

**WOODLAND PANELS DRAINAGE DITCHES
WREST PARK
BEDFORDSHIRE**

**ARCHAEOLOGICAL INVESTIGATION
AND MONITORING**

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Preface

Every effort has been made in the preparation of this document to provide as complete a summary as possible within the terms of the method statement. All statements and opinions in this document are offered in good faith. Albion Archaeology cannot accept responsibility for errors of fact or opinion resulting from data supplied by a third party, or for any loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in this document.

This report has been prepared by Wesley Keir (Project Officer) and Hester Cooper-Reade (Project Manager). The archaeological fieldwork was supervised by Marcin Koziminski with fieldwork being undertaken by Ian Turner (Supervisor) and Slawomir Utrata, Wiebke Starke, Iain Leslie, Adam Williams and Kathy Pilkinton (Assistant Supervisors). The archaeological works were overseen by Wesley Keir under the overall management of Hester Cooper-Reade.

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Structure of the Report

After the introductory Section 1, there is a summary of the methodology in Section 2, followed by the results of the archaeological evaluation in Section 3. Section 4 summarises the main conclusions and Section 5 is a bibliography. A tabulated summary of significant deposits and features correlated with the historic maps is contained in Appendix 1.



Key Terms

Throughout this report the following terms or abbreviations are used:

<i>Albion</i>	Albion Archaeology
<i>BLARS</i>	Bedfordshire and Luton Archives and Records Service
<i>HER</i>	Historic Environment Record
<i>IFA</i>	Institute of Field Archaeologists
<i>Procedures Manual</i>	<i>Procedures Manual Volume 1 Fieldwork, 2nd Edition 2001.</i> Bedfordshire County Council
<i>SAM</i>	Scheduled Ancient Monument



Non-Technical Summary

Following on from a desk-based assessment (Albion Archaeology 2008) Albion Archaeology was commissioned by English Heritage to undertake archaeological recording and monitoring as part of the hydrology works associated with the garden restoration scheme at Wrest Park, Bedfordshire. The archaeological works reported here are all associated with drainage improvements to the woodland panel drains and comprised archaeological investigation of a number of the drains, followed by detailed monitoring and recording during works.

Wrest Park (SAM no. BD48) is located on the southern margins of the greensand ridge at the eastern edge of the village of Silsoe and approximately 15 kilometres south of Bedford. The 40 hectare designed landscape at Wrest Park dates from the 1650s onwards, although the encircling canals including Old Park Water and the Serpentine achieved their present form during the landscaping works carried out by Brown 1758-1760. For the most part, however, Brown's designs were created by modifications in shape to earlier water bodies constructed from the period 1702 - 1720. The woodland panels lie at the southern end of the park and form a major component of the gardens. They comprise a number of segments divided by the principal woodland walks and rides. Each of the woodland panels contains a number of smaller paths, often leading to garden features, statues or areas of specimen planting. Most of the paths are flanked with drainage ditches which, prior to the current works, were heavily silted and, in many cases, barely visible.

Over the years the drainage system has ceased to work through lack of maintenance or, when drains are re-cut or newly dug, a poor understanding of the hydrology. Although the route of former drains is often partially preserved in later alterations, episodes of re-cutting, particularly those which have taken place periodically throughout the 20th century, and major changes to the landscape have resulted in a complex system of drains and culverts many of which no longer follow their original course nor serve any drainage function. The re-cutting of drains and insertion of new ones, means that evidence for former paths, culverts and other garden features is often visible in the edges of the drains during maintenance work. Despite the fact that centuries of re-cutting and alteration has meant that few, if any of the drains will have their original profile, the current work shows that detailed study can provide important information on the layout and development of the gardens.

A number of sand paths and culverts were identified along with a more substantial brick-built garden feature, probably representing a crossing point over a brook marked on the 1719 Lawrence plan. 'Best-fit' overlays of the historic mapping onto the most recent topographical survey enabled correlation of the archaeological remains with known paths and ditches.





1 INTRODUCTION

1.1 *Background to Project*

The ongoing scheme of hydrology restoration works at Wrest Park required the clearance and re-profiling of the extensive network of drainage ditches in the area of the Woodland Panels. Following desk based assessment of the historical development of the Woodland Panels (Albion Archaeology 2008), Albion Archaeology was commissioned by English Heritage to undertake archaeological investigation and recording prior to and during the restoration works. The archaeological works reported here are all associated with improvements to the woodland panel drains and comprised archaeological investigation of a number of the drains, followed by detailed monitoring and recording during works.

The pathways within the woodland panels have undergone many changes since they were first laid out in the 18th century. Wrest Park has always been plagued by drainage problems, particularly in this area of the gardens, and to combat this a complex series of ditches and water management systems have been introduced over the centuries. Ditches flanking the rides and paths within the woodland panels were designed to channel surplus water into Broadwater and the surrounding canals. The ditches are therefore important indicators of the layout of the paths and rides in this part of the garden.

Over the years the drainage system has ceased to work through lack of maintenance or, when drains are re-cut or newly dug, a poor understanding of the hydrology. Although the route of former drains is often partially preserved in later alterations, episodes of re-cutting, particularly those which have taken place periodically throughout the 20th century, in addition to major planned changes to the landscape have resulted in a complicated layout of drains and culverts, many of which no longer follow their original course, nor serve any drainage function. The re-cutting of drains and insertion of new ones, means that evidence for former paths, culverts and other garden features is often visible in the edges of the drains during maintenance work. Despite the fact that centuries of re-cutting and alteration has meant that few, if any of the drains still have their original profile, detailed investigation of the drains can provide important information on the layout and development of the gardens.

The work was undertaken in accordance with a Project Design (Albion Archaeology 2009) agreed with English Heritage.

1.2 *Site Location and Description*

Wrest Park (centred at TL 09100/35100) is located on the southern margins of the greensand ridge on a gentle south-facing slope, at the eastern edge of the village of Silsoe and approximately 15 kilometres south of Bedford (Fig. 1). The soil is a calcareous gley type of the Wicken association over gault clay.

A major component of the gardens at Wrest Park, the Woodland Panels comprise a number of segments divided by the principal woodland walks and rides. The Woodland Panels are located in the southern half of the Park to the south of the Leg O'Mutton and Ladies Lakes, bounded to the west by the Old Park Water and



Serpentine Lakes, and to the south and east by the Broadwater Lake. The Woodland Panels are divided into west and east by the Long Canal and the lawns surrounding the Archer Pavilion. Each of the woodland panels contains a number of smaller paths, often leading to garden features, statues or areas of specimen planting. Most of the paths are flanked with drainage ditches which are now heavily silted, overgrown by undergrowth and self-seeded trees, and, in some cases, barely visible. Where paths cross the drains generally run through brick culverts or more recently inserted ceramic or plastic piping.

1.3 Archaeological and Historical Background

Below is a brief summary of the archaeological and historical background of the area of the woodland panels. A more detailed study is contained in Albion Archaeology (2008).

Wrest Park is Grade 1 Listed on the English Heritage Register of Parks and Gardens. In addition, the house and garden areas are within a Scheduled Ancient Monument (SAM no. BD48). The park and surrounding land has been designated as a conservation area by Mid Bedfordshire Council.

The 40 hectare designed landscape at Wrest Park dates from the 1650s onwards, when Amabel (second wife of Henry Grey, 10th Earl of Kent), her son Anthony and his wife Mary began constructing a 'new' garden using Amabel's personnel wealth and, from 1871, that inherited by Mary after the death of her father. Although much of the visible form of the gardens dates from 1758-60 when the park was landscaped under the direction of Lancelot Brown, significant elements of the pre-existing formal garden survive, making Wrest Park one of the best remaining examples of pre-landscape formal gardening in England. The encircling canals including Old Park Water and the Serpentine achieved their present form during the landscaping works carried out by Brown, although, for the most part, these were created by modifications in shape to earlier water bodies constructed from the period 1702 - 1720.

Historic maps indicate that the main framework of the woodland panels had been created during garden developments prior to 1735. However, the main rides and smaller woodland panel paths were regularly altered and moved over time. The historic plans suggest that in each phase of garden development, elements of the existing routes were often utilised in the new garden design. However, this did not preclude the closure or subtle re-alignment of paths, if the design of the garden, or insertion of new planting or monuments demanded it. Sketch books (BLARS L33/208) dating from the late 1820s and early 1830s show a more extensive re-design of the Woodland Panels with the insertion of a number of more sinuous paths immediately prior to this period.

Various works to repair and restore elements of the water management system have been undertaken since the late 1940s. However, this work has been of varied success and in some cases has contributed to the current drainage and erosion problems which exist around the park. In 1983, The Department for Ancient Monuments and Historic Buildings commissioned an historical survey of Wrest Park and began to develop a management strategy for the continuing restoration of the gardens (Land Use Consultants 1983, 1993). These reports on the historical background and development of the gardens were drawn up by



Land Use Consultants and contain useful summaries of the chronological development of the park, copies of many of the relevant maps and plans and documentary references, many of which refer to the Estate Records held in the Lucas Archive at BLARS.

The network of shallow drainage ditches has alternatively silted up and been re-cut into modern times with the most recent significant works taking place between 1988 and 1990. Trial trench excavation and geophysical survey undertaken during this period by Bedfordshire County Council Archaeology Service identified a number of earlier paths thought to relate to those shown on La Rocque's plans of 1735 and 1737 (Dawson 1988a and b, 1989, 1991, 2001) (Fig. 25). The archaeological reports from this period also refer to newly cut ditches with evidence of earlier paths and possibly associated drains being visible in some areas of the ditch sides.

The position of many of the drainage ditches, most of which are heavily silted, can be identified on the most recent topographical plan (Milton Keynes Surveys Ltd). Whilst many of these ditches flank existing paths, some indicate the position of former paths that can be identified on plans dating to the 19th century and earlier.



2 OBJECTIVES AND METHODOLOGY

2.1 Objectives

The principal objective of the archaeological investigation was to examine and record archaeological deposits revealed prior to and during the woodland panel drainage restoration works, with a view to establishing the relationship of any remains to the surrounding historic garden landscape. This was achieved through the following archaeological works:-

1. Prior to restoration work: the excavation of a series of narrow trenches at key locations across the drainage ditches. These were positioned in places thought most likely to reveal historic features or where it was felt that investigation might prove beneficial to further the understanding of the ditches.
2. The excavation of five trenches across the proposed location of new culvert B5 and in so doing determine the location of the existing culvert leading to Broadwater.
3. The excavation of a trench adjacent to Capability Brown's column to reveal the current drain and establish the extent of a historic path in this area.
4. The monitoring of ditch clearance and excavation needed for new culverts, and investigation and recording of any archaeological remains revealed.

2.2 General Methodology

Albion Archaeology is a Registered Archaeological Organisation with the Institute of Field Archaeologists and adheres to the IFA Code of Conduct and all the relevant standard and guidelines. Albion's own standards are outlined in *Albion Archaeology's Procedures Manual for Archaeological Fieldwork and the Analysis of Fieldwork Records* (2001). Guidance contained in English Heritage's *Management of Archaeological Projects* (1991) and MoRPHE (2006) is also used.

The work was carried out according to a Written Scheme of Investigation (Albion Archaeology, 2009), agreed with English Heritage. Copies of the report will be deposited with English Heritage, the HER and NMR. All archival material will be kept together and, subject to agreement with the land owner, deposited with Luton Museum.

2.3 Trench Investigations

- 1 Twenty-five narrow slots (Trenches 1-25) of c. 0.4m wide were hand excavated across the drainage ditches at previously identified locations. This generally involved the removal of debris and silt build-up and the removal of sufficient material to establish whether or not the original ditch cut/s could be recognised. Intrusive excavation was avoided.
- 2 Five trenches (Trenches 35, 36, 40-42) measuring between 2.3 and 6.4m long and between 0.5 and 1.2m wide were excavated primarily to determine the location of the existing culvert leading to Broadwater.



- 3 A trench (Trench 37) measuring approximately 2x2m was hand excavated adjacent to Capability Brown's monument in order to reveal the location of a drain pipe and evidence of a path shown in this location on historic maps.
- 4 Significant deposits identified in all the above trenches were cleaned by hand and recorded according to the procedures outlined in 2.5 below.

2.4 Monitoring the Restoration Works

1. The removal of material from the drainage ditches and ground excavation for new culverts was predominantly undertaken by machine. These works were monitored by an archaeologist in order to identify and record any archaeological remains that were present.
2. Machine excavation was undertaken using a flat-bladed bucket.
3. Significant deposits identified in these areas were cleaned by hand and recorded according to the procedures outlined in 2.5 below.
4. All historic headwalls were recorded (either by photographic or drawn record).

2.5 Excavation and Recording

- 1 Any significant features and deposits were recorded in accordance with Albion's *Procedures Manual*.
- 2 Archaeological deposits were hand cleaned, but largely left *in situ*, unless excavation was necessary in order to expose structural elements or establish the nature of material below. Structural elements were hand cleaned and left *in situ*.
- 3 Archaeological features, structures and deposits were recorded in plan and section/elevation form where appropriate.
- 4 All archaeological observations were recorded at a suitable scale on base plans that could be tied in to the existing topographical survey of the site.



3 RESULTS

3.1 Introduction

The archaeological works were undertaken between the 26th March and 17th June 2009. This included the excavation of trenches across the drainage ditches and monitoring of the restoration work. During these works numerous buried path layers and brick culverts were revealed, as well as a large brick wall. Many of these can be associated with previous phases of garden layout as depicted on historic plans (Figs. 24 -27). However, the sketched nature of many of these plans means that comparison with modern surveyed plans is based on best fit only.

A total of 31 trenches were excavated prior to and during the restoration works. Trenches 1-25 were narrow slots of *c.* 0.4m wide excavated across the drainage ditches, though only three of these (Trenches 2, 8 and 24) contained significant archaeological remains comprising path layers and a large wall. Trenches 35, 36 and 40-42 identified the location of the existing culvert leading to Broadwater as well as the location of three historic paths. A further path layer was revealed in Trench 37, excavated adjacent to Capability Brown's column.

During the monitoring of the restoration works, 'Area' numbers were assigned to locations where significant archaeological features or deposits were identified and recorded. These comprised buried paths and culverts found in Areas 26-34, 37-39 and 43-66.

The drainage ditches are labelled A to J (secondary ditches as Aa1, Jj2 etc) in accordance with the scheme developed for the hydrology works as a whole (Peter Brett Associates, 2009). Crossover points where the ditch runs beneath the path, usually through a ceramic drain or brick culvert, are labelled A1, A2 etc).

Detailed archaeological information on all the significant deposits and features is listed in Appendix 1.

3.2 Paths and Ditches

Buried path layers were revealed in 23 locations. The paths generally consist of silty sand and gravel of between 0.05 and 0.25m thick. Most were located at depths of between 0.1 and 0.4m beneath the ground surface. In some cases, deeper path layers were revealed where they were overlain by make-up layers likely to be associated with garden landscaping (Trench 65; Fig. 3)) or, in the case of paths in Trench 36 and Area 51 (Fig. 7) near Broadwater, overlain by dumped layers probably derived from lake dredging in the 1970's.

Many of these paths can be associated with those depicted on historic maps. Some are precursors of paths still used today, such as that in Area 32 where two earlier path layers (2058, 2060; Fig. 4) were visible beneath the current path. A path is marked in this location on all the historic maps from Lawrence (1719) onwards (Figs. 24-27). A similar succession of path layers was seen in Area 59, where in addition a ditch (2315) that may have once flanked the path was visible in section (Fig. 9).



Many of the observed path layers relate to paths that are no longer in use, or routes that are no longer surfaced. For instance, a path layer observed in Area 50 ties in with an east-west aligned path marked on the Lawrence map dated to 1719 (Fig. 18 and 24). The remains of three paths were observed in the trenches excavated in the grassed area near Broadwater (Area 51; Fig. 7). The most northerly observed path layer (2283) appears to represent a north-east-south-west orientated path marked on the historic maps from Lawrence onwards, though its depicted size and orientation varies slightly. Path (2268), also observed in Trench 36, correlates well with a north-south aligned path marked on the Rocque maps of 1735 and 1737 (Fig. 25). The La Rocque maps also depict a path adjacent to Broadwater, which may correlate with the most southerly observed path layer (2243). Interestingly, there are also several linear ditches visible as earthworks between Broadwater and the Archer Pavilion which are probably defining paths belonging to an earlier garden layout (Figs. 24-27). It is possible one of these may be the same as path layer (2243). Some of the earthworks can be related to the historic maps, most notably a path heading southwards from the pavilion which only appears on the Rocque maps of 1735 and 1737. The approximate locations of these earthworks have been plotted from shadow-marks visible on aerial photographs and are shown on Fig. 25.

All possible correlations with paths shown on historic maps are contained in the table in Appendix 1 and shown on Figs. 24-27.

3.3 Culverts

Remains of brick culverts were revealed in 25 locations, at depths of between 0.15 and 0.75m beneath the ground surface. These were generally of three basic forms;

- 1) Roughly square in profile with *c.* 0.35m deep sides formed by stretcher courses of bricks laid on-bed and a capping formed by a header course laid on-edge. The base appeared to be formed by a header course laid on-bed. The most commonly observed form, well preserved examples being found in Areas 26, 29 and 45.
- 2) Larger than the above type, measuring 0.4-0.5m wide with sides formed by courses of bricks laid on-bed and a capping of sandstone blocks. The culvert leading to Broadwater observed in Trenches 35, 40, 41, 42 and Area 51, as well as a culvert in Trench 31, took this form.
- 3) Brick 'pipes' measuring 0.15-0.20m across formed by 4 'L-shaped' bricks so that the central hollow forms a pipe, as seen in Areas 53 and 59.

The majority were revealed within and parallel to the silted up drainage ditches and are likely to have been constructed where it was once necessary for the drain to pass under a path. Many of these can be correlated with earlier path layouts shown on historic maps dating from the 18th and 19th centuries, such as the culvert in Area 26 (Figs. 16 and 18) which appears to be associated with an east-west path marked on the Lawrence map of 1719 (Fig. 24). Possible correlations with the historic maps are listed in Appendix 1.

Other culverts were revealed within trenches excavated to renew existing, or install new, drainage pipes that cross-under paths that are still in use. Most of



these were precursors to the current drain pipes, as in Areas 49 and 53 (Figs. 16-18). A sequence of three brick culverts and a ceramic pipe was revealed in Area 59 (Figs. 8 and 9), and likely to represent replacement and renewal of crossovers associated with the north-south path depicted on maps dating from the 1719 Lawrence map onwards.

Ceramic pipes were revealed in several locations, some as in Area 59 could be seen replacing earlier brick culverts. A ceramic pipe was also revealed in Area 29, together with an associated headwall and earlier brick culvert (Figs. 10 and 11). Historic maps suggest the brick culvert may be associated with an east-west path only shown on the 1719 Lawrence map (Fig. 24), whilst the ceramic pipe is likely to have been installed to pass under a smaller path first shown on the 1882 1st Edition OS map (Fig. 27).

3.4 Headwalls

The headwalls associated with drainage ditch crossovers were constructed with a mixture of bricks and sandstone blocks, as well as more recent examples constructed during the 20th century using sandbags or concrete.

The earlier headwalls varied greatly in their size and form, but were mostly brick built around a ceramic pipe, often with a capping of sandstone blocks. A typical example is shown on Fig. 23: E2-S. These are likely to be associated with improvements to the drainage system from the 19th century onwards, many probably replacing earlier headwalls, an example being the culvert revealed in Area 29 referred to above. However, a few possibly earlier examples not built around ceramic pipes were observed in ditches F and G (Fig. 23: F8-E, G1-E and W and G2-W).

The locations of surviving headwalls constructed prior to the 20th century are shown on Figs. 2 to 22 with examples shown on Fig. 23.

3.5 Brick Structures

A large brick wall measuring 0.8m wide x at least 0.6m high was revealed diagonal to and beneath the cut of the drainage ditch in Trench 8 (Figs. 5 and 6). Adjacent to the drainage ditch, it was buried at a depth of 0.8m by deposits associated with later landscaping and maintenance of the ditch. Brick rubble overlay the top of the wall within the confines of a probable robber cut that was visible in section, suggesting the wall was somewhat higher than the surviving fragment recorded here.

No structures are shown in this location on historic maps, but it is similarly orientated and located close to an east-west aligned path marked on the 1735 La Rocque map and also located close to a kink in the brook shown on the 1719 Lawrence map (Figs. 24 and 25).

The function of the wall is not clear, though its somewhat decorative nature suggests it is unlikely to be a load-bearing wall for a building or substantial garden structure. A rectangular indentation in the top of the wall shows signs of wear on the corners of the northern face and base suggesting the indentation may have channelled water. This, together with the width of the wall and its location, suggests a possibility that it was associated with a walkway across a small water



feature. However, given the limited nature of the excavation, any suggestion as to its purpose is tentative at this stage.

3.5 **Synthesis of Results**

As noted above and discussed in the desk based assessment (Albion Archaeology 2008), many of the drainage ditches define earlier path layouts as depicted on the historic maps. This section collates the results of the archaeological works with observations on the layout of the drainage ditches. Where relevant the results are discussed in conjunction with the information indicated from the historic plans and the findings of the 1989-91 archaeological works (Dawson 1989, 1991, 2001). Although most of the main paths were surfaced with sand, often containing a high proportion of smaller stones, others simply comprised grassed walks and are only indicated through the presence of flanking drains or evidence for brick culverts (Dawson 1989).

Figures 2, 5, 8, 10, 11, 12, 14, 16, 19 and 21 show each of the ditches investigated (A to J respectively) whilst the intervening figures show details of the archaeological remains observed. Figures 24 -28 show an overlay the results on the best-fit historic information for the layout of the garden.

Ditch A:

Much of Ditch A defines the edge of a large north-east-south-west aligned path, now known as the 'Dog Walk'. This route is shown on 18th and 19th-century maps, though the ditch now defining the southern half (south of crossover A3) was newly dug as part of the 1987 restoration. The secondary and tertiary ditches at the north-west end of Ditch A (Aa1-3) are seen on a ditch survey drawn in the 1970s (Head Gardener's archive MoW Job no. 673, sheet 1) though they do not appear in the 1980s schedule of works which suggests they may have been left relatively undisturbed in more recent times. The De Grey sketches 1829/34 suggest that the southern end of Ditch A curved around paths at the edge of the garden, although a path with a similar alignment to the ditch newly cut in 1987, is shown on both the 1829 plan and the La Rocque plan of 1735/37. The La Rocque plan also shows a ditch-flanked ride from the Octagon heading towards Old Park Water was crossed by the 1987 part of Ditch A just south of crossover A3. The north-north-west-south-south-east aligned southern end of Ditch A may represent the ditch flanking the western side of this ride.

Headwalls probably dating to the 19th century survive in the locations of several of the crossovers along this route. Sand path layers found in Area 32 are associated with the north-west-south-east path crossing Ditch A and marked on maps from 1719 Lawrence onwards. Secondary ditches in the northern half of Ditch 'A' define the Large Round, a garden feature marked on all the historic maps from Lawrence (1719) onwards.

Trench 1 was located between secondary ditch Aa2 and the northernmost surviving end of a ditch running parallel to it on its western side. These ditches appear to represent the fragmentary remains of a path between the Large Round and the Leg O'Mutton Lake as shown on the 1719 Lawrence plan and, in more sinuous form, on the 1735/7 La Roque plans. By the 19th century the paths in this area appear to have changed their alignment, although their layout does have some similarities. Trench 1 did not contain any archaeological evidence for paths



or ditches but paths were observed within several of the newly cleaned ditch sides in this area. The paths found within Areas 63, and 64 are most likely those shown on the 19th-century maps, whilst those within Areas 65 and 66 are most likely part of the path leading from the southern edge of the Large Round as shown on the 1719 map. Likewise nothing of significance was found in Trench 2, excavated to investigate the ditch close to the crossover A2 at the point where the 1719 plan shows a path from the eastern side of the Large Round joining Dog Walk. Trench 3 excavated to investigate Aa4 did not reveal any features, although during the monitoring remains of a culvert were recorded (Area 48) on the alignment of a brook shown on the Lawrence plan of 1719. Trenches 4a-6 excavated across the secondary ditches at the southern end of Ditch A also failed to reveal any further useful information. However, re-instatement of the Crossover A3 revealed a series of three sand paths each a slightly different width. The results of this work and that carried out by Dawson in 1989/91 show that the main rides, as might be expected, were more heavily used (evidence of wheel ruts, see Dawson 1989, 1991) and more regularly re-instated and repaired. The build-up of material between the different surfaces recorded here, suggests that, on each occasion, the ride had been allowed to deteriorate before it was re-instated or repaired.

Ditch B

Ditch B, including Bb2, was cleaned in the 1980s. Several paths shown on the 18th-century plans meet just north of Crossover B4. Trench 7 was located at the convergence of several paths, shown on the 1735 La Rocque plan, but not the 1937 one. Despite the historic evidence for a number of paths in this area, the trench did not reveal any significant information. Although the lack of evidence for paths in a trench of this nature is not conclusive, it does perhaps give weight to the suggestion that at least part of the earlier La Rocque plan was likely based on a design rather than the garden itself. The northern half of Ditch B follows the course of a north-north-west-south-south-east aligned brook marked on the 1719 Lawrence plan. The wall found in Trench 8 is likely either associated with this brook, or a east-north-east-west-south-west path marked nearby on the 1735 La Rocque map. Crossover B2, just to the north of Trench 8 allows a path to cross the route of the brook and would probably have served as the crossing point for paths shown on both the 18th- and 19th-century plans. Although Trench 9 did not reveal evidence of any paths, Ditch Bb2 appears to define the northern edge of a path shown on the Lawrence and La Rocque maps.

Several sand paths were revealed in Area 51 and in the adjacent trenches. Sand path (2268) was located at the southern end of Ditch B near Broadwater. It was recorded in Trenches 36, 42 and during the excavations associated with repairs to Crossover B5, and can be specifically associated with the southern end of a large north-south aligned path marked on the 1735/7 La Rocque maps. Sand path 2283, also revealed in Area 51, is likely part of a path first shown on the Lawrence plan but also extant on those of La Rocque. This path is part of a diagonal ride leading from the Archer Pavilion to the western end of Broadwater, whilst Path 2243 to the south is part of the path around the Octagon shown on La Rocque 1735/37. The culvert leading to Broadwater (B5) is likely to have been built either the same time as, or not long after, the Octagon was created in 1720. Trenches 35, 40, 41 and 42 were excavated to locate the culverts leading to Broadwater so that a new section could be dug leaving the historic culvert intact.



Trench 42 revealed another east-west aligned culvert joining the main north-south culvert at the Crossover B5. This culvert appears to align with ditch G to the south-east of the Archer Pavilion, although it is unclear whether it represents a continuation of ditch G allowing water to drain towards the east.

Ditch C:

Much of Ditch C defines the edges of large paths marked on the historic maps from Lawrence onwards. Ditch C to Crossover C7 was cleaned in the 1980s, although the northern part, beyond C7 is not shown on the 1980s schedule of works. Cc3 and the tail-end of Ditch C are shown on the 1829 sketch, but not the 1829 one. 18th-century paths are shown to cross section Cc3. Woodland paths are also shown on the 1737 plan that may be associated with section Cc3.

Dawson (1989, 1991) excavated a number of trenches (9a, 9b, 12a) across the path to the east of Ditch C and leading from Dog Walk, past the West Round and towards the Archer Pavilion. Dawson's Trench 12a was dug across this path immediately to the east of the present Area 27/28 but it did not extend across the ditches on either side. Trench 16d, located north-east of and perpendicular to Dawson's Trench 12a was dug across a sinuous path from the West Round and shown both La Rocque and De Grey with the latter being the best fit. This path which would have joined the main path in the vicinity of the present Area 27/28 is no longer extant. Another, east-west path shown only the 1719 Lawrence plan also crosses the main path in this area. Areas 27/28 revealed a culvert associated with the east-west path shown on the Lawrence plan.

Trenches 10 investigated Ditch C between Crossover C4 and the new Crossover C6. Trench 11 a part of Ditch C not on the 1980s schedule of works and Trench 12a two parallel ditches, one a newer cut of the other. Trench 12 was designed to investigate the area around the Root House where the De Grey plan shows a number of sinuous paths and Trench 13 a path only shown on the La Rocque plan of 1735. Although evidence of sand paths in these trenches were not forthcoming, the failure to find evidence of the path shown on the 1735 plan is consistent with findings elsewhere and adds weight to the suggestion that some of the paths shown on this plan were never constructed

Buried sand path layers associated with the north-west-south-east path from the Archer Pavilion to Old Park Water and marked on maps from Lawrence onwards were recorded in Area 59 during the re-excavation of Crossover C7.

Ditch D:

Much of the ditch defines the western edge of the north-south path leading to and from the West Sand Round. This path is depicted on 18th-century maps, but was abandoned by 1768 and reinstated in 1967 (LUC 1993). The ditches appear to define the once larger size of West Sand Round shown on the 18th- and 19th-century maps. A path with a central roundel joining a point near Crossover D1 with D6 is shown on the 18th-century plans. The upper part of D along with part of Dd3 and Dd1 are shown on the 19th-century plans which also show now lost crossovers north and south of Crossover D3, heading towards a 19th-century roundel to the west. The same sinuous path is shown crossing Ditch D twice more to the north of Crossover D3. With the exception of the southernmost section



beyond Dd2, Dd1, Dd2 itself and Dd3, Ditch D was on the 1980s maintenance schedule.

The areas adjacent to Ditch D were subject to trenching 1989-91. Most of the trenches were excavated around the edge of the West Sand Round and across the northern part Horse Chestnut Avenue and did not extend into the ditches. During the current works, Trenches 15 and 16 were excavated in the vicinity of a projected path identified in Dawson's Trench 16(b) and shown, in slightly different form, on the 18th-and 19th-century plans. Dawson's Trench 16(b) identified a sand path flanked to the south by a 'V'-shaped drain. Although this drain is not apparent on the ground surface, the drain on what would have been the north side of the path is still visible as are the head walls and a crossing point associated with a roundel in this area. Although Dawson's Trench 16b identified both the path and the ditch, neither Trench 15 nor 16 excavated as part of the recent work uncovered anything of significance.

A culvert in Area 34 appears to be associated with a small path shown on the 1833 de Grey map that would have crossed Ditch D.

Ditch E:

Similar to Ditch D, much of Ditch E defines the eastern edge of the north-south path leading to and from the West Sand Round. On Ee2 and Ee4 are probably associated with paths shown on the 19th-century, De Grey plans. Crossovers E1 and E4 are associated with 19th-century paths that existed between the abandonment and eventual reinstatement of the large north-south path in 1967.

Other than the tertiary section and Ee1 and Ee2, Ditch E was on the 1980s maintenance schedule. Ee3 appears to be shown as a new cut on the 1980s maintenance schedule, although it likely replaces a ditch around the West Sand Round that was no longer visible at the time.

Trenches 17 and 18 were excavated to investigate the ditches adjacent to 18th and 19th-century paths leading off the roundel. No evidence of sand paths was seen in the ditch sections, although given that the smaller paths, more sinuous paths within the Woodland Panels are likely to have been laid to grass, this is perhaps not surprising. A brick culvert was revealed in Area 29 that is likely to be associated with an east-west path marked on the Lawrence map. This was replaced by a ceramic pipe probably associated with a smaller E-W path first marked on the 1882 OS map. Another brick culvert revealed in Area 33 ties in with a crossover point for paths shown on the 1735/7 La Rocque plans.

Ditch F:

Ditch F runs along the western edge of the paths leading to, from and around the East Sand Round, it then crosses to the eastern side of the path, runs below the East Diagonal in a culvert before running along the southern edge of the East Diagonal and heading towards the Lady Duchess Walk and the eastern side of Broadwater. There are a number of secondary ditches including several longer stretches which run along the northern edge of the East Diagonal (Ff1, Ff3) and alongside the eastern side of Broadwater (Ff6, Ff7). The main walk to and from the East Sand Round was restored in 1967 and most of Ditch F was on the 1980s maintenance schedule.



An 18th-century path appears to cross the ditch to the north of the East Sand Round although this is more likely the result of inevitable misalignments between the historic best-fit plans and topographical survey. Several 18th-century paths join at the point of Crossover F14 and a number of 19th-century paths are consistent with the route taken by the main N-S section of Ditch F.

The southern part of Ditch F defines the western edge of the N-S path leading to and from East Sand Round. Like the N-S path defined by Ditches D and E, this is depicted on 18th-century maps, but was abandoned by 1768 and reinstated in 1967. Ditches flank the East Diagonal and part of the western side of the Long Ride, routes first marked on the 1719 Lawrence map.

Trench 19 was excavated across two parallel ditches, one a more recent cutting of Ditch F. The easternmost of these ditches appears to follow part of the stream course shown on the 1719 Lawrence map.

A layer revealed in Area 43 could be associated with a path shown on 18th crossing this path or associated with a smaller path shown on 19th-century maps. Whilst the sand path recorded in Area 44 could be associated with a path that emanates from the East Sand Round on the 18th-century maps.

The re-cutting of Crossover F7 at the convergence of several of the main paths to the east of the Archer Pavilion revealed a number of layers associated with the paths and their make-up layers.

Ditch G:

Much of Ditch G flanks the route leading to the Pavilion, a route that has existed since the 18th century. The roundel enclosed by Gg1 and Gg2 first appears on the First Edition OS map as a path leading to area of specimen planting. A probable 18th-century path is also shown adjacent to Gg2. Trenches (20 and 21) were excavated across Gg2 and the parallel ditches defining a path to the south of the main course of Ditch G. Neither trench revealed evidence for sand paths.

Evidence for a sand path layer and remains of a brick culvert were however found in Area 55.

Ditch H:

Ditch H is located to the east of the East Sand Round and the restored ride leading to and from it. Various Crossovers (H1, H6, H13) respect 18th- and 19th-century paths within the Woodland Panel, although on the 19th-century plans one of the woodland paths appears to cross the ditch to the north of H1. Hh1 appears to run adjacent to 18th-century and 19th-century paths, whilst Hh5 runs close by a path shown on the 19th-century plans.

Buried sand path layers associated with the ride to the east of the East Sand Round which links the Long Ride with the Archer Pavilion, were revealed during the re-cutting of Crossovers H7 and H8 (Areas 49 and 53). This path was, in turn, crossed by an east-west path shown on 18th-century maps but not longer extant. Sand path layers in Area 50 and a culvert in Area 26 are likely associated with this path. A culvert was revealed in Area 45 is associated with the path



leading to East Sand Round and shown on both the Lawrence and La Rocque maps.

A sand path which appears to be shown on the 19th-century De Grey plans was revealed in the side of the ditch (Area 30) to the south east of the East Sand Round. Trench 22 excavated across Hh1 to investigate possible 18th and 19th-century paths running adjacent to the ditch failed to reveal any significant remains.

Ditch I:

Much of Ditch I defines the eastern side of the Long Ride and the eastern side of the route leading to Capability Brown's Column. These are routes that date back to the 18th century. The ditch and most of its secondary channels, with the exception of Ii1, were on the 1980 clearance schedule; Ii5 was newly cut in the 1980s. The junction of ditches at Ii1 is shown as the location of a roundel on the 18th-century plan, although this layout of ditches does not seem to relate to associated paths. Ii4 is, however, adjacent to an 18th-century path.

Concentrations of brick and tile interpreted as being derived from an earlier brick drain were recorded in the newly cut sides of this ditch during the 1989 archaeological works (Dawson 1989, 1991).

Evidence for a sand path layer was seen in Trench 24, excavated through the southern part of Ii4. Ii4 and the path layer revealed Trench 24 define the eastern edge of a path only marked on the Lawrence map. A culvert was found to the north (Area 31) though no near by paths are shown in this area on the historic maps. Crossover I3 entailed excavation through the existing path. A buried sand path was revealed and recorded as Area 52. This path corresponds with an east-west path crossing the Long Ride first marked on the La Rocque maps. Trench 25 also excavated through the southern part of Ditch I did not reveal any significant remains.

Ditch J:

Much of this ditch is adjacent to paths on the 18th- and 19th-century maps. With the exception of the east-west aligned leg between crossover J1 and J3, Ditch J was on the 1980s maintenance schedule. The path layer revealed in Trench 37 adjacent to Capability Brown's Column is associated with a path shown as leading to and around the monument on the 1735/7 La Rocque maps onwards. Evidence for the sand path and associated brick culvert was revealed during re-excavation of Crossover J2.



4 CONCLUSIONS

The investigation, monitoring and recording of the drainage ditches associated with the woodland panels revealed new information about the survival and location of historic paths, garden features, culverts, headwalls and the hydrology systems in this part of the park. Although the investigation of slots through the drainage ditches was less successful at identifying historic paths in the edges of the ditches, it did allow a record of existing drainage cuts, revealed a number of historic culverts and, in Trench 8, a garden feature tentatively interpreted as a crossing point for a brook shown on the 1719 Lawrence plan.

In addition to being archaeological features in their own right, the woodland panel ditches are particularly significant as they indicate the presence of pathways and hence the layout of the gardens. Not all of the paths would have been surfaced with sand or gravel, but those that were often survive as buried layers. Archaeological investigation has shown that evidence for pathways, culverts and other garden features are often present in the edges of the ditches, particularly those that have been re-cut beyond their former edges. However, without large-scale excavation, phasing of the garden development relies heavily on linking topographic information, archaeological evidence and the available historic maps, which, although surprisingly accurate in their representations of the gardens, are not drawn to scale and may in some cases have been based on designs for future landscaping works.

Although previous archaeological works have taken place within the area of the Woodland Panels, the present works are the first that have been able to make use of a detailed topographic survey (Milton Keynes Surveys Ltd 2008). The use of the survey results, combined with documentary research and an analysis of the map evidence has allowed the creation of a series of ‘best-fit’ overlays which have gone some way to suggesting how the panels may have developed over time. In particular the alignment of paths can be confirmed on the ground which over time will enable an accurate plan of at least some of the pathways. The presence of culverts is usually indicative of crossover points, further adding to the development of the historic plan.

The woodland panel drains have undergone constant change, partly as a result of garden re-design but also, during the 20th century, as a consequence of drainage improvement plans. The latter has involved the cutting of new drainage ditches and the intermittent clearance of old ones, as well as the insertion of replacement culverts and headwalls with modern materials. The archaeological observation that has taken place (1989-91 and as a result of these works) has shown that archaeological remains are revealed even by limited groundworks and ditch clearance regimes, but that these remains are ephemeral and their locations largely difficult to predict given the lack of precisely surveyed data.





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6 APPENDIX 1 – SUMMARY OF SIGNIFICANT DEPOSITS AND FEATURES



Trenches/Areas that contained evidence of earlier paths/culverts etc

Historic maps and plans examined for possible correlations:-

Kyp (1705)
Lawrence (1719)
Rocque (1735 and 1737)
De Grey (1833)
OS 1st, 2nd and 3rd Editions (1882, 1901 and 1924)

Trench/ Area	Archaeological Features	Location	Depth (BGL) (m)	m AOD	Possible Map Correlations
2. Trench.	<i>Path</i> Layer (0.15m thick) of gravel with mid-brown silt seen in section and cut by current drainage ditch. Located between the topsoil and natural silty sand and clay layers.	Near A2	0.4	51.79	Path layers could be associated with E-W path on <i>Rocque</i> plans.
8. Trench	<i>Wall</i> Brick wall measuring 0.8m wide x at least 0.6m high orientated WSW-ENE and visible for a length of 2.6m. It had a rectangular indentation in the top of the wall measuring 0.3m deep (4 courses deep) and 0.3m wide. Eight brick courses were visible constructed using red bricks measuring c. 210 x 105 x 60mm that appeared to be bonded together with lime mortar. The top three courses have been shifted by root action and/or the cutting of the drainage ditch. The wall was overlain by brick rubble within the confines of a probable robber cut visible in section and by banked deposits of up to 0.8m deep associated with later landscaping and maintenance of the adjacent drainage ditch.	Diagonal to the drainage ditch near B2	0.2 - 0.8	50.1	<i>Lawrence 1719</i> - Located at the kink in the western brook <i>Rocque 1735</i> – located on and orientated with ENE-WSW path
24. Trench	<i>Path</i> Layer (at least 0.05m thick) of sandy gravel seen in	Near I8	0.35	50.12	Path layer may be associated with adjacent N-S current path and shown

Trench/ Area	Archaeological Features	Location	Depth (BGL) (m)	m AOD	Possible Map Correlations
	section + cut by drainage ditch. Located beneath subsoil.				on all historic plans from <i>Lawrence</i> onwards.
26. Ditch clearance	<i>Culvert</i> Brick culvert aligned NE-SW (parallel with drainage ditch) roughly square in profile visible for c. 14m and measuring 0.3m wide and c.0.35m deep. Capping for culvert formed by a header course of bricks laid on edge which overlay 3 stretcher courses laid 'on bed' that formed the sides. The floor appeared to consist of a header course laid on bed. Red brick - dimensions 217 x 107 x 60mm.	Near H7	0.55	50.2	Culvert may be crossover assoc. with E-W path on <i>Lawrence and Rocque</i> plans
27 / 28. Ditch clearance.	<i>Culvert</i> Fragmentary remains of base of brick culvert aligned NW-SE in base of and parallel to drainage ditch – appears to be similar to that of culvert in Area 26. Remains visible for a length of c. 22m. Brick dimensions 215 x 110 x 60mm.	Between C3 and C4	0.5	51.2	Possibly assoc. with crossover for E-W path on <i>Lawrence</i> – though culvert appears rather long for this
29. Ditch clearance	<i>Culvert</i> Brick culvert similar to that in Area 26 visible for around 5m in length and aligned NNW-SSE. This was replaced by a ceramic pipe likely to be associated with a partially surviving brick headwall that appears to truncate the brick culvert. The brick headwall and ceramic pipe have been damaged by the drainage ditch.	Between E2 and E3.	0.4	51.77 culvert and headwall	Brick culvert prob. ties in with path on 1719 map. Ceramic pipe and surviving headwall prob. ties in with path on 1882 OS map.
30. Ditch clearance	<i>Path</i> Layer (0.08m thick) of clay and gravel. Located between subsoil (brown silty sand) and natural grey brown silty clay.	Between H2 and 3	0.46	49.9	Could be associated with N-S curving path on <i>Rocque</i> and later maps.

Trench/ Area	Archaeological Features	Location	Depth (BGL) (m)	m AOD	Possible Map Correlations
31. Ditch clearance	<i>Culvert</i> Brick culvert (2052) aligned NNW-SSE, visible for a length of 2.2m and measuring c. 0.4m wide and at least 0.3m deep. Roughly hewn sandstone blocks (2051) capped the culvert and overlay two stretcher courses and a header course forming the sides. Brick dimensions 215 x 105 x 65mm. Fragments of a possible brick headwall (2053) were visible 5m to the south of the culvert.	Near to I8	0.5 (culvert) 0.1 (headwall)	49.95- culvert. 50.27 - headwall	? – nothing obvious
32. Pipe replacement	<i>Paths</i> Two earlier path layers visible beneath and on the same orientation as the current path surface. They consist of sandy gravel layers, the earliest (2060) being 0.16m thick and the later (2058) being 0.06m thick.	A3	0.26 (2058) 0.40 (2060)	52.22 (2058) 52.07 (2060)	Path is marked in this location from <i>Lawrence</i> onwards.
33. Ditch clearance	<i>Culvert</i> Fragmentary remains of base of brick culvert orientated NNE-SSW visible for 1.3m in length – form unclear. Red brick dimensions 215 x 100 x 65mm.	Between E1 and 2	0.15	51.75	Culvert could be associated with a crossover for E-W path depicted on <i>Rocque</i> plans
34. Ditch clearance	<i>Culvert</i> Brick culvert aligned NE-SW (diagonal to current drainage ditch) visible for 0.35m in length and measuring 0.35m wide and at least 0.25m deep. Same form as that in Area 26. Brick dimensions 220 x 110 x 60mm.	Between D3 and 4	0.2	51.75	Possibly associated with E-W path on <i>De Grey</i> plan.
35. Trench to locate culvert	<i>Culvert</i> Brick culvert leading to Broadwater (also revealed in Trenches 40, 41, 42 and Area 51). It was capped with rough hewn sandstone blocks overlying three visible stretcher courses of bricks. It measured 0.50m wide x	B5	0.3 - 0.75	49.80 – 49.95	-

Trench/ Area	Archaeological Features	Location	Depth (BGL) (m)	m AOD	Possible Map Correlations
	at least 0.3m deep. Brick dimensions 217 x 107 x 65mm.				
36 Trench to locate culvert	<i>Path</i> Layer (0.18m thick and c. 8m wide) (2268) of orange silty sand with frequent small stones orientated N-S. Located beneath topsoil and subsoil and a probable layer associated with lake dredging. This path is also revealed in Trench 42 and Area 51.	B5	0.5	50.27	See area 51
37. Trench to locate drain adjacent to south side of Capability Brown monument	<i>Path</i> Layer (2095) (0.25m thick) of brown silty sand and gravel located beneath the topsoil and adjacent to the Capability Brown monument.	J1	0.1	50.30	Corresponds with either the N-S path leading to the monument shown on the <i>Rocque and De Grey</i> plans or path around monument shown on the <i>De Grey</i> plan.
38. - New pipe trench	<i>Path</i> Layers (of up to 0.4m thick) consisting of red brown silty sand and gravel located beneath the topsoil. Located at the junction of three paths.	F7	0.15	49.75	Path layers could be associated with any of the historic and current paths in this location and similarly the culverts are likely to be associated with the NW-SE and N-S paths.
	<i>Culverts</i> Rubble associated with two possible culverts, one appearing to be orientated E-W [2119] and the other N-S [2122]. Rubble predominantly consists of roughly hewn sandstone blocks.	F7	0.2 – 0.25	49.5 -49.6	

Trench/ Area	Archaeological Features	Location	Depth (BGL) (m)	m AOD	Possible Map Correlations
39. existing pipe replaced	<i>Paths</i> Layers (of up to 0.2m thick) aligned NE-SW consisting of red brown silty sand and gravel located beneath the topsoil.	J2	0.2	50.00	Path layers correlate with NE-SW path on all historic maps from <i>Lawrence</i> onwards. The culvert may be associated with a N-S path on the <i>Rocque</i> maps.
40. Trench to locate culvert	<i>Culvert</i> Heavily damaged brick culvert with sandstone capping, aligned E-W – exact form unknown.	J2	0.6	49.7	-
41 Trench to locate culvert	<i>Culvert</i> Culvert leading to Broadwater. See Trench 35.	B5			-
42. Trench to locate culvert	<i>Culvert</i> Culvert leading to Broadwater. See Trench 35.	B5			-
43 crossover	<i>Path</i> Path surface revealed – see Trench 36.	B5			
44 Ditch clearance	<i>Culvert</i> Culvert leading to Broadwater. See Trench 35.	B5			
45. Pipe replacement	<i>Path</i> Layer (0.20m thick and 3.44m across) of brown clayey sand and small stones located beneath the topsoil.	F2	0.15	49.90	Assoc. with E-W path on <i>Lawrence and later</i> maps.
	<i>Path</i> Layer (0.15m thick and 4m across) of brown-yellow sandy clay and gravel located beneath a clay levelling layer and subsequent subsoil and topsoil.	Near F1	0.3	51.10	Could be associated with N-S curving path on <i>Lawrence and Rocque</i> plans
	<i>Culvert</i> Brick culvert orientated E-W visible for 3.5m and	H5	0.4	50.75	Assoc. with N-S path marked on <i>Lawrence and Rocque</i> maps.

Trench/ Area	Archaeological Features	Location	Depth (BGL) (m)	m AOD	Possible Map Correlations
	measuring 0.3m wide and c. 0.25m deep. Same form as that in Trench 26. A later ceramic pipe appeared to have been joined to its southern side.				
46. crossover	<i>Drain pipes</i> Two ceramic pipes predating a more recent plastic pipe were visible, all approximately aligned N-S.	F3	0.2m+	50.65	Assoc. with NE-SW path on historic maps, but perhaps most likely to date from the 19 th century.
47 crossover	<i>Culvert</i> Brick rubble suggesting earlier culvert in location of path crossover.	F4			-
48. ditch clearance	<i>Culvert</i> Disturbed remains of a brick culvert orientated N-S visible for 2m in length and measuring c. 0.3m wide and 0.3m deep. Consisted of a ceramic tile base overlain with a stretcher course of bricks 'on edge', overlain by a capping of a header course of bricks on bed.	Near A3	0.1	52.1	Found in location of N-S path marked on <i>De Grey</i> map.
49 crossover	<i>Path</i> Layer (0.25m thick and 6.5m across) of reddish brown sand with occasional small stones located beneath the topsoil.	H7	0.1	50.75	Associated with NE-SW path marked on historic maps from Lawrence onwards. However, the location of the ditches the culvert would connect to, suggests the culvert is most likely to date to no earlier than the <i>Rocque</i> layout.
	<i>Culvert</i> Brick culvert orientated NW-SE visible for 9m and measuring 0.4m wide and surviving for 0.15m deep. Sides formed by two stretcher courses of bricks laid on bed. Probably same form as that in Trench 26. A later ceramic pipe has been placed within it.	H7	0.5	50.35	
50. Ditch clearance	<i>Path</i> Layer (0.21m thick and 7m across) of yellow-grey clay and gravel located beneath the topsoil.	North of H8	0.25	50.65	E-W path on <i>Lawrence 1719</i>

Trench/ Area	Archaeological Features	Location	Depth (BGL) (m)	m AOD	Possible Map Correlations
51. New pipe trench.	<p><i>Paths</i> Remains of three paths (2268, 2283, 2243) visible - for description of 2268 see Trench 36. Path layers (2243) and (2283) consisted of yellow-brown sandy clay and gravel of 0.2m thick. (2283) was located directly beneath the topsoil, while (2243) was deeper being located beneath topsoil and subsoil layers and a silty clay layer likely to have been derived from lake dredging.</p> <p><i>Culvert</i> Culvert leading to Broadwater. See Trench 35.</p>	B5	0.4 (2243) 0.15 (2283)	50.25 (2243) 50.5 (2283)	<p>North-most path (2283):- <i>Lawrence 1719; Rocque 1735/1737; 1829/34 De Grey sketches</i> - NE-SW path leading to pavilion.</p> <p>Middle path (2268)(also in Trenches 36+42):- <i>Rocque 1735/1737</i> – N-S path</p> <p>Southern path (2243):- May be associated with path on Rocque 1735/7 or may be associated with a path visible as an earthwork and as shadow-marks (see Fig.25)on AP's but not shown on any historic map</p>
52. crossover	<p><i>Path</i> Layer (0.1m thick and 3.3m across) of yellow-brown sandy clay and gravel located beneath the topsoil and the pipe trench.</p>	I3	0.5	50.1	Path layer associated with current E-W track or path in same location on Rocque and De Grey sketches.
53. crossover	<p><i>Path</i> Layer (0.08m thick) of clinker, grey clay and stones located beneath the topsoil and current path.</p> <p><i>Culvert</i> Badly damage brick drain aligned NW-SE and measuring 0.16m wide and 0.16m deep. Constructed with 4 'L-shaped' red bricks so that the central hollow forms a pipe.</p>	H8 H8	0.15 0.2	50.65 50.6	Path predating current path. Most likely to be 19 th century onwards.
54	Fragments of ceramic pipes and brick rubble were	H4			-

Trench/ Area	Archaeological Features	Location	Depth (BGL) (m)	m AOD	Possible Map Correlations
crossover	visible towards the northern end of the trench – the rubble possibly being associated with an earlier headwall.				
55. New course of drainage pipe.	<i>Path</i> Layer (0.2m thick and 3.5m across) of yellow-clay and gravel located beneath the topsoil. <i>Culvert</i> Badly damaged brick culvert – 3 courses visible – what appears to be the base is formed by a header course on bed which are overlain by two stretcher courses on bed forming the sides	G3	0.3	49.6	Location of current path is more or less the same as that shown on all historic maps from <i>Lawrence</i> onwards.
56. crossover	<i>Culvert</i> Brick rubble possibly associated with an earlier headwall was visible at the northern end of the trench as well as a ceramic pipe associated with the crossover.	G2	0.6	49.1	Rubble could be associated with earlier headwall associated with earlier incarnations of the current path shown on <i>Rocque and De Grey</i> plans
57 crossover	<i>Culvert</i> Sandstone rubble visible associated with an earlier culvert – form unknown - replaced by a ceramic pipe.	I5			Earlier culvert associated with earlier crossover of path shown on <i>Rocque and De Grey</i> plans
58 crossover	<i>Path</i> Layer of orange sand (0.2m thick) located beneath the topsoil.	F13	0.15	50.7	Path layer associated with current NW-SE path and or earlier versions of this path shown on all historic maps
59. crossover	<i>Paths</i> Three path layers (2309, 2312, 2330) are visible consisting of silty sand, clay and gravel of between 0.11 and 0.19m thick. The earliest and deepest (2309) is overlain by subsoil, the later path layers and topsoil as well as being cut by brick culvert [2317]. A shallow ditch [2315] seen in section may be associated with this	D4	0.1	51.65	NW-SE path first shown on <i>Lawrence 1719</i>

Trench/ Area	Archaeological Features	Location	Depth (BGL) (m)	m AOD	Possible Map Correlations
	<p>path layer.</p> <p>The later path layers are located beneath the topsoil and overlay buried topsoil and subsoil layers, and in the case of 2312 overlay culverts [2322] and [2325].</p> <p><i>Culverts</i></p> <p>Three brick culverts/drains are visible predating a later ceramic drain pipe all aligned approx. NW-SE. What appears to be the earliest culvert [2317], measures approx. 0.35m wide and 0.3m deep and has a capping of a header course of bricks overlying 2 stretcher courses for the sides. Sandstone blocks appear to form the base. This culvert is cut by culverts [2322] and [2325]. [2322] appears to be formed from hollowed out bricks, while [2325] appears to have sides formed by two stretcher courses on edge with a base of sandstone blocks.</p>	C7	0.4	49.9	
62. ditch clearance	<p><i>Path</i></p> <p>Layer of yellow-brown sandy gravel (0.11m thick) located beneath the topsoil.</p>	North of A6	0.28	52.67	Nothing obvious
63 ditch clearance	<p><i>Path</i></p> <p>Layer of yellow-brown sandy clay and gravel (0.1m+ thick and 1.8m across) located beneath the topsoil and subsoil.</p>	East of A6	0.29	52.11	Most closely ties in with paths marked on <i>De Grey</i> and <i>1st edition OS</i> map.
64. ditch clearance	<p><i>Path</i></p> <p>Layer of light grey-brown sandy clay and gravel (0.02m+ thick and 2.8m across) located beneath the topsoil and subsoil.</p>	South of A9	0.26	51.99	Most closely ties in with paths marked on <i>De Grey</i> and <i>1st edition OS</i> map.
65. ditch clearance	<p><i>Path</i></p> <p>Layer of mid red-brown sandy clay and gravel (0.15m</p>	East of A7	0.7	51.5	Could be associated with N-S paths shown on <i>Lawrence, De Grey and 1st</i>

Trench/ Area	Archaeological Features	Location	Depth (BGL) (m)	m AOD	Possible Map Correlations
	thick and 1.9m across) located beneath the topsoil, subsoil and a landscaping/make-up layer of grey-brown silty clay.				<i>edition OS map.</i>
66. ditch clearance	<i>Path</i> Layer of yellow-brown sandy clay and gravel (0.12m thick and 1.6m across) located beneath the topsoil and a landscaping/make-up layer of grey-brown silty clay.	East of A7	0.5	51.95	Could be associated with N-S paths shown on <i>Lawrence, De Grey and 1st edition OS map.</i>



Figure 1: Site location map

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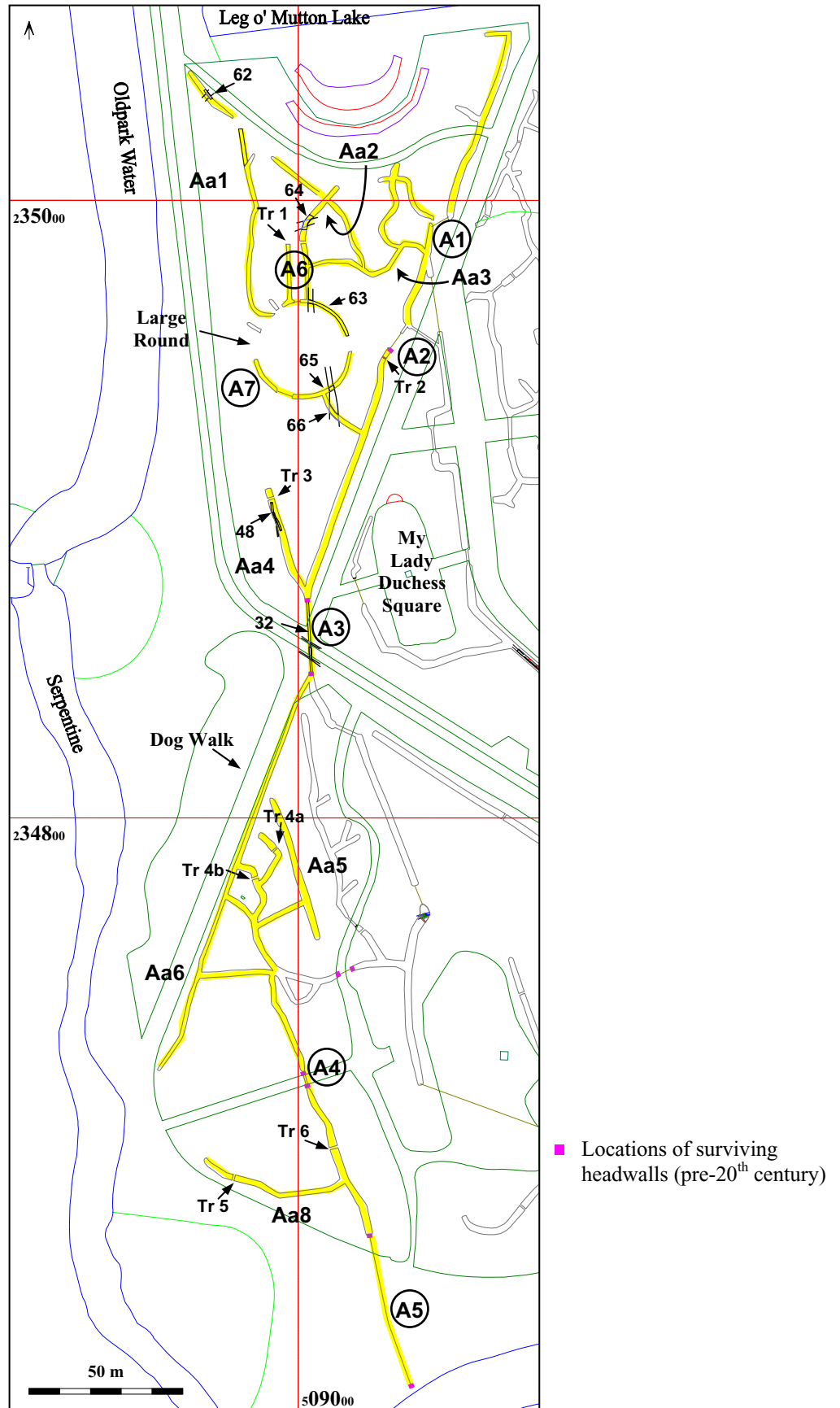
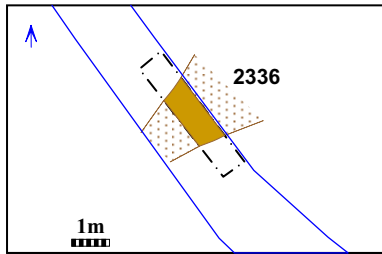
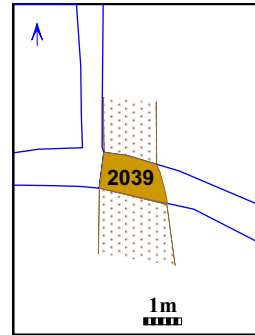


Figure 2: Ditch A

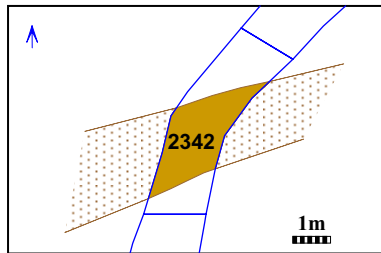
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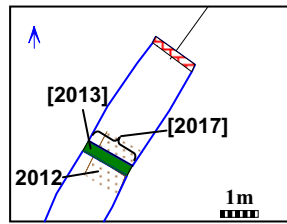
Area 62



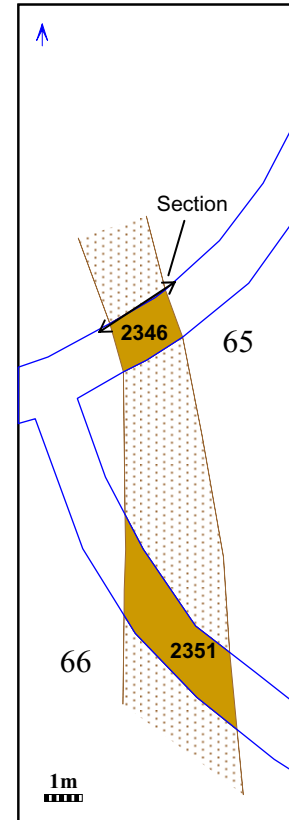
Area 63



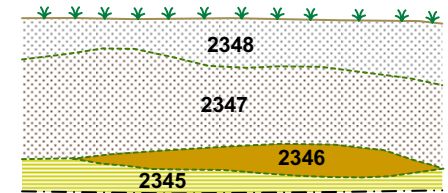
Area 64



Trench 2



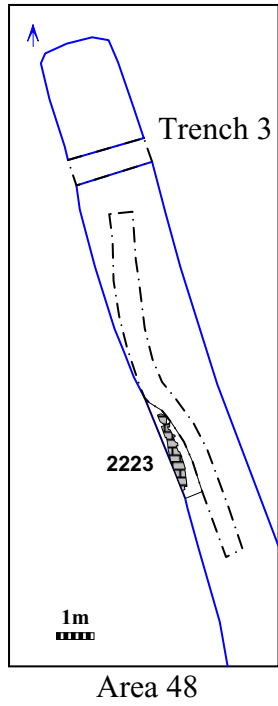
Areas 65 and 66



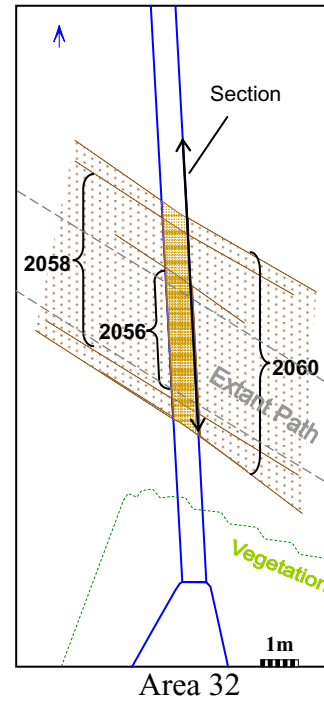
Section of Area 65.

- Trenches
- Ditches
- Culverts and other masonry structures
- Projected alignment of culvert
- Paths
- Paths, projected
- Other layers
- Cuts

Figure 3: Detail of features observed in Ditch A (Trench 2 and Areas 62-66)



Culvert (2223) in Area 48.
Looking south. Scale 40cm



Path layers in Area 32. Looking south-west.
Scale 1m

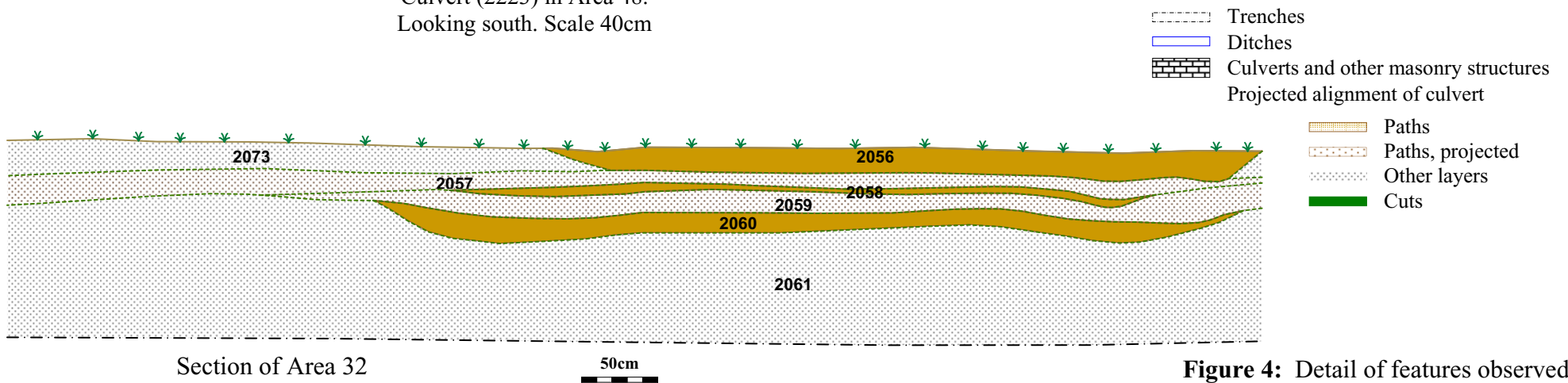
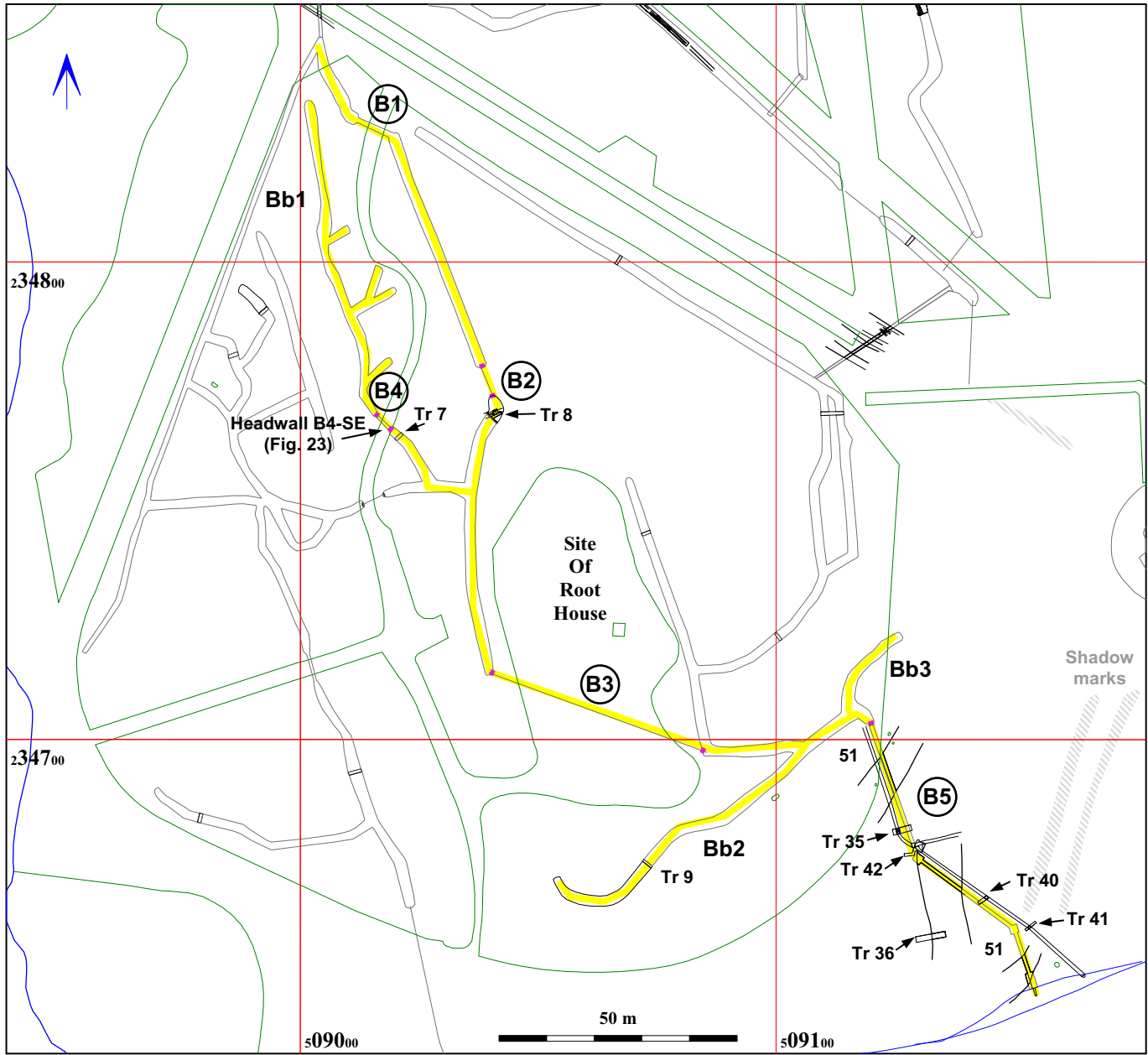


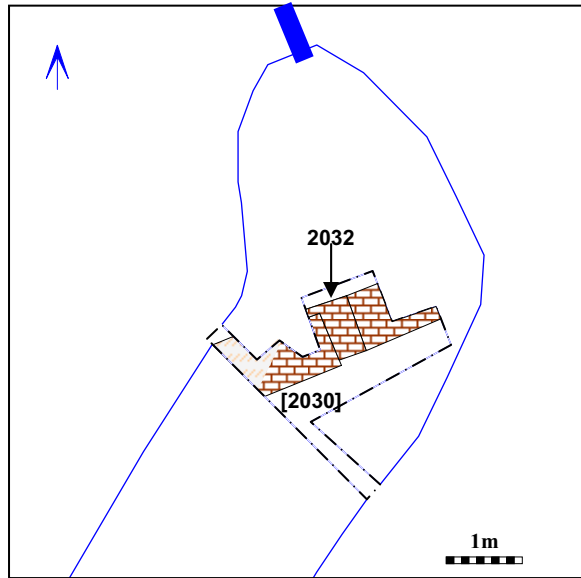
Figure 4: Detail of features observed
in Ditch A (Areas 32 and 48)



■ Locations of surviving headwalls (pre-20th century)

Figure 5: Ditch B

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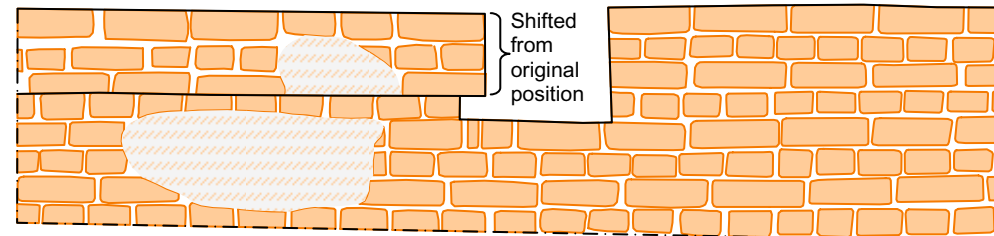
Trench 8



Trench 8: wall 2032



Trench 8: wall 2032. Scale 40cm



SSE facing elevation of wall 2032








-  Trenches
-  Ditches
-  Wall
-  Projected continuation of wall
-  Mortar

Figure 6: Detail of Trench 8 in Ditch B

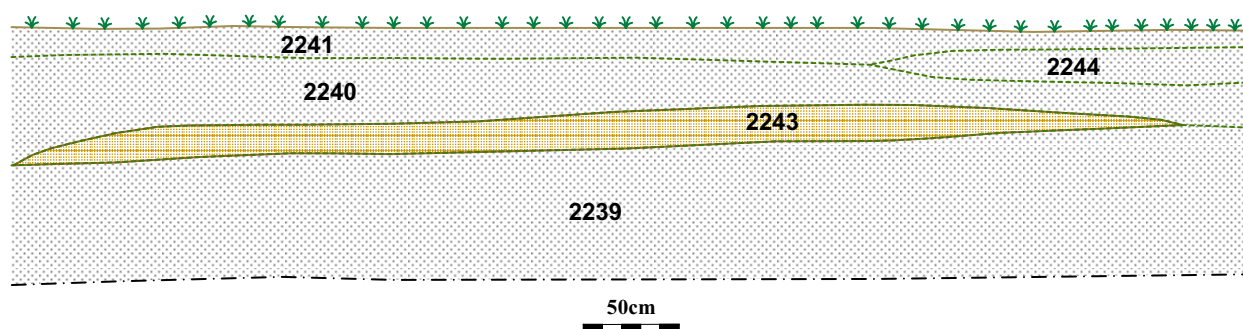
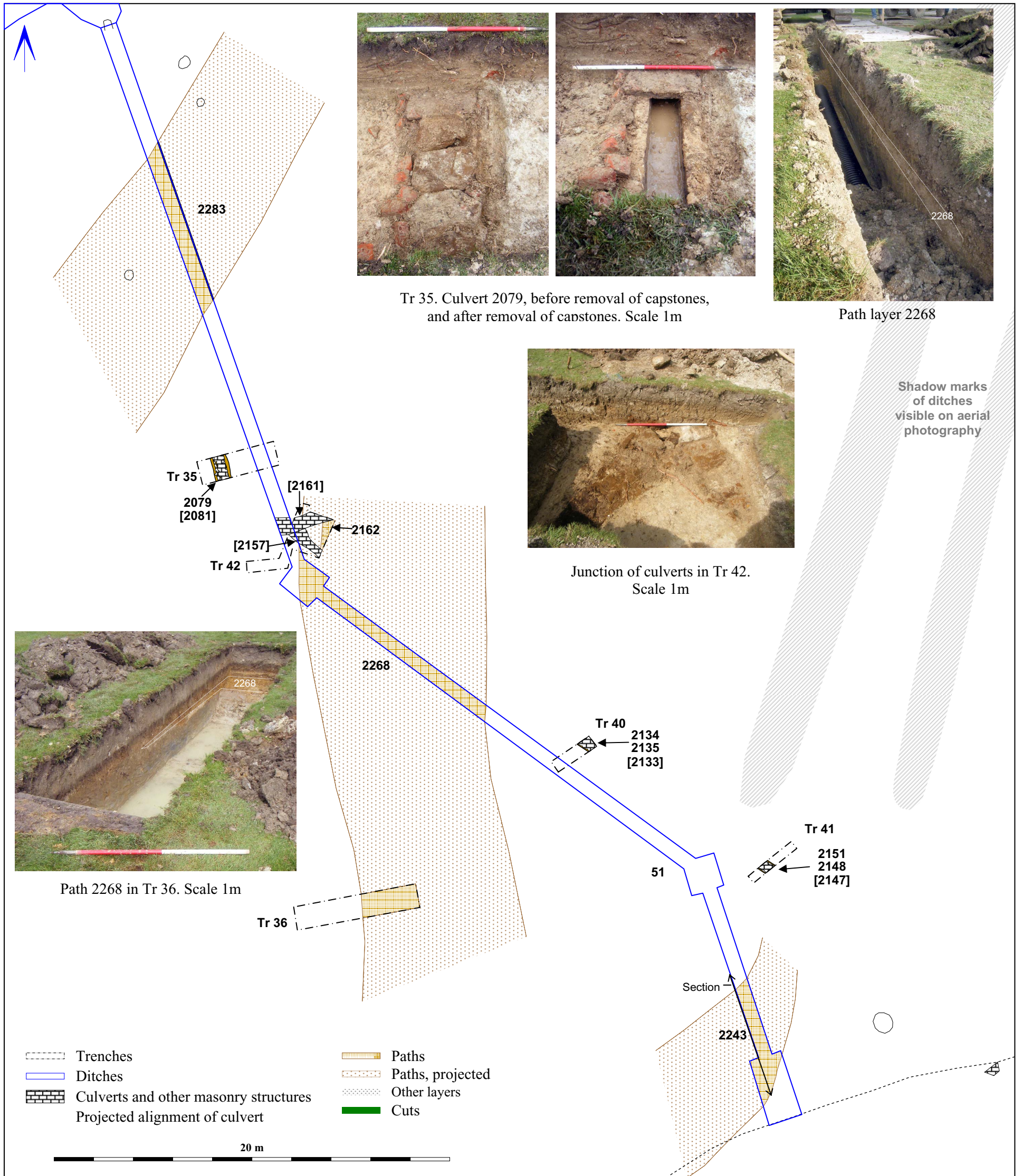


Figure 7: Detail of features in the Southern end of Ditch B where it meets Broadwater (Area 51)

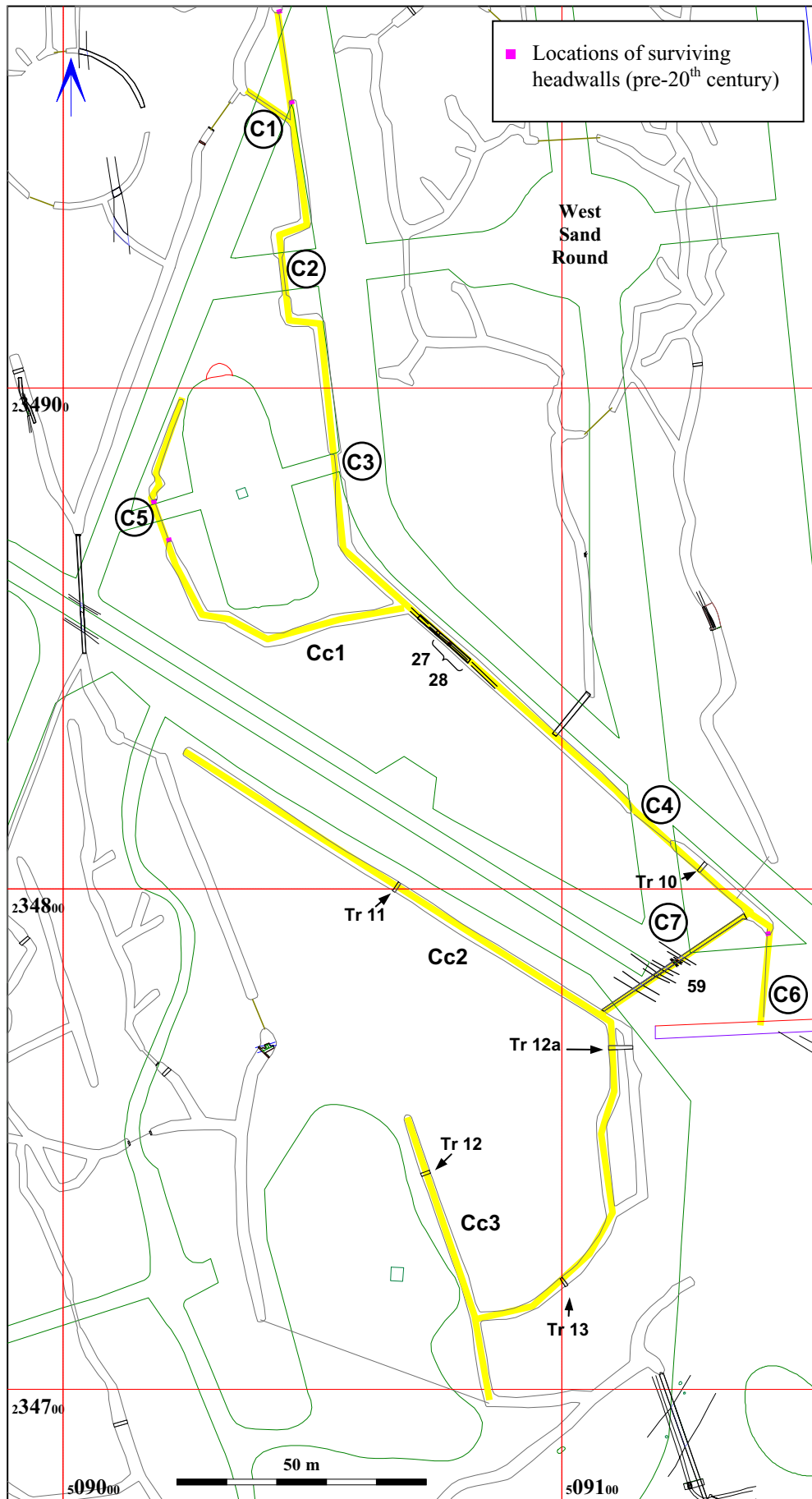
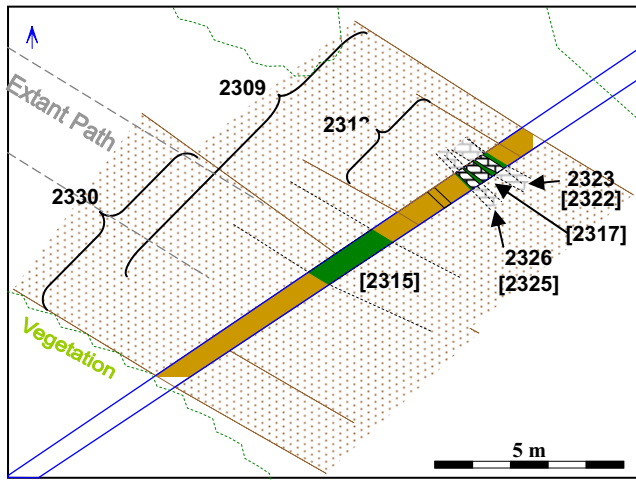


Figure 8: Ditch C

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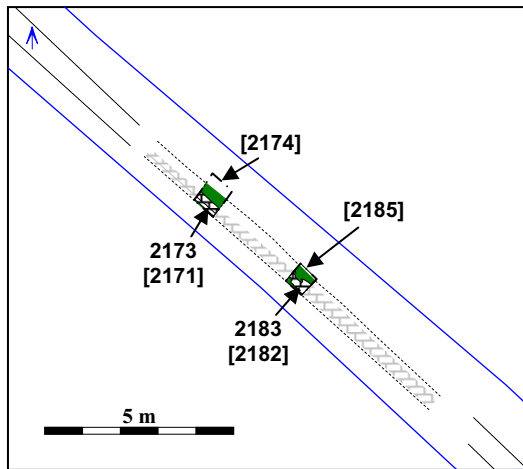
Area 59



Path layers in Area 59. Scale 1m



Culverts in Area 59. Scale 1m



Areas 27 and 28



Culvert 2183 in Area 28. Scale 1m








-  Trenches
-  Ditches
-  Culverts and other masonry structures
-  Projected alignment of culvert
-  Path layers
-  Path layers, projected
-  Cuts

Figure 9: Detail of features observed in Ditch C

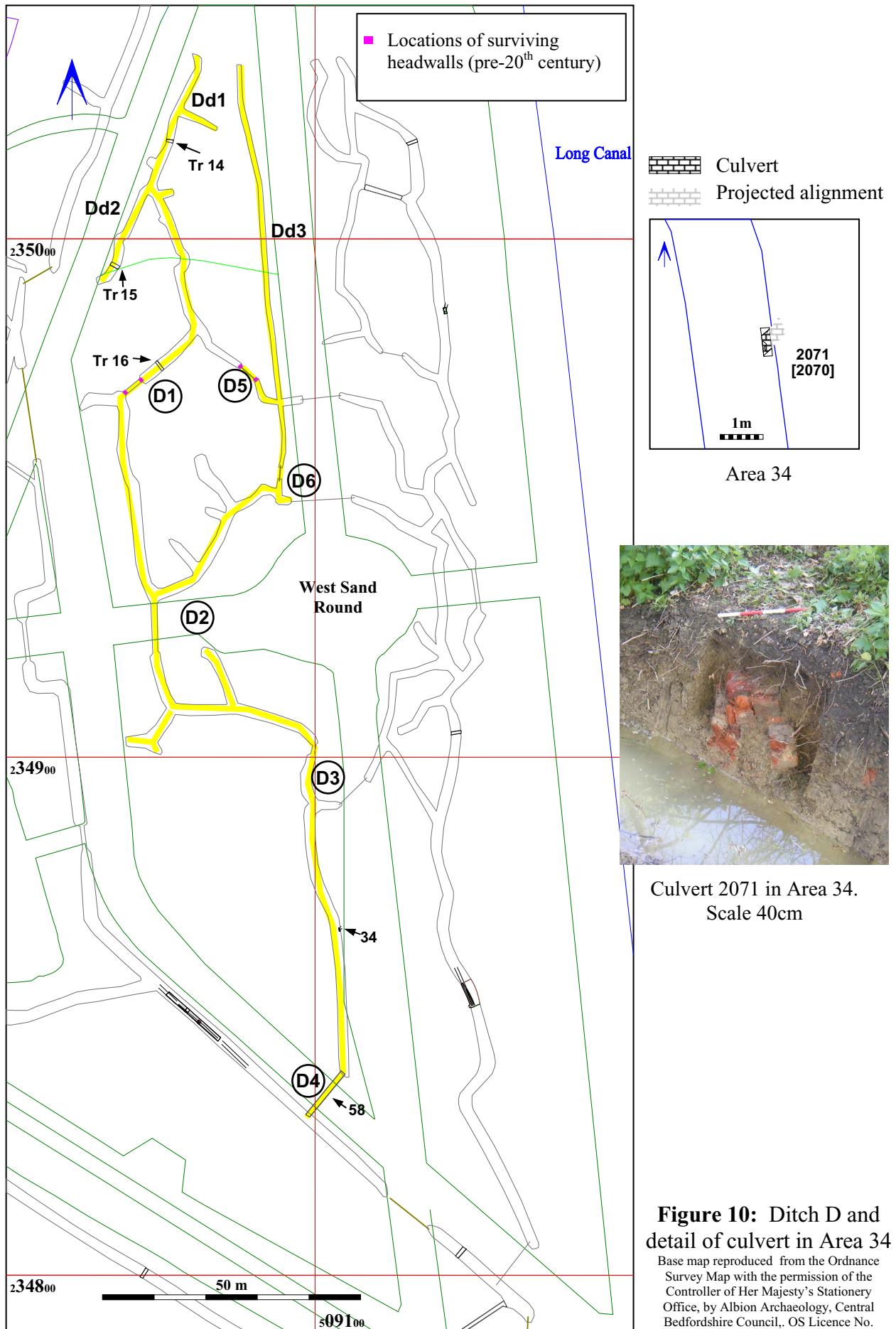
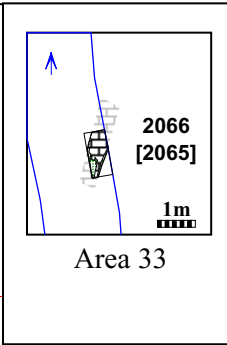
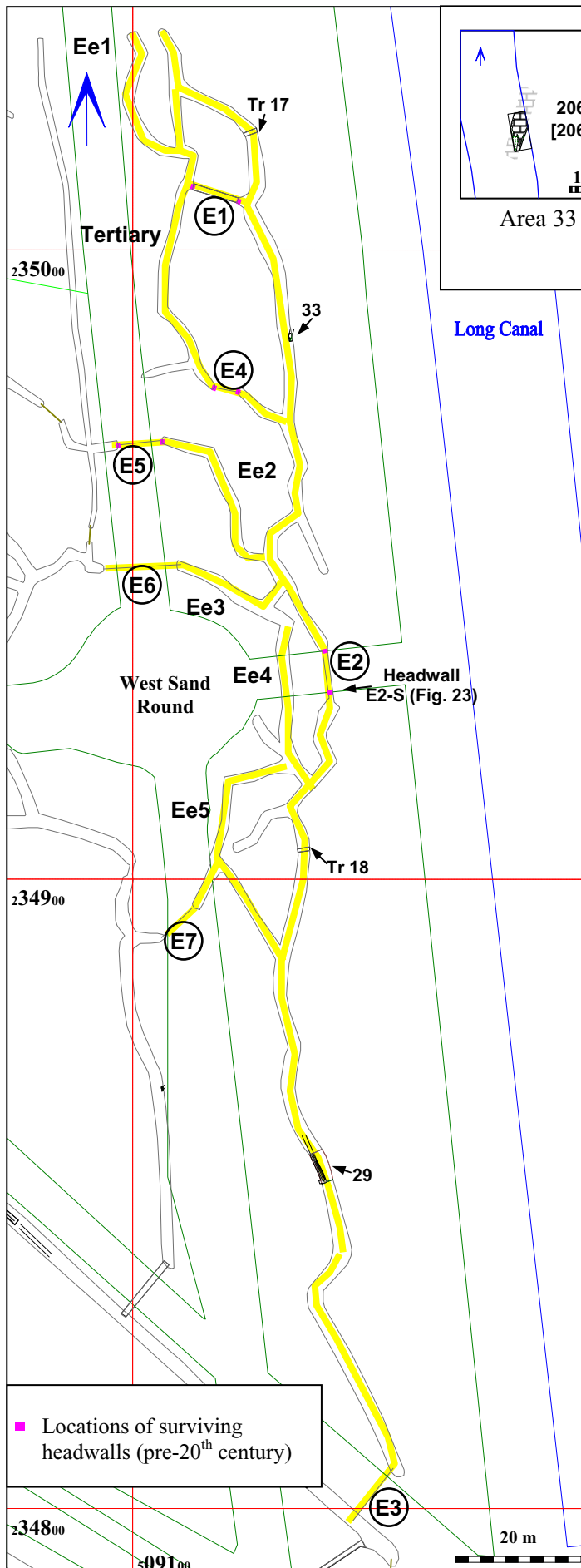
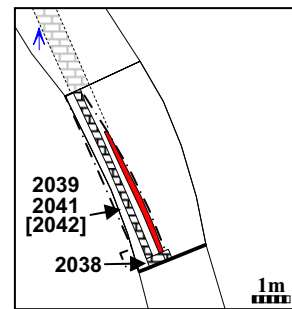


Figure 10: Ditch D and detail of culvert in Area 34

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Culvert 2066 in Area 33. Scale 1m



Culvert and headwall in Area 29. Scale 1m



Culvert and headwall in Area 29. Scale 1m





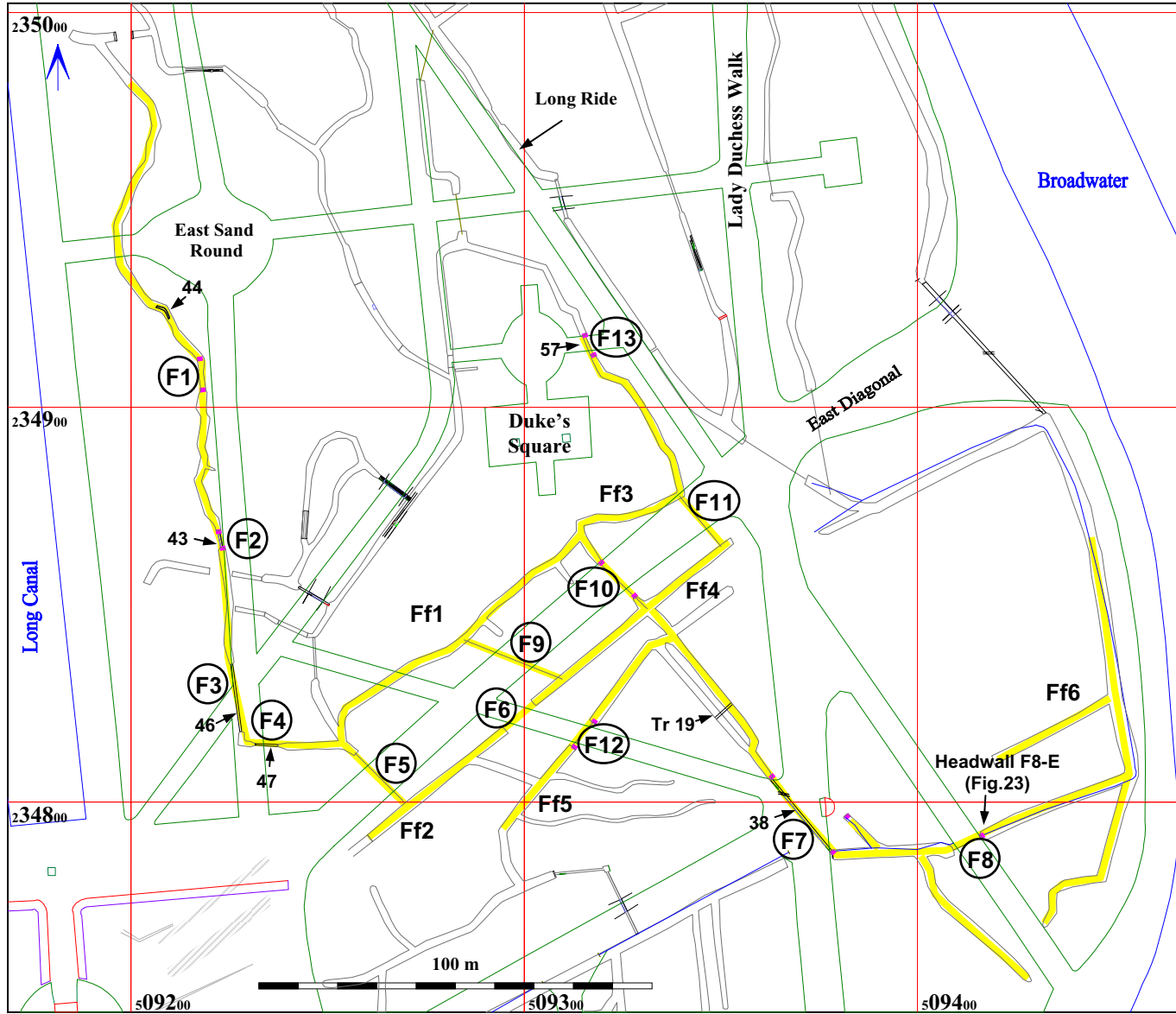
-  Culvert
-  Projected alignment
-  Cut
-  Pipe

Figure 11: Ditch E and detail of culverts in Areas 29 and 33

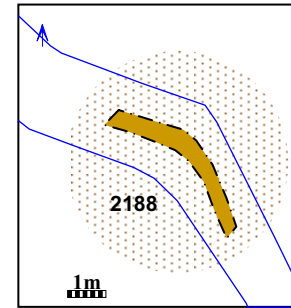
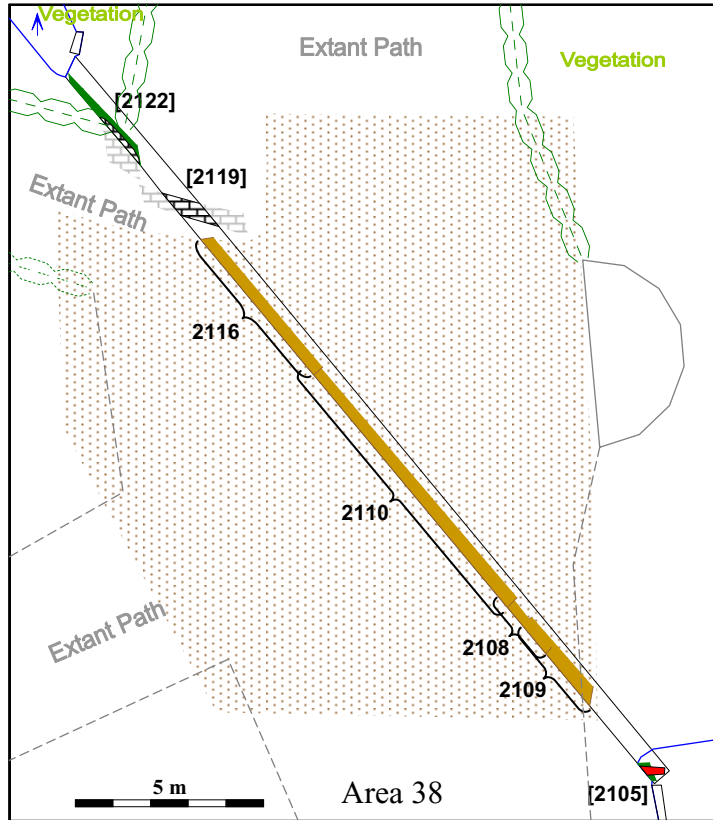
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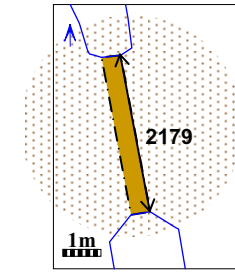
■ Locations of surviving headwalls (pre-20th century)

Figure 12: Ditch F

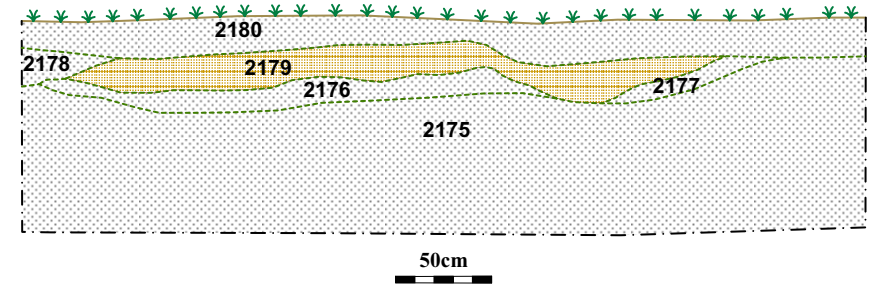
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Area 44



Area 43



West facing section of Area 43, showing path 2179



Area 38, showing path layers 2110 and 2116 and associated make-up layers.

- Trenches
- Ditches
- Culverts and other masonry structures
- Projected alignment of culvert
- Paths
- Paths, projected
- Other layers
- Cuts

Figure 13: Detail of features observed in Ditch F

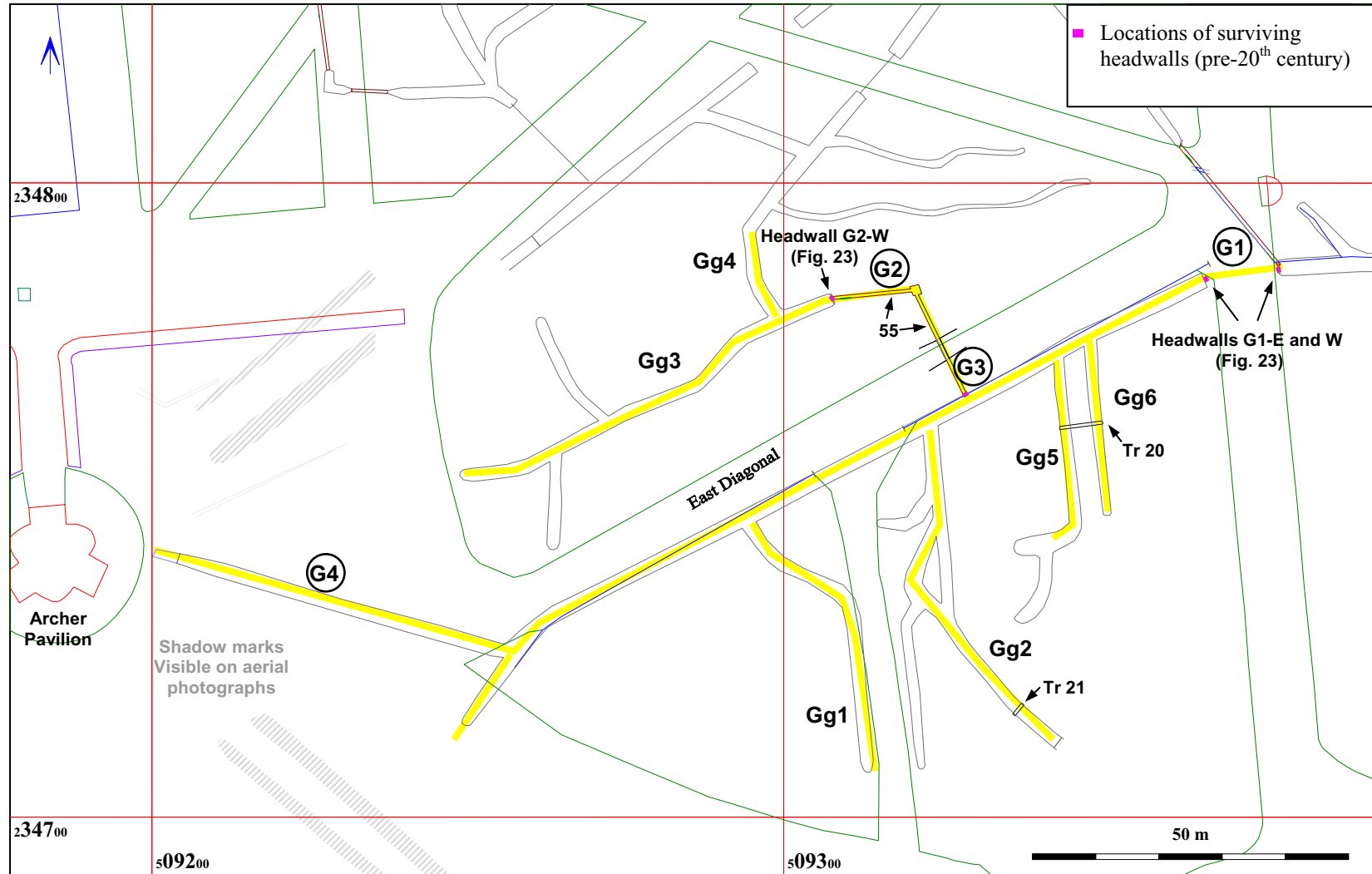
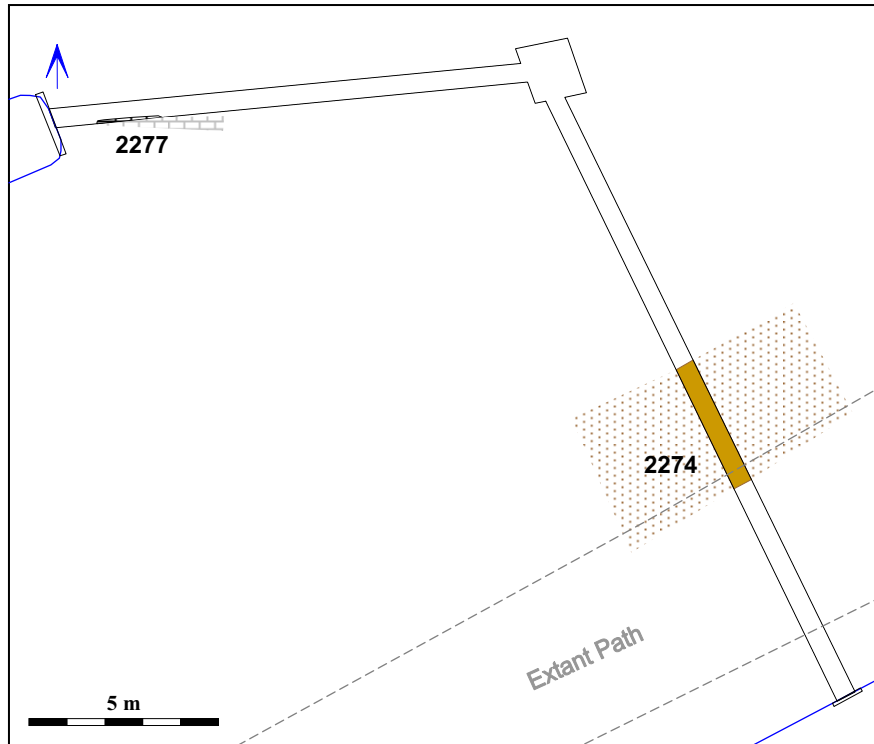


Figure 14: Ditch G

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Area 55



Area 55, culvert 2277. Scale 1m







-  Trenches
-  Ditches
-  Culverts and other masonry structures
-  Projected alignment of culvert
-  Path layers
-  Path layers, projected

Figure 15: Detail of features observed in Ditch G

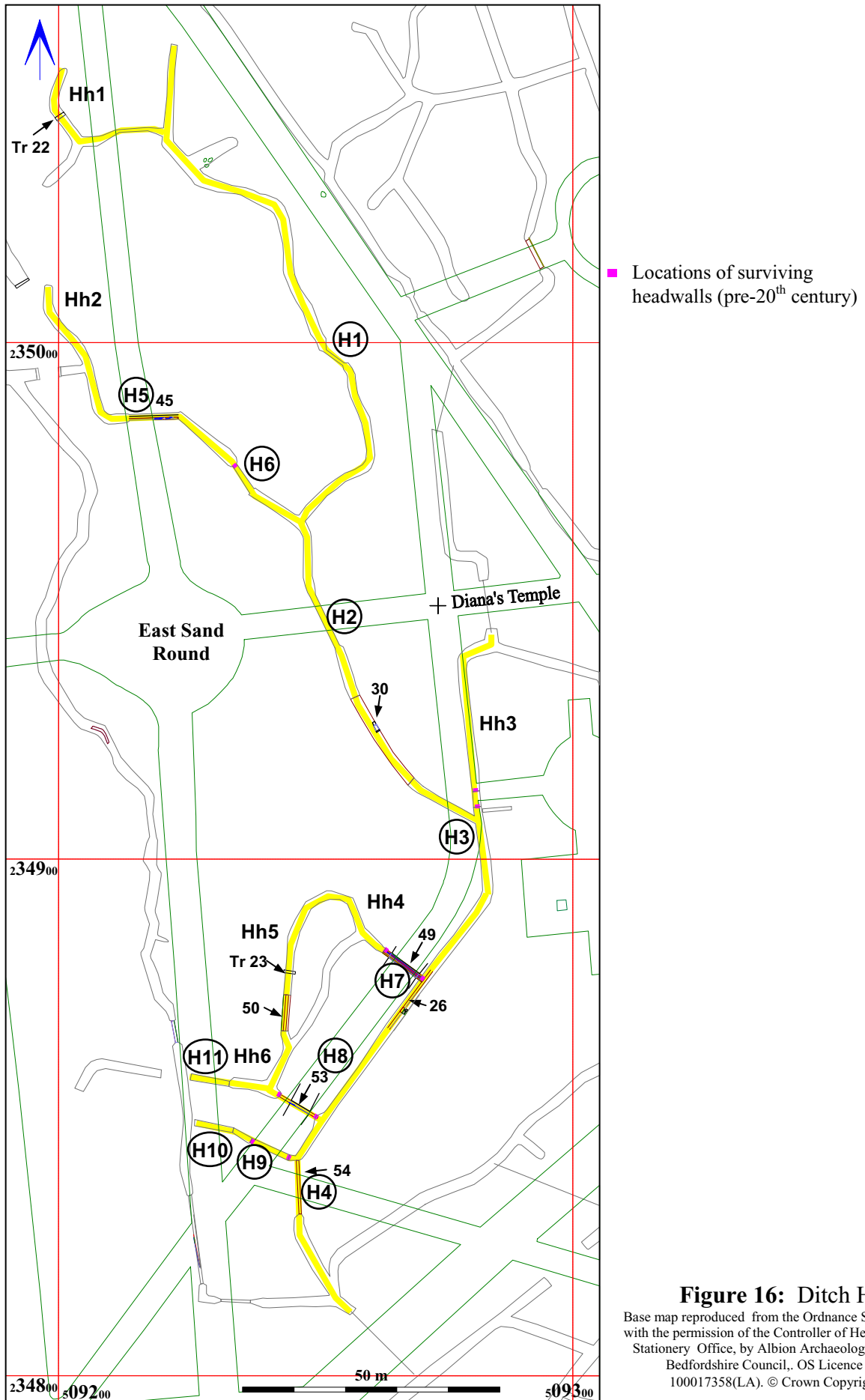
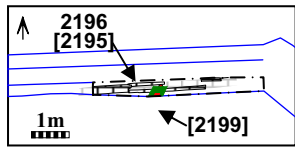


Figure 16: Ditch H

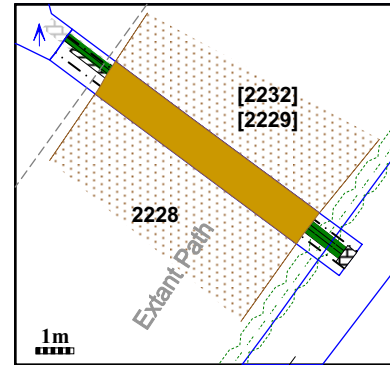
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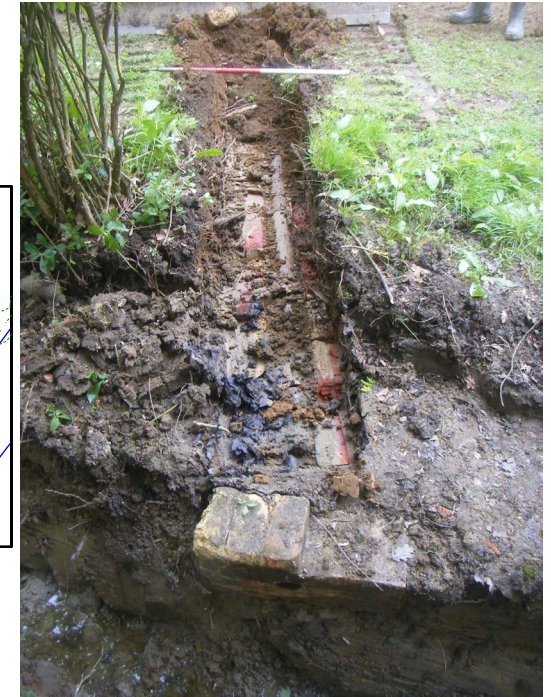
Area 45



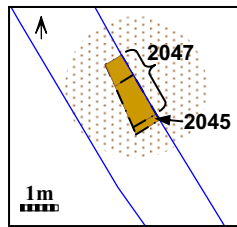
Culvert 2196 in Area 45. Scale 1m



Area 49



Culvert and headwall in Area 49. Scale 1m



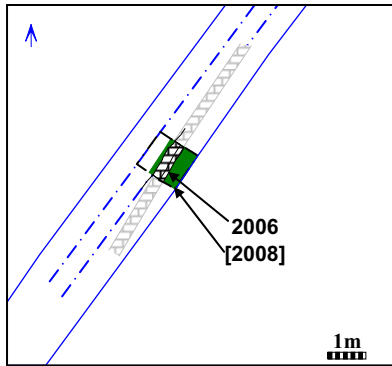
Area 30



Path layer 2047 in Area 30. Scale 1m

- | | |
|---------------------------------------|------------------------|
| Trenches | Path layers |
| Ditches | Path layers, projected |
| Culverts and other masonry structures | Cuts |
| Projected alignment of culvert | Cuts projected |

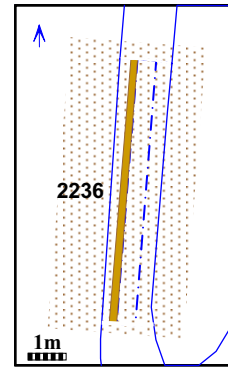
Figure 17: Detail of features observed in Ditch H (Areas 30, 45 and 49)



Area 26



Culvert 2006 in Area 26. Scale 1m

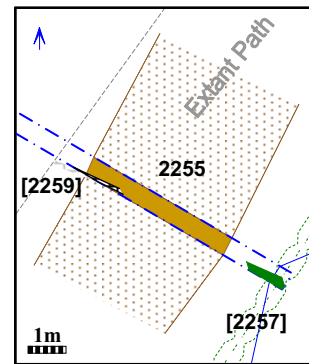


Area 50



Path layer in Area 50. Scale 1m

- Hand dug area
- Machined trench
- Ditches
- Culverts and other masonry structures
- Projected alignment of culvert
- Path layers
- Path layers, projected
- Cuts
- Cuts projected



Area 53



Culvert 2259 in Area 53. Scale 1m

Figure 18: Detail of features observed in Ditch H (Areas 26, 50 and 53)

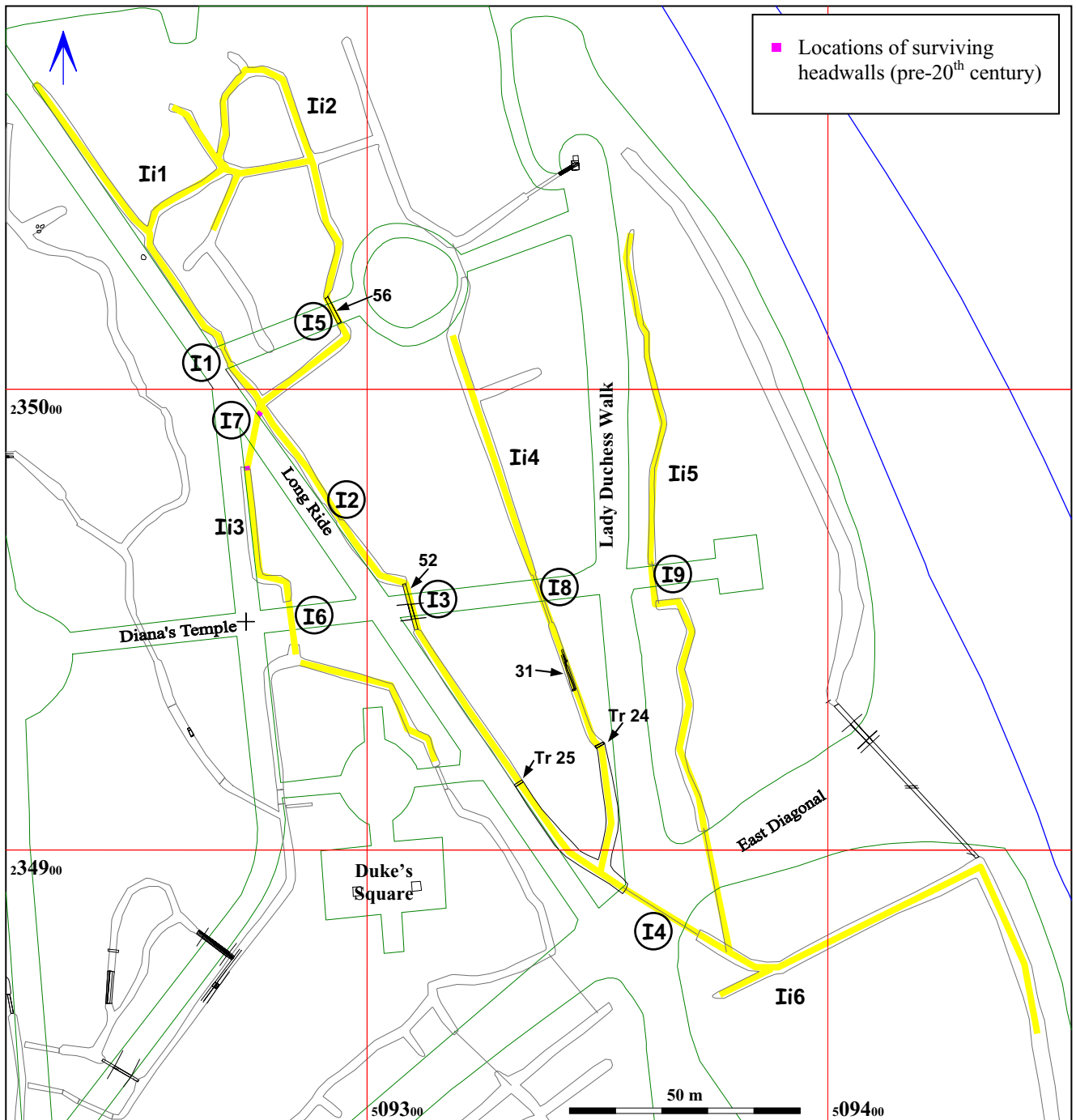
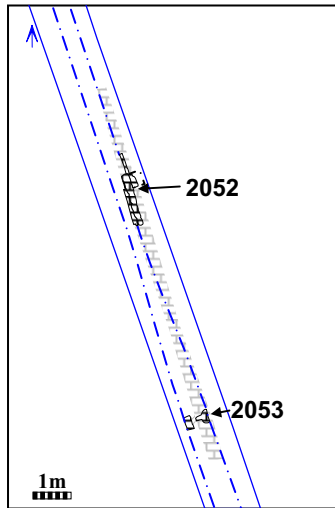


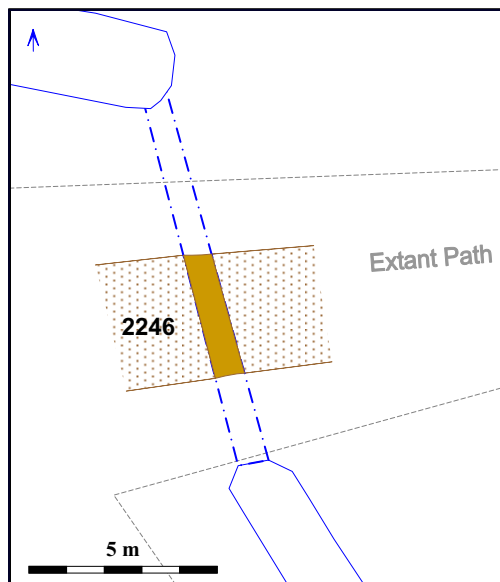
Figure 19: Ditch I



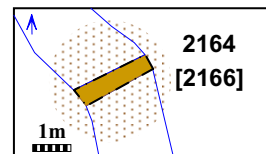
Area 31



Culvert 2052 in Area 31. Scale 1m



Area 52



Trench 24








-  Hand dug area
-  Machined trench
-  Ditches
-  Culverts and other masonry structures
-  Projected alignment of culvert
-  Path layers
-  Path layers, projected

Figure 20: Detail of features observed in Ditch I

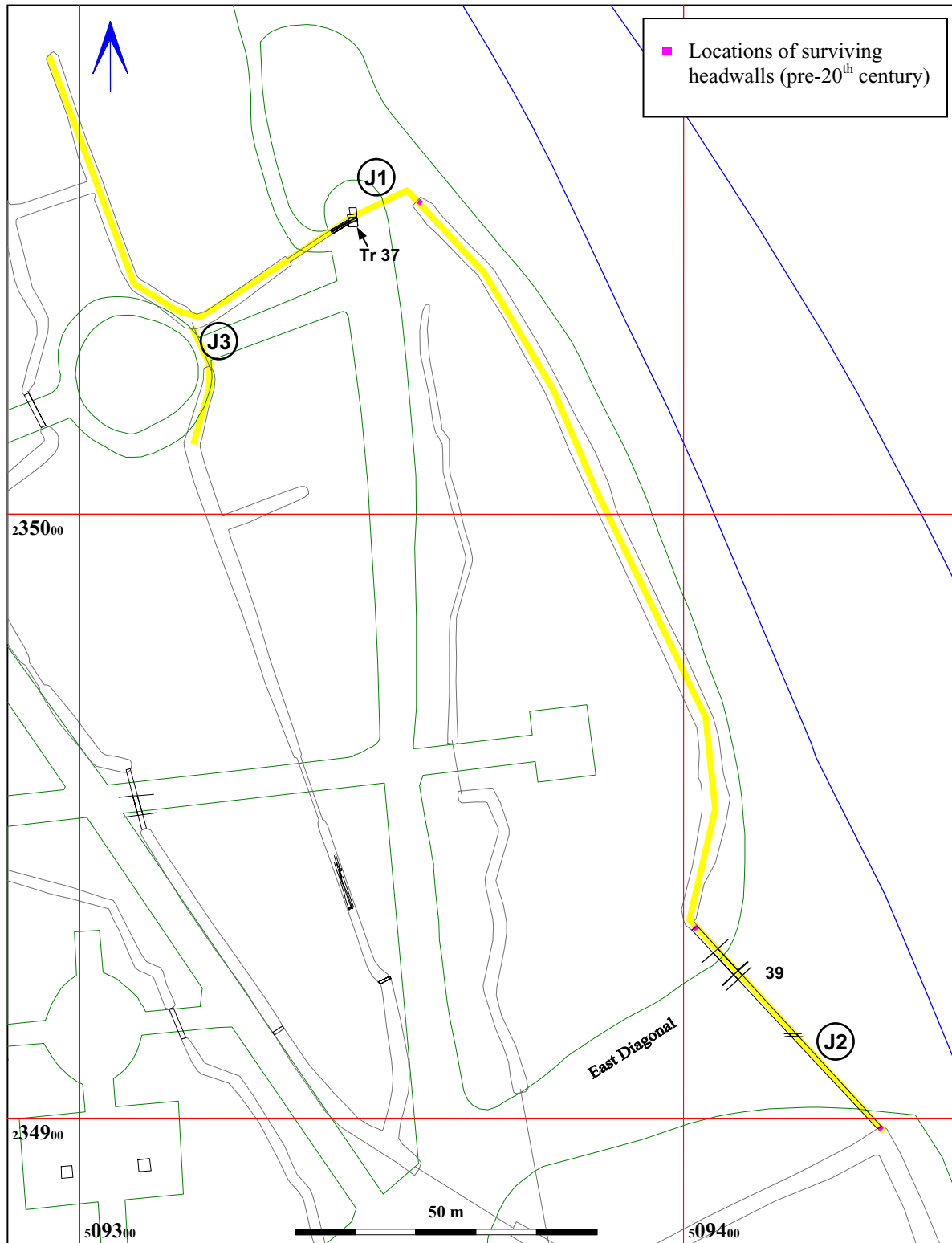
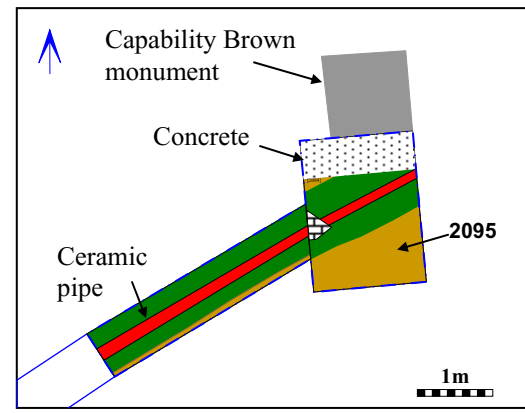


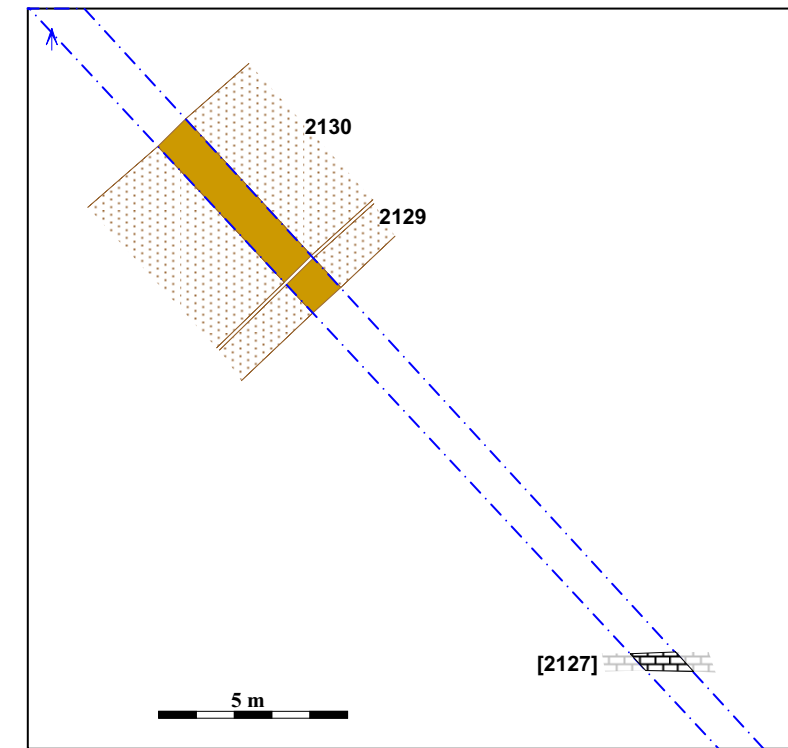
Figure 21: Ditch J



Trench 37



Trench 37 after extension showing path layer 2095. Looking south west. Scale 1m



Area 39



Composite photograph of Trench 37 and Capability Brown monument. Looking north. Scale 1m



Composite photograph of Area 39. Scales 1m

- | | |
|---------------------------------------|------------------------|
| Trenches | Path layers |
| Ditches | Path layers, projected |
| Culverts and other masonry structures | Cuts |
| Projected alignment of culvert | Cuts projected |

Figure 22: Detail of features observed in Ditch J



Ditch G1-E



Ditch G1-W



Ditch G2-W



Ditch F8-E

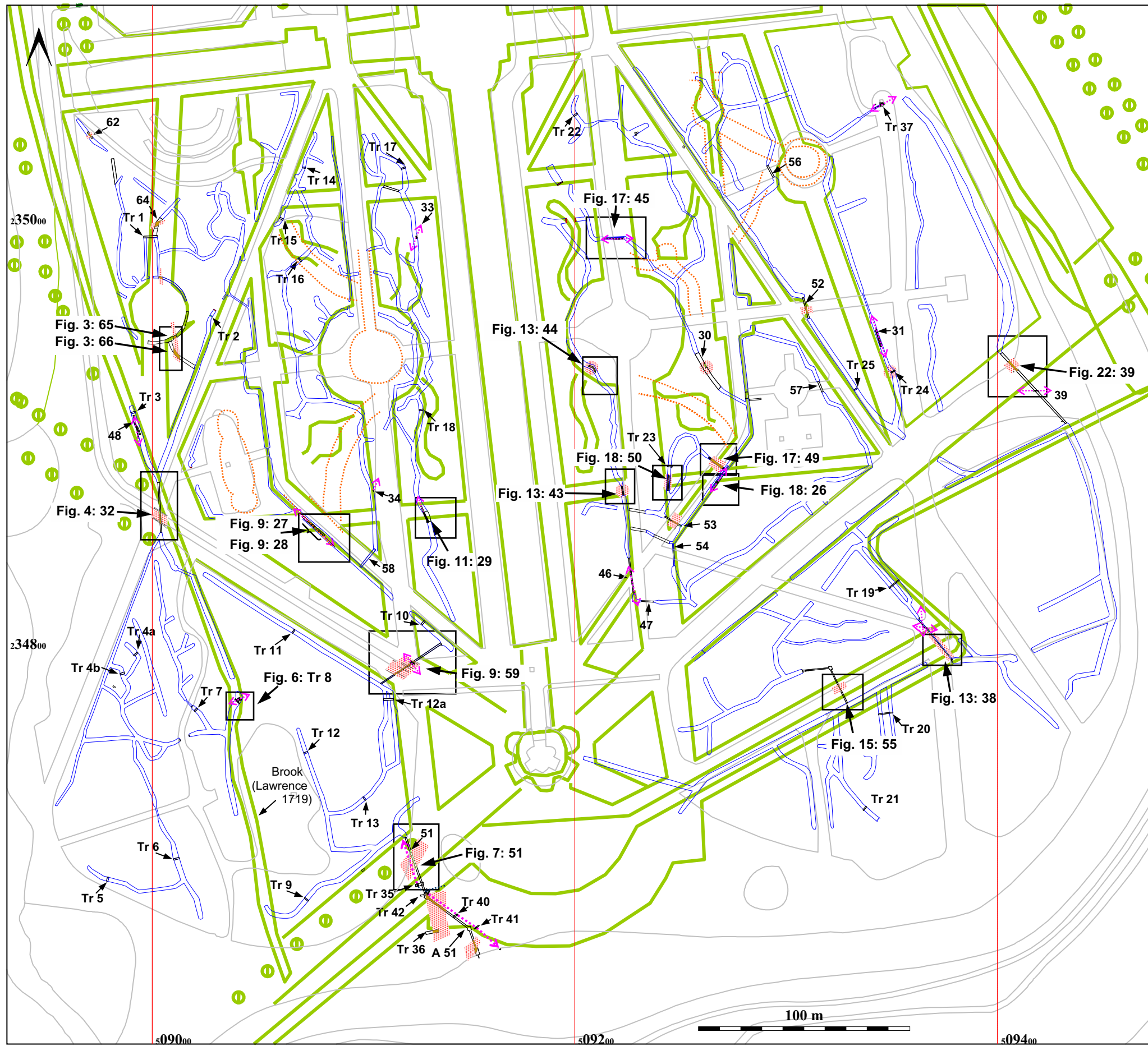


Ditch E2-S



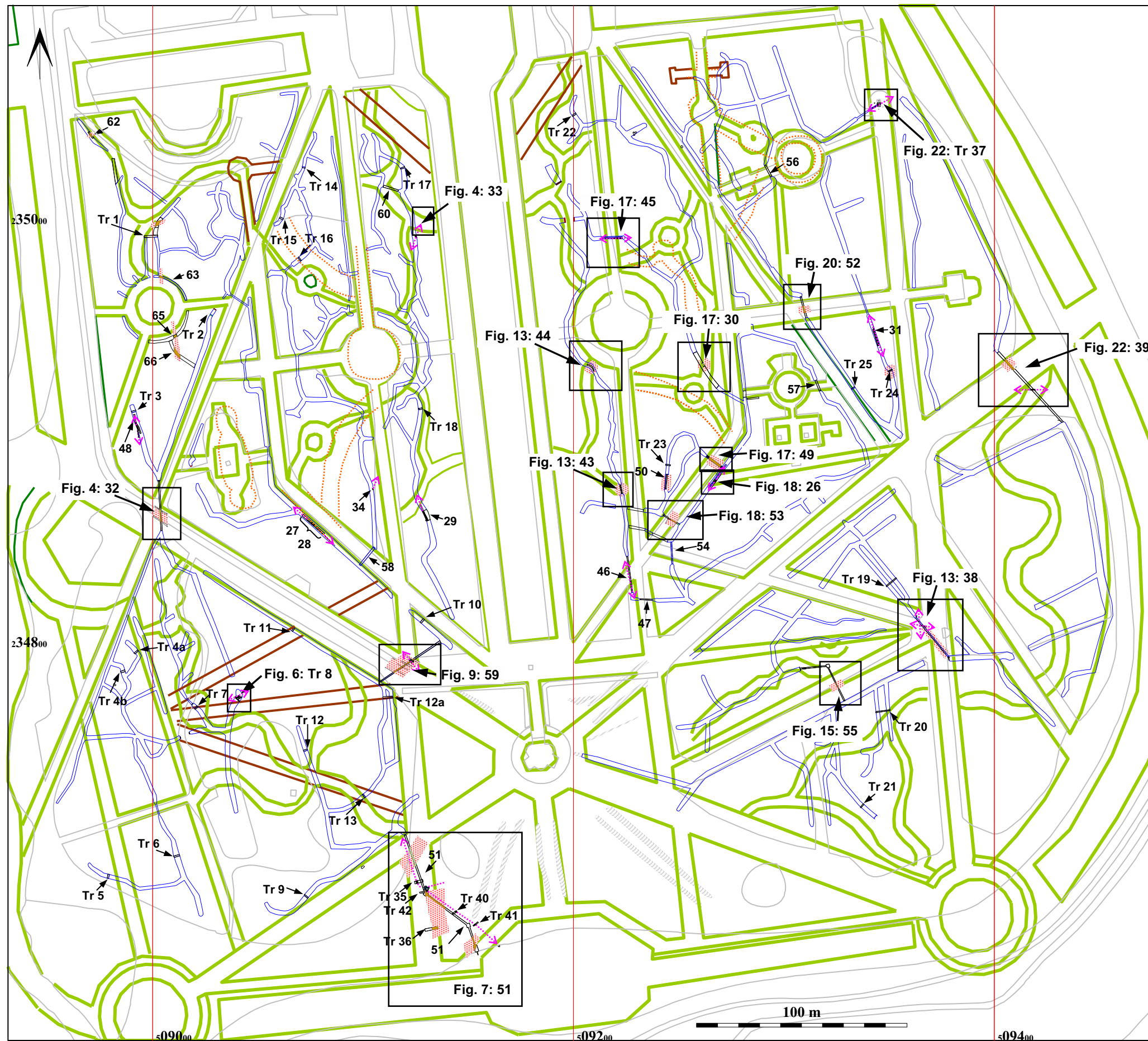
Ditch B4-SE

Figure 23: Selected headwalls
(Labels refer to locations on Figures 5, 11, 12 and 14)



- Areas and trenches
- Ditches
- Culverts and other masonry structures
- Projected alignment of culvert or wall
- Path layers
- Path layers, projected
- Features taken from 1719 Lawrence map (positions approximate)
- Paths interpreted from 1990 trenches
- Archaeological features possibly correlating with 1719 map.

Figure 24: Results overlaid with 1719 Lawrence map
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- Areas and trenches
- Ditches
- Culverts and other masonry structures
- Projected alignment of culvert or wall
- Path layers
- Path layers, projected
- Features seen on 1735 Rocque map, removed by 1737 (positions approximate)
- Features seen on 1737 Rocque map (positions approximate)
- Paths interpreted from 1990 trenches
- Shadowmarks seen on aerial photographs
- Archaeological features possibly correlating with 1735/7 maps.

Figure 25: Results overlaid with 1735/7 Rocque maps

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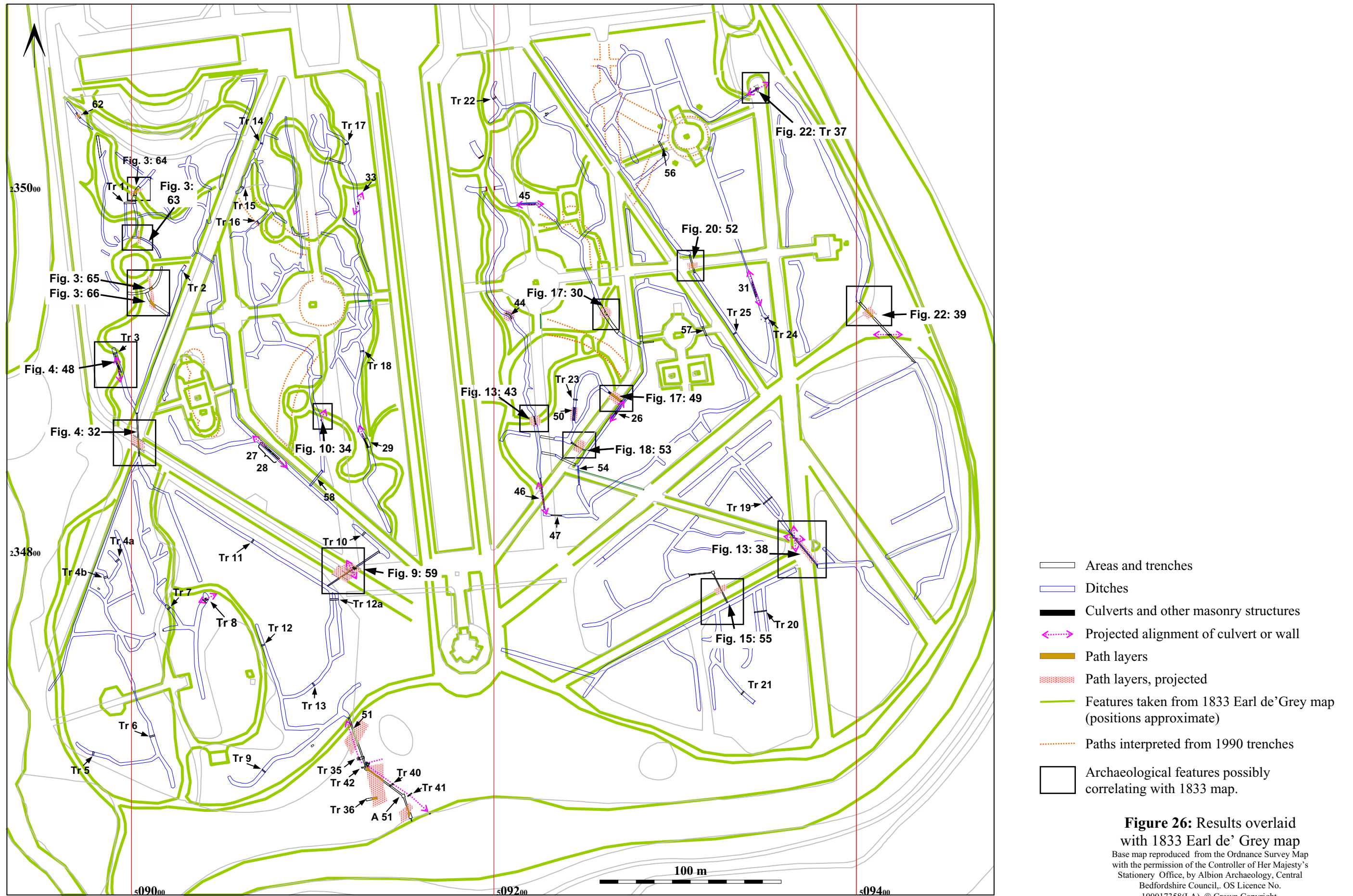


Figure 26: Results overlaid with 1833 Earl de' Grey map

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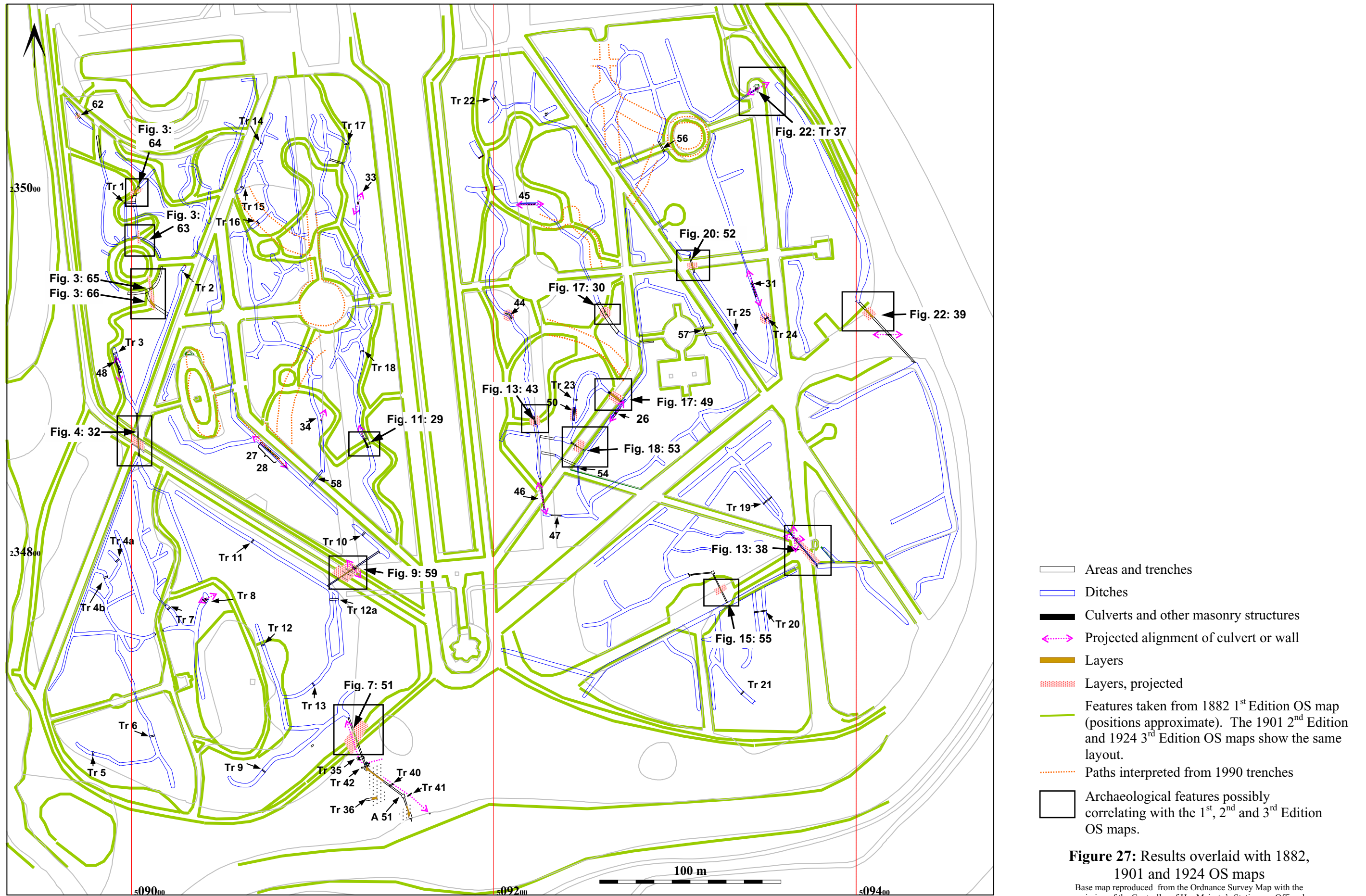


Figure 27: Results overlaid with 1882, 1901 and 1924 OS maps

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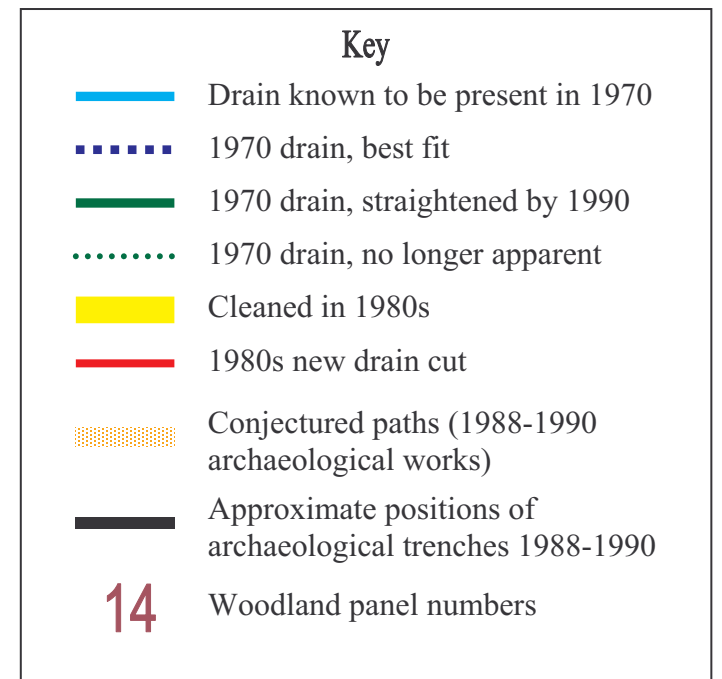
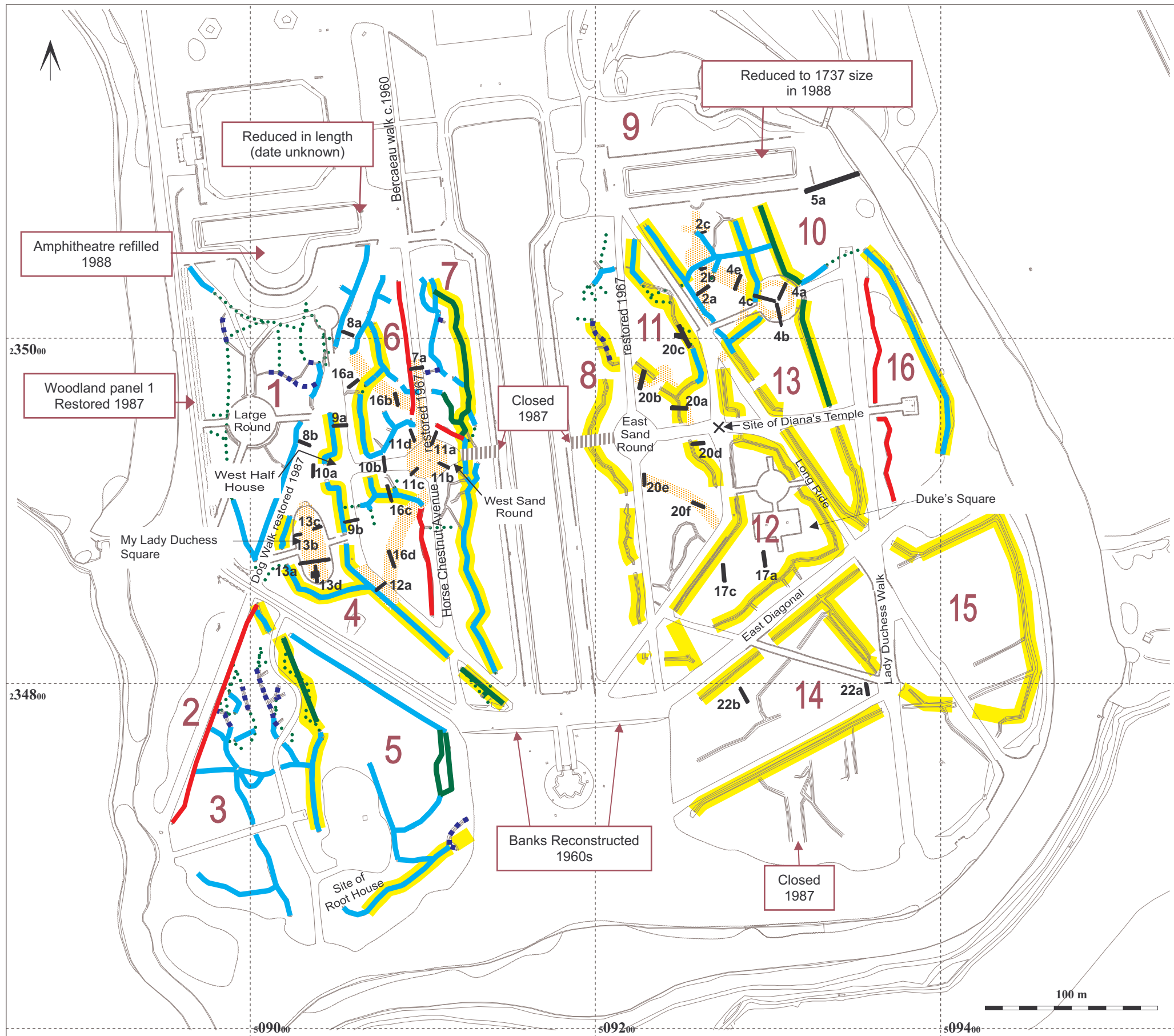


Figure 28:
Woodland Panels 1960-1990 overlaid onto current plan.
(Showing key features, restoration works, and archaeological trenches excavated 1989-91.)