sufficient pictorial record (plans, sections and both black and white and colour photographs) to identify and illustrate individual features. All contexts were recorded using *pro-forma* sheets, which comprise a written detailed description and interpretation of each structure and deposit encountered, and details were incorporated into a Harris matrix. Similar object record and photographic record *pro-formas* were used. All written recording of survey data, contexts, photographs, artefacts and ecofacts were cross-referenced from *pro-forma* record sheets using sequential numbering.

2.2.4 A full and detailed photographic record of individual contexts was maintained and similarly general views, from standard view points, of the overall site at all stages of the evaluation were generated. Photography was undertaken using 35mm cameras on archivable black and white print film as well transparency. All frames included a visible, graduated metric scale. Extensive use of digital photography, using an eight megapixel camera, was undertaken throughout the course of the fieldwork for interpretative and presentation purposes.

2.3 ARTEFACTS

2.3.1 Finds recovery was carried out in accordance with best practice (following current Institute of Field Archaeologists guidelines), and subject to expert advice in order to minimise deterioration. All artefacts recovered from the evaluation trenches were retained for assessment.

- ***Pottery:*** the restricted size of the group (two sherds) made it unsuitable for detailed analysis.
- ***Ceramic Building Material:*** the small size of the assemblage and the fact that it was derived from a single, redeposited deposit made it unsuitable for detailed analysis.

2.4 ARCHIVE

2.4.1 The results of the fieldwork will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*The Management of Archaeological Projects, 2nd Edition, 1991*) and the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the IFA in that organisation's code of conduct.

2.4.2 The archive for the archaeological work undertaken at the site will be deposited with the nearest museum which meets Museums' and Galleries' Commission criteria for the long term storage of archaeological material (MGC 1992). This archive can be provided in the English Heritage Centre for Archaeology format, both as a printed document and on computer disks as ASCii files (as appropriate). The archive will be deposited with the nominated museum within six months of the completion of the fieldwork. Except for items subject to the Treasure Act, all artefacts found during the course of the project will be donated to the receiving museum.

2.4.3 A synthesis (in the form of the index to the archive and a copy of the publication report) will be deposited with the Peak District National Park Historic Environment Record. A copy of the index to the archive will also be available for deposition in the National Archaeological Record in Swindon.

3. EVALUATION TRENCHING

3.1 INTRODUCTION

3.1.1 In total, ten trenches were examined (Fig 5; Plate 2). Eight of the trenches were located in the northern part of Salisbury Lawn, with a further two to the south. The trenches, all of which measured 5m by 2m, were positioned to examine features that had been identified by the geophysical survey or areas where parterre features might be located based on the Kip and Knyff engraving (Fig 2).

3.1.2 Preliminary analysis of the deposits and features recorded within the trenches suggested three principal phases of activity. Phase 1 represented those features and deposits that related to the early parterre gardens as depicted on the Kip and Knyff engraving (Fig 2), while Phase 2 represented activity relating to the landscaping of the gardens, particularly the lower terrace. Phase 3 represented all subsequent activity, principal of which was the laying of drains or soughs and the levelling of the former gardens to create the Salisbury Lawn. A full list of the excavated contexts is given in *Appendix 3*.

3.2 TRENCH 1

3.2.1 Trench 1 (Plate 3) was situated at the extreme west of the northern part of Salisbury Lawn. It was aligned east/west and was excavated to a maximum depth of 0.59m with the base of the trench laying between 125.79m and 126.14m OD. It was located to examine the extreme westernmost area of the study area, where inconclusive geophysical anomalies had been identified and where there exists the potential for significant impact by the establishment of deep foundations for the proposed statues (Figs 8-9). The present ground level (hereafter PGL) lay at between 126.33m OD to the west and 126.73m OD in the east. No archaeological deposits were noted within the trench. The natural clay was encountered within the base of the trench.

3.2.2 ***Phase 3:*** lying above the natural was a 0.28m thick layer of subsoil (***101***), thought to represent a levelling layer for the Salisbury lawn, which contained several fragments of brick and ceramic tile. This was sealed by a layer of topsoil, 0.20m thick (***100***).

3.3 TRENCH 2

3.3.1 Trench 2 (Fig 11; Plates 4-6) was situated some 30m north of the central path dividing Salisbury Lawn, near the west side. It was aligned east/west and was positioned to examine a north/south aligned anomaly thought to represent the lower, western terrace as depicted on the Kip and Knyff engraving (Fig 8). The trench was excavated to a maximum depth of 0.60m with the base of the trench at 127.65m OD. The present ground level lay between 128.45m OD to the east and 128.05m OD in the west. The first significant archaeological features were found at a depth of 0.32m below present ground level (PGL) (128.22m OD). The natural substrate was located a depth of 0.44m below PGL (127.66m OD).

3.3.2 ***Phase 1:*** the earliest features in the trench comprised a 1.12m wide stone foundation (***212***) that was aligned north/south, located in the eastern half of the trench, and within a vertical sided cut (***214***). The foundation, which was located a depth of 0.45m below PGL (127.91m OD), was composed of local limestone and gritstone, with larger stones placed on the western edge; no bonding material was noted. This feature coincides with the orientation and location of the retaining wall for the garden terrace, as shown on the Kip and Knyff engraving (1707 (drawn 1699)), and is believed to be a surviving remnant of that wall.

3.3.3 Abutting the foundation to the west was a similar north/south aligned strip of gravel (***208***), which was 0.85m wide and truncated by a later feature to the west. However, the gravel deposit may have originally been nearly 2m wide, as there existed a shallow cut feature (***215***), which extended to the west. Although this was filled by a later deposit, the basal component was quite stony, perhaps indicating that it was in part the remnants of the original gravel path as depicted on the Kip and Knyff engraving. This feature was thought to be an element of the parterre immediately below the terrace.

3.3.4 ***Phase 2:*** the landscaping carried out in the 1730s appears to have levelled the terrace. A gravel deposit (***218***) lying above the wall foundation (***212***) and partially sealing deposit ***208***, was probably a later surface or path on the same alignment as the original terrace wall. A posthole (***211***) was seen to cut into ***218*** and was interpreted as either marking a robbed post or the stone was laid within the remains of the wall foundation in order to hold a post.

3.3.5 Possibly contemporary with the deposition of gravel deposit ***218*** was a 0.80m wide flat-based ditch (***207***), that was located immediately east of foundation ***212***. This ditch, filled by deposits ***206*** and ***205***, may have acted as either a drain or possibly a planting bed. The upper fill (***205***) was likely to have been deposited as surface went out of use.

3.3.6 ***Phase 3:*** Subsequently this phase of the garden fell out of use and was sealed below layer ***203***, which was found across the entire trench. Inserted into this layer was an approximately north/south aligned stone 'sough' or French drain (***204***). The drain and layer ***203*** were then sealed below a layer resembling a redeposited natural (***202***), which was similar to layer ***101*** in Trench 1.

3.4 TRENCH 3

3.2.1 Trench 3 (Fig 12; Plates 7 and 8) was situated some 20m south of Trench 2 and was positioned so as to examine the southern element of the same north/south aligned anomaly that been high lighted by the resistivity survey (Fig 8). The trench was aligned east/west and was excavated to a maximum depth of 0.64m with the base of the trench at between 128.11m and 128.66m OD. The present ground level lay between 129.02m OD in the east and 128. 95m OD in the west. The first significant archaeological deposits were found at a depth of 0.19m below PGL (128.72m OD), and Phase 1 features were located at a depth of 0.61m below PGL (128.27m OD).

3.2.2 ***Phase 1:*** although the same anomaly that had been examined in Trench 2 was identified running through Trench 3, the remains found within this trench proved to be more numerous and complex. The earliest deposit found within the trench was a gravel layer (***321***), located in the western third of the trench, and three, possibly related, structural features were noted cutting into this deposit. At the very west end

of the trench was a north/south aligned cut (***316***), containing the remains of a possible wall foundation (***317***), which was greater than 0.30m wide, the western extents lying beyond the limits of excavation. A short expanse of an east/west aligned wall foundation (***318***) was seen to butt wall ***317*** on the north side of the trench. The northern extents of this feature also lay beyond the limits of the excavation.

3.2.3 A more substantial wall foundation (***305***) was noted to the east, and it was L-shaped, aligned north/south with a short east/west return to the west. The wall was 0.80m wide and composed of a mixture of roughly-hewn limestone and gritstone blocks, which contained no evidence of any bonding material. Within the crook of the wall (***305***) was a gravel deposit (***306***) thought to represent an element of parterre. It is clear that wall foundation ***305*** was the southern extent of wall ***212*** found in Trench 2, and was the retaining wall for the lower terrace as shown on the Kip and Knyff engraving. It was not clear what the L-shaped element of ***305*** was; however, it did appear to mirror the arrangement of wall foundations ***317*** and ***318*** and may be an indication that they were related. There does not appear to be any similar shaped structure illustrated on the Kip and Knyff engraving, although the remains revealed within this trench may pre- or post-date those shown on the drawing.

3.2.4 ***Phase 2:*** with the landscaping of the parterre gardens the terrace was part dismantled and levelled. Walls ***305***, ***317*** and ***318*** were subsequently overlain by a succession of gravel deposits (from earliest to latest: ***309, 308*** and ***322***), with a layer of clean silt (***303***) sealing them. East of wall ***305,*** and at a comparable level to the gravel deposits, was a layer of clay (***313***). The gravel deposits were thought to represent a series of path surfaces laid upon the old course of the terrace. Later a shallow ditch (***324***) (0.32m - by 1.80m wide) was seen to cut ***303*** and ***313***. The ditch, which was north/south aligned, may have been the southern extent of ditch ***207*** identified in Trench 2. This would indicate that the ditch was if not contemporary, then near contemporary, with the gravel deposits, and was back filled when the path went out of use, as indicated by the deposition of silt deposit ***303***.

3.2.5 ***Phase 3:*** a north-north-west/south-south-east aligned stone drain or sough (***312***), located at the eastern end of the trench, was then seen to cut the fill of ditch ***324***. This sough was likely to be the same feature identified in Trench 2. The above features were then sealed below a levelling layer (**302**) composed of redeposited clay, and was similar to the natural seen in some of the trenches and the sealing layer in Trenches 1 and 2. Lying above this was the topsoil (***301***).

3.5 TRENCH 4

Trench 4 (Fig 13, Plate 9) was located towards the northern end of Salisbury Lawn and was sited on the middle terrace as depicted on the Kip and Knyff engraving. The trench was located so as to examine an east/west resistance anomaly that had the potential to be the path of a parterre (Fig 8). The trench was aligned north/south and was excavated to a maximum depth of 0.60m (129.35m OD). The present ground level (PGL) lay between 129.89m OD in the north and 128. 99m OD in the south. The first significant archaeological deposits were found at a depth

of 0.08m below PGL (129.92m OD), and natural was located at 0.17m (129. 91m OD) below PGL.

3.5.1 ***Phase 2:*** the earliest feature within the trench was an east/west aligned, flat bottomed ditch (***407***), cut into the natural (**408**). The north side of the ditch extended beyond the limits of excavation. The ditch contained three fills (from earliest to latest ***406-404***). As the ditch did not accord with any of the types of feature associated with the parterre period gardens, it was considered to belong to the second phase, although it is possible that the ditch, sealed as it was by the subsoil layer may have been a much earlier phase.

3.5.2 ***Phase 3:*** the ditch and the natural were sealed below a subsoil layer (***403***). At the southern end of the trench was a north-east/south-west aligned stone drain (***401***) or sough, which had been placed within a cut (***402***) in subsoil layer ***403***.

3.6 TRENCH 5

3.6.1 Trench 5 (Plate 10) was located towards the northern end of Salisbury Lawn and was 15m east of Trench 4. The trench was located so as to examine an east/west resistance anomaly that had the potential to be the path of a parterre, and was within the area of a circular parterre feature as illustrated on the Kip and Knyff engraving (Fig 8). The trench was aligned north-east/south-west and was excavated to a maximum depth of 0.30m below PGL (131.76m OD). The present ground level lay between 131.99m OD in the north-west and 132. 06m OD in the south-east. Natural was located at the base of the trench.

3.6.2 ***Phase 3:*** lying above the natural (***503***) was a layer of subsoil (***502***) 0.15m thick, which was in turn overlain by a 0.15m thick layer of topsoil (***501***). No archaeological features or deposits were noted within the trench.

3.7 TRENCH 6

3.7.1 Trench 6 (Fig 14; Plates 11 and 12) was located on the centre/west side of Salisbury Lawn and was intended to examine a magnetic, rectilinear anomaly that surrounded what had been provisionally suggested to be an area of possible dumped brick/ fired material, and also an 'L' shaped resistance anomaly (Fig 7). The trench was aligned east/west and was excavated to a maximum depth of 0.74m (132.01m OD). The present ground level (PGL) lay between 132.75m OD in the east and 132.23m OD in the west. Archaeological features were noted at 0.14m (132.53m OD) below PGL and natural was located at 0.26m (132.18m OD) below PGL.

3.7.2 ***Phase 1:*** at the very west end of the trench was a north-north-east/south-south-west alignment of stones (***606***), placed directly on top of natural ***602***, and truncated by later activity. The structure was thought to be kerbing for one of the parterres surrounding a circular feature as depicted on the Kip and Knyff engraving.

3.7.3 ***Phase 2:***. When the garden was landscaped the stone alignment was sealed below a layer of subsoil ***612***. Located at the east end of the trench and cutting into this layer was a cut feature (***607***). It was north-west/south-east aligned, and only the western edge was evident within the trench. The feature was 0.65m deep, over 2.80m wide and filled with a single homogenous deposit (***608***). Although the feature

corresponds to an anomaly located during the magnetometry survey, it does not correspond to any thing depicted on the Kip and Knyff engraving. However, it is cut by a later culvert suggesting that it is relatively early and was therefore defined as part of second, post-parterre garden phase. The function of this feature was not apparent from the excavated remains.

3.7.4 ***Phase 3:*** Subsequently an east/west aligned stone culvert (***605***), set within cut ***609,*** had been placed partially within the backfilled ditch (***607***). This culvert was joined from the north-north-east by similar culvert within cut ***604***. The trench was sealed by a thin (0.14m) layer of topsoil (***601***).

3.8 TRENCH 7

3.8.1 Trench 7 (Figs 15; Plate 13 and 14) was located to the north of the central pathway across Salisbury Lawn, on the eastern side. It had been located so as to examine the extended line of a potentially significant north/south aligned linear resistance anomaly seen to the south of the path (also examined by Trenches 9 and 10; see Fig 8), and which was potentially a north/south aligned parterre feature as depicted on the Kip and Knyff engraving. The trench was aligned east/west and was excavated to a maximum depth of 0.48m (131.69m OD). The present ground level lay between 132.24m OD in the north and 131.57m OD in the south. Significant archaeological features were noted at 0.22m (131.81m OD) below PGL, and natural was located between 0.22m and 0.13m (131.90m - 131.70m OD) below PGL.

3.8.2 ***Phase 1:*** cutting into the natural (***702***), at the east end of the trench, was a vertical sided north/south aligned cut (***703***), which was 0.76m wide and 0.30m deep. Laid on the surface of the cut was an alignment of flat stones (***705***), no greater than 0.40m by 0.30m. A small quantity of stone rubble lay around the edges of the flags. Originally, the feature was thought to be a robbed culvert. However, the presence of seemingly usable flag stones in the base, combined with the location of the feature within one of the parterres, as depicted on the Kip and Knyff engraving, would suggest that it might be kerbing / paving connected with the garden.

3.8.3 ***Phase 3:*** situated toward the west end of the trench was a north-north-west/south-south-east aligned stone drain or sough (***707***), which had been cut into the underlying natural. Although the drain could not be demonstrated to be later than ***705***, it was assumed to be and thus it was placed in the later phase.

3.9 TRENCH 8

3.9.1 Trench 8 (Figs 16; Plates 15 and 16) was located to the north of the central pathway, on the eastern edge of Salisbury Lawn. The trench had been placed so as to examine a north/south aligned geophysical anomaly thought to be the lower stepped terrace as depicted on the Kip and Knyff engraving (Fig 8). The trench was aligned east/west and was excavated to a maximum depth of 0.84m (135.33m OD). The present ground level (PGL) lay between 135.86m OD in the west, rising to 136.53m OD in the east. Significant archaeological features were noted at 0.22m (136.15m OD) below PGL, and natural was located between 0.32m (136.25m OD) below PGL.

3.9.2 ***Phase 1:*** the trench revealed the well-preserved lower step of a north/south aligned terrace as depicted on the Kip and Knyff engraving. The terrace had been partly

formed by cutting the step into the sandy-silt natural (***802***), and a sealing layer (***809***), some 0.18m thick, overlies both the upper and lower elements of the step. This layer would appear to be the remains of a well preserved turf line that covered the terrace. Cutting into ***802***, close to the edge of the step, was a flat based construction trench (***806***/***808***) which contained a north/south aligned stone drain (***807***). Packed into this cut, on the west side only, was a clay deposit (***805***). The drain, it is thought, was intended to carry water coming down-slope, away from the front of the terrace to prevent subsidence. The clay packing, on the west side of the feature, prevented water egressing from that side.

3.9.3 ***Phase 2:*** As the Kip and Knyff engraving shows that the terrace had two steps, it is presumed that the upper part of the terrace was truncated during the landscaping, with the resulting spoil (***803*** and ***804***) used to level the area in front of the terrace. The trench was sealed below a 0.32m thick layer of topsoil (***801***).

3.10 TRENCH 9

3.10.1 Trench 9 (Fig 17; Plates 17 and 18) was located immediately south of the central pathway, on the western half of Salisbury Lawn. The trench had been placed to examine an east/west aligned resistance anomaly that was thought to be part of a parterre (Fig 8). The trench was aligned north/south and was excavated to a maximum depth of 0.82m (132.27m OD); the present ground level (PGL) lay between 133.17m OD in the south and 133.05m OD in the north. Significant archaeological features were noted at a depth of 0.38m (132.79 OD) below PGL, and natural was located at 0.40m (132.45m OD) below PGL.

3.10.2 ***Phase 1:*** at the south end of the trench was a rough alignment of un-worked stones (***904***) placed on the underlying natural (***903***). The stones appeared to define an east/west orientated edge which dipped down to the south, and it was thought to represent the remains of a kerbed edge of a parterre.

3.10.3 ***Phase 3:*** placed less than a metre north of the possible parterre/border feature (***904***) was a similarly-aligned stone-capped culvert (***908***), that within cut ***907***. This feature was believed to be the anomaly that was identified during the resistivity survey.

3.11 TRENCH 10

3.11.1 Trench 10 (Plate 19) was located south of the central pathway, on the western half of Salisbury Lawn, south-west of Trench 9. The trench had been placed to examine a north/south aligned resistivity anomaly thought to be part of a parterre (Fig 8). The trench was aligned east/west and was excavated to a maximum depth of 0.52m (132.21m OD). The present ground level (PGL) lay between 132.74m OD in the west and 132.35m OD in the east. Significant archaeological features were noted at a depth of 0.46m (132.28 OD) below PGL, and natural was located at 0.30m (132.20m OD) below PGL.

3.11.2 ***Phase 1:*** a single large, north/south aligned, un-worked stone (***1009***), that may have been placed within a possible shallow cut (***1010***), was located toward the east end of the trench. However, it is also possible that the stone was sitting on top of the natural within a slight hollow, which had been filled with the overlying subsoil.

If the feature was not natural, then it may have been part of the kerbing for a parterre, which had been subsequently truncated by later activity.

3.11.3 ***Phase 3:*** dominating the trench was an 'L'-shaped stone culvert (***1003/1007***), that had been placed within vertical sided-cuts (***1004/1007***) set into the underlying natural. The long axis of the culvert (***1003***) was aligned east/west and lay on the southern side of the trench. The north/south return (***1007***) was at the west end of the trench. Although the south and west sides of the culvert partly lay within the trench edges, it was possible to suggest that it was *c*1m wide. The culvert was subsequently sealed below a thin subsoil layer (***1001***) and then by topsoil (***1000***).

4. FINDS

4.1 INTRODUCTION

4.1.1 Very few finds were recovered during the excavation. In total, two sherds of post-medieval pottery and six fragments of ceramic building material were produced from Trenches 1 and 9. That these finds were recovered from subsoil layers and, moreover, that this deposit (***101***) in Trench 1 was clearly redeposited, would clearly indicate that the finds add little to the overall understanding of the site.

4.2 POTTERY

4.2.1 ***Quantification:*** two sherds of Blackware pottery were recovered from Trenches 1 and 9.

4.2.2 ***Evaluation:*** generally, Blackware has its origins in the midlands in the seventeenth century and can be seen as a development of the late medieval Cistercian ware tradition. Blackware was produced over a wide area of central England and continued to be produced until the nineteenth century (Brears 1971, 37-39; Watkins 1987, 122; Barker 1986, 58-75). Both sherds were recovered from the subsoil layers (***101*** and ***902***) and appear to date from the eighteenth or nineteenth century and thus add little to the overall chronology of the site.

4.3 CERAMIC BUILDING MATERIAL

4.3.1 ***Quantification:*** six fragments of ceramic building material were recovered during the excavation, all of which were from the subsoil layer (***101***) in Trench 1. Five of these fragments were derived from bricks, whilst a sixth fragment was likely to be part of the sole plate from a ceramic land drain; all were likely to be hand-made.

4.3.2 ***Evaluation:*** generally, the brick fragments were not diagnostic being small and fragmentary, although where the arrises (the sharp edge of a brick) did survive it was possible to deduce that they were hand-made. The small assemblage did yield a fragment from the sole plate of a ceramic land drain, probably dating from the late eighteenth century. As the brick fragments were not diagnostic they should be discarded.

5. DISCUSSION

5.1 EVALUATION TRENCHES

5.1.1 Seven of the ten trenches excavated within the Salisbury Lawn revealed features that are likely to relate to the parterre-style gardens as depicted in the Kip and Knyff engraving (Trenches 2-3 and 6-10). Two trenches were found not to contain any archaeological deposits or features (Trenches 1 and 5), and Trench 4 contained only Phase 2 and 3 remains.

5.1.2 ***Phase 1:*** the remains revealed within Trenches 2-3 and 6-9, respectively - and the possible remains found in Trench 10 - demonstrated that elements of the seventeenth century parterre gardens did survive below the Salisbury Lawn. However, it would appear that the features that survived were either part of the terraces or the kerbs / edges that may have defined the parterres. Comparing the results of the evaluation and the geophysical surveys indicates that, for the most part, the geophysical anomalies corresponded with archaeological features identified within the trenches (See Figs 7 and 8). What was apparent, however, was that those anomalies initially interpreted as parterres tended on the whole to be soughs or culverts.

5.1.3 Trenches 2 and 3 revealed the remains of the retaining wall foundation for the lower north/south aligned terrace, part of which may still remain intact immediately west of the Rose Garden (Plate 20). The feature survived as a 0.9m to 1.8m wide stone foundation (***212*** and ***305***), which could be traced for over 35m between Trenches 2 and 3, and this corresponds to a clear resistivity anomaly that continued north into the general area of the Rose Garden. In Trench 3 the foundation (***305***) was found to be L-shaped with a short return to west. This deviation to the north/south alignment was difficult to explain, other than it appeared to mirror a similarly-aligned but less well preserved wall (***317***) that abutted an east/west return (***318***). The Kip and Knyff engraving shows the terrace as a stepped, but continuous wall. It is possible, however, that the remains relate to an earlier or indeed later phase of the garden that was not visible when Kip and Knyff produced the engraving. To the west of the wall foundations were deposits of gravel (***208*** and ***306***), that were interpreted as the paths below the terrace.

5.1.4 Trenches 6, 9 and 10 contained alignments of stones, or in the case of Trench 10 a single stone, which are thought to represent the kerbs / borders of parterres. In Trench 6 the stones (***606***) were north/south aligned and located at the west end of the trench, and was very close to the predicted position of the parterre as depicted on the rubber sheeted Kip and Knyff engraving, and thus can be interpreted as an original garden feature. A similar feature (***904***) was also recorded at the south end of Trench 9, but here was orientated east/west. Although, Figure 8 shows the possible position of the parterre some 3-4m to the north, some inaccuracy in the rubber-sheeted Kip and Knyff engraving is inevitable. This is particularly pertinent when the single stone (***1009***) in Trench 10 is considered; although it is only a single, albeit large stone, it was on the correct alignment for it to part of the north/south parterre in this area of the garden as depicted on the rubber-sheeted Kip and Knyff engraving.

5.1.5 Trench 7 also revealed a feature that was located closely to the predicted position of a parterre as seen on the Kip and Knyff engraving. The feature in question, however, was unlike those in the other trenches; it was north/south aligned, set within a shallow, vertical-sided cut and was composed of flag stones (***705***) placed on the base of the cut. It was originally thought to be a robbed culvert, but the wealth of reusable stone would militate against this and thus its position, alignment and path-like nature would suggest that it may potentially have been associated with the parterre period garden.

5.1.6 The lower step of the second terrace (***809***), below the cascade, was also found to be intact, in Trench 8, and was preserved when the upper sections of the terrace were landscaped and the resulting material was deposited in front of it. Indeed it may be possible to tie this event in with an alteration to the gardens recorded in the Chatsworth archives in 1736-37, when 'removing earth to make part of the slope below the cascade steps' was noted (Barnatt and Williamson 2005, 96). Immediately east of the front of the terrace was a north/south-aligned stone drain, which had clay packed against its west side to ensure its water retention qualities and to allow it to carry water away from the terrace.

5.1.7 It has been successfully demonstrated that features relating to the parterre gardens do remain below the Salisbury Lawn. These features have on the whole been substantial, earth-fast features, such as the lower terrace foundations, the upper earthen terrace and the stone alignments interpreted as parterre kerbs, rather than the parterres themselves.

5.1.8 ***Phase 2:*** this phase represents an intermediate stage in the evolution of the Salisbury Lawn. Once the lower terrace had been demolished, its course was retained as path as evidenced by a series of gravel surfaces (***218***, ***304***, **309** and **322**) lying directly above the wall foundations. This path was probably only short-lived as Smith's painting of 1743 shows the lawn empty of any garden embellishments (*op cit*, Fig 41).

5.1.9 ***Phase 3:*** much of the activity recorded in Trenches 2-4 and 6-10 would appear to date from the eighteenth century and can perhaps be related to events recorded in the Chatsworth archives. The features were of two types: stone soughs or drains, which were narrow (0.3-0.4m wide) cuts filled with stone rubble and stone culverts, which were generally around 1m wide. These drains were positioned both running down-hill and across the slope. Accounts within the archives indicate that in 1736-37 a Robert Pennistone and partners were paid for 'soughing [draining], levelling and turfing the gardens' (*op cit*, 96). This not only indicates the likely dates for the majority of drainage features found within the trenches, but also gives a good indication of when most of the landscaping work was carried out.

6. IMPACT

6.1 IMPACT

6.1.1 ***Sculpture Foundation Design:*** the proposed art work will entail the establishment of 86 sculptures, each 1.93m high, scattered across the extent of Salisbury Lawn. The artistic design is such that they will all be placed on the same height datum irrespective of their location across the gentle sloping lawn. This means that some will be set into the ground, some will be on the surface and others will be on plinths, that will be up to 6.0m high. The height at which the sculptures will be set onto the ground is 132.50m, and on the ground above that height they will be set into the slope and below that they will be on plinths The design of the foundations for the sculptures depends upon the extent to which each sculpture is set into or protrudes from the ground and therefore is determined by the height of the ground at each siting. There are correspondingly four zones (Fig 11), determined by the contours, and within each of these the sculptures have a consistent foundation design.

6.1.2 ***Zone 1:*** this includes all sculptures above the 133.25m contour, and at this altitude at least 0.75m of the sculpture will be set into the ground and will therefore require little or no foundation. The hole for the sculpture will be excavated by means of a 0.5m diameter auger so as to minimise the extent of disturbance to the surrounding ground. There will be 24 sculptures within this zone and those furthest up the slope will be set up to 1.75m into the ground.

6.1.3 ***Zone 2:*** this is a band between the 133.25m and 132.5m contours, and the sculptures will be set between 0.75m and 0m into the ground. These sculptures will need additional foundations to offset the fact that less than 40% of the overall height of sculptures will be supported by the ground. It is proposed that the statutes be erected on 450mm x 450mm or 900mm x 900mm steel plates and this will entail greater ground disturbance than those in Zone 1. It will not be possible to use an auger to produce the hole and it is anticipated that a hole of this size will need to be excavated manually. There will be nine sculptures within this zone.

6.1.4 ***Zone 3:*** this is a band between 132.5m and 129.5m, and the sculptures will either be set on the surface or on steel plinths of variable height sufficient to ensure that a consistent height is achieved for the sculptures. The sculptures will be on plinths between 0m and 3m height. Within this zone the sculptures and plinths will be set upon 1250mm x 1250mm or 2000mm x 2000mm steel plates, which will be set just below the ground (0.1m below the surface), and will be sufficiently deep to allow for a layer of turf to be placed on top of the steel plate in order to hide it. Within this band there will minimal below ground impact and little or no disturbance to any archaeological deposits. There will be 40 sculptures within this zone.

6.1.5 ***Zone 4:*** this is a band below 129.5m. The sculptures will need to be set on plinths that are greater than 3m in height (and up to 6.0m in height), and the steel plate foundations will be insufficient to provide adequate support for such high columns. It is therefore proposed that they be set on hollow precast concrete plinths, which themselves will be set onto 2m x 2m concrete foundations, that will be set 0.5m into the ground. The holes for these foundations will need to be excavated by a

combination of mechanical and manual techniques and this will result in localised below ground disturbance. There will be 13 sculptures within this zone.

6.1.6 ***Impact on Archaeological Remains:*** the impact of the proposed installation of the sculptures is dependent upon the form of the foundation design and the depth and survival of the archaeological remains. There will be Phase 2 drains scattered throughout the area of the proposed installations, but these are considered to be of lesser archaeological significance by comparison with the earlier Phase 1 parterre garden features. For the present assessment of archaeological impact only the Phase 1 features will be examined. However, when the sculptures are installed an initial investigation of the ground using an auger will be undertaken. If the auger hits stone then the location of the sculpture will be moved by up to one metre to an area where there is no stone; in this way it is anticipated that the sculptures will avoid not only the Phase 1 archaeological features, but also the later stone capped drains. This is intended to not only preserve the archaeological features, but also to prevent disruption to the drainage of the lawn.

6.1.6.1 ***Zone 1:*** the sculptures within this zone will be set up to 1.75m into the ground, and archaeological features identified within this zone (Trench 8) are as little as 0.25m below the surface. Therefore any archaeological features at the site of any of the sculptures will be impacted. The archaeological evaluation has established that there is definite survival of the upper terrace for the parterre garden (Trench 8) and patchy survival of parterre kerbs across the extent of the lawn. On this basis a limited adjustment of the locations of the sculptures has been undertaken, in conjunction with Antony Gormley, to move selected sculptures away from identified archaeological features, such as the principal upper terrace, and also away from predicted parterre features on the basis of the rubber-sheeted Kip and Knyff engraving. Sculptures 46, 61, 66-8, 70, 74 and 78 from Zone 1 have been relocated so as to avoid Phase 1 archaeological features and the major water pipes. It is possible to be confident about the location of terrace remains, as they were clearly identified by both the geophysical surveys and the evaluation; therefore, it is considered that the revised arrangement of sculptures will not impact this principal feature. However, there is a greater degree of inaccuracy as to the locations of the parterre features based on the Kip and Knyff mapping, and it cannot be guaranteed that the revised sculpture locations will not impact upon parterre kerbs. As the holes for the sculptures will be augered, the impact upon any extant archaeological deposits or features will be only 0.5m in diameter.

6.1.7 ***Zone 2:*** the sculptures within this zone will be set up to 0.75m into the ground, and any archaeological features identified within this zone (eg Trench 9) are potentially at a depth of 0.4m below the surface. Therefore there is the potential that any archaeological features at the site of any of the sculptures will be impacted upon. The archaeological evaluation within this zone has identified patchy survival of kerbs for the parterres (eg Trench 9), and on this basis a limited adjustment of the locations of the sculptures has been undertaken in conjunction with Antony Gormley, to move selected sculptures away from predicted parterre features on the basis of the rubber-sheeted Kip and Knyff engraving. Sculpture 48 from Zone 2 have been relocated so as to avoid Phase 1 archaeological features and major water pipes. As stated previously (*Section 6.1.7*) there is inaccuracy within the rubber-sheeted engraving and it cannot be guaranteed that the revised locations of sculptures will avoid parterre features. The holes will be 1m x 1m in size and will have a greater overall impact than those of Zone 1; however, given their larger size

they afford the opportunity for archaeological investigation in advance of the sculpture installation.

6.1.8 ***Zone 3:*** the steel plate foundations will be set a maximum of 200mm below the surface, and more typically 100mm below the surface. This will minimise the below ground impact; however, archaeological features have been identified between 100mm and 460mm below present ground level (Trenches 4, 6, 7 and 10) and there is the limited potential that the establishment of the plates will impact upon the tops of some archaeological features.

6.1.9 ***Zone 4:*** the sculpture plinths will be set approximately 0.5m into the ground, and the upper levels of archaeological features were identified as between 0.2m and 0.32m (Trenches 2 and 3); consequently, there is the potential that the foundations will impact upon archaeological features. The archaeological evaluation has established that there is definite survival of the lower terrace for the parterre garden (Trenches 2 and 3) and patchy survival of parterre kerbs across the extent of the lawn. On this basis a limited adjustment of the locations of the sculptures has been undertaken, in conjunction with Antony Gormley, to move selected sculptures away from identified archaeological features, such as the lower terrace, and also away from predicted parterre features on the basis of the rubber-sheeted Kip and Knyff engraving. Sculptures 3-5, 7-9 and 28 from Zone 4 have been relocated so as to avoid Phase 1 archaeological features and major water pipes. It is possible to be confident about the location of terrace remains, as they were clearly identified by both the geophysical surveys and the evaluation, therefore it is considered that the revised arrangement of sculptures will not impact upon this principal feature. However, there is a greater degree of inaccuracy as to the locations of the parterre features based on the Kip and Knyff mapping, and it cannot be guaranteed that the revised sculpture locations will not impact upon parterre kerbs.

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APPENDIX 1: PROJECT BRIEF

BRIEF FOR ARCHAEOLOGICAL INVESTIGATION

Proposal: Installation of Antony Gormley sculptures

Planning application number: N/A

Location: Salisbury Lawn, Chatsworth House

Grid Reference: SK 2614 7006 (centred on)

Geology: Millstone Grit

Area of proposal site: 2 ha (see accompanying plan).

Land use and vegetation cover: lawns/glades

SUMMARY

A proposal has been made by Chatsworth Estate to display the Antony Gormley *Time Horizon* installation. This will involve the erection of 100 body forms within the formal gardens adjacent to the House using a horizontal datum line at the soles of the feet , which will be roughly equivalent to the top of the first third of the Salisbury Lawn.

The horizontal plain will result in the body forms being both buried and increasingly exposed – finally on concrete pillars formed from cast concrete blocks (50cm square) assembled with the use of reinforcing bars that fix the sculptures through galvanised plates.

The formal gardens at Chatsworth were established in the mid 16th century when the first phase of the house was constructed. They have been extended and significantly remodelled through time, thus there is a strong possibility that archaeological remains of former garden features may come to light in the course of ground preparation for the installation.

The Peak District National Park Authority has advised that the project will need planning permission and that the archaeological implications of the proposal cannot be adequately assessed on the basis of the available information. It has been recommended therefore that an archaeological field evaluation should be carried out. This recommendation is in line with government guidance as set out in DOE Planning Policy Guidance - Archaeology and Planning (PPG16 1990).

1.0 Archaeological background

1.1 The Great House at Chatsworth was established in the mid. 16th century by Bess of Hardwick. At this stage the gardens were much less extensive than they are today. It is known that there was a formal plot to the south with ponds and fountains, terracing to the east and fish ponds located between the house and the River Derwent.

1.2 Significant development of the garden occurred in the second half of the 17th century, initiated by the 4th Earl of Devonshire. Extensive gardens were created in the formal style which was fashionable in Europe at this time. These were characterised by symmetrical designs in paths and planting, incorporating great parterres to the west and south of the house, new terraces, ponds, fountains, statuary, shelters and a green house. The levelling, laying out and planting of the garden took 10 years from 1687.

1.3 The next major change to the gardens occurred in the 1760s under the direction of the landscape designer ' Capability Brown'. Reflecting the popularity of the 'Romantic' movement, he set about transforming the formally designed garden to a more natural arrangement. Topiary and avenues were removed being replaced by extensive lawns, trees and shrubs.

1.4 The most recent, major, works to the gardens were undertaken during the first half of the 19th century by the gardener and architect, Sir Joseph Paxton. Paxton was responsible for many developments. These included the construction of the Great Conservatory (the site of which is now the Maze) and Conservation Wall. He was also responsible for the design and building of the dramatic Rock Garden and other water features in this part of the garden.

1. 5 In view of the longevity of the gardens at Chatsworth, and the many phases of development of them, archaeological remains may be encountered at any of the locations at which the body forms will be located. The bulk of the statuary will be located on the Salisbury Lawn which correlates to an ornate area of planting, on an apparent terrace, which is depicted on an engraving by Knyff and Kip of 1699.

1.6 A geophysical survey on the South Lawn at Chatsworth (some 75 metres to the west of the Salisbury Lawn) was undertaken in two phases in 1998 and 2004. Both resistivity and magnetometry techniques were used, which indicated that well preserved remains of the 17th century Great Parterre to the south of the House survived relatively close to the ground surface. It also revealed the line of pipework linking the Parterre with various sources of water including the River Derwent.

2.0 Requirement for an evaluation

2.1 The proposed development would severely damage or destroy any archaeological remains which may be present on the site. It has been recommended therefore that an archaeological evaluation should take place to obtain further information on the presence and preservation of any archaeological deposits.

2.2 The objectives of the evaluation should be to gather sufficient information to establish presence/absence, character, extent, state of preservation and date of any archaeological deposits within the areas of proposed development.

2.3 The evaluation should investigate the area(s) indicated on the accompanying plan.

3.0 Evaluation Techniques

The evaluation techniques chosen should be selected to cause the minimum amount of damage to areas of archaeological deposits and should comply with all health and safety regulations. It is envisaged that the following work would be required:

3.1 Stage 1: a programme of detailed geophysical survey is to be undertaken across the whole of the area indicated on the enclosed plan. Both magnetometry and resistivity techniques should be used to investigate the site.

3.2 Stage 2: depending upon the results of stage 1, a scheme of trial trenching is to be devised in order to investigate a minimum of 5% of the proposed development site.

The results of the above phases of work will inform whether or not it will be necessary for further, more extensive, archaeological investigation to be carried out. Decisions on the necessity for this work to be undertaken, and the methods and sampling strategies to be used, should be made in consultation with the Senior Conservation Archaeologist

4.0 Evaluation Proposal

4.1 A detailed evaluation proposal should be formulated by potential contractors and submitted to the Peak District National Park Conservation Archaeologist for approval. The proposal should include:

4.1.1 A description of the proposed methods of excavation and recording system.

4.1.2 An explanation of the sampling strategies to be used.

4.1.3 A projected timetable for work on the site.

4.1.4 Details of the arrangements made for deposition of the finds and site archive (see section 8 below).

4.2 The work shall be carried out by appropriately qualified and experienced staff; details of staff numbers and their relative experience should be included, plus their responsibilities in carrying out the work. Staff C.V.s should be included (unless already supplied to Peak District National Park Archaeology Service Manager in previous project specifications).

4.3 Contractors should be appropriately insured for nature of the work which is to be undertaken.

5.0 Excavation guidelines

Where trenches are to be opened by machine the following guidelines should be observed:

5.1 The health and safety implications of any use of earth-moving machinery on the site must be taken in to account.

5.2 An appropriate machine should be used. The choice should be influenced by the prevailing site conditions, and the machine must carry out a clean and safe job.

5.3 An appropriate bucket should be used for the nature of the work being carried out.

5.4 All machining is to be carried out under the direct supervision of an archaeologist and should be halted if archaeological deposits are encountered.

5.5 All topsoil or recent overburden should be removed down to the first significant archaeological horizon in successive level spits. Under no circumstances should the machine be used to cut arbitrary trenches down to natural deposits.

5.6 Trenches to be recorded according to the normal principles of stratigraphic archaeological excavation.

5.7 The stratigraphy of any trial trench is to be recorded even where no archaeological deposits have been identified. No archaeological deposit should be entirely removed unless this is unavoidable, and then not without the specific approval of the Conservation Archaeologist.

5.8 Any human remains which are excavated must initially be left *in situ* and, if removal is necessary, this must comply with the relevant Home Office regulations.

5.9 The actual areas of trenching and any features of possible archaeological concern noted within the trenches, should be accurately located on a site plan and recorded by photographs, summary scale drawings, and written descriptions.

5.10 The archaeological contractors will be responsible for locating any service pipes, cables etc., which may cross any of the trench lines, and for taking the necessary measures to avoid disturbing such services.

6.0 Site Monitoring

6.1 Reasonable prior notice (14 days) of the commencement of the evaluation is to be given to the Senior Conservation Archaeologist of the Peak District National Park Authority Cultural Heritage team.

6.2 With regard to site inspections, the contractor will liase with the Senior Conservation Archaeologist in order that the general site stratigraphy can be assessed in the initial stage of trial trenching and/or so that the site can be inspected when field work is near to completion, but before any trenches have been backfilled.

7.0 Report

7.1 A report shall be produced to include background information, a summary of the works carried out, and a description and interpretation of the findings. The report should also include:

7.1.1 A location plan showing all excavated areas with respect to nearby fixed structures and roads;

7.1.2. Illustrations of all archaeological features with appropriately scaled hachured plans and sections;

7.1.3. Specialist descriptions of artefacts or ecofacts;

7.1.4 An indication of potential archaeological deposits not disturbed by the present development.

7.1.5 Data files relating to measured survey should be provided as both a print out and in an electronic format to be agreed with the Derbyshire Sites and Monuments Record.

7.2 Copies of the final report are to be deposited with the Peak District National Park Cultural Heritage team and with the Derbyshire Sites and Monuments Record. Reports should be provided in both paper and electronic form.

7.3 **The report should not give an opinion on whether preservation or further investigation is considered appropriate, but should provide an interpretation of results, placing them in a local and regional context.**

7.4 **The results of the work will be published in the appropriate issue of Archaeology and Conservation in Derbyshire, and, if of regional or national significance, within an archaeological journal.**

7.5 The Derbyshire Sites and Monuments Record is taking part in the pilot study for the *Online Access to Index of Archaeological Investigations* (OASIS) project. The overall aim of the OASIS project is to provide an online index to the mass of archaeological grey literature that has been produced as a result of the advent of large-scale developer funded fieldwork. The archaeological contractor must therefore complete the online OASIS form at http://ads.ahds.ac.uk/project/oasis/. If the archaeological contractor does not have internet access a paper copy of the form can be obtained from the Peak District National Park Authority. Contractors are advised to contact the public document by forming part of a planning application or being otherwise submitted to the Derbyshire SMR in response to a statutory duty or requirement the SMR may place the information on a website. Please ensure that you and your client agree to this procedure in writing as part of the process of submitting the report to the Derbyshire SMR.

8.0 Deposition of Archive and Finds

8.1 Upon completion of fieldwork samples shall be processed and all finds shall be cleaned, identified, assessed, spot-dated and properly stored. A field archive shall be compiled consisting of all primary written documents, plans, sections, photographs and electronic data (in a format to be agreed by the repository museum).

8.2 After agreement with the landowner, the field archive should be deposited with an appropriate repository, that repository is to be identified and deposition agreed prior to commencement of the work. The Senior Conservation Archaeologist of the Peak District National Park Authority can advise on regional museum collecting areas if required.

9.0 Standards

9.1 The above activities will be undertaken in line with the Institute of Field Archaeologists *Standard and Guidance for archaeological field evaluation* (revised September 1999)l

Sarah Whiteley

Senior Conservation Archaeologist

November 2007

APPENDIX 2: PROJECT DESIGN

1. INTRODUCTION

1.1 CONTRACT BACKGROUND

1.1.1 The Landscape Agency has invited Oxford Archaeology North to submit proposals for a geophysical survey and evaluation at Salisbury Lawn, Chatsworth House (SK 2614 7006) to inform the proposed installation of Antony Gormley sculptures across the lawn. This project follows on from earlier topographic surveys undertaken by Peak District National Park Authority. The sculptures will either be buried up to 1.8m depth, set on the surface or will be set on top of cast concrete plinths. Those set on the surface, and the plinths will be mounted on steel plates to minimise disturbance to the ground.

1.2 HISTORICAL BACKGROUND

1.2.1 The former historic gardens on the site of Salisbury Lawn were laid out in the mid 16th century, and these were enhanced in the second half of the 17th century, and are depicted on the remarkable engraving of Kip and Knyff of 1699. This shows an elaborate geometric arrangement of parterres within the area of the Salisbury Lawn. A major change to the designed landscape was implemented under the guidance of Capability Brown in the 1760s, resulting in the establishment of the cascades and the turfing over of the Salisbury Lawn.

1.3 OXFORD ARCHAEOLOGY NORTH

1.3.1 Oxford Archaeology North (OA North), formerly Lancaster University Archaeological Unit, has considerable experience of the archaeological survey of sites and monuments of all periods, having undertaken a great number of small and large projects during the past 20 years. OA North employs a qualified archaeological and landscape surveyor (Jamie Quartermaine BA DipSurv MIFA) who has over 23 years experience of surveying buildings and landscapes, having worked closely with the Royal Commission on the Historical Monuments of England and the Lake District National Park Authority on numerous projects. OA North has particular experience in the recording and analysis of park landscapes and formal gardens. Garden surveys of most relevance include an extensive archaeological study was undertaken of the formal and nursery gardens of Lyme Park, Cheshire, for the National Trust (LUAU 1996a), in 1996 a survey and evaluation was undertaken of the walled garden at Bostock Hall, in Cheshire (LUAU 1996b) and in 1999 an evaluation and survey was undertaken of the Astley Hall Gardens. OA North has also undertaken a detailed survey of a complex garden at Rectory Wood Gardens Heysham Head again for the National Trust (LUAU 1999), and has undertaken the survey and excavation of a fernery at Eller How gardens in Ambleside, Cumbria, for Channel 4 Television (Lost Gardens Series, broadcast 25/11/99). OA North undertook a major survey of the park and gardens at St Catherines, Windermere, on behalf of the National Trust. OA North has recently undertaken a survey of the historic Lowther Castle gardens as part of proposals to restore the gardens.

1.3.2 Archaeological surveys and archaeological studies of parklands include those at Lyme Park, Cheshire, Lowther Park, Cumbria, Lathom Park and Rufford Park, both Lancashire. The Lyme Park programme involved a comprehensive documentary and archaeological survey of all elements of the large (6 sqkm) parkland, looking at the formative processes of the park and its buildings which was intended to provide the basis for the restoration and management of this extremely important site. Lathom Park, was the seat of the Stanley family, and was at one time the most powerful seat in the North-West. OA North is involved in an on-going programme of excavation, survey, documentary study, and fabric survey intended to identify the evidence for the fourteenth century palace and investigate the development of the park. Lowther Park involved a detailed documentary and surface survey of one of the more significant and sizeable parks in Cumbria, and examined both the development of the park and its associated deer park, but also recorded the extensive Roman and prehistoric pre-park remains.

1.3.3 Projects have been undertaken to fulfil the different requirements of various clients and planning authorities, and to very rigorous timetables. OA North is accustomed to undertaking projects to strict timetables, and to fulfil a wide variety of requirements. OA North is one of the bodies endorsed by

the IFA (Institute of Field Archaeologists) (No. 17) and has both the expertise and resources to undertake this project to the highest standards

2. AIMS

2.1 The primary aim of the project is to determine the impact of establishing the *c* 90 Gormley sculptures across the Salisbury Lawn. It is required to establish the level of survival of the earlier gardens, particularly the parterre arrangement that predated Capability Browns relandscaping of the site. The proposed objectives of the project are as follows:

- To incorporate pertinent historic mapping of the gardens georeferenced within a GIS
- To undertake a geophysical survey of the extent of the Salisbury Lawn, by means of resistivity and magnetometry, to identify features pertaining to the earlier designed layout of the garden. The information will be superimposed onto the recent topographic survey of the gardens and georeferenced historic mapping.
- To undertake a programme of evaluation trenching targeted on features identified by the geophysical surveys. This will aim to establish the condition, survival and depth of any archaeological remains.
- To undertake a programme of analysis inconjunction with the historical mapping, the geophysical survey and the evaluation trenching to establish the earlier arrangements of gardens across the Salisbury Lawn.
- Produce a brief report outlining the survival of the garden remains, and making recommendations for further recording.

3. METHODS STATEMENT

3.1 The following work programme is submitted in line with the objectives of the archaeological work summarised above.

3.2 PROCESSING HISTORIC MAPPING

3.2.1 Extensive documentary studies of the gardens have been undertaken and it is not intended to repeat this work. However, in order to facilitate the analysis it is intended to incorporate the historic cartographic mapping into a GIS, to georeference them to a consistent scale and where possible correct any original distortions in the original survey so that all surveys can be reliably superimposed and therefore enable the analysis of the gardens development. The pre Ordnance Survey mapping is held at Chatsworth House and where possible copies will be obtained, if necessary by means of a professionally photographer using medium format vertical photography, and then high resolution scans will be made for use in the GIS. The Ordnance Survey mapping is of sufficient quality and scale to require scanning only.

3.2.2 The base mapping will be the current ordnance survey vector mapping, combined with a detailed contour survey of the immediate study area. This will provide the base to which the historic mapping will be transformed (*Section 3.2.4*). In addition an existing archaeological survey of the gardens (by J Barnatt of Peak District National Park) will be incorporated. The modern mapping will provide the base for the geophysical survey.

3.2.3 ***Rubber Sheeting Historic Maps:*** the scans of the historic maps will be spatially adjusted using a process called 'Rubber Sheeting' in ArcMap. This method of transformation is most suitable when the area in question is smaller and local accuracy is required (as opposed to georeferencing where local is sacrificed for global accuracy). This is achieved by identifying multiple control points extant on both the historic scans and current mapping. Buildings and field boundary junctions have proved the most reliable reference points. ArcMap allows experimentation with a number of different transformation methods to achieve an optimal fit with minimal distortion. It is hoped to try and rubber sheet the Kip and Knyff engraving to minimise the oblique distortion within the image, using a number of identifiable location points on it.

3.2.4 Once transformed the historic mapping can be overlain with the modern base mapping and a direct comparison of surveyed features and those depicted on the historic mapping can be made. By being

able to switch rapidly between the modern maps, the geophysical survey, and topographic survey it is hoped that it will be possible to determine the form and character of the original gardens.

3.3 GEOPHYSICAL SURVEY (BY ARCHAEOPHYSICA)

3.3.1 ***Introduction:*** the geophysical survey will be undertaken by ArchaeoPhysica and the following Geophysical Survey method statement is provided by them.

3.3.2 The need for a high resolution of survey cannot be overstated because many of the features are likely to be small and ephemeral, assuming that physical traces of the former gardens survive at all. It is likely that the remains will be close beneath the modern surface in some places, though the presence of two possible levels in the 1690's means that this cannot be relied upon. It is conceivable that the higher level was reduced or the lower partly infilled and this of course assumes the identification of features as steps on the 1699 drawing is correct.

3.3.3 Magnetic and electrical resistance surveys have been identified in the brief as the two methods to use and ArchaeoPhysica is of the opinion that both of these will be needed to obtain a reliable result. Coverage with both should be total, however, it is likely that some assessment of potential will be possible once half of the area has been covered due to the symmetrical nature of the formal garden. However, other features, perhaps unrelated to use of the site as gardens, may occur anywhere within the evaluation area.

3.3.4 ***Instruments and Survey Resolution:*** the magnetic survey will use a caesium vapour magnetometer in nongradiometric configuration to maximise the change of detecting weakly magnetic and laminar structures. Diurnal correction will be by means of a separate base station magnetometer installed on site. Data will be collected at intervals not exceeding 0.25m along lines 0.5m apart. Processing will use normal potential field based techniques to maximise the detection of near surface features.

3.3.5 Electrical resistance survey will be the second technique and will use a 0.5m twin probe configuration giving a typical depth of investigation to around 0.75m. Spatial resolution will be 0.5m by 1.0m as a compromise based on speed; for this sort of site the ideal resolution would be 0.5m x 0.5m. To improve the chances of detection of very narrow features alternate lines of survey will be offset by 0.5m along the line.

Caesium vapour magnetometry

Measured Variable	**Total magnetic field strength**
Instrument	Geometrics MagMapper G858
Configuration	Dual channel with separate base station
Sensitivity	0.03nT at 10Hz
Resolution	0.25m (max) x 0.5m line separation
QA Procedure	Static test

Electrical resistance – 0.5m twin probe configuration

Measured Variable	**Apparent electrical resistance in Ohm**
Instrument	Geoscan Research RM15
Configuration	0.5m twin probe
Resolution	0.5m x 1.0m, alternate lines offset by 0.5m
Sensitivity	0.1 Ohm
QA Procedure	Repeated lines

Envisaged geodetic system

Coordinate System	**Orthogonal**
Bearing	TBC, angled across known features
Precision	+/0.05m
Instrument	DGPS & Topcon total station

Reference Points	TBC
References Definition	ArchaeoPhysica

3.3.6 ***Constraints and Variations:*** it is possible that electrical resistance survey might underperform if the ground is saturated with water, however, it will not be possible to prejudge this and might be variable across the area anyway. We will adjust the specification as necessary to achieve an optimal result.

3.3.7 ***Caveats:*** Geophysical survey is literally that, a systematic measurement of some physical property related to the earth. There are numerous sources of disturbance of this property, some due to archaeological features, some due to the measuring method, others that relate to environment in which the measurement is made. No disturbance, or 'anomaly', is capable of providing an unambiguous and comprehensive description of a feature, in particular in archaeological contexts where there are a myriad of factors involved.

3.3.8 The measured anomaly is generated by the presence or absence of certain materials within a feature, not by the feature itself. Not all archaeological features produce disturbances that can be detected by a particular instrument or methodology. For this reason, the absence of an anomaly must never be taken to mean the absence of an archaeological feature. The best surveys are those which use a variety of techniques over the same ground at resolutions adequate for the detection of a range of different features.

3.3.9 Where the specification is by a third party ArchaeoPhysica will always endeavour to produce the best possible result within any imposed constraints and any perceived failure of the specification remains the responsibility of that third party.

3.3.10 Where third party sources are used in interpretation or analysis ArchaeoPhysica will endeavour to verify their accuracy within reasonable limits but responsibility for any errors or omissions remains with the originator.

3.3.11 Any recommendations are made based upon the skills and experience of staff at ArchaeoPhysica and the information available to them at the time. ArchaeoPhysica is neither responsible for the manner in which these may or may not be carried out, nor for any matters arising from the same.

3.4 TARGETED TRIAL TRENCHING

3.4.1 The programme of trenching will establish the presence or absence of any archaeological deposits and, if established, will then test their date, nature, depth and quality of preservation. The programme will be deliberately targeted on areas of historically documented garden features, and specifically on geophysical anomalies. If there are any disparities between the cartographic mapping and the geophysics it will serve to attempt to resolve them.

3.4.2 ***Salisbury Lawn:*** the area will have been subject to geophysical survey, and it is proposed that the trenching be targeted on the anomalies identified by both resistivity and magnetometry surveys; the extent and number of the trenches will be determined by the results of the geophysics and will be subject to agreement with the Senior Conservation Archaeologist. The number of trenches will depend upon the quality of the geophysics results; if there is a good correlation between the geophysics and historical depictions of the parterres then a lesser amount of trenching will be necessary to define the layout of the historic gardens.

3.4.3 ***Methods:*** the trenches will be excavated primarily by manual techniques. The turf will be carefully removed by the estate gardeners, albeit under archaeological supervision, and will be stored away from the trench, to enable subsequent replacement. Thereafter excavation will be by archaeologists. It is anticipated that the archaeological features will be at a shallow depth, but if there is an identified deep overburden (potentially relating to the Capability Brown landscaping), then it is proposed to carefully remove this using a one ton tracked mini-digger, with rubber tracks so as to minimise the disturbance to the lawned areas; this will be fitted with a 1.5m wide toothless bucket. Any mechanical excavation will be taken down to the top of archaeological deposits, and thereafter the stratified deposits will be excavated by hand. The machine excavation will not intrude into any potential archaeological stratigraphy and all machine excavation will be undertaken under careful archaeological supervision. Manual excavation techniques will be used to evaluate any sensitive deposits, and will enable an assessment of the nature, date, survival and depth of deposits. The trenches will not be excavated deeper than 1.25m to accommodate health and safety constraints.

3.4.4 All trenches will be excavated in a stratigraphical manner. Trenches will be accurately located by use of total station equipment with respect to existing topography and the control of the contour survey. Archaeological features within the trenches will be planned by manual techniques.

3.4.5 Samples will be collected for technological, pedological, palaeoenvironmental and chronological analysis as appropriate. If necessary, access to conservation advice and facilities can be made available. OA North maintains close relationships with Ancient Monuments Laboratory staff at the Universities of Durham and York and, in addition, palaeoecology specialists with considerable expertise in the investigation, of palaeoenvironmental studies.

3.4.6 ***Recording****:* all information identified in the course of the site works will be recorded stratigraphically, with sufficient pictorial record (plans, sections and both black and white and colour photographs) to identify and illustrate individual features. Primary records will be available for inspection at all times.

3.4.7 Results of the field investigation will be recorded using a paper system, adapted from that used by Centre for Archaeology of English Heritage. The archive will include both a photographic record and accurate large scale plans and sections at an appropriate scale (1:50, 1:20, and 1:10). Levels will be tied into the Ordnance Datum. All artefacts and ecofacts will be recorded using the same system, and will be handled and stored according to standard practice (following current Institute of Field Archaeologists guidelines (IFA 1992)) in order to minimise deterioration.

3.4.8 ***Finds:*** finds recovery and sampling programmes will be in accordance with best practice (current IFA guidelines) and subject to expert advice. OA North has close contact with Ancient Monuments Laboratory staff at the Universities of Durham and York and, in addition, employs in-house finds specialists, who are readily available for consultation with considerable expertise in the investigation, excavation, and finds management of sites of all periods and types, who are readily available for consultation. Finds storage during fieldwork and any site archive preparation will follow professional guidelines (UKIC). Emergency access to conservation facilities is maintained by the Unit with the Department of Archaeology, the University of Durham,

3.4.9 Finds recovered during the removal of overburden will only be retained if they are of particular significance and are reliably provenanced. Otherwise artefacts and ecofacts will be collected by stratigraphic unit, principally hand.

3.5 LANDSCAPE ASSESSMENT

3.5.1 ***Enhancing the Mapping:*** on completion of the evaluation the graphic results will be drawn up within a CAD system and then superimposed with the historical mapping, the geophysical survey results and earlier topographic surveys. Thereafter all analysis will be undertaken within a GIS environment.

3.5.2 ***Analysis:*** a programme of landscape assessment will be undertaken, drawing together the results of the survey / evaluation work and the earlier cartographic sources. The assessment will examine the chronological development of the gardens and the survival of the components, and will identify on which historic map / engraving specific identified components appear. The character of the original garden elements will be presented in conjunction with the present cartographic depictions to inform the proposed design of the Gormley sculpture layout.

3.5 REPORT AND ARCHIVE

3.5.1 ***Archive:*** the results of the management programme will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*The Management of Archaeological Projects, 2nd edition, 1991*). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. This archive will be provided in the English Heritage Central Archaeological Services format. A synopses (normally the index to the archive and the report) should be placed in the Peak District Historic Environment Record. It is normal OA North practice to make a copy of the archive available for deposition with the National Archaeological Record in Swindon. The archive will include the raw survey digital data in AutoCAD 14 format.

3.5.2 ***Report:*** a brief report will present, summarise, and interpret the results of the programme detailed in Stages 3.1-3.4 above, and will include a full index of archaeological features identified in the course of the project. The reports will consist of an acknowledgements statement, lists of contents, summary, introduction summarising the brief and project design and any agreed departures from

them. A general and outline historic background will be produced for the site, and instead, the emphasis will be on presenting the evidence of the buried remains within the context of the present landscape design.

3.5.3 The report will identify the significance of the archaeological and architectural evidence and will include the following:

- Results of the geophysical survey and evaluation, presented in conjunction with the historic mapping.
- An interpretative account of the survival and development of the designed landscape across Salisbury Lawn. The report will highlight those elements of the original design that are still surviving as buried components.
- The report will make recommendations for changes in the location of the statues to accommodate sensitive archaeological remains.

3.5.3 The report will also include a bibliography of sources from which the data has been derived, and a list of further sources identified during the programme of work.

3.5.4 The report will incorporate appropriate illustrations, including copies of the site plans, landscape survey mapping, all reduced to an appropriate scale. The site mapping will be based upon the GIS and CAD base. The report will be accompanied by photographs and historic illustrations illustrating the principal elements of the landscape. Four bound and one unbound copies of the report will be submitted. In addition to the paper copies of the report digital copies of the report and drawings will be submitted. The final drawings will be in ArcView and/or AutoCAD Map 2004 formats.

4. OTHER MATTERS

4.1 ACCESS

4.1.1 It is assumed that the Chatsworth Estate will enable access to the full extent of the study area.

4.2 HEALTH AND SAFETY

4.2.1 Full regard will, of course, be given to all constraints (services) during the survey, as well as to all Health and Safety considerations. The OA North Health and Safety Statement conforms to all the provisions of the SCAUM (Standing Conference of Unit Managers) Health and Safety manual. Risk assessments are undertaken as a matter of course for all projects, and will anticipate the potential hazards arising from the project. Barrier fencing will be established around each trench to keep the public out.

4.3 INSURANCE

4.3.1 The insurance in respect of claims for personal injury to or the death of any person under a contract of service with the Unit and arising in the course of such person's employment shall comply with the employers' liability (Compulsory Insurance) Act 1969 and any statutory orders made there under. For all other claims to cover the liability of OA North in respect of personal injury or damage to property by negligence of OA North or any of its employees there applies the insurance cover of £10m for any one occurrence or series of occurrences arising out of one event. The insurance will provide cover for volunteers working under the direct supervision of OA North staff.

4.4 CONFIDENTIALITY

4.4.1 The report is designed as a document for the specific use of the Landscape Agency / Chatsworth Estate, for the particular purpose as defined in this project design, and should be treated as such. Any requirement to revise or reorder the material for submission or presentation to third parties or for any other explicit purpose can be fulfilled, but will require separate discussion and funding.

5. WORK TIMETABLE

5.1 The phases of work will comprise the following elements. The days quoted are the duration for each individual task

i) Processing Historic Maps

4 days

ii) Geophysical Survey

8 days - field work

6 days - Office

iii) Review

iv) Evaluation Trenching

10 days

v) Landscape Assessment

vi) Report Production

15 days

5.2 ***Survey Timetable:*** it is noted that the geophysical survey needs to be completed at the earliest opportunity to allow sufficient time for the evaluation trenching to be undertaken and completed before Christmas, which has to be informed by the geophysical survey. It is therefore proposed to complete survey an area at a time so that it is possible for excavation to start before the geophysical survey is entirely complete. There will be complexities to address on site, eg, interference with the magnetometer by plant but given the size of the area ArchaeoPhysica is confident that a solution can be reached given flexibility by both parties. This approach would also provide the opportunity to compare the geophysical result with excavated features and make any adjustments to the interpretation as necessary, as well as answer queries from the excavators.

5.3 It will be possible to start the geophysical survey in the week commencing 25th November and would either finish in the same week or the following one depending on start date. Please note that this assumes use of the 1.0m x 0.5m resolution electrical resistance survey; a finer interval would require more time. This in turn might limit the effectiveness of the approach described above, should this be relevant.

6. RESOURCES

6.1 PROJECT TEAM

6.1.1 The geophysical survey will be undertaken by ArchaeoPhysica, and the evaluation trenching will be by an experienced OA North project officer.

6.1.2 ***Project Management:*** the project will be under the project management of **Jamie Quartermaine, BA Surv Dip MIFA** (OA North Project Manager) to whom all correspondence should be addressed. Jamie is a very experienced landscape surveyor, who has undertaken or managed literally hundreds of surveys throughout Northern England since 1984, and has considerable experience of working on similar projects to that proposed. He has managed a major recording programme of Lyme Park, Cheshire, and also a survey of the Rectory Wood Gardens, Heysham Head, both for the National Trust. He has also undertaken surveys of Lowther Park, Cumbria, Rufford Park, Lancashire and also a structural survey of Rufford Old Hall, he has also managed the recording programme of Lathom Hall and Park, Lancashire. He has been a project manager since 1995 and has managed over 250 very diverse projects since then, which are predominantly survey orientated, but of all periods from Palaeolithic to twentieth century.

6.1.3 ***Processing Historic Mapping and Landscape Assessment:*** the GIS based mapping and assessment will be undertaken by **Neil Wearing BA (Hons) MA** (OA North Project Officer Geomatics) who presently works full time on GIS intensive archaeological and landscape survey projects. He has undertaken surveys at Hartley Fold Estate, Cumbria, Ennerdale Valley, West Cumbria, and Rectory Wood Gardens, Heysham Head. He supervised three of six areas during a major programme of landscape survey across the uplands of North Wales. He undertook a GIS based cartographic regression of the formal gardens and grounds of Gisburne Park, Lancashire and recently completed an 18 month GIS based landscape survey of the Ribble Valley, Lancashire. He is an experienced landscape archaeologist, specialising in the use of GIS analysis.

6.1.4 **ArchaeoPhysica:** ArchaeoPhysica exists to provide a single specialist source for all site and landscape surveys whatever their size and complexity. Geophysical, topographical and landscape surveys are supported by qualified and experienced professionals using up-to-date equipment with rigorous documented quality control. Data analysis and presentation uses high-performance software, integrating GIS and CAD with purpose-specific geophysical tools.

Experience: the company was formed in 1998 and services a broad range of contracts every year across the UK and Eire. Clients include public and private sector commerce, heritage organisations and private individuals. Projects undertaken vary in duration from a day to stages spread over several months and include evaluation of large areas of landscape (over 100ha) as well as tightly focused investigation of smaller areas.

Understanding: the company has developed a sound technical reputation that reflects the provision of tailored services using practical understanding on a foundation of theoretical knowledge. A comprehensive and dynamic range of solutions is offered, through proactive reviews of methods and equipment. Regular attendance and contributions to specialist conferences are married with a range of in-house research subjects.

APPENDIX 3: CONTEXT LIST

Context Number	Trench Number	Category	Phase	Description
100	1	Layer		Topsoil - Dark greyish/blackish brown, friable clayey-silt layer with no inclusions. Uniformly 0.16-0.20m thick, extending beyond the limits of excavation of Trench 1. No finds.
101	1	Layer	3	Subsoil - Uniform thickness (0.28-0.43m), mid greyish-brown, loosely compacted silty-clay layer. 2-5% small sub-rounded sandstone inclusions (0.07-0.20m). Some broken up ceramic building material was observed and a shard of black ware pottery was recovered (c. 18th century) from the subsoil.
102	1	Layer		Natural - Firm, light yellowish-orange clay with 2-5% small sub-angular sandstone inclusions (<0.20m). Extends beyond limits of excavation of Trench 1.
201	2	Layer		Topsoil - friable, mid, brown silty-clay layer, less than 0.15m thick, with 2% small stone inclusions (0.02-0.06m). Extends beyond the limits of Trench 2.
202	2	Layer	3	Subsoil - compact, mid, yellowish-brown clay-sand layer, less than 0.15m thick, with 15% rounded stone inclusions (9.05-0.15m). Extends beyond the limits of the trench.
203	2	Layer	3	Gravel and clay surface - soft, somewhat plastic, mid, yellowish-brown sandy-clay layer. This deposit is made up of 50% large stone and gravel inclusions. It may form part of a surface - perhaps the base for flowerbeds or for the lower landscape style of garden of the eighteenth century. This deposit measures at least 3.70x2.00x0.30m. A very small fragment of degraded ceramic building material was noted but not kept.
204	2	Structure	3	Culvert - stone-made culvert, aligned approximately NW-SE, running diagonally across Trench 2. The culvert measures 2.00x0.28m in plan and was 0.24m deep. Some of the stones are squared and roughly hewn whereas others appear not to have been worked. The stones measure between 0.10x0.20x0.10m and 0.22x0.24x0.08m.
205	2	Deposit	2	Uppermost fill of ditch ***207*** - hard, greyish brown clay-silt deposit with 5% charcoal and 2% small stone inclusions. Above (206).
206	2	Deposit	2	Lower fill of ditch ***207*** - firm, light grey silty-clay

				with no inclusions.
207	2	Cut	2	Ditch cut - a relatively shallow, N-S aligned, linear ditch cut with a wide base sloping gradually to the east. The beginning of the slope on both sides is almost imperceptible. The break of the slope at the base of the cut is sharper. The ditch might be a drainage feature and have a similar function to the culvert, or it could be a flowerbed dating back prior to the landscaping of the garden.
208	2	Deposit	1	Gravelly/cobble deposit - tightly packed cobble/gravel deposit with clay and sand which probably forms part of a path or surface.
209	2	Deposit	1	Gravelly deposit - although little of this deposit remains, it is possibly part of a path or surface; probably the same as ***208***. This deposit has been all but removed by ditch cut 207.
210	2	Deposit	2	Fill of probable post-hole ***211*** - stiff, mid, grey clay deposit with 30% small, sub-rounded stone inclusions.
211	2	Cut	2	Post-hole - sub-rectangular cut with a stepped profile. The eastern side forms an almost vertical slope to an initial platform before descending again, breaking gradually to a slightly undulating, concave base. The western side is slightly concave and breaks gradually to the base of the cut.
212	2	Structure	1	Garden wall or parterre - the remains of a wall base made of a mixture of mid, grey stone, limestone and sandstone. The majority of the stone is roughly hewn. Two of the stones appear to have been squared and shaped and might have been part of the outer facing, measuring 0.16x0.24m and 0.16x0.24m. The wall itself measures 0.20x0.96m in plan, but probably continues to the north and south.
213	2	Deposit	1	Fill of wall cut ***214*** - the wall deposit is a mid grey silty-clay with 10% charcoal and 10% limestone inclusions The deposit was exposed to a length of 0.96m by 0.06-0.08m wide by 0.08m deep.
214	2	Cut	1	Cut for structure ***212*** - vertically sided construction cut for wall base 212. Not fully excavated.
215	2	Cut	1	Possible cut feature - shallow cut feature, extending to the west of ***208***.
216	2	Layer		Natural - firm, yellowish-grey clay-sand layer.
217	2	Cut	3	Cut for culvert ***204*** - linear cut, aligned approximately NW-SE, running diagonally across

				Trench 2. The cut measures 2.00x0.28x0.24m.
218	2	Deposit	2	Gravel deposit - pinkish-red gravel deposit overlying the wall foundation. Possibly a later surface or path on the same alignment as the original terrace wall.
301	3	Layer		Topsoil - firm, mid grey-brown sandy-silt. 5% 1-5mm sandy-gravel, evenly sorted throughout deposit. This deposit is 0.23m thick at its centre, narrowing to 0.15m and 0.18m at its west and eastern extents respectively.
302	3	Layer	3	Subsoil - compact, mid yellowish-brown, sandy-clay deposit. 5% 5-30mm, erratically sorted, angular stone inclusions. This deposit is 0.18m thick at the western edge of excavation but narrows towards the centre.
303	3	Layer	2	Subsoil - mid grey-brown, sandy-silt deposit with 30% 10-50mm, well sorted, sub-angular stones towards the bottom of the deposit. It is 0.23m thick at its eastern extent, narrowing in the centre to 0.19m before increasing in height again at its western limit.
304	3	Deposit	2	Gravel deposit - compact, mid-brown, made layer of well-sorted gravel (10-50mm). 0.20m thick at its western extent before narrowing and terminating in the centre of the trench. Possible gravel layer or path?
305	3	Structure	1	N-S wall - N-S aligned wall measuring 2.00x1.80x0.15m. Consists of unfinished and rough, rounded and angular stones between 0.05x0.05x0.02m and 0.35x0.25x0.10m. No obvious bonding material. Possibly turns west towards 317, becoming 318? Not truncated.
306	3	Deposit	1	Fill of ***307*** - Mid grey-brown sandy-clay with 40% inclusions 10-40mm rounded, evenly sorted, stone inclusions.
307	3	Cut	1	Construction cut for ***305*** - Linear cut >2.00m long x 1.80m wide. Unknown depth. Edges were unclear. The break of slope at the top of the cut was sharp. The rest of the profile of the cut was not determined.
308	3	Deposit	2	Possible gravel path - mid yellowish-red silty-sand deposit with 5% 10-50mm, evenly sorted, stone inclusions. This deposit measures: 2.00x0.60x0.50m.
309	3	Layer	2	Possible gravel path - mid yellowish-red silty-sand deposit with 40% 10-50mm, evenly sorted, rounded stone inclusions. The deposit measures: 2.00x0.70x0.08m.

310	3	Deposit	3	Fill of cut ***311*** - Fill of linear construction cut for French drain. Mid brownish-grey, friable silty-sand with 10-50mm, evenly sorted, angular stone inclusions. 0.40m wide x 2.00m length x unknown depth.
311	3	Cut	3	Construction cut for ***312*** - Linear cut of unknown depth measuring 0.40x2.00m in plan. The break of slope at the top of the cut is sharp. The cut has tapered edges and probably has a flat-bottomed v-shape profile though this was not determined.
312	3	Structure	3	Culvert - stone built culvert or French drain, measuring 0.40x2.00m in plan, made of unfinished, rough, and sub-angular stones (average size: 0.20x0.14x0.04m). Appears to still be active.
313	3	Deposit	2	Deposit/subsoil - compact, mid yellowish-brown clay deposit. Possibly re-deposited natural from the construction of ***312***? 10% 1-5mm evenly sorted charcoal and rounded stone inclusions. 0.50x1.40m in plan. Depth undetermined.
314	3	Layer	2	Deposit/subsoil - compact, mid yellowish-brown clay. Possibly re-deposited natural from the construction of 312? 10% 1-5mm, unevenly sorted, angular stone inclusions. 0.50x1.40m in plan. Depth undetermined.
315	3	Deposit	1	Fill of ***316*** - mid brownish-yellow, friable, silty-sand and gravel fill of construction cut ***316*** with 60% 10-60mm, unevenly sorted, angular stone inclusions. Measures 0.25x2.00m in plan. Depth undetermined.
316	3	Cut	1	Construction cut of N-S wall ***317***? Linear construction cut for N-S wall partially visible in the trench section. 0.25x2.00m in plan. The break of slope at the top of the cut is sharp. The bottom and sides of the cut were not visible.
317	3	Structure	1	N-S wall - partially visible - sandstone and limestone structure partially visible within the trench. Each stone measures on average 0.18x0.16x0.10m. Possibly butts 318.
318	3	Structure	1	Possible E-W wall - E-W aligned wall running between 305 and 307. Butts ***305*** and ***317***. Measures 0.40x1.10x0.20m. Consists of roughly finished sandstone and limestone pieces, each roughly 0.15x0.17x0.12m. No visible mortar.
319	3	Cut	1	Cut for ***318*** - flat-bottomed, tapered, v-shaped construction cut for wall ***318***. The break of slope at the top of the cut is sharp. Dimensions: 0.40x1.10x0.10m.

320	3	Deposit	1	Fill of ***319*** - mid grey clay with 30% 10-40mm angular stone inclusions. Dimensions: 0.40x1.10x0.10m.
321	3	Deposit	1	Gravel deposit - compact, mid-brown, gravel (10-50mm).
322	3	Layer	2	Possible gravel surface - mid grey-brown, friable, silty-sand with 30% 10-30mm well sorted rounded stone inclusions towards the bottom of the deposit. 0.10m at the western extent, increasing to 0.12m where it terminates in the centre of the trench.
323	3	Deposit	2	Fill of ***324*** - friable, mid brownish-grey silty-sand with 1-30mm coarse sand and grit inclusions. This deposit is 0.30m thick in the centre and increases slightly in thickness to the east and west.
324	3	Cut	2	Ditch - N-S aligned ditch cut visible in the south-facing section of the trench. The cut is 1.86m long by 0.32m deep. The cut is a wide mouthed, flat-bottomed u-shape with slightly concave sides sloping at approximately 30º to the horizontal.
325	3	Layer/Deposit	3	Subsoil - friable, mid brownish-grey silty-sand with coarse sand and grit inclusions. Possible continuation of ***323***.
400	4	Layer		Topsoil - thin, uniformly thick (<0.07m), blackish-brown silt with no inclusions. Extends beyond the limits of excavation of Trench 4.
401	4	Deposit	3	Fill of ***402*** - Soft, dark, greyish-brown clayey-silt fill of ***402***, containing 70-80% irregular, angular sandstone pieces (av. 0.23x0.24x0.07m) towards the base of the deposit. No finds.
402	4	Cut	3	Drain cut - Linear cut measuring >1.5x0.38m in plan, extending beyond the limits of the trench. The cut is u-shaped, with slightly concave, steeply sloping sides to a depth of 0.20m visible in the trench section. The sides slope at approximately 80º to the horizontal. The break of slope at the top of the cut is sharp.
403	4	Layer	2	Subsoil - mid orangey-brown, loosely compacted sandy-silt subsoil layer with <2% small sub-rounded sandstone inclusions (<0.07m). This deposit is cut by drain [402] and thins above the ditch cut ***407*** to 0.04m.
404	4	Deposit	2	Uppermost fill of ***407*** - light to mid orangey-brown, fine sand and clay deposit. No inclusions. No finds. <0.26m thick.
405	4	Deposit	2	Fill of ***407*** - mid greyish-brown, loosely compacted, slightly sandy clay fill of linear ditch

				cut ***407***. No finds. No inclusions. <0.44m thick.
406	4	Deposit	2	Primary fill of ***407*** - Light to mid orangey-brown, loosely compacted sandy-clay deposit. Possible slumping of ditch cut [407], less than 0.38m thick. 2-5% small sub-rounded sandstone inclusions (<0.07m).
407	4	Cut	2	Linear ditch cut - E-W aligned linear ditch cut (dimensions: >1.94x>2.00x0.44m) which extends beyond the limits of excavation at the north end of Trench 4. Wide-mouthed u-shaped cut with concave sides at an angle of 40ºto the horizontal. The break of slope at the top of the cut is gradual and the break of slope to the base is smooth. The base is slightly concave.
408	4	Layer		Natural - Firm, light orange clay with light grey veins. Extends beyond the limits of excavation of Trench 4. 2-3% 7-20mm sub-angular and sub-rounded sandstone inclusions.
501	5	Layer		Topsoil - soft, mid-dark drown silt. <0.15m thick.
502	5	Layer	3	Subsoil - sticky, orange-brown silty-clay. <0.15m thick.
503	5	Layer		Natural - firm/sticky, yellow-brown sandy-clay. Occasional, small and medium sized, rounded stone inclusions.
601	6	Layer		Topsoil - firm/malleable, mid, grey-brown silty-loam layer, <0.19m thick, with 5% sand/gravel inclusions (0.01-0.05m).
602	6	Layer		Natural - hard, mid yellow-brown, sandy clay layer, >0.10m thick, with 10% sub-angular stones (0.05-0-15m thick).
603	6	Cut	3	Cut of N-S culvert ***605*** - linear, flat-bottomed, v-shaped cut with a sharp break of slope at the top and tapered sides. Construction cut of N-S aligned culvert. Dimensions: 1.20x1.60x0.20m. Not fully excavated because it still functions in the drainage of the site. Joins with [609] at the south end.
604	6	Deposit	3	Fill of cut ***603*** - firm, mid grey-brown, silty-clay fill of construction cut of ***603***, packing 605. 5% 0.01-0.05m, well-sorted, sand and gravel inclusions. No finds.
605	6	Structure	3	N-S culvert - N-S aligned culvert (dimensions: 1.20x0.60x0.20m) made from rough, unfinished stones (each 0.30x0.25x0.10m). Connects to 611 at the southern end.
606	6	Structure	1	Possible terrace - a linear arrangement of unfinished stones running approximately N-S across the western end of Trench 6. The stones

				are rough and unfinished pieces of sandstone and each one measures approximately 0.20x0.40x0.15m. The later culverts in Trench 6 cut this possible early terrace feature.
607	6	Cut	2	Possible pit or ditch feature - circular/sub-circular, shallow-sided pit or ditch cut truncated by the later culverts to its southern edge at the eastern end of Trench 6. This feature was only partially exposed, below ***609***, so its full extent is not known. Its dimensions as found were 2.13x1.30x0.55m. The cut has gradually sloping sides that break smoothly to a fairly flat base, which slopes slightly to the western end of the cut.
608	6	Deposit	2	Fill of ***607*** - firm, mid grey-brown, clay-sand fill of [607] with 5% 0.01-0.05m gravel inclusions. >0.55m thick. (Not bottomed due to waterlogging).
609	6	Cut	3	Cut of E-W culvert ***611*** - linear, E-W aligned construction cut for culvert 611 (>5.00x0.56m in plan) with a tapered, flat-bottomed, v-shaped profile.
610	6	Deposit	3	Fill of cut ***609*** - sharply defined, firm, mid grey-brown silty-clay fill of ***609*** with 5% irregularly sorted gravel inclusions (0.01-0.05m).
611	6	Structure	3	E-W culvert - stone culvert running E-W across Trench 6. Its external dimensions are >5.00x0.80x0.40m. Its width varies along its length between 0.56-0.80m. Its internal depth is approximately 0.20m. It is not silted up which suggests it is still in use. The stone, which is on the whole grey but with some occasional yellow sandstone blocks, is rough and unfinished. Each block measures on average 0.15x0.20x0.15m. No bonding material is visible.
612	6	Deposit	2	Subsoil - orangey-brown silty-clay 0.25m deep
701	7	Layer		Topsoil - firm, mid brown, silty-loam layer, less than 0.18m thick, with 3% sand and grit inclusions (0.01-0.05m). No finds.
702	7	Layer		Natural - hard, light-mid yellowy-brown sandy-clay layer, more than 0.20m thick, with 5% rounded stones (0.05-0.15m).
703	7	Cut	1	Construction cut - N-S aligned cut. The western edge of the cut is a higher elevation and more steeply sloped than the eastern edge of the cut. The western edge forms an almost vertical face that breaks sharply to the base, which is flat, at a depth of 0.21m. The eastern side slopes more gently and is slightly concave and breaks gradually to the base. The cut is more than 2.0m

				long by 0.75m wide.
704	7	Deposit	1	Fill of ***703*** - malleable, mid brownish-grey sandy-silt fill of [703] with 20% rounded stone inclusions (0.10-0.25m). Possibly part of a garden feature. The stones in this deposit may have come from the lining of the stone flag structure 705. No finds.
705	7	Structure	1	Stone flag structure, possibly a garden feature - a stone flag formation at the base of ***703***. It is possible that these stone slabs may form part of an irregular stone path at the base of ***703***, which may be a terrace or ditch. The stone flags are finished but irregularly shaped each 0.40x0.30x0.05m. No bonding material was visible.
706	7	Cut	3	Cut of drain - N-S aligned, sharp, linear cut with straight, tapered sides which extends beyond the limits of the trench to the north and south. Known as a French drain. Dimensions as found: >2.00x0.30x0.16m.
707	7	Deposit	3	Fill of cut ***706*** - firm, mid brown-grey, clay-silt with 80% angular stone inclusions (0.10-0.40m).
801	8	Layer		Topsoil - firm, dark, grey-brown silty-sand with 5% irregularly sorted sand and gravel inclusions (1-5mm). The deposit is 0.30m thick at the centre, getting thinner to the west and thicker to the east. The edge between the topsoil and the natural is diffuse.
802	8	Layer		Natural - friable, mid, brown-yellow, sandy-silt with no inclusions. <0.40m thick.
803	8	Deposit	2	Sandy deposit - friable, mid, yellow-brown, sandy-silt with no inclusions. The deposit is 0.10m thick at the western extent and tapers to the east.
804	8	Deposit	2	Clay deposit - firm, mid, brownish-grey, clay-silt with 10% irregularly sorted, sub-angular stones. This deposit is 0.21m at its western point and rises up at its eastern limit. The edge is sharp between ***804***, ***801*** and ***803*** but more diffuse between ***804*** and ***808***.
805	8	Deposit	1	Fill of ***806*** - firm, mid grey, clay with 20% irregularly sorted, sub-angular stones (30-50mm).
806	8	Cut	1	Cut of drain - sharp, linear cut (>2.00x0.30x0.28m) with a flat-bottomed, v-shaped profile. The break of slope at the base is gradual. The base is flat.
807	8	Structure	1	Stone lining of terrace - N-S aligned, linear structure, measuring 2.00x0.18x0.12m. The

				structure is made of rough, unfinished stones, each 0.12x0.15x0.10m. Possibly the west face of a terrace belonging to the 17th century garden.
808	8	Cut	1	Construction cut - linear construction cut for terrace ***807***, measuring >2.00x0.30x0.28m. Not fully excavated.
809	8	Deposit	1	Re-deposited natural/Terrace - light, yellowish-brown silty-sand deposit, measuring 3.00x2.00x0.25m, with 3% sub-angular stones (10-20mm). 0.25m in the centre, narrowing to 0.10m to the west, and rising upwards slightly and thinning to 0.10m to the east.
810	8	Deposit	3	Deposit - modern, mid, grey-brown silty-sand (1.00x0.30m) with no inclusions.
901	9	Layer		Topsoil - friable, dark, brownish-grey silty-clay layer, less than 0.23m thick, with 5% stone inclusions (0.01-0.05m).
902	9	Layer	3	Subsoil - hard, mid, yellowish-brown sandy-clay layer, less than 0.29m thick, with 35% rounded stone inclusions (0.05-0.15m). A piece of blackware pottery (c.18th century) was recovered near to the stone structure 904.
903	9	Layer		Possible natural at south end of Trench 9 - firm, dark, grey clay layer, more than 0.12m thick, with no inclusions.
904	9	Structure	1	Stone structure - loosely E-W aligned stone feature, measuring 1.23x<0.78m in plan, possibly forming part of an old terrace or parterre. A single layer of large, roughly hewn, irregular, sub-rounded and sub-angular pieces of sandstone, each approximately 0.40x0.30x0.10m, forming an approximately level E-W line approximately 1.0m north from the southern limit of excavation of Trench 9. There was no cut or fill associated with this feature, which lies above the natural (***907***). A piece of blackware pottery was recovered from nearby subsoil (***902***). No bonding or facing material was observed. This feature presumably extends beyond the western edge of the trench.
905	9	Deposit	3	Fill of cut ***906*** - well-compacted, dark grey clay fill of the construction cut for the culvert [906] (<0.30m thick). The fill was partially removed to expose the stone culvert at the base of the cut. The culvert is lined with very large angular pieces of sandstone (up to 0.74x0.51x0.07m) running along the centre of the cut to form a roughly even surface. Sub-rounded stones line the edges of the cut (up to 0.23x0.22x0.11m).
906	9	Cut	3	Cut for culvert - E-W aligned, linear, construction cut for the culvert within Trench 9. The edges of

				the cut are sharp, clearly defined and slope almost vertically down to the stone capping of the culvert at a depth <0.30m.
907	9	Layer		Natural - possibly a variation of the natural at the south end of the trench, (***903***), or possibly a further underlying geological layer. Variable, well compacted, mid-light orange, coarse sand and clay layer with 2% sandstone inclusions (<0.10m). Possible natural layer cut by the culvert and below the stone feature in Trench 9.
908	9	Structure	2	Culvert - 0.90m wide east/west aligned stone capped culvert, found within cut ***907***.
1000	10	Layer		Topsoil - clearly defined, uniformly thick, friable, dark, greyish-brown silt layer, between 0.10-0.17m thick, with no inclusions. Extends beyond the limits of the trench. No finds.
1001	10	Layer	3	Subsoil - uniformly thick, loosely compacted, mid, orangey-brown silty-clay layer (<0.15m thick) with <2% small sub-rounded stone and sandstone inclusions. Subsoil layer overlying features within Trench 10.
1002	10	Deposit	2	Fill of ***1004*** - mixed, mid-dark grey and mid greyish-brown, loosely compacted, clay and silty-clay with no inclusions. Fill of ***1004***, (>0.28m deep), on top of and packing the stone culvert ***1003***.
1003	10	Structure	3	E-W culvert - E-W stone culvert, possibly feeding lawn fountains to the western end of the sloping lawn. Large, irregular, angular and sub-angular sandstone slabs, up to 0.94m long (average: 0.79x0.60x0.07m), run along the top of the culvert with medium-sized, sub-rounded and sub-angular stones (average: 0.26x0.18x0.07m) along the edge. The slabs form a roughly even surface with flat faces. No bonding material was observed. The culvert is >0.92m wide and extends beyond the limits of excavation to the east and west.
1004	10	Cut	3	Cut for ***1003*** - linear, E-W aligned, cut for culvert ***1003***, measuring >4.00x>0.92m in plan. Probably the same as the cut ([1008]) for the N-S aligned section of the culvert. Only the north side of the cut is visible. The cut is square-sided, with almost vertical sides, to a depth of 0.28m.
1005	10	Structure	1	Stone feature - A single large stone suggested to be part of an earlier N-S aligned structure/feature, cut by later stone culverts within Trench 10. The location of this large, irregular, sub-rounded, (possibly roughly hewn) piece of sandstone (0.75x0.57x0.23m) appears to be within a possible cut ***1010***.

1006	10	Deposit	3	Fill of ***1008*** - mixed, mid-dark grey and mid greyish-brown, loosely compacted, clay and silty-clay deposit with no inclusions. Probably the same as ***1002***. This deposit overlies the N-S section of the culvert within Trench 10, (0.10m thick), on top of and packing the stone culvert ***1007*** within cut ***1008***.
1007	10	Structure	3	N-S culvert - N-S section of stone culvert extending beyond the limits of the trench to the north and south. The western edge of the culvert also extends beyond the limit of excavation. Large, irregular, angular sandstone slabs encountered at a depth of 0.20m within ***1008***. Same construction and phasing as E-W culvert ***1003***. For description see ***1003***.
1008	10	Cut	3	Cut for ***1007*** - linear, cut for N-S section of culvert ***1007***, measuring >2.0mmx>0.93x0.20m. The cut has a similar profile but is slightly more shallow than cut ***1004***, which is the construction cut for the E-W section of the culvert. For description see ***1004***.
1009	10	Deposit	1	Fill of cut ***1010*** - friable, mid, orangey-brown, clayey-silt fill with <2% small sandstone inclusions (<0.07m). The edge of the deposit is diffuse and scarcely discernible from the subsoil layer ***1001*** and cut by the later culverts within Trench 10.
1010	10	Cut	1	Cut for ***1005*** - possible linear cut with diffuse, unclear edges. The cut is only clearly visible to the western edge of the stone/feature 1005, where it was found to cut a further 0.23m into the natural. The cut is scarcely discernible and has been severely truncated by the later E-W aligned culvert within Trench 10. It is not known whether the cut continues to the south of the culvert. The cut measures >1.12m in length and extends beyond the northern edge of Trench 10.
1011	10	Layer		Natural - firmly compacted, mid orange clay with light grey veins extending beyond the limits of excavation. The natural is >0.20m thick and has a slightly lighter coloration and is more firm than the subsoil. 2-5% sub-rounded sandstone inclusions up to 0.12m.

ILLUSTRATIONS

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Plate 20: Trench 3 during excavation viewed toward the north. The surviving element of the terrace can be seen to left of the Rose Garden marked by the large tree

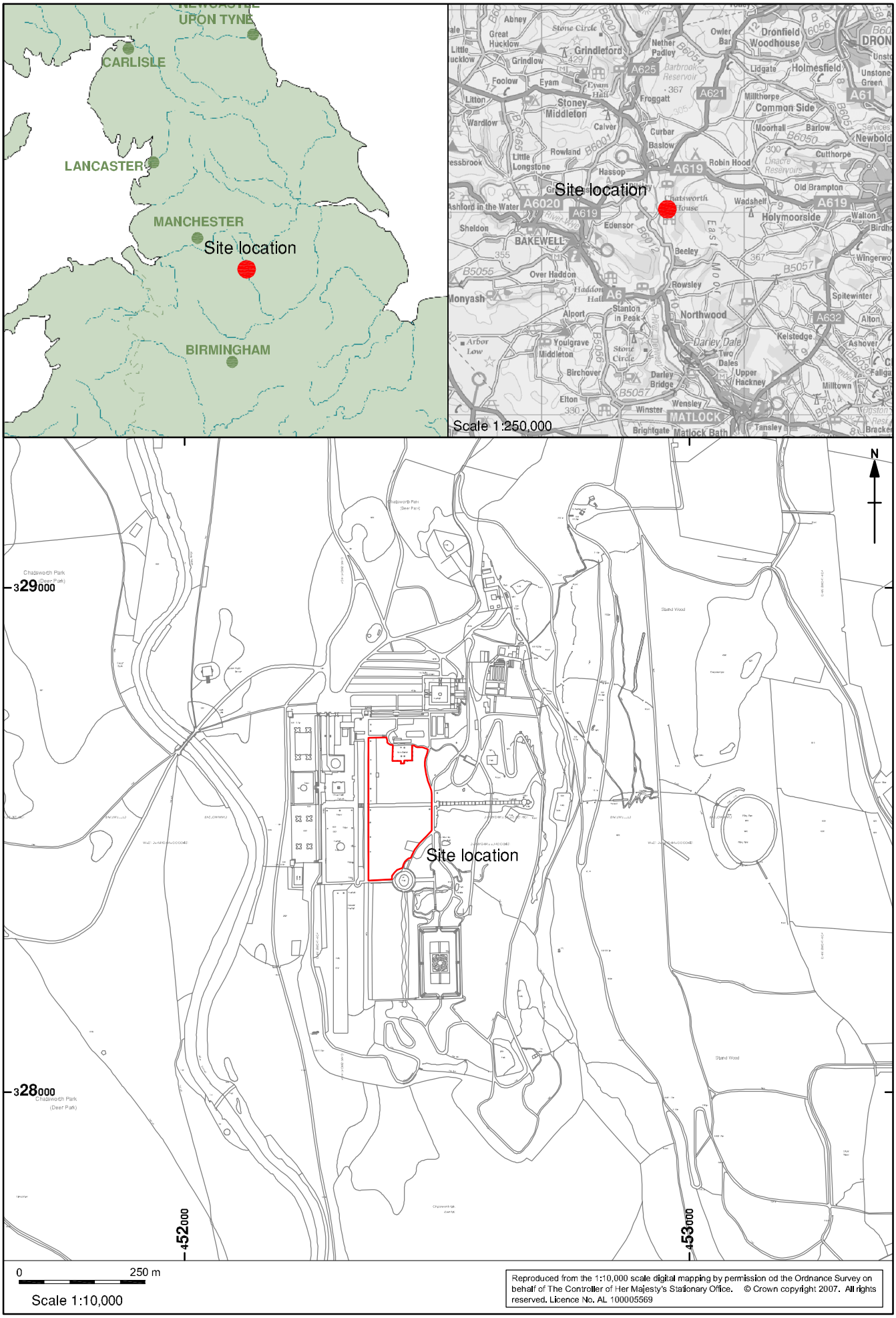

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Figure 1: Site Location

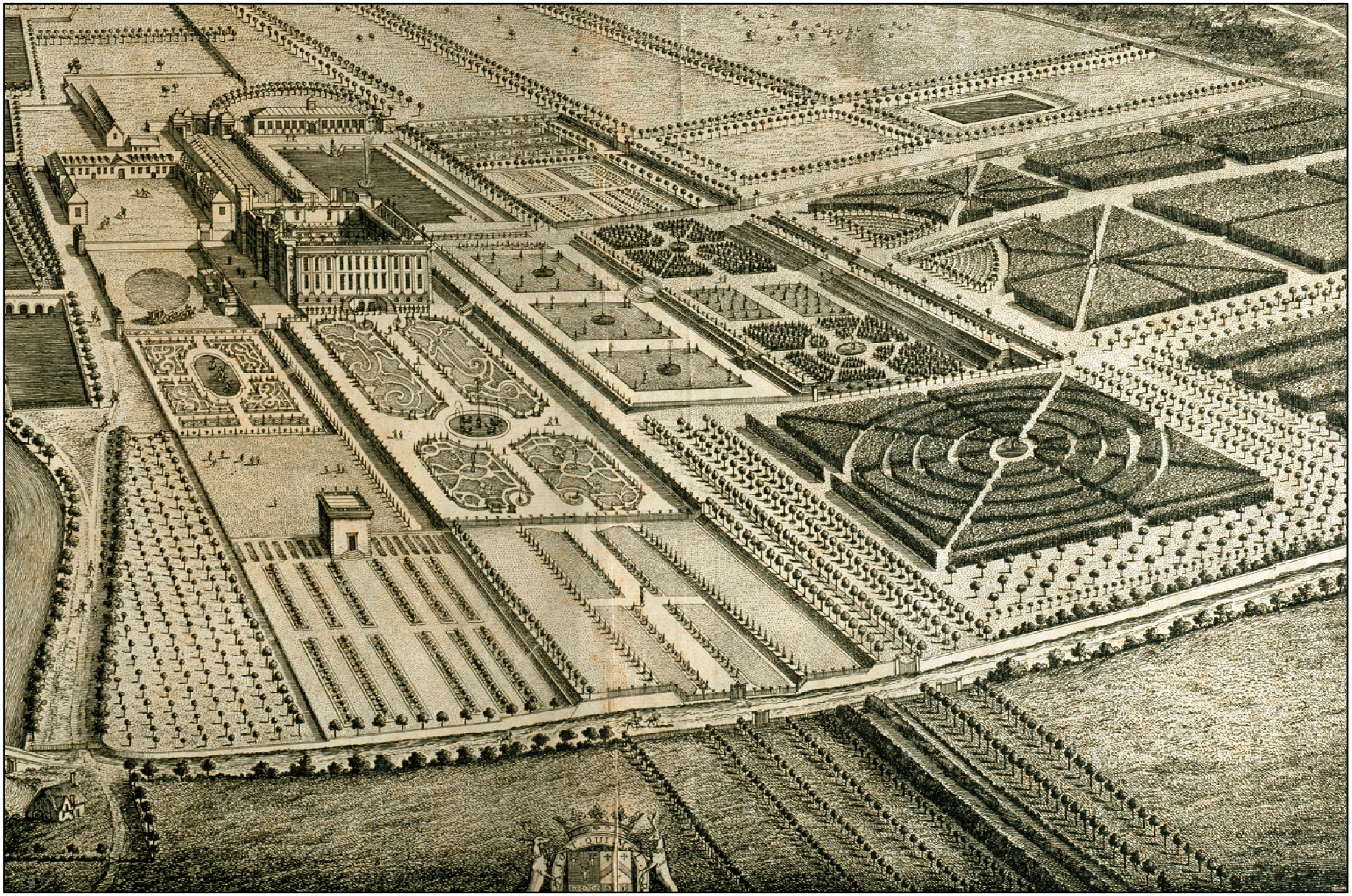

Figure 2: Kip and Knyff, 1699

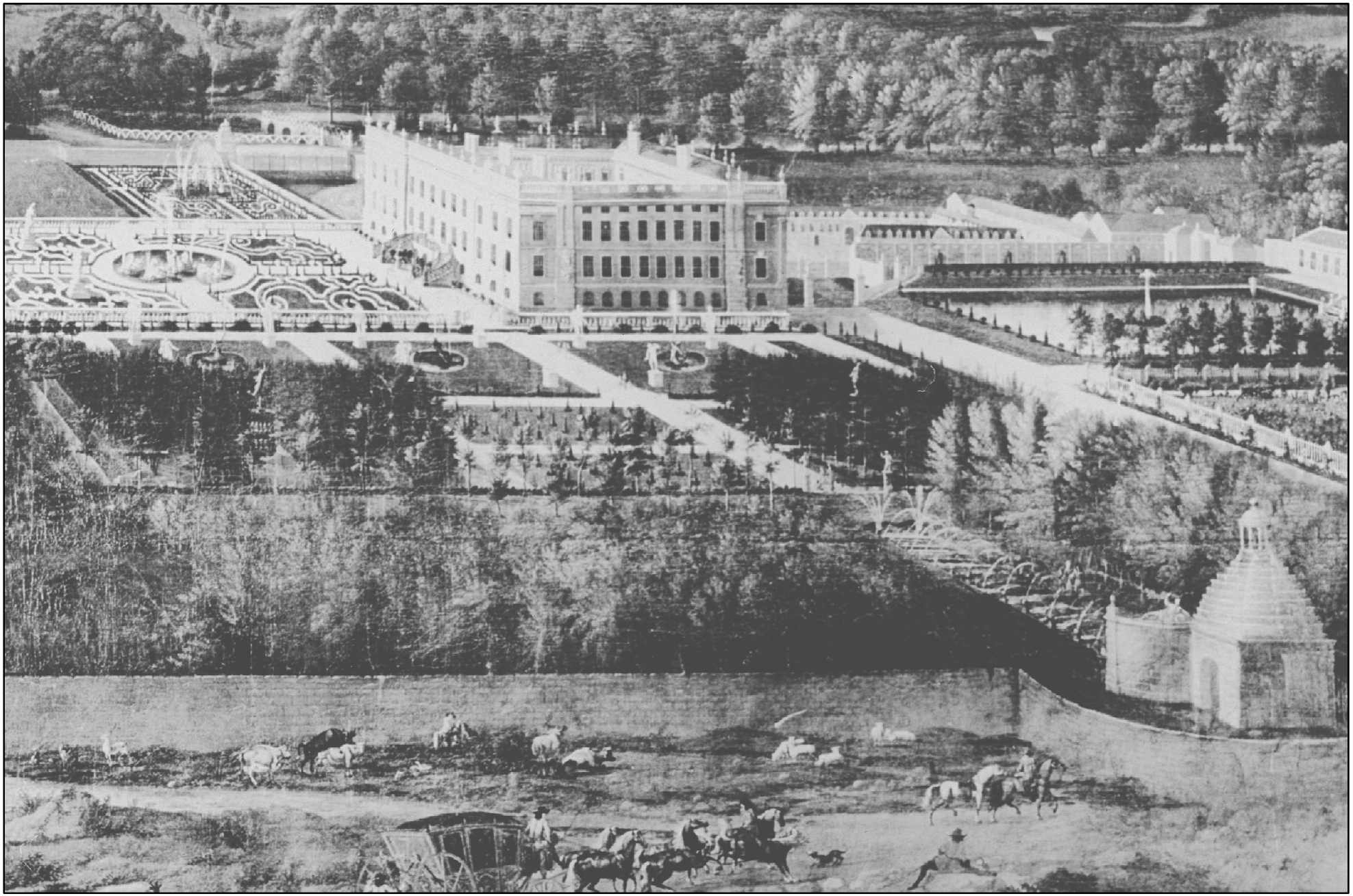

Figure 3: Sandy, 1710

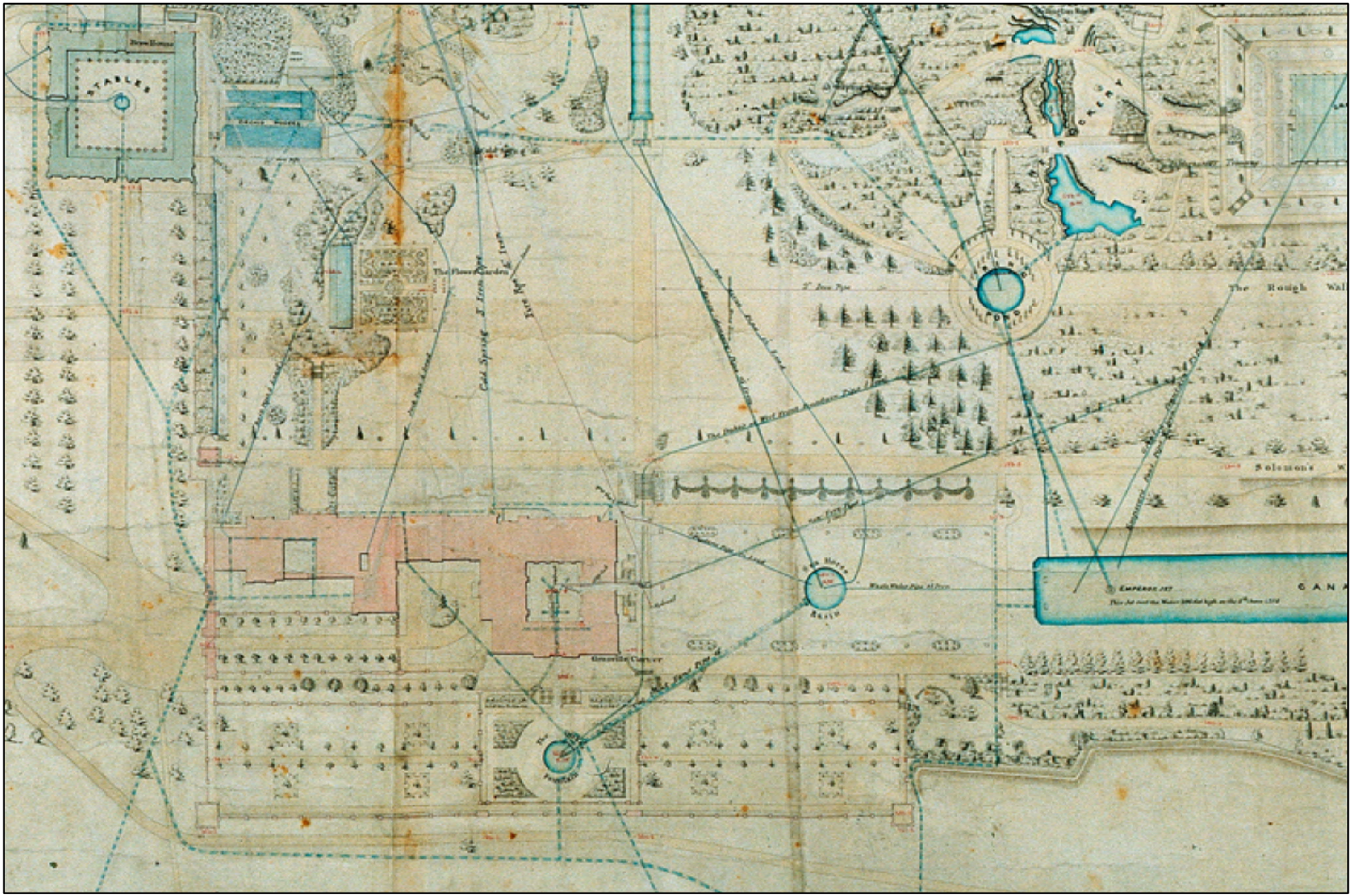

Figure 4: Campbell, 1858

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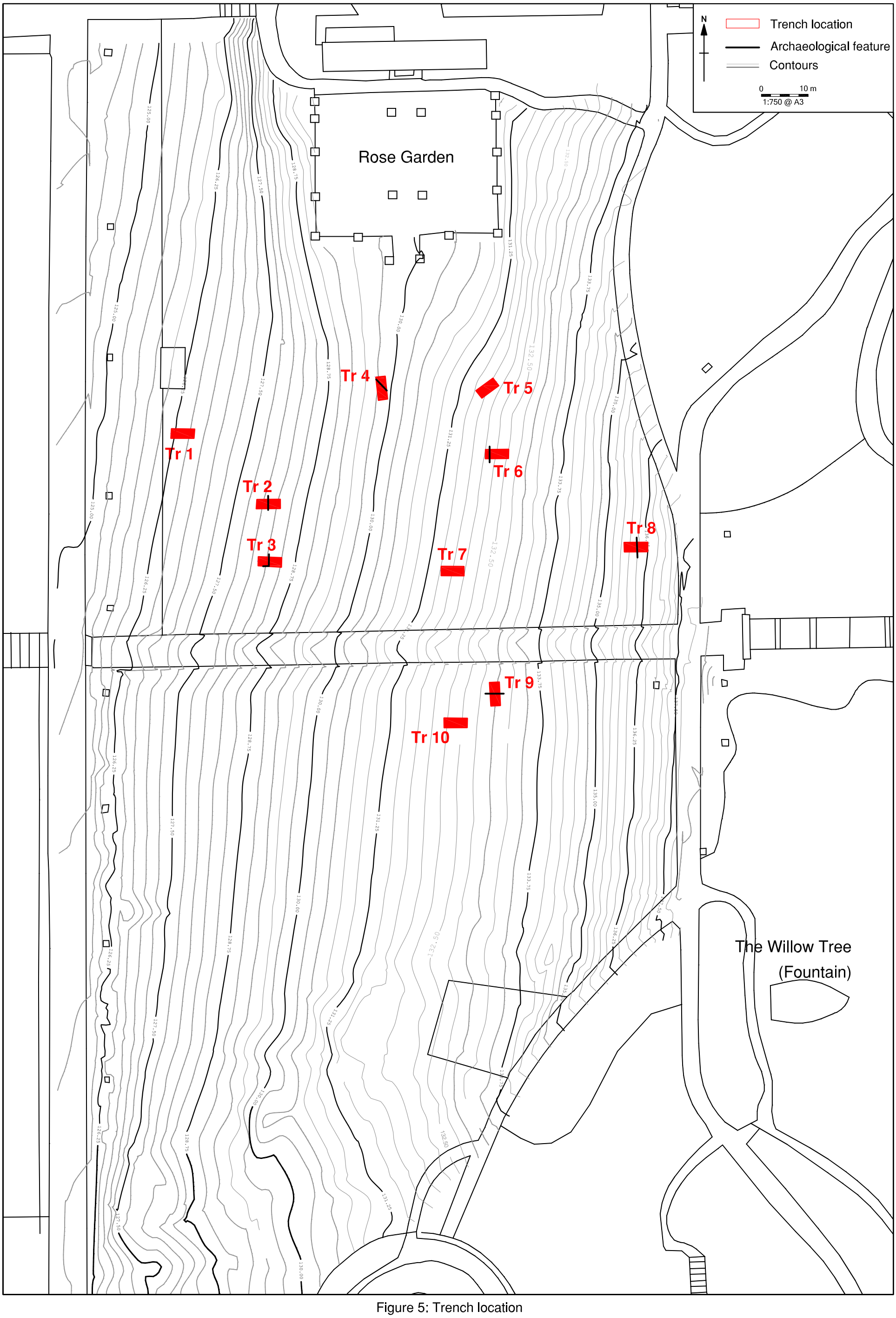

Figure 5: Trench location

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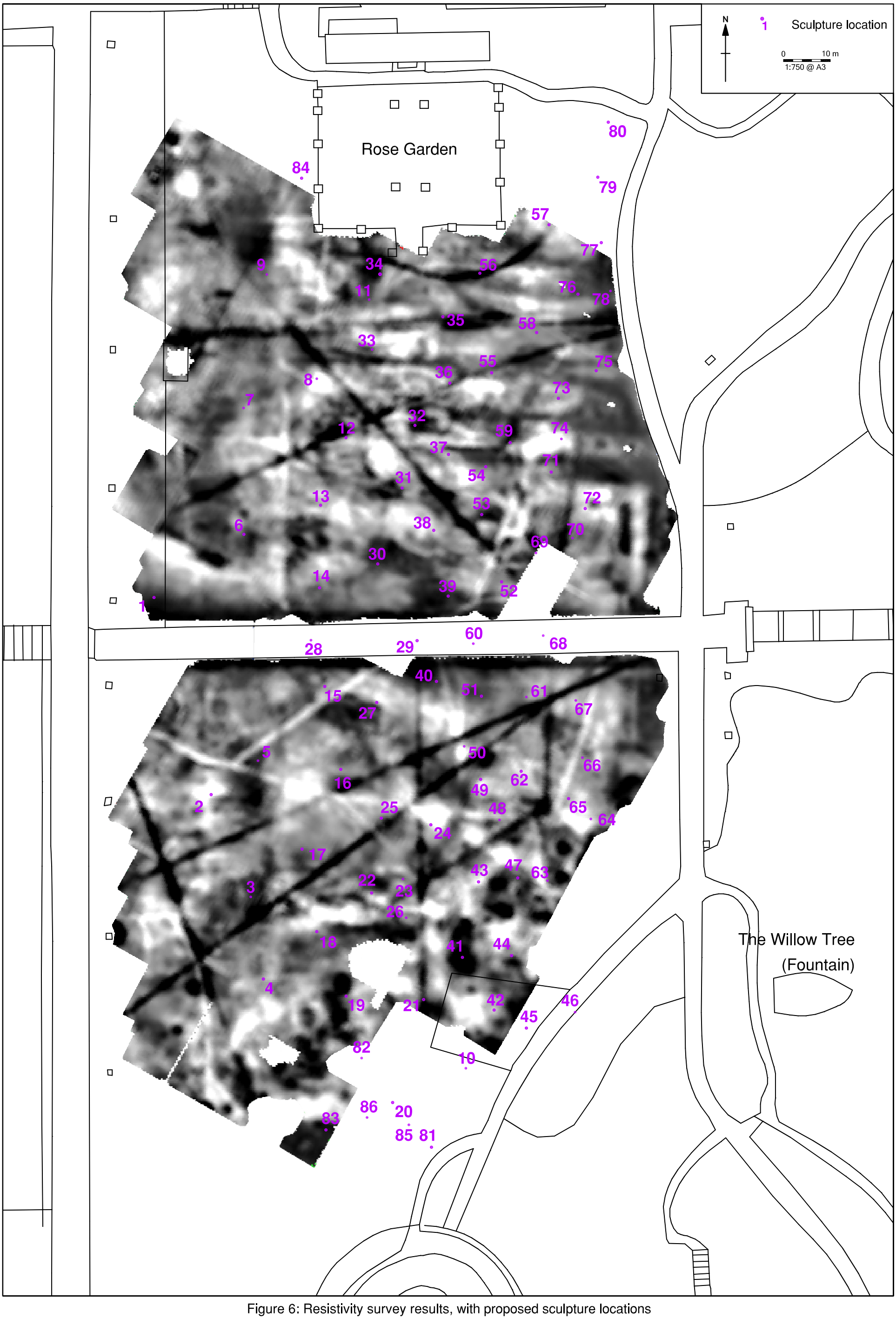

Figure 6: Resistivity survey results, with proposed sculpture locations

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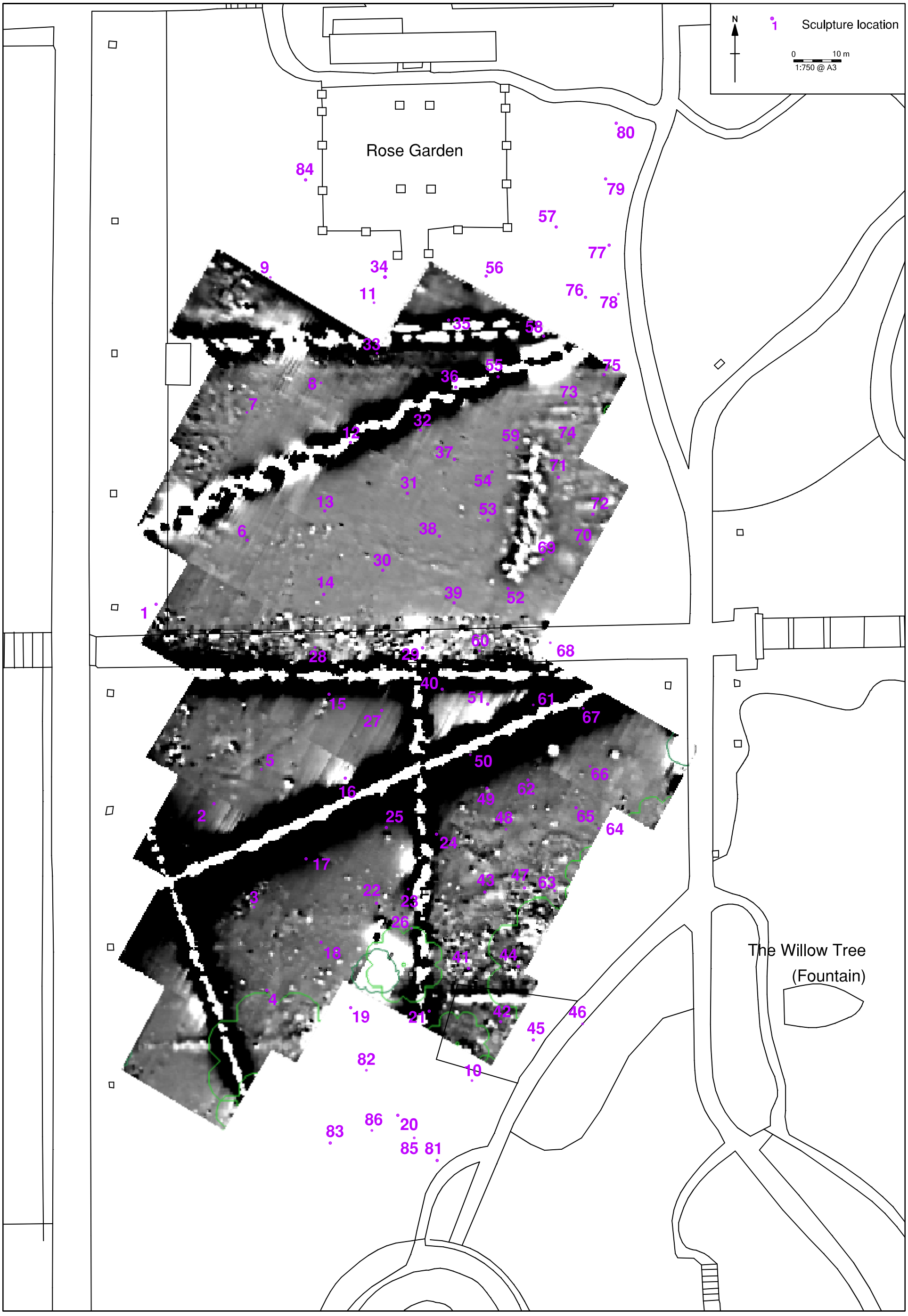

Figure 7: Magnetometry survey results, with proposed sculpture locations

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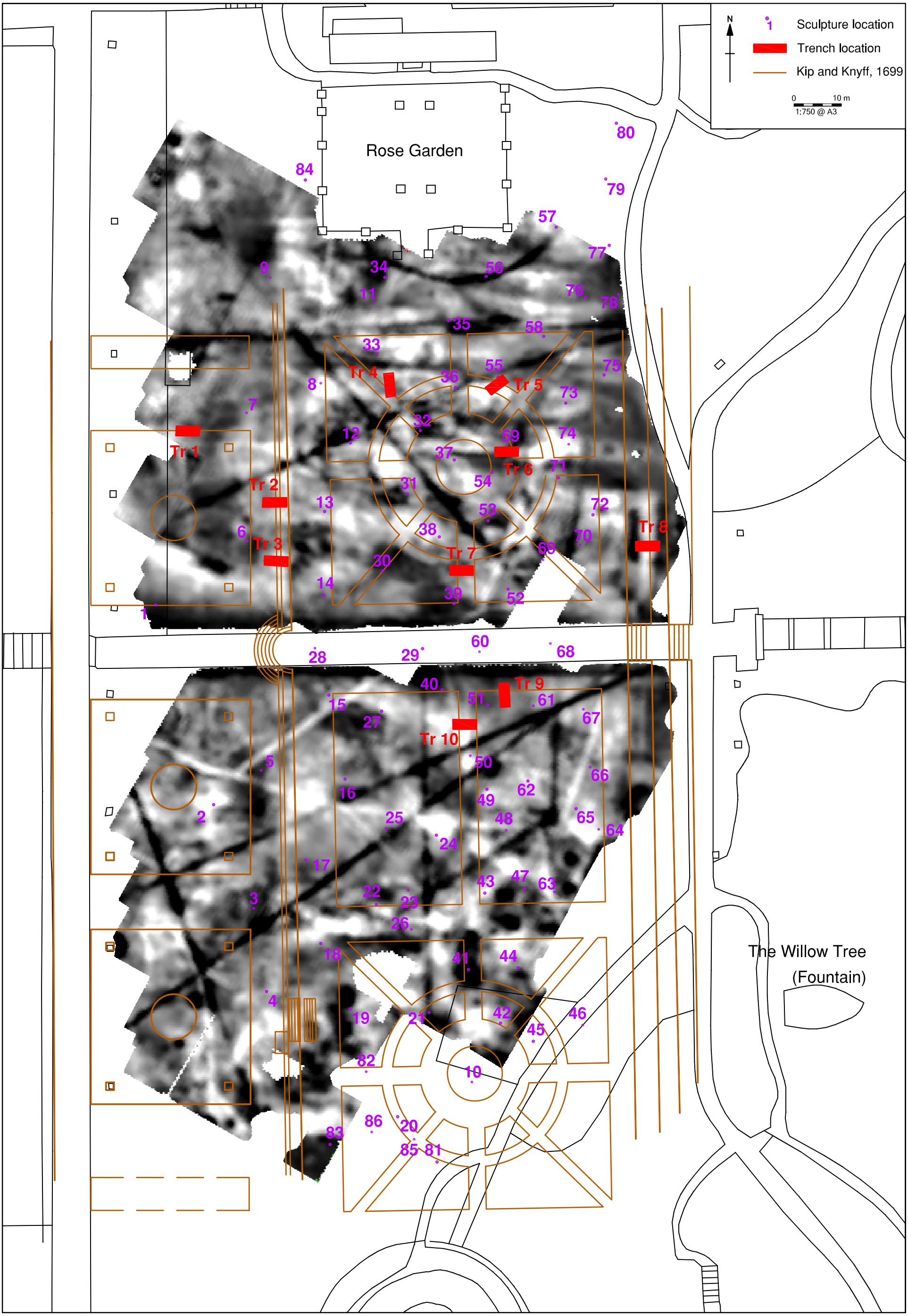

Figure 8: Resistivity survey results, showing the garden features depicted on Kip and Knyff, 1699

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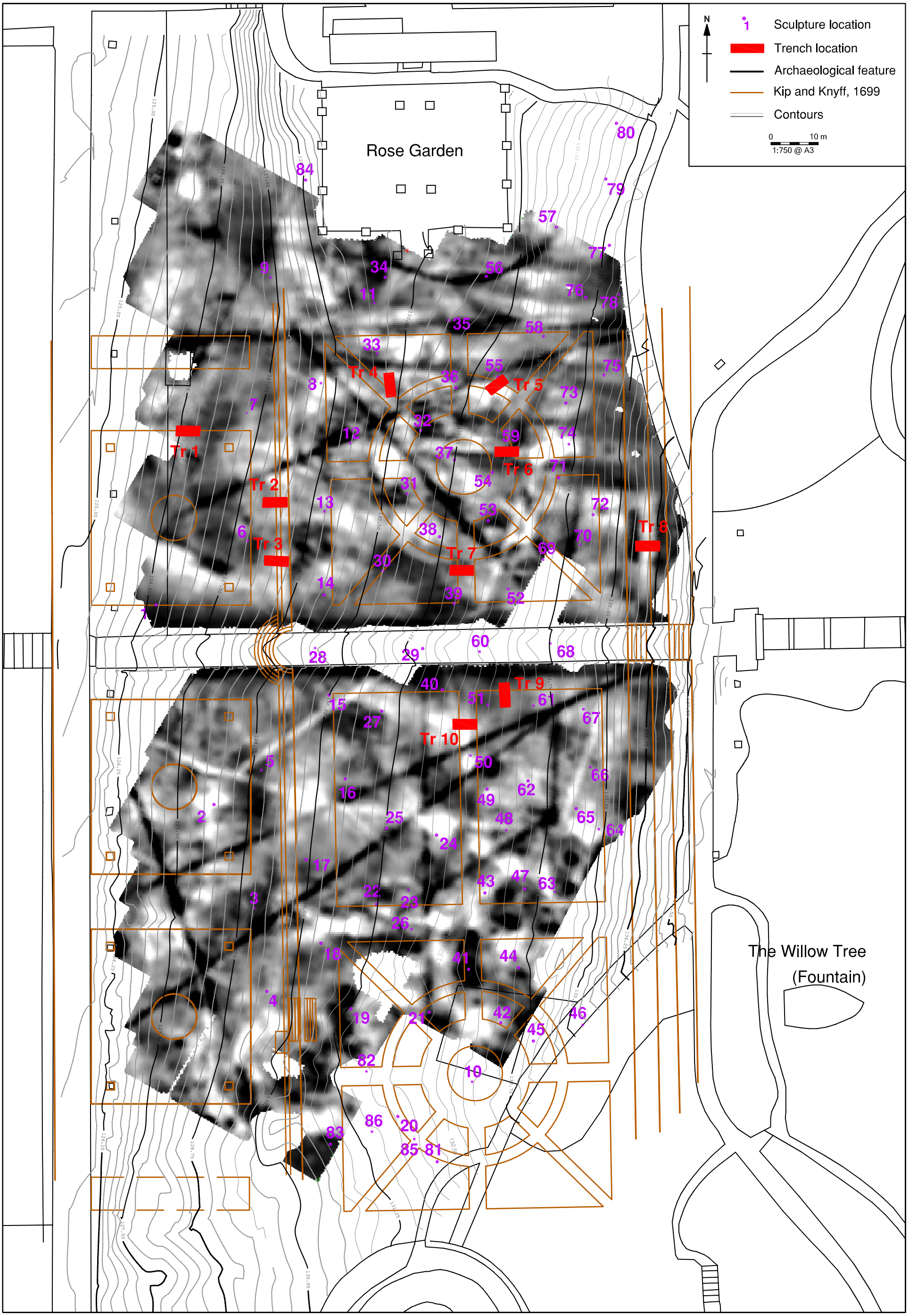

Figure 9: Resistivity survey results, showing the topography and garden features depicted on Kip and Knyff, 1699

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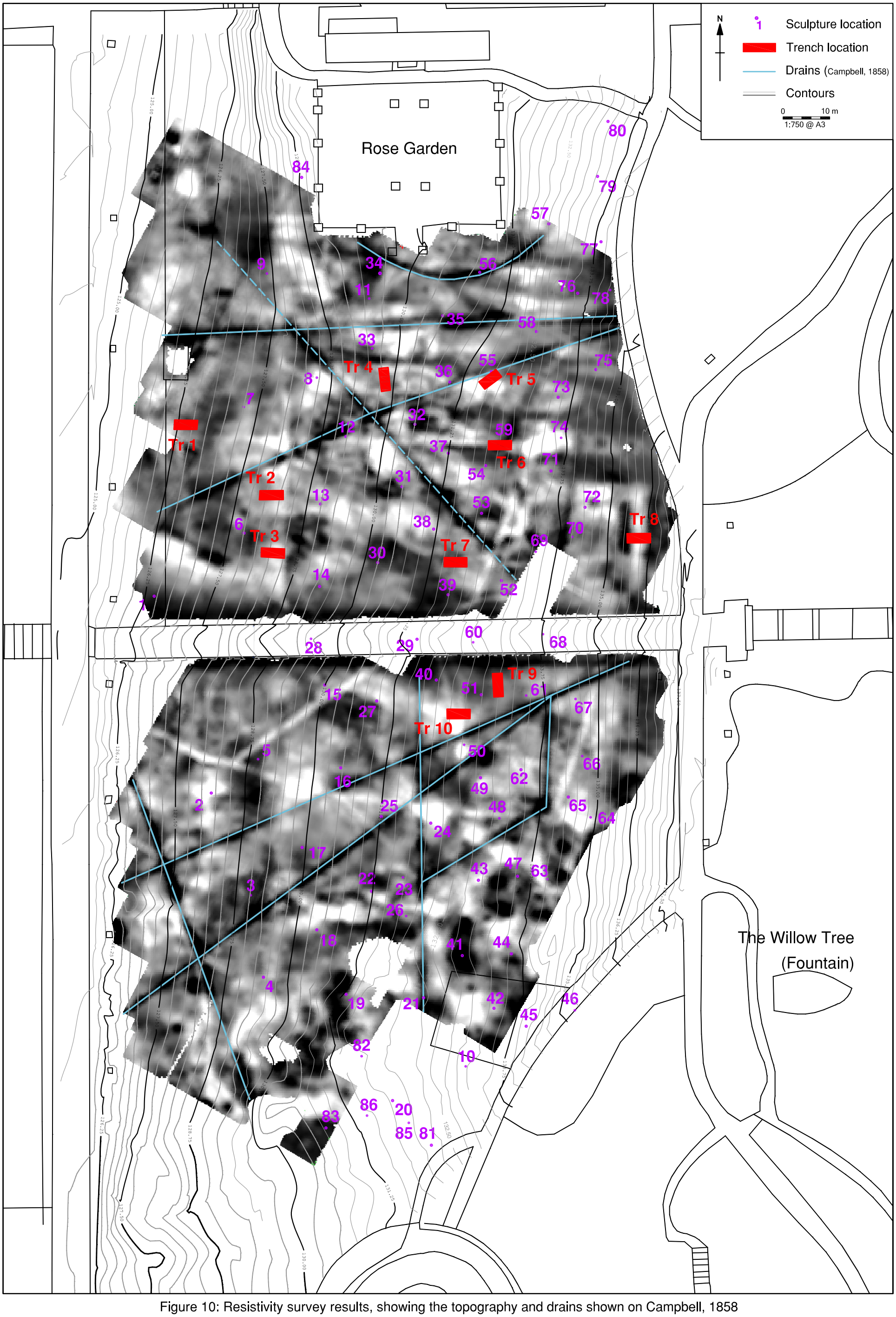

Figure 10: Resistivity survey results, showing the topography and drains shown on Campbell, 1858

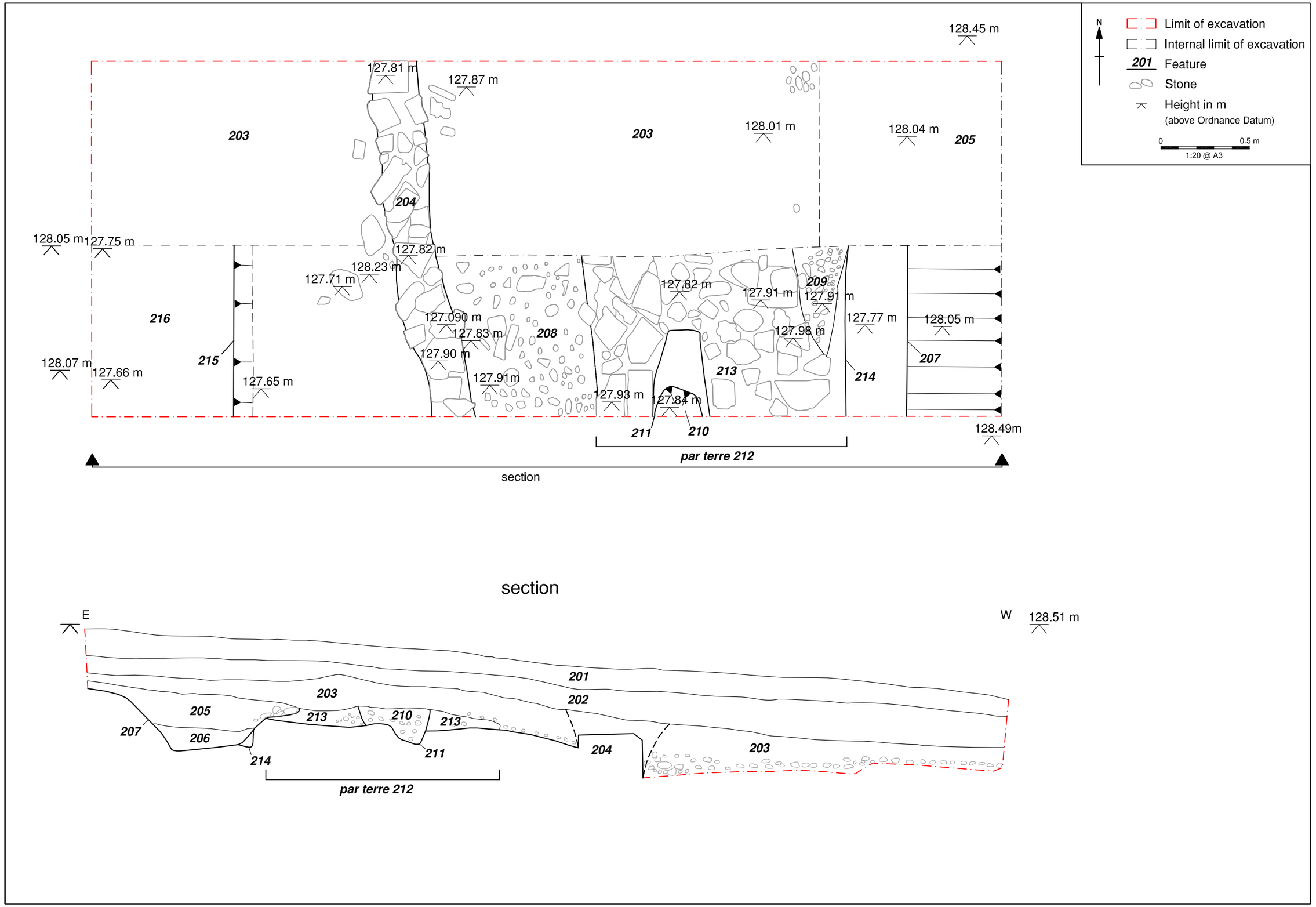

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Figure 11: Trench 2, plan and section

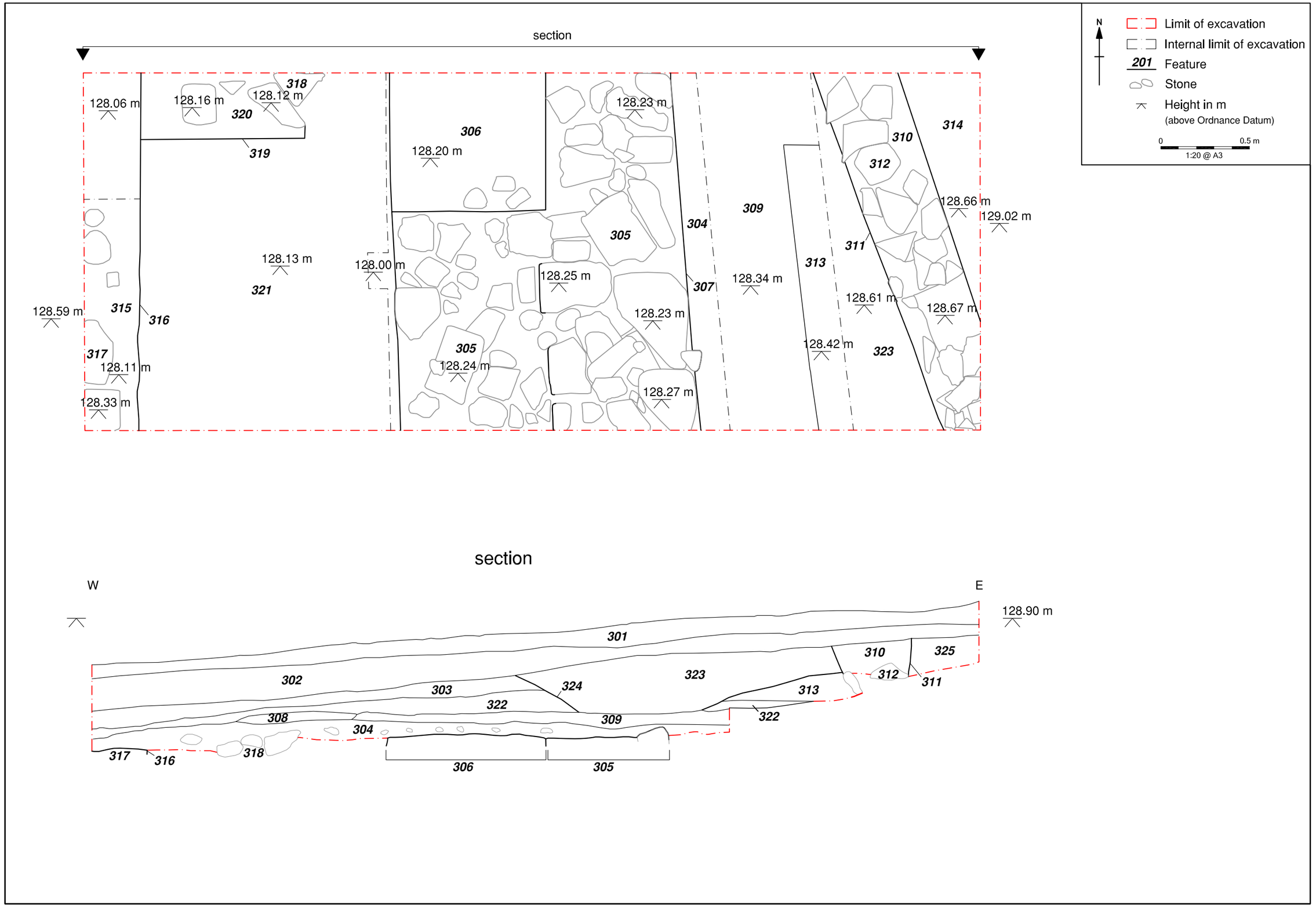

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Figure 12: Trench 3, plan and section

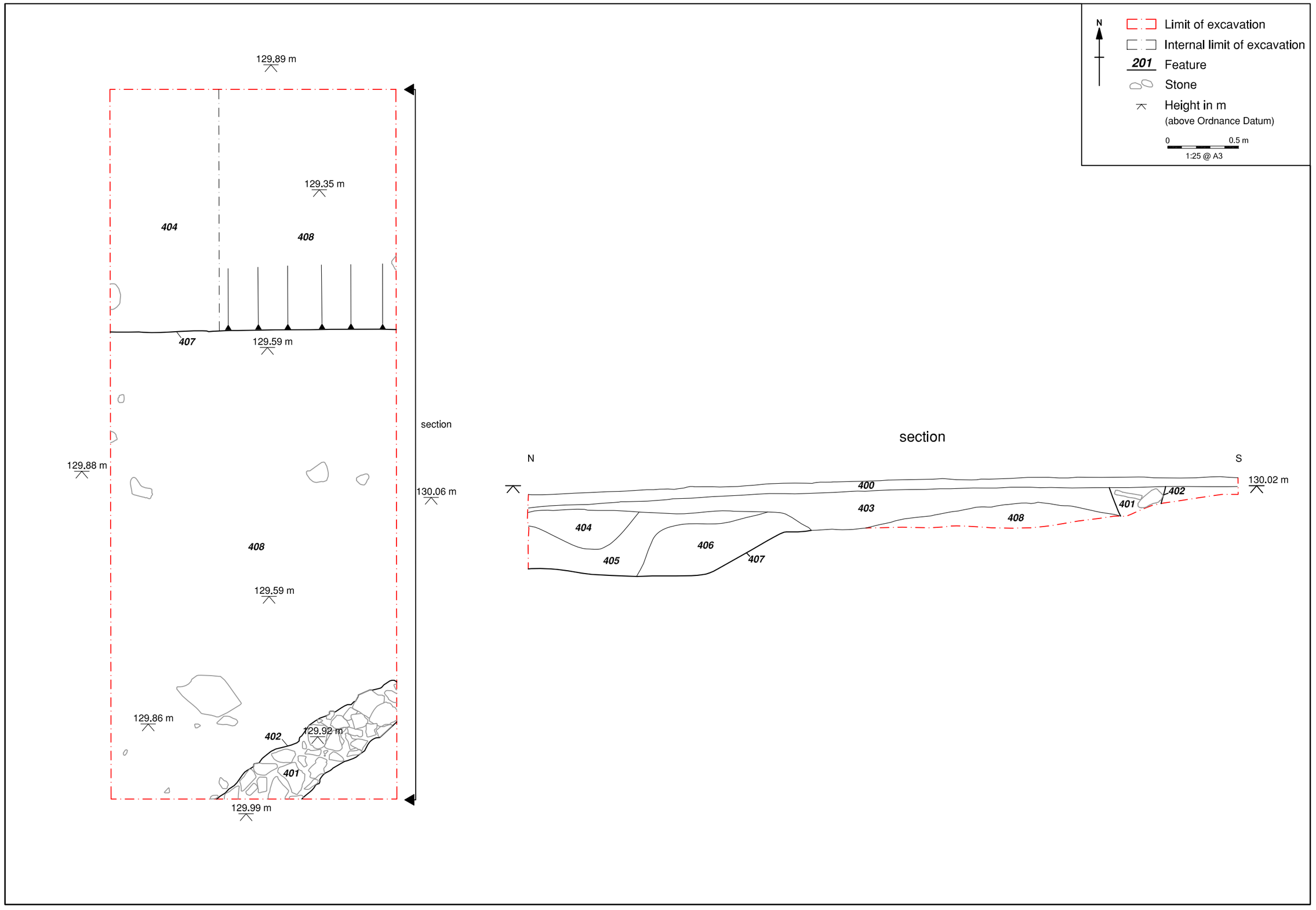

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Figure 13: Trench 4, plan and section

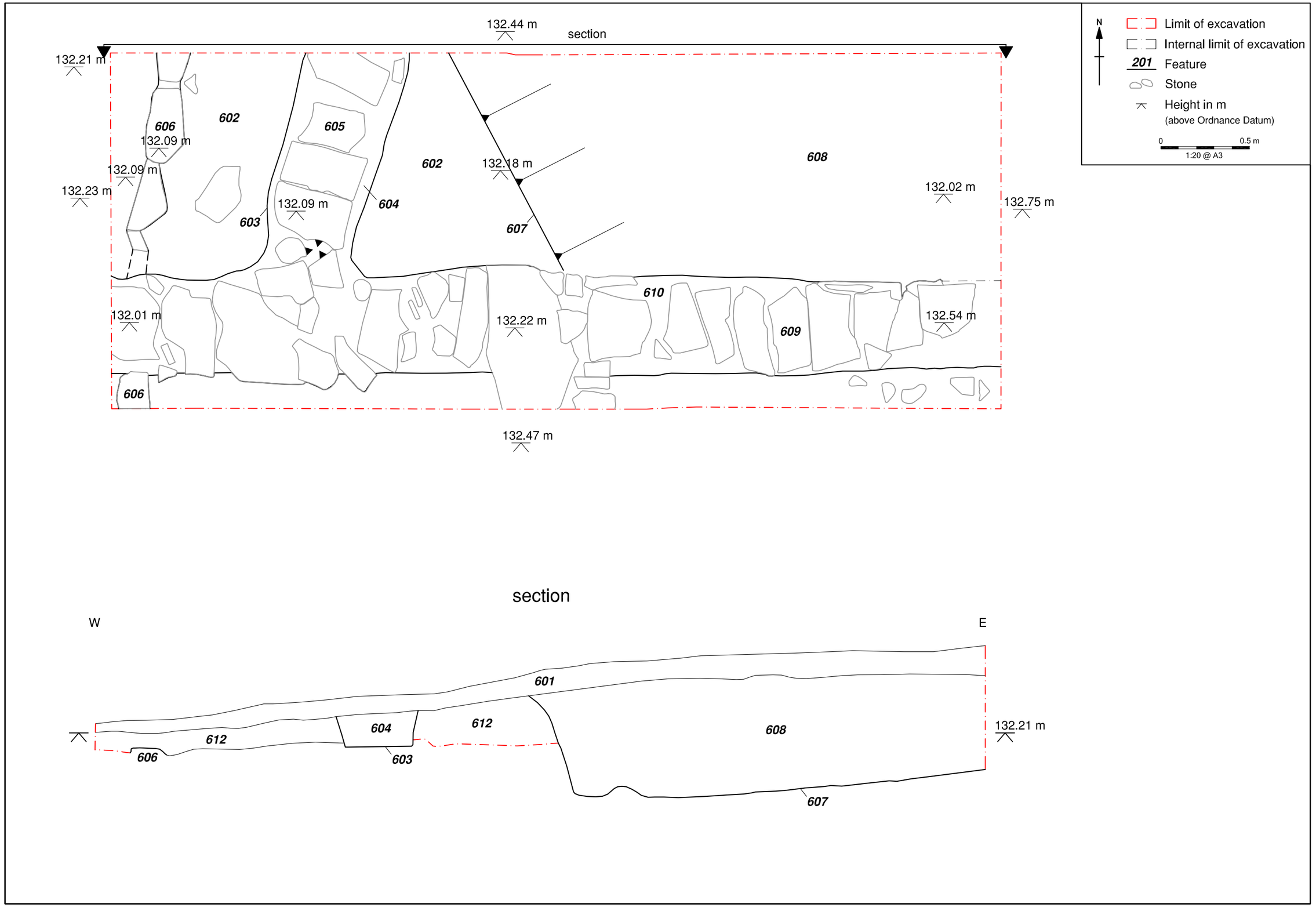

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Figure 14: Trench 6, plan and section

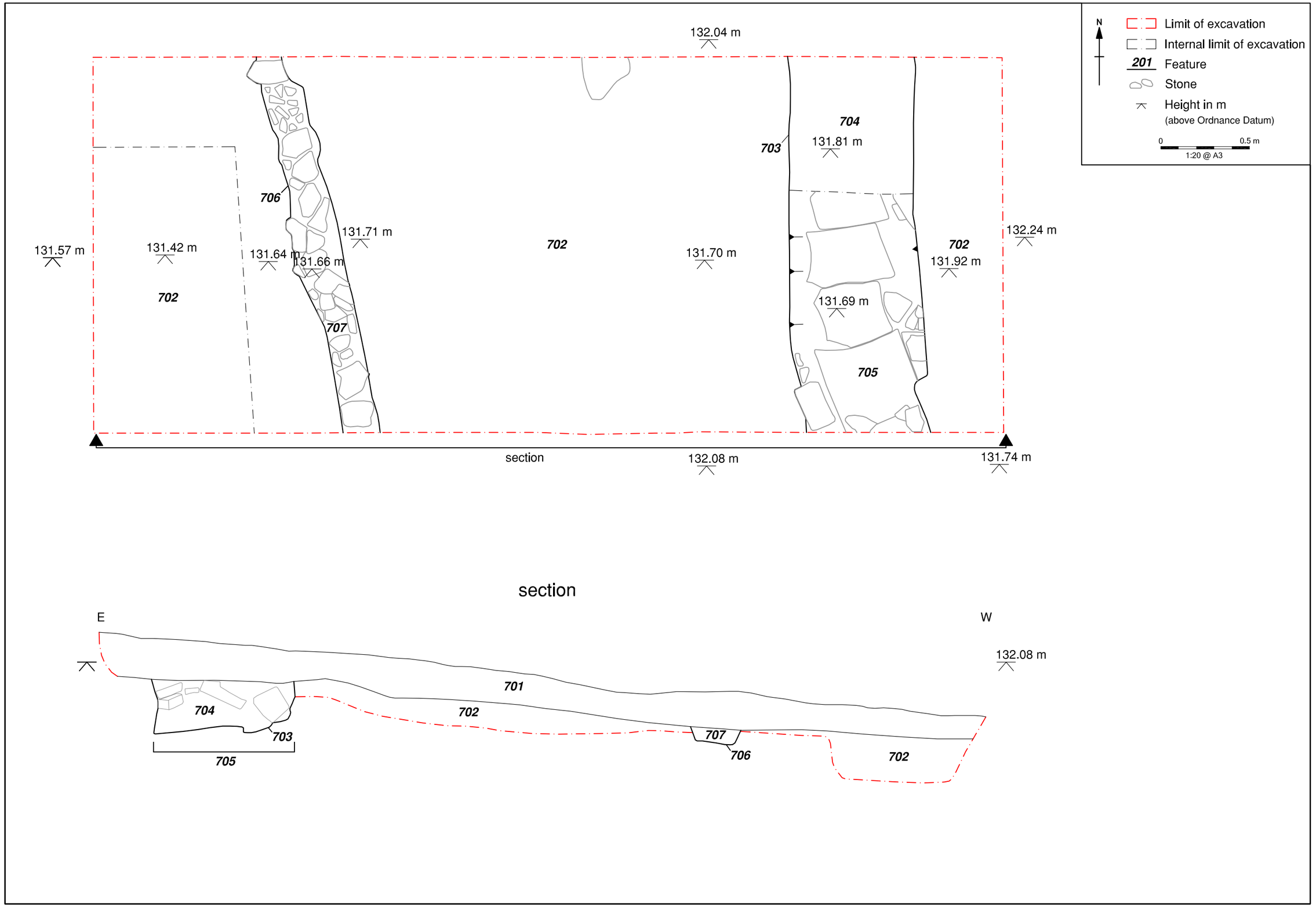

Figure 15: Trench 7, plan and section

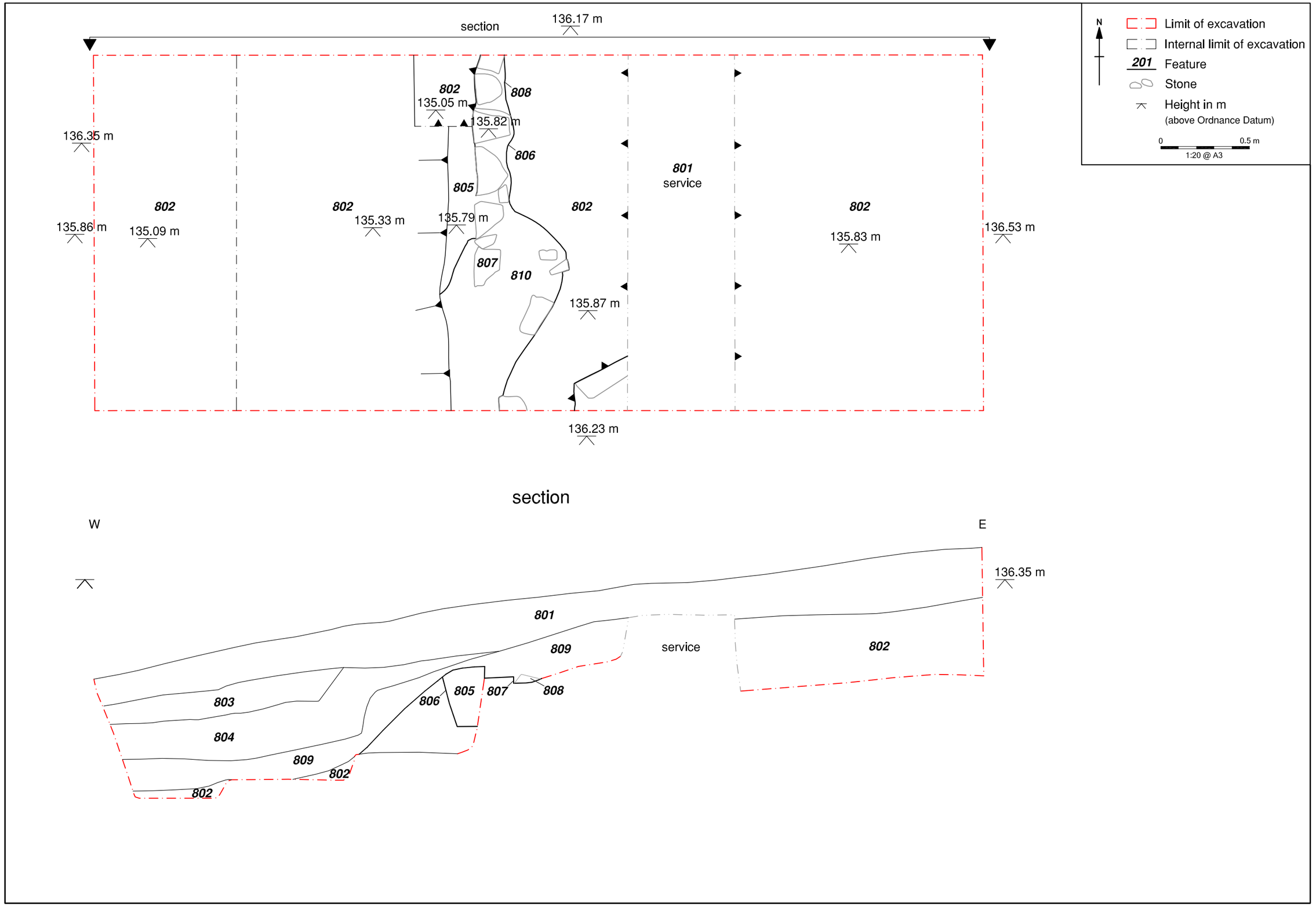

Figure 16: Trench 8, plan and section

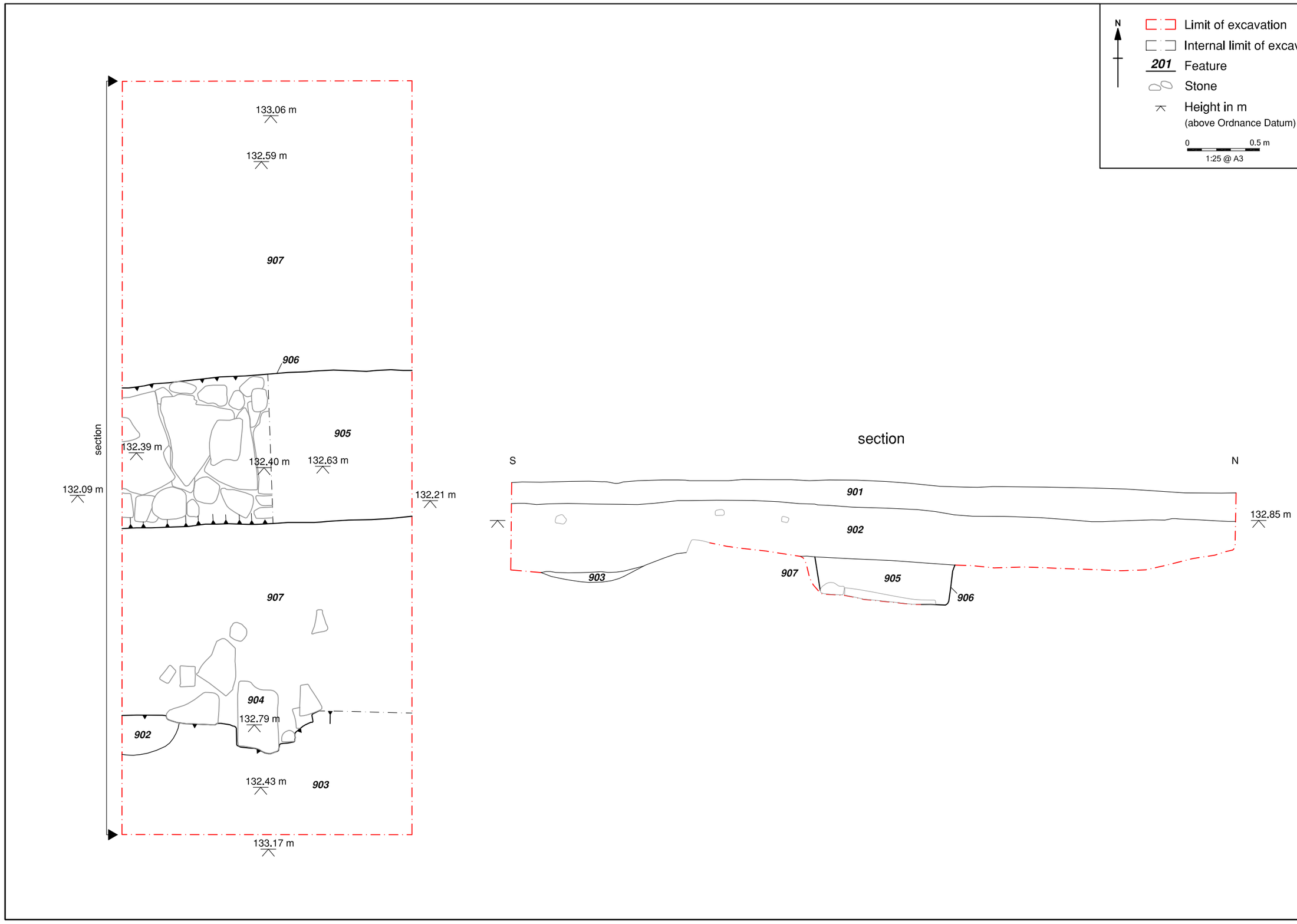

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Figure 17: Trench 9, plan and section

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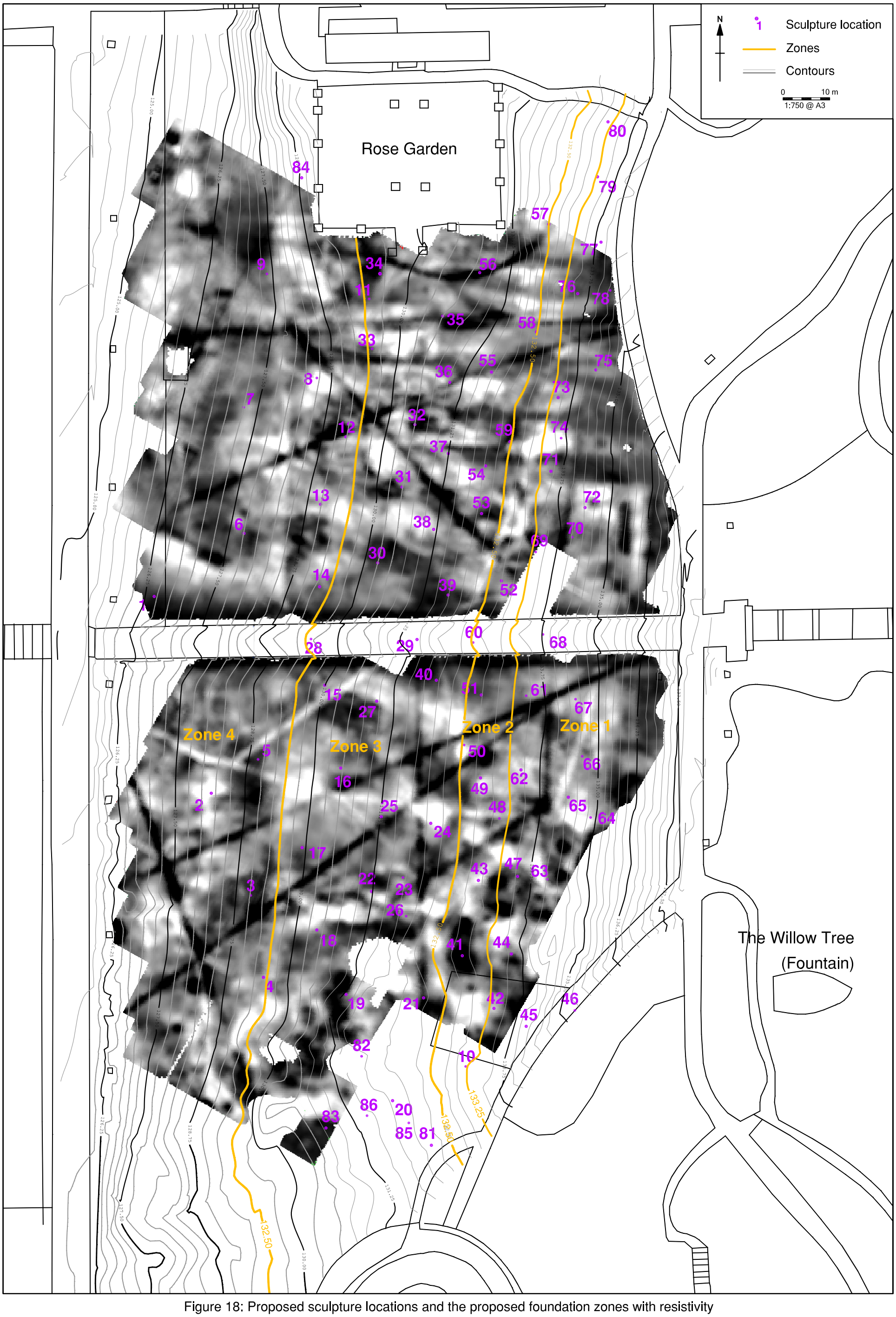

Figure 18: Proposed sculpture locations and the proposed foundation zones with resistivity

Plate 1: De-turfing being carried out on Trench 1 by the Chatsworth garden staff, viewed toward the west

Plate 2: General view of Salisbury Lawn toward the west showing Trenches 1-3 in front of the house, Trenches 5-7 in the middle distance and eight partially obscured by shrubs in the foreground.

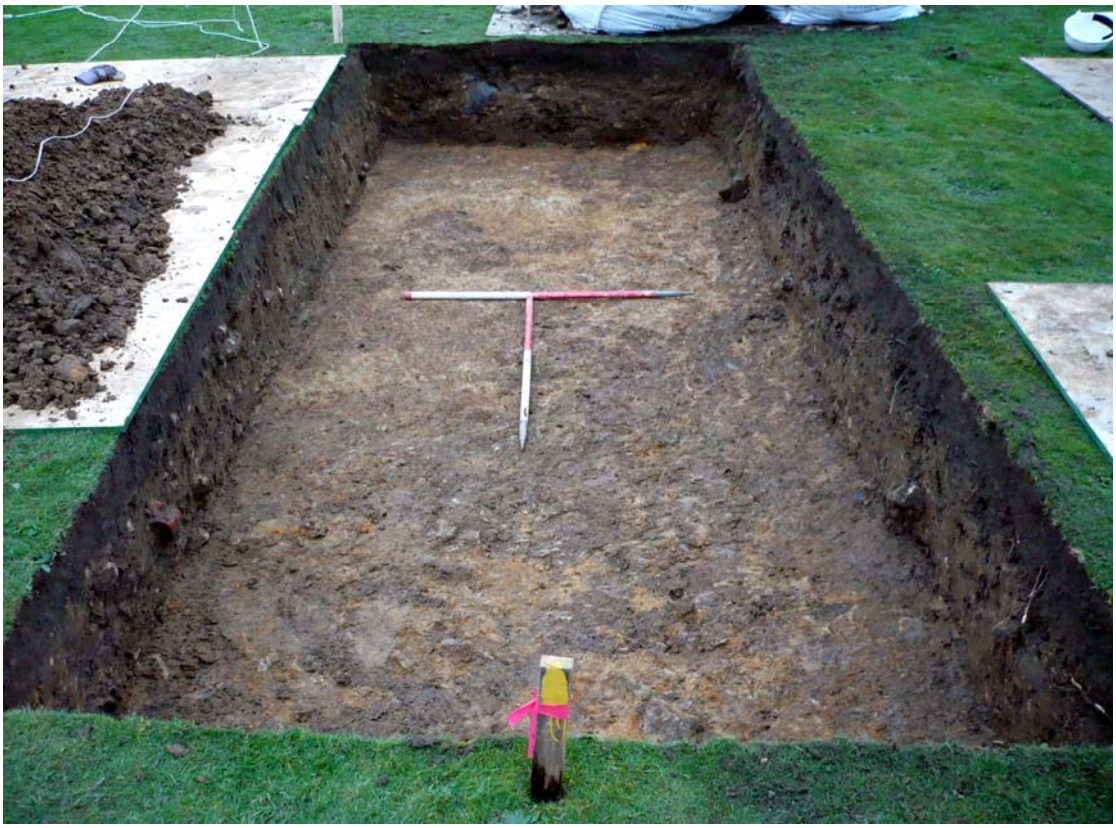

Plate 3: Trench 1 viewed toward the east

Plate 4: Trench 2 being excavated on one of the many frosty mornings at Chatsworth, the east front of the house can be seen in the background

Plate 5: Trench 2 viewed from the west, sough ***204*** is in the foreground with wall ***212*** behind

Plate 6: Detail of Trench 2, with wall ***212*** on the left with gravel deposit ***208*** to the right flanked by sough ***204***

Plate 7: Trench 3 viewed toward the east. Sough ***312*** can be seen in the foreground with wall ***305*** and gravel surface ***306*** in the centre. Wall ***317*** can be seen in the background

Plate 8: Detail of wall ***305*** and gravel surface ***306*** within Trench 3, seen from the north

Plate 9: Trench 4 viewed toward the north with sough ***401*** in the foreground and ditch ***407*** beyond

Plate 10: Trench 5 viewed toward the north-east, the stones were considered to be natural

Plate 11: the interconnecting culverts ***605*** in Trench 6, with cut feature ***607*** in the background. Just visible in the foreground is the garden border feature ***606***

Plate 12: Detail of culverts ***605***, in Trench 6, cutting the earlier garden feature ***606***

Plate 13: Trench 7 viewed from the west. Sough ***707*** can be seen in the foreground with garden feature ***705*** beyond

Plate 14: Trench 7 - detail of garden feature ***705*** viewed toward the east

Plate 15: The terrace ***809*** in Trench 8 seen from the west. The raised linear feature in the background is a modern alarm cable

Plate 16: Trench 8 - detail of the terrace (***809***) seen in profile, with its associated clay lined drain (***807***) running parallel to it

Plate 17: Trench 9 - the east/west aligned garden feature (***904***) within the south end of Trench 9

Plate 18: detail of the east/west aligned culvert (***908***) within Trench 9

Plate 19: Trench 10 viewed toward the east. The trench is dominated by culverts ***1003***/***1007***. A possible garden feature is represented by a single stone (***1005***) which can be seen in the background

Plate 20: Trench 3 during excavation viewed towards the north. The surviving element of the terrace can be seen to the left of the Rose Garden marked by the large tree