



Northamptonshire Archaeology

An archaeological evaluation within the Moated Orchard
at Lyveden New Bield, Northamptonshire
September 2011



Northamptonshire Archaeology

2 Bolton House
Wootton Hall Park
Northampton NN4 8BE
t. 01604 700493 f. 01604 702822
e. sparry@northamptonshire.gov.uk
w. www.northantsarchaeology.co.uk



Northamptonshire
County Council

Joe Prentice

Report 11/230

December 2011



STAFF

Project Manager Steve Parry FSA, MA, MIfA

Text Joe Prentice

Fieldwork Joe Prentice, Carol Simmonds BA, PlfA and
Sam Egan BA

Pottery Paul Blinkhorn BTech

Building material Pat Chapman BA, IAfA

Illustrations Amir Bassir BSc

QUALITY CONTROL

	Print name	Signed	Date
Checked by	Iain Soden		
Verified by	Pat Chapman		
Approved by	Andy Chapman		

OASIS REPORT FORM

PROJECT DETAILS		
Project name	An archaeological evaluation in the Moated Orchard at Lyveden New Bield	
Short description	An archaeological evaluation comprising the excavation of eight trenches was undertaken at Lyveden New Bield within the area known as the Moated Orchard. The aim of the evaluation was to establish the presence or absence of the circular planting borders and paths laid out by Sir Thomas Tresham between 1597 and his death in 1605. A series of concentric rings can be seen on an aerial photograph taken c1944 but shortly afterwards the area was ploughed. Geophysical survey undertaken in 2011 did not reveal indications of the circular beds nor were any identified during the evaluation. The only features revealed were underlying medieval features relating to land use prior to the creation of the Elizabethan garden and surrounding canals.	
Project type	Evaluation	
Site status	Grade I Registered Park and Garden and Scheduled Monument	
Previous work	Geophysical survey	
Current Land use	National Trust gardens	
Future work	Unknown	
Monument type/ period	Landscape feature/post-medieval	
Significant finds	None	
PROJECT LOCATION		
County	Northamptonshire	
Site address	Lyveden New Bield, Aldwinkle	
OS Easting & Northing	(Centred on) SP 983 854	
Study area (sq.m)	Total area approx 230 sq metres of trenching	
Height OD	C85m aOD	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology	
Project brief originator	Rachael Hall, National Trust Archaeologist, Midlands Office (East)	
Project Design originator	Joe Prentice	
Director/Supervisor	Joe Prentice	
Project Manager	Steve Parry, Northamptonshire Archaeology	
Sponsor or funding body	National Trust	
PROJECT DATE		
Start date	September 2011	
End date	September 2011	
ARCHIVES	Location (National Trust)	Content (eg pottery, animal bone etc)
Physical		
Paper		
Digital		

Contents

1 INTRODUCTION

2 BACKGROUND

- 2.1 History
- 2.2 Location
- 2.3 Geology
- 2.4 Summary of previous investigations

3 METHODOLOGY

4 THE EVALUATION

- 4.1 Trench 1
- 4.2 Trench 2
- 4.3 Trench 3
- 4.4 Trench 4
- 4.5 Trench 5
- 4.6 Trenches 6, 7 and 8
- 4.7 Topographic survey

5 THE FINDS

- 5.1 Pottery by Paul Blinkhorn
- 5.2 The building materials by Pat Chapman

6 DISCUSSION

7 CONCLUSIONS

ACKNOWLEDGEMENTS

BIBLIOGRAPHY

Tables

Table 1: Pottery occurrence by number and weight (g) of sherds per context by fabric type, pit 204

Table 2: Pottery occurrence by number and weight (g) of sherds per context by fabric type, moat fill 104

Table 3: Pottery occurrence by number and weight (g) of sherds per context by fabric type, spread 404

Table 4: Pottery occurrence by number and weight (g) of sherds per context by fabric type, all unstratified material

Table 5: Quantification of ceramic roof tile

Table 6: Quantification of floor tiles

Table 7: Quantification of brick

Table 8: Quantification of stone roof tile

Report cover: The Moated Orchard looking south-west across the north canal

Figures

- Fig 1: Site location
- Fig 2: The Moated Orchard and New Bield
- Fig 3: The Middle Garden (Moated Orchard) from Brown and Taylor, 1972, showing the gravel spread
- Fig 4: Luftwaffe aerial photograph, c1944
- Fig 5: Magnetic gradiometer survey of the Moated Orchard, Malone 2011
- Fig 6: Resistivity survey of the Moated Orchard , Merrony, forthcoming
- Fig 7: Location of the trenches within the Moated Orchard
- Fig 8: Plan and section of Trench 1, plan 1:100, section 1:50 (A4)
- Fig 9: Trench 1, looking south-east, showing the stonework on the inner (northern) edge of the medieval moat
- Fig 10: Plan and section of Trench 2, plan 1:100, section 1:50 (A4)
- Fig 11: Trench 2, looking north, showing fills [205, [206] and [207] within pit [204]
- Fig 12: Trench 3, looking north-east
- Fig 13: Trench 4, looking east
- Fig 14: Trench 5, looking east
- Fig 15: Trench 6, looking north-east
- Fig 16: Trench 7, looking north
- Fig 17: Trench 8, looking south-east
- Fig 18: Topographic survey of the Moated Orchard, contour and orthographic wire frame representations
- Fig 19: Cross section from north to south across the terrace, north canal, Moated Orchard, south canal and ground surface to the south of the southern canal 1:1000 (A4)

**AN ARCHAEOLOGICAL EVALUATION WITHIN THE MOATED ORCHARD
AT LYVEDEN NEW BIELD, NORTHAMPTONSHIRE
SEPTEMBER 2011**

Abstract

An archaeological evaluation comprising the excavation of eight trenches was undertaken at Lyveden New Bield within the area known as the Moated Orchard. The aim of the evaluation was to establish the presence or absence of the circular planting borders and paths laid out by Sir Thomas Tresham between 1597 and his death in 1605. A series of concentric rings can be seen on an aerial photograph taken c1944 but shortly afterwards the area was ploughed. Geophysical survey undertaken in 2011 did not reveal indications of the circular beds nor were any identified during the evaluation. The only features revealed were underlying medieval features relating to land use prior to the creation of the Elizabethan garden and surrounding canals.

1 INTRODUCTION

A programme of archaeological evaluation was undertaken in September 2011 comprising the excavation of eight trial trenches across the area known as the Moated Orchard at Lyveden New Bield, Aldwinckle, Northamptonshire (centred on NGR SP 983854, Fig 1). The area of investigation lies within the boundary of the Scheduled Monument (SM No: 69) and the Grade 1 Registered Park and Garden (1001037). The Moated Orchard, which lies at the centre of the 12 hectare Elizabethan garden complex, comprises 1.7 hectares of grassland bounded to the north, east and south by canals or moats (Fig 2).

The work was undertaken by Northamptonshire Archaeology (NA) on behalf of the National Trust and followed a written Brief for archaeological trial trenching (evaluation) by the National Trust Archaeologist, Midlands (Hall 2011). A Capability Statement and specification was created in response, with all conditions regarding the requirements in the Brief being adhered to (NA 2011). The evaluation and reporting complied with the procedural document MoRPHE issued by English Heritage (EH 2006) and the appropriate national standards and guidelines, as recommended by the Institute for Archaeologists (IfA 2008). The work was undertaken under SMC and English heritage approved the Brief (Scheduled Monument Consent Number S00014132).

The work was undertaken in order to identify, if possible, the concentric circular planting beds and paths created by Sir Thomas Tresham at the end of the sixteenth-century and known from documentary and aerial photographic evidence. The work also aimed to investigate earlier, underlying, medieval features identified as a moat and

possibly pits detected during geophysical survey. The work was undertaken with the aim of helping to inform future presentation of the site.

2 BACKGROUND

2.1 History

The gardens at Lyveden New Bield are listed as a Grade I Registered Park (English Heritage 2010, 1001037, originally Listed in 1998, upgraded in October 2010) and part of the site is a Scheduled Monument (No: 69). The property, which is now under the custodianship of the National Trust, was formerly the property of the Tresham family. Originally acquired in 1468 by Sir Thomas Tresham, grandfather of another Sir Thomas Tresham (1543-1605), who created the gardens and the spectacular lodge known as the New Bield (Listed Grade I). The property is situated in east Northamptonshire between Kettering and Oundle on the south side of the Harley Way, an ancient road which is located at the base of the valley (Eburne and Felus 2008, Figs 1 and 2). To the south of that road lies a house, formerly the Tresham's residence, known as the Old Bield (Listed Grade I). From that building (now separately owned) the gardens progress up the hillside in a southerly direction before culminating in the Moated Orchard which lies at the crest of the southern slope of the valley. This garden comprises a square plot surrounded by canals or moats on the north, east and south sides and would have been finally enclosed on the west side thus creating a completely enclosed area had not work ceased on the death of Sir Thomas Tresham in 1605. To the south-east lies the shell of his unfinished lodge, the New Bield, an extraordinary and beautiful manifestation of his Catholic faith in stone.

The Thomas Tresham who created the various surviving elements at Lyveden was a great builder who also built elsewhere in the county. Born in 1543 his life was one of contrasts, for whilst he was enormously wealthy and he was accepted at the Court of Queen Elizabeth I, he was a devout Catholic which at that time made him subject to fines and imprisonment. Regardless of that, he embarked on a series of ambitious building projects, the first of which was the Market House at Rothwell, Northamptonshire, in 1578. This project was begun three years after he was knighted at Kenilworth Castle, Warwickshire, (with, amongst others, Robert Cecil, also a great builder) and where he would have seen the gardens created by Robert Dudley, Earl of Leicester for the nineteen day visit of Queen Elizabeth I in July 1575. Also at Kenilworth was Sir Christopher Hatton who owned Kirby Hall, Northamptonshire, and

from c1570 was building a great palace at Holdenby (also Northamptonshire) in anticipation of a visit by the Queen. That building there was complimented by a garden of tremendous complexity, much of which survives today as earthworks, and thus Tresham would have been part of a group of men who not only lived close to each other geographically, but were building on a tremendous scale and were setting those buildings within complex and sophisticated designed landscapes. It is within this social framework that the work of Sir Thomas at Lyveden must be set (albeit with an additional layer of religious symbolism), and which partly explains the scale of his works there.

Today the site lies within a landscape almost entirely devoid of twenty-first century intrusions, and although there is evidence of earlier, medieval occupation beneath the Moated Orchard and pottery production in the valley bottom, it is likely that at the time the Old and New Bield were created the landscape was relatively sparsely populated with much of the surrounding land incorporated into a deer park, and beyond that pasture for sheep with larger areas of woodland than survive today. The decision to create such an elaborate garden here, and not at Rushton, the family's main residence, seems deliberate and might reflect Tresham's desire to partly retreat from the wider world and concentrate on creating structures which he must have been contemplating building during his long periods of confinement for his faith. He was, by the time the work started on the New Bield in 1594, about fifty years old, but had been imprisoned or under house arrest seven or eight times, had been fined thousands of pounds and spent many years away from his home (in the same year he also began work on the Triangular Lodge at Rushton). Perhaps the idea of creating a garden and the New Bield was intended to provide an escape from such persecution. Sadly, this was not to be the case, and in 1596 he was imprisoned again, this time at Ely. Though not imprisoned after 1600, his last years were further tortured by the acts of his son, Francis, who became embroiled with the Essex rebellion and Gunpowder Plot.

It appears that building work on the Lodge, or New Bield, was started in June of 1594. Given its location, it must be assumed that Tresham would have positioned it in that location with the idea of the linking gardens already in mind since the lodge would have been the final destination of a staged perambulation through the gardens, themselves perhaps representative of the journey through life ending at a building which represented the Passion, adorned as it is with symbols of Christ's crucifixion. The location of the orchard, filled with (mainly) apple trees might represent more than just a garden which produced fruit. The apple bears strong symbolism in Christianity, in the

Old Testament the apple signified the fall of man, in the New Testament it is an emblem of redemption from that fall and it may be that the first stage of the progression through the gardens represented one or both of these. The symbolism of water is also a very strong symbol; water was created on the first day (Genesis 1:2, 608) and had, and indeed still has, strong Christian links through its use in the cleansing ritual of baptism. Was the surrounding circuit of water-filled canals (if it had been completed) representative of the cleansing power of water or is it simply used as a decorative border? It may, of course, have represented both, and would if it had been completed, have served as a very useful barrier against un-wanted animal ingress. Within the circuit of water were the concentric circular planted beds, interpreted by some as not simply a series of flower beds, but laid out as a labyrinth such as is known in certain cathedrals. The final goal, the New Bield is blatant in its form and symbolism, cruciform in shape and decorated with carvings representing the Passion. With so many symbols which have references to his faith, it is difficult not to see the gardens as representative of a Christian journey to ultimate redemption, though we can perhaps never be sure. There may be much that now eludes our understanding of the sixteenth-century Catholic symbolism of the garden, and whilst a great deal has been written about the buildings of Tresham, it would seem unlikely that the landscape in which the New Bield sits did not have equal symbolic relevance. This theme has been discussed in greater detail than can be attempted here in the article written for *Garden History* and the *Conservation Management Plan*, although both suggest that further work is necessary (Eburne 2008, Eburne and Felus 2008). The author of this report is not sufficiently conversant with Christian symbolism to add further to this discussion.

One other influence which may have inspired the concentric circles within the Moated orchard may have been the *Divine Comedy* by Dante Alighieri (1265-1321). In the third book, *Paradiso*, the story tells of a journey through heaven, guided by Beatrice who symbolises theology. In the poem, paradise is depicted as a series of concentric circles representing the circuits of the planets surrounding the earth. Given Tresham's keen interest in cosmography (he owned a copy of *Astronomiae instauratae mechanica* by Tycho Brahe) it would also seem likely that he was familiar with the more widely available and famous works by Dante (Andy Chapman pers comm).

Work continued over the proceeding years and was still underway in September 1605 when Tresham died. At that time it is thought all work ceased and the lodge and remaining canal on the west side of the Moated Orchard were left incomplete. It is not clear how much of the fine detail was in place within the central area of the Moated

Orchard, but a letter of October 1597 to John Slynn (or Slynne), his gardener, refers to cherry and plums trees, with a marginal note referring to 'circular borders'. How much, if any, planting was carried out is unclear, but in another letter, this time *from* John Slynn, he tells Tresham that he has:

'...received from Rushton the plum stock, raspberries, and 4 juniper trees [sic]. There is 400 raspberries... I have set them all in the moated orchard in the circular borders there...And whereas your worship mentions in your letter for setting up some certain circular borders of Roses, we do differ in opinion of your directions, Mr George his opinion is that there would be six foot of a border set with roses, and then 3 foot left for raspberries & so to proceed and in like manner; but as I conceive by your letter you will have 6 feet distance betwixt rose standard and standard and in the midst the raspberries to stand. So that we are both agreed to leave them as they are till that your worship come home'.

Whilst it appears the plants were set in the moated orchard, there was clearly some confusion about the spacing of the plants.

How the garden was maintained, if at all, after the death of Thomas Tresham in September 1605 is unknown, but it seems likely that there would have been little spent since he left large debts which his widow struggled for many years to pay off, and in 1609 she offered fifty fruit trees to Lord Burghley suggesting that she had either no need for them, or hoped to regain some expense from them.

Coupled with the need to repay large debts, Tresham's widow had also to contend with the fact that her husband's heir Francis, who had been implicated in the Gunpowder Plot, died in December 1605 in the Tower of London. The estate passed to his brother, Lewis, thence to his son, William who died childless in 1643. The estate passed to his widow who married again in 1649. Around this date the Lyveden Estate was sequestered due to the family's recusancy. Over the following centuries the property changed hands various times and in 1920 was bought by public subscription and donated to the National Trust in 1922.

2.2 Location

The area of investigation is located at approximately 85m aOD and lies at the upper slope of the south side of the Lyveden valley in the parish of Aldwincle (Fig 2). To the east, south and west the land is relatively flat. All around the site is at present mostly open landscape, although it is probable that historically woodland sheltered the site

much more, even into the late nineteenth century when it was reported that the Lodge could not even be seen from the Harley Way (Gotch 1883).

The north canal, aligned almost exactly west-east, is approximately 20m wide and 160m long (65 feet 7 inches wide by 524 feet 11 inches long). To the immediate north is a stepped terrace (which also acts as a dam for the north side of the north canal), terminated at both the west and east ends by pyramidal mounds which would have acted as viewing platforms both northwards down the valley side and across the gardens to the Old Bield, and south across the Moated Orchard over the central circular garden beds also with views towards the New Bield (now largely obscured by trees). The east canal, slightly narrower at roughly 15m wide (49 feet 2 inches wide) and now separated from the north canal by a narrow causeway of probable twentieth-century date, is aligned north-south before it sweeps around the south-east prospect mound before turning westwards where it delineates the south side of the plot and then curves around the western mound. Both circular mounds retain spiral pathways leading to their summits where they would have provided raised areas from which to view the central garden and out into the wider landscape. It appears that the western mount is incomplete as it is slightly lower than the eastern and since the west canal was never completed the supply of soil to build it to the same height was never excavated.

The centre of the square plot within the arms of the canals is raised in a shallow domed fashion towards the centre; it had not previously been determined whether this was a natural topographic feature taken advantage of or was entirely man-made. One of the aims of the evaluation was to determine which might be the case for the domed effect.

2.3 Geology

The underlying geology has been mapped as comprising calcareous and non-calcareous clayey soils (boulder clay) by The British Geological Survey of Great Britain England and Wales (Sheet 171, Kettering).

2.4 Summary of previous investigations

Previous archaeological investigation at the site has been limited, and has primarily involved earthworks survey and visual commentaries. The first 'modern' survey of the site, whilst concentrating on the New Bield (as had practically all previous commentaries), was undertaken in the summer of 1932 by Colonel K C Brown who spent a month camped on top of the south-east mount during which time he drew the

gardens and lodge, and carried out limited excavation around the New Bield (Brown 1935). The plan reproduced in his article is rather small, and the level of reproduction not particularly good but it is the text which reveals the most interesting information. In the section which concentrates on the gardens he states;

“The New Building was built on a raised square five feet high by three hundred feet square, this was probably all grass. Two hundred and twenty five feet from the front door and on the same axis was a formal garden, four hundred and seventy five feet by one hundred and fifty, and this was laid out in a diamond pattern and was probably the flower garden. *It can still be seen when the grass is long and the sun low, as is apparent in the aerial photograph*”. (My italics)

Later in the same article he continues:

“The formal or diagonal garden mentioned before does not appear in any of the letters, *but it can still be seen*”. (My italics)

His description of the diagonal garden is highly significant, since the planting of this area, along with that within the central part of the Moated Orchard, was apparently not known about until the recent Luftwaffe photograph was re-discovered (see below, section 2.19). Brown clearly states that there is no mention of the garden in the historic letters, so his description of seeing it on the ground, apparently in the form of differential vegetative growth is hugely significant, and apparently the first time they had been noted. That he writes that he could also see it on the aerial photograph he reproduces in his article is also significant, and with the eye of faith (always dangerous) a faint chevron pattern can be seen in part of this area. What he does not report seeing, and makes no mention of, are the circular beds within the Moated Orchard. The aerial photograph he reproduces in his article is an oblique shot, taken from the south-east and shows the New Bield in the foreground. The Moated Orchard lies beyond and the area of the diamond pattern garden is to the centre right of the photograph. He cites no source for the image but it was apparently taken during the winter months since there appear to be no leaves on the trees. What is not clear is if he saw the diamond garden first on the aerial photograph, or on the ground during his stay there, and having seen the one identified the other.

In 1953 the Institute of Archaeology visited the gardens, but it seems that all that was recorded was a note in the meeting programme which records the visit and suggests that the site deserved survey and publication.

In 1969 a survey was carried out by students attending a field archaeology course organised by the Department of Adult Education of Leicester University, the results of which were later published (Brown and Taylor 1972). At that date the existence of the Luftwaffe aerial photograph showing the concentric planting beds was still unknown, and the report concentrates on a survey and description of the remaining earthworks. They also dismiss in a rather off-hand way Colonel Brown's 1935 article which is described as 'short and inadequate' and they appear to have missed or ignored his reference to the diagonal garden which they too record was, even after extensive ploughing, 'still visible today in the modern arable by virtue of its gravel paths'.

At the time of their survey the area of the Moated Orchard, called by Brown and Taylor the Middle Garden, was under cultivation and the survey was presumably undertaken when there was no crop although the time of year is not noted. The report also states that '*No upstanding remains exists in the interior of the Middle Garden due to modern ploughing...*'. The report refers to the evidence for earlier, medieval earthworks and in particular the moated enclosure situated at the north-west corner of the Moated Orchard. That the site was presumably not under crop at the time of the survey since it is indicated by the report of:

'An intensive scatter of stone rubble and pottery of late medieval date suggest that the interior of this moat was occupied by a dwelling until the garden construction work commenced when it was presumably demolished and the moat filled in'.

This indicates that the ground surface could be observed. The report also recorded

'...an area of gravel soil apparently of considerable depth. This, in spite of continuous damage by ploughing which has made the edges almost impossible to define, still has a rough Y-shaped plan. The position, shape and orientation of this gravel suggests that it was part of the original garden design and was perhaps meant to be the area around some centrally placed statuary'.

The extent of the gravel spread is illustrated in the report, although its interpretation as the possible central gravelled area containing an upstanding feature is harder to understand. The width between the arms of the Y-shape is approximately fifty metres,

an astonishingly large central area and one which does not sit well within the formal outlines of the surrounding canals (Fig 3). Also, why such a feature would be this shape and not either square or even circular is difficult to understand.

Whilst it is easy, with the benefit of hindsight, to be critical of earlier work this interpretation does have a slightly whimsical ring to it and perhaps displays a certain creative interpretation of an apparently large and oddly shaped spread of gravelly soil. Neither of the recent geophysical surveys detected such a spread (see below) and subsequent discovery of the Luftwaffe photograph shows that this interpretation was most likely a mis-identification of a spread of natural geology.

Perhaps the most significant recent discovery (certainly in terms of documentary evidence) must be the recognition of the 1944 Luftwaffe aerial reconnaissance photograph held at the United States of America National Archive, Maryland, Baltimore (Fig 4). Although much studied, what has yet to be established is exactly what the photograph shows. The shadows of the trees suggest that the time of year when the photograph was taken was most likely autumn or spring, perhaps even during the winter, but it does not appear to show the trees in leaf. In addition, the shadows are long, and given that the sun was clearly shining from the south-west at the time the image was made, it must have been low in the sky and therefore has to be during the late autumn, winter or early spring months. Therefore it seems probable that the circular rings within the Moated orchard and diamonds of the parterre are low undulations of either earthworks or differential vegetative growth casting low shadows exactly as described by Colonel Brown. They are probably not parch marks or discolorations such as are seen in crops such as corn when variations in ripeness reveal buried archaeological features, although it is not impossible that such discolorations would occur at that time of year. The weather that winter (1944-45) was apparently one of the snowiest since 1814 (www.hollinsclough.org.uk). Snow fell on 19 December to be followed by a short mild spell with more snow in mid January which lay on the ground until mid March. Thus if the photograph was taken that winter it must have been before the December snow, in the short thaw before mid January or not until after mid March 1945.

Within the square delineated by the three completed canals, the concentric circles can be clearly identified, although the northern and north half of the western side are much clearer than the southern and eastern sides (Fig 4). The reasons for this are not certain. In some places the circles seem to show as continuous dark lines, in others a

series of almost conjoined dots suggestive of rows of individual planting pits. It may be that the actual evidence was a combination of the two, continuous cultivated beds with slightly better defined pits where Treshams gardeners planted the individual roses and raspberries. It is perhaps most likely that if surviving as shallow depressions, the individual pits represent the removal rather than the planting of those plants, especially as it seems that Tresham's widow removed trees from the adjacent orchard. This suggests that rather than lose the introduced plants which could not be maintained through lack of funds, they were removed and perhaps sold or planted elsewhere where they could be nurtured.

Unfortunately, as part of the War effort and the need to produce more food, the pasture was all ploughed and as a consequence any such slight undulations (or vegetative variations) were destroyed, albeit unintentionally. Certainly for some of the period the land was under the plough caterpillar tractors were used which is hardly surprising given the intractable nature of boulder clay (Brain Dix pers. comm.). It appears that ploughing of the site continued possibly until 1988 (Eburne and Felus 2088).

In July 2000 a probing exercise and coring was undertaken in selected locations in the moat (Hunt, Rushworth and Kirk 2000). The objectives of this exercise were primarily to determine the thickness, extent and nature of the sedimentary fill in the moat and secondly to recover material for palaeoenvironmental work, with a view to discovering the status and history of the garden prior to proposed dredging. Whilst interesting, the pollen analysis appears to indicate that the garden lay within an area of dry grassland with some arable ground nearby. There is indication of a selection of flowering species, but all are native and can be found in short grassland. There is a variety of native tree species, plants weeds colonising bare soil and water plants. While some of the flowering plants could have been planted within the concentric beds, they might equally have come from the later cottage garden nearby since none of the samples can be closely dated and there is no evidence of plants specifically mentioned by either Tresham or his gardener, although given the short period of time during which the garden was maintained this should not be surprising. The pollen analysis does not confirm that those plants mentioned were categorically planted and thus the evidence should be taken as equivocal.

In early 2011 the Trust commissioned a geophysical survey of the central plot (Malone 2011, Fig 5). The survey was carried out in April and comprised a magnetic Gradiometer and followed on from a previous resistivity survey (Merrony, forthcoming,

Fig 6). The areas surveyed included not only the Moated orchard but also an area to the north-east of the lodge, or New Bield. Within the Moated Orchard the most notable feature was a roughly L-shaped feature thought to represent the south and east arms of an earlier, medieval, moated enclosure (Figs 5 and 6). Further, discrete anomalies were thought to represent isolated pits and linear features, the latter of which were probably of modern date and most likely represent field drainage. The results were compared with an earlier resistivity survey (date unknown) carried out on behalf of the Trust by Sheffield University (Merrony forthcoming). Neither surveys revealed evidence of the late sixteenth-century circular planting beds.

3 METHODOLOGY

The trenching was undertaken by Northamptonshire Archaeology and a Project Design was submitted and approved by the National Trust prior to the commencement of fieldwork (NA 2011). Scheduled Monument Consent was obtained by the National Trust (S00014132).

Eight trenches were proposed and the principal aim of the evaluation was to establish the presence or absence of remains of the circular planting beds although all archaeological features located were to be investigated to such a degree as to determine their date, character, extent and level of survival.

Each trench was opened with the use of a mechanical excavator fitted with a one metre toothless bucket and each trench was monitored along its entire length. Following the machining each trench was cleaned by hand. The trench plan was suggested by the National Trust and apart from minor relocation of the trenches after mutual agreement between the Trust and NA, this plan was adhered to (Fig 7). All trenches were thirty metres in length apart from Trench 4 which was twenty metres in length, and all were one metre wide. The trenches were de-turfed prior to the removal of soil, with the turf being stored separately on polythene sheeting during the time of the evaluation. Spoil was stacked separately, also on polythene to prevent contamination of the underlying turf. All turf layers were given the numbering 01 for each trench (i.e. [101], [201] etc). Following backfilling with the upcast of the spoil from the trenches, the turf was replaced.

Both the turfing and mechanical excavation was undertaken by a sub-contractor, Scotts Landscapes, specialists in landscaping.

4 THE EVALUATION

4.1 Trench 1

Located at the north-west corner of the Moated Orchard, this trench was positioned primarily to investigate the evidence of the moat known from aerial photography, earthwork survey and geophysical survey (Figs 4, 5, 6 and 7). Aligned roughly north-west to south-east the trench was positioned in order to lie across the line of the former moat at right angles. Beneath a very thin topsoil [101] and mixed ploughsoil [102], 280-300mm deep, the upper level of the subsoil was revealed [103]. This comprised a pale yellow/brown clay with flint, chalk, limestone and bunter pebble inclusions, typical of natural boulder clay. Towards the southern end of the trench a board band of darker clay loam was revealed which delineated the limits of the former moat [105] (Fig 8). This broad clay loam band represents the uppermost backfill of the moat [104] and indicates that at its widest surviving point within the trench the feature was 8.6-8.8m wide. The upper fill contained large quantities of limestone along with ceramic roof and floor tile as well as domestic pottery. All dated to the mid-late sixteenth century suggesting that the final phase of backfilling had either been undertaken at that date or that a ground level which contained pottery and building debris of that period alone had been used as the final levelling layer (see below, section 5.4). This suggests that this feature had been backfilled immediately prior to the creation of the late sixteenth-century garden.

A single spit of soil was removed from the entire width of the backfilled moat and this revealed simply that the upper edges were gently shelved (Fig 8). The outer, southern, edge showed no signs of any form of revetment whilst the inner, northern edge revealed what may be either a deliberate strengthening with limestone or may simply represent a dump of waste stonework (Fig 9). It was not possible within the scope of the current investigations to establish which was the case.

Between the two edges of the moat attempts were made to auger the fill to determine the former depth of the moat and to test for evidence of waterlogged deposits. However, the presence of a large percentage of limestone foiled this attempt, and after fourteen separate locations were attempted, the experiment was discontinued. The deepest complete auger was of 0.45m and revealed only the same clay loam evident on the upper surface; no clear evidence of other layers or waterlogged deposits was found. It is assumed, given the width of the moat at this point, that the original depth might have been between two and three metres, and given the natural soil conditions it

would be highly likely that waterlogged conditions prevail. These dimensions are based on those of the current canals surrounding the present Moated Orchard, and which retain approximately 1m of water with up to 0.6m of sediment at the greatest depth/and or survival (Hunt, Rushworth and Kirk 2000). Given the apparently undisturbed nature of the deposits it seems highly likely that good preservation of organic materials will be present.

No evidence was found within the area delineated by the moat of *in situ* structures. This may be because any such evidence lies further to the north, it had originally been located at a higher level and had been graded off during the moat backfilling or garden levelling process or has been removed by modern ploughing. No indications of internal structures were revealed during the geophysical surveys.

No evidence was found of any of the late sixteenth-century circular planting beds indicated by the contemporary written sources or the modern aerial photograph and it is assumed that such evidence had been removed during modern ploughing.

4.2 Trench 2

This trench was positioned to investigate a geophysical anomaly identified during the most recent survey (Figs 4, 5, 6 and 7). The trench was aligned almost exactly north-south on the north side of the moated orchard. Beneath a ploughsoil [202] identical in composition and depth to that revealed in Trench 1 the same brown boulder clay natural subsoil [203] was revealed (Fig 10). Approximately halfway along the trench an area of darker clay loam containing a relatively high proportion of limestone and ceramic floor and roof tile was revealed. This corresponded with the area of high resistance/positive anomaly detected during the recent geophysical surveys. Excavation revealed that the feature [204] was most likely a pit which when sectioned revealed three distinct fills (Fig 11). The uppermost, [205] comprised pale yellow/brown clay almost indistinguishable from the natural clay; this overlaid [206] which contained a very compact layer of mostly thin slivers of limestone, some of which were clearly broken Collyweston type roof tiles. The bottom-most fill [207] contained less limestone but still retained a high percentage of roof and floor tile although within a darker clay loam matrix. The profile of the excavated portion of the pit suggested that the feature had shallowly shelving sides although the base was not uncovered in the trench. The pottery and tile suggest a mid-late fifteenth-century date for the pit (see below, section 5.4). No other features were revealed within the trench.

4.3 Trench 3

This trench was located in the north-east corner of the moated orchard and was aligned north-east to south-west (Fig 7). Along the entire length of the trench a consistent ploughsoil c300mm deep was revealed [302]. Beneath this a brown, mottled, natural boulder clay [303] was revealed which contained a variety of natural stone inclusions ranging from chalk to flint (Fig 12). There were no identifiable features along the length of the trench and no indication of any bands of soil which would suggest the presence of planting beds.

4.4 Trench 4

Located in the centre of the west side of the moated orchard, this trench was twenty metres in length and aligned east-west (Fig 7). It was located to evaluate the faint anomaly detected on the recent magnetometry survey which suggested that there was an indistinct linear feature in this location. Beneath the ploughsoil [402] the natural brown boulder clay [403] was revealed and towards the western end of the trench an area of slightly darker loamy clay was observed (Fig 13). On cleaning this was revealed to be a very slight deepening of the ploughsoil only, and no features were observed.

4.5 Trench 5

Positioned across the central area of the site and aligned east-west in order to investigate the area of gravel identified by Brown and Taylor (Fig 7). Beneath ploughsoil [502] the underlying natural boulder clay was revealed [503], here much paler in colour and containing a larger percentage of chalk than in the previous trenches (Fig 14). The reason for this is uncertain, but it appears to simply be a natural variation in the geology.

Towards the eastern end of the trench this pale clay was overlain by a more brown clay, observed in the other trenches. A small sondage was dug by hand to investigate whether this differentiation in what appeared to be natural clay was in fact evidence of build-up to create the slightly domed appearance of the central area. Excavation revealed that this variation in the clay appears to be an entirely natural phenomenon.

No evidence was seen of gravel along the length of the trench either in plan or section, within either the ploughsoil or natural clay.

4.6 Trenches 6, 7 and 8

These three trenches were all located in the southern half of the Moated Orchard and approximately mirror in their layout trenches 1, 2 and 3 (Fig 7). All trenches showed the same stratigraphic profile observed in the previous trenches which comprised a ploughsoil [602, 702 and 802] over natural boulder clay (Figs 15, 16 and 17).

No features were identified.

4.7 Topographic survey

Within the Project Brief an auger survey was requested comprising two transects across the site in north-south and east-west alignments in order to provide a record of the site profile and help provide an understanding of the nature of the domed appearance, more specifically whether this was a natural or man-made feature. At the time of the evaluation, after discussion with the Trust Archaeologist it was proposed that a topographic survey would be undertaken in place of the auger survey. This change to the Brief was agreed by both the National Trust and English Heritage, and a complete survey of the whole central area carried out using a Leica TCR 407 Total Station Theodolite (Fig 18). In addition, a north-south profile was made from outside the southern canal, across the central area, and over the northern terrace (Fig 19).

These surveys display clearly the domed appearance of the central area of the Moated Orchard. Whilst on the ground the domed appearance seems to be a very even rise, and the ground level along the edges of the bordering canals also gives the impression of a very level site, the survey reveals the variations in the actual site contours. The most significant of these appears to be the fact that the site seems to be the modified eastern end of a natural ridge which joins the plot from the western side. The methods of visually representing this survey convey the fact that towards the north and east sides of the area the ground rises slightly towards the edges of the bordering canals. This suggests that there has been a degree of upcast along the edges which would be expected, and indeed, necessary since the ground appears to fall away on those side, most obviously on the northern side, and less so on the eastern where the east side of the canal is retained by a low dam. The more irregular nature of the ground surface along the southern edge, particularly towards the western end may indicate the unfinished state of that part of the waterworks which were left incomplete at the time of Tresham's death in 1605.

5 THE FINDS

5.1 Pottery by Paul Blinkhorn

Analytical methodology

The pottery was initially bulk-sorted and recorded on a computer using DBase IV software. The material from each context was recorded by number and weight of sherds per fabric type, with featureless body sherds of the same fabric counted, weighed and recorded as one database entry. Feature sherds such as rims, bases and lugs were individually recorded, with individual codes used for the various types. Decorated sherds were similarly treated. In the case of the rimsherds, the form, diameter in mm and the percentage remaining of the original complete circumference was all recorded. This figure was summed for each fabric type to obtain the estimated vessel equivalent (EVE).

The terminology used is that defined by the Medieval Pottery Research Group's Guide to the Classification of Medieval Ceramic Forms (MPRG 1998) and to the minimum standards laid out in the Minimum Standards for the Processing, Recording, Analysis and Publication of post-roman Ceramics (MPRG 2001). All the statistical analyses were carried out using a DBase package written by the author, which interrogated the original or subsidiary databases, with some of the final calculations made with an electronic calculator. Any statistical analyses were carried out to the minimum standards suggested by Orton (1998-9, 135-7).

Fabric occurrence

The pottery assemblage comprised 1,017 sherds with a total weight of 11,522g. The estimated vessel equivalent (EVE), by summation of surviving rimsherd circumference was 4.37. It was quantified using the chronology and coding system of the Northamptonshire County Ceramic Type-Series (CTS), as follows:

F319:	Lyveden/Stanion 'A' ware (AD1150-1400)	32 sherds, 458g,	EVE= 0.31
F320:	Lyveden/Stanion 'B' ware (AD1225-1500)	4 sherds, 40g,	EVE=0.08
F322:	Lyveden/Stanion 'D' ware (AD1400-?1500)	33 sherds, 322g,	EVE=0.08
F365:	Late Medieval Reduced ware (AD1400-?1500)	48 sherds, 805g,	EVE=0.55
F401:	Late Medieval Oxidized Ware (?AD1450 – 1550)	870 sherds, 9459g,	EVE = 3.31
F403:	Midland Purple ware (AD1450-1600)	3 sherds, 55g,	EVE =0
F404:	Cistercian Ware (AD1470 – 1600)	6 sherds, 26g,	EVE = 0
F405:	Surrey 'Tudor Green' ware (AD1400 – 1600)	5 sherds, 8g,	EVE = 0.04
F407:	Red Earthenwares (AD1550-1750)	8 sherds, 243g	
F426:	Iron-Glazed Coarsewares (c late 17 th – 18 th century)	2 sherds, 13g	
F1001:	All Romano-British , 1 sherd, 8g		

The pottery occurrence by number and weight of sherds per context by fabric type is shown in Table 1. The range of fabric type is typical of sites of the late medieval period in the region (cf Steane and Bryant 1975).

Chronology

The range of pottery types indicate that activity at the site was largely limited to the mid/late 15th – mid/late 16th century. The assemblage was dominated by Late Medieval Oxidized Ware ('LMO' - fabric F401), a pottery type which was manufactured at site J at Lyveden (Steane and Bryant 1975), with another manufactory being at Glapthorn, some 5km to the north-east of this site (Johnston 1997). Around 20% (by weight) of the pottery of this type from here has white slip on the outer surface, over which is a green or yellow-green glaze, which is a feature of pottery from the Glapthorn rather than Lyveden kilns (ibid. 31), making it very likely that at least some of the F401 from here is from that source.

LMO is generally dated to AD1450 – 1550 (ibid. 24), and the presence of small quantities of Lyveden 'A' (fabric F319) and 'B' (Fabric F320) wares at the site suggests that there was activity here around the beginning of that period. Lyveden 'B' ware was originally thought to have stopped being made around AD1400 (Steane and Bryant 1975, 91), but more recent evidence from the manufactory at nearby Stanion, which was producing essentially identical pottery, shows that the end date for the tradition is more likely to be around AD1500 (Blinkhorn 2008, 254-5). The presence of small quantities of Lyveden 'A' ware suggest that it may still have been in very limited production in the mid-15th century, but earlier activity cannot entirely be ruled out.

It is also worthy of note that virtually all the Late Medieval Reduced Ware (LMR – fabric F365) from the site is glazed. The nearest known manufactory for this material is at Higham Ferrers (Blinkhorn 2007), which was dated to the late 14th – early 15th century, but all the wasters from the kiln were unglazed other than a few sherds with glaze splashes (ibid. 101), indicating that it was not the source of the LMR at this site. A recent study of a number of LMR manufactories in Bedfordshire showed that glazing was generally rare at the known potteries of the tradition in the county (Slowikowski 2011, 59-60), so it is possible that there is an as-yet unknown manufactory of such pottery in the northern Northamptonshire which was supplying this site.

The presence of Cistercian Ware (fabric F404) in the upper fill of the pit, context (205), suggests a final backfill date of the late 15th – 16th century for the feature, although

such pottery was not present in the lower fills, and its presence may be contamination by ploughing or a result of site clearance and levelling at the same time as the moat (104) was backfilled. In the case of the moat, the presence of both Cistercian Ware and Red Earthenware (fabric F407) indicates that it was finally back-filled in the mid – late 16th century.

The pottery

A large proportion of the assemblage, nearly 44% of the pottery from the site by weight, was unstratified and occurred in the ploughsoil. The rest of the assemblage essentially occurred in three features, the moat (104), the pit (204), and a ‘spread’, (404). The ‘spread’ and the pit-fill appear to be essentially the same date, mid-late 15th century, while the back-fill of the moat is mid-late 16th century. In all cases, the assemblages appear to be the result of secondary deposition, and it is likely that they were originally midden deposits which were used for backfilling features and levelling the site, with the amount of unstratified pottery in the plough-soil suggesting that the original ground surface has largely been removed by later agriculture. This is supported by the fact that the mean sherd weight for the unstratified pottery (13.1g) is actually slightly higher than that of each stratified group, and there were virtually no joining sherds or reconstructable vessels in any of the stratified groups. A few fragments of wasters and a kiln spacer suggest that there was pottery manufacture taking place in the vicinity of these excavations, but this is perhaps unsurprising given Lyveden’s importance as a potting centre in the medieval period.

Table 1: Pottery occurrence by number and weight of sherds per context by fabric type, pit 204

Fabric Context	F319		F320		F322		F365		Date (centuries)
	No	Wt (g)	No	Wt (g)	No	Wt (g)	No	Wt (g)	
205	4	46	-	-	4	40	6	123	Late 15th
206	6	72	4	40	2	11	8	187	Mid 15th
207	1	57	-	-	1	8	6	84	Mid 15th
Total	11	175	4	40	7	59	20	394	

Fabric type Context	F401		F404		F405		Date (centuries)
	No	Wt (g)	No	Wt (g)	No	Wt (g)	
205	154	1380	1	3	3	3	Late 15th
206	220	2396	-	-	-	-	Mid 15th
207	26	305	-	-	-	-	Mid 15th
Total	400	4081	1	3	3	3	

The assemblage from pit (204) comprised 446 sherds with a total weight of 4,755g (EVE = 1.93). The mean sherd weight is 10.7g. It is dominated by F401, which makes up 85.8% of the group (by weight). The pottery occurrence by number and weight of sherds per context by fabric type is shown in Table 1. The rimsherds show a relatively equal consumption pattern, with jars (EVE = 0.53), bowls (EVE = 0.72) and jugs (EVE = 0.68) the only types represented, although a single horizontal handle from a dripping dish or skillet was also present. Five of the six jar rims were in F401, the other in F319. It is possible that at least one of the F401 jar rims was from a bung-hole cistern or storage jar, as it had a much larger diameter than the others. No bung-holes were present amongst the whole site assemblage, but some very large handle-terminals which are typical of such vessels were present, and they were a standard product of the LMO industry (eg. Johnston 1997, fig 14). All the bowl-rims were in F401, and all but three of the jug rims, with two being in LMR and one in F320.

Context (207) produced evidence of pottery or tile production in the immediate vicinity of the site in the form of two sherds which were clearly spalled flakes with glaze running over the broken edge, and a 'bob', a small piece of clay used as a kiln-spacer, which was covered in glaze. The 'bob' and the spalled flakes all had a sandy, LMO-type fabric.

The fill of the pit appears to be of mid-late 15th century date, apart from the very small sherd of F404 in the upper fill, which could easily be contamination. The presence of fairly large sherds of F319 in all the fills, particularly that from (207), suggests that there may have been earlier activity at the site, and the primary fill of the pit represents clearance material before the establishment of the moat, etc.

Table 2: Pottery occurrence by number and weight of sherds per context by fabric type, moat fill 104

Fabric	F319		F322		F365		F401		Date
Context	No	Wt (g)	No	Wt (g)	No	Wt(g)	No	Wt (g)	(centuries)
104	7	110	7	36	8	50	124	1097	Mid 16th

Fabric	F404		F405		F407		Date
Context	No	Wt (g)	No	Wt (g)	No	Wt (g)	(centuries)
104	4	13	1	2	3	153	Mid 16th

The assemblage from moat fill (104) comprised 154 sherds with a total weight of 1461g (EVE = 0.42). The mean sherd weight is 9.5g. It is dominated by F401, which makes up 75.1% of the group (by weight). The pottery occurrence by number and weight of

sherds per context by fabric type is shown in Table 2. The presence of several large sherds of Red Earthenware (fabric F407) indicates that the final back-fill is of mid-late 16th century date.

There are only seven rimsherds from the entire assemblage; one jar, one jug and four bowls, as well as a very small fragment from the rim of a Surrey ‘Tudor Green’ type cup. This is not an unusual occurrence pattern for the late medieval period, although the bowl assemblage includes a full profile of a small, shallow ‘dog-dish’ type vessel in fabric F401, which is a somewhat unusual vessel form for the tradition, although a fragment of another occurred in context 202.

Table 3: Pottery occurrence by number and weight of sherds per context by fabric type, spread 404

Fabric Context	F322		F365		F401		Date (centuries)
	No	Wt (g)	No	Wt (g)	No	Wt (g)	
404	1	8	2	7	27	237	Mid 15th

The assemblage from spread (404) comprised 31 sherds with a total weight of 260g (EVE = 0.22). The pottery occurrence by number and weight of sherds per context by fabric type is shown in Table 3. Just four rimsherds were present, two from jars and the others from bowls, and all were in fabric F401 apart from a single jar in F322. A jug handle in F401 was also present. The mean sherd weight is the lowest of any context-specific assemblage from the site (8.4g), which is entirely consistent with it being material from a relic ground surface.

Table 4: Pottery occurrence by number and weight of sherds per context by fabric type, all unstratified material

Fabric Context	F319		F322		F365		F401		Date
	No	Wt (g)	No	Wt (g)	No	Wt (g)	No	Wt (g)	
102	5	97	9	139	4	67	43	656	U/S
202	9	76	8	77	14	286	254	2999	U/S
302	-	-	1	3	-	-	21	369	U/S
402	-	-	-	-	-	-	1	20	U/S
Total	14	173	18	219	18	353	319	4044	

Table 4 continued:

Fabric Context	F403		F404		F405		F407		F426		Date
	No	Wt (g)	No	Wt (g)	No	Wt (g)	No	Wt (g)	No	Wt (g)	
102	3	55	1	10			4	77	1	7	U/S
202	-	-	-	-	1	3	-	-	1	6	U/S
302	-	-	-	-	-	-	1	13	-	-	U/S
402	-	-	-	-	-	-	-	-	-	-	U/S
Total	3	55	1	10	1	3	5	90	2	13	

The unstratified assemblages comprised 386 sherds with a total weight of 5,046g (EVE = 1.80). The pottery occurrence by number and weight of sherds per context by fabric type is shown in Table 4. Each group shows broadly the same pattern, with LMO dominating. The range of vessel types is also broadly the same as the stratified material, with the rimsherds being entirely jars (EVE = 0.52), bowls (EVE = 0.37) or jugs (EVE = 0.91). A skillet or dripping dish handle occurred in context (302), and a 'dog dish' fragment was noted in context (202). It is from a different vessel to that noted in the top of the moat fill, (104). Another possible waster fragment was noted in context (102).

5.1 The building materials by Pat Chapman

Ceramic roof tiles

This assemblage of 552 roof tile sherds weighs 17.8kg (Table 5). The sherds are small, the average size being c 50mm by 70mm, with many smaller fragments. The majority are flat tiles typically 10-15mm thick, two sherds have a minimum width, 155mm and 160mm (c 6¼ inches). Only two remnant pegholes survive. There are 38 ridge tiles, including detached crests. The crests comprise low discreet pyramids, coxcomb style or ridges, only one had been stabbed underneath, with no scoring on the sides of the crests.

The tiles have all been green glazed, with variations between a very dark moss green, a lighter and brighter grass green and a few with a pale apple green, particularly associated with the tiles made from the fine pale brown fabric.

The fabric can be separated into four types, three are coarser than the pottery: hard fine sandy brown, orange or red-brown clay with occasional tiny gravel, ironstone or calcareous inclusions, sometimes with a reduced core; hard slightly coarse sandy orange, bright orange, orange-brown or red clay with the same inclusions; hard coarse

sandy orange or red with the same inclusions. A few sherds are made from a hard fine silty pale brown clay, similar to the Lyveden/Stanion D' ware fabric F322. These tiles are slightly different from the assemblage recovered from waster pits in Stanion, the fabric of those tiles being consistently shelly and the ridge tile crests larger with decorative slashes down each side, and the ridge tiles stabbed underneath, although they were also all green glazed (Chapman 2008, 255). Two sherds are made from a hard white fabric.

There is a certain amount of obvious overfiring, some tiles are reduced and starting to split, a few have started to bloat and distort, and the glaze is burnt or occasionally started to bubble. Two tiles are reddened with black edges, typical of kiln lining.

These tile sherds are probably both the dumped result of a misfiring kiln and some have been reused as lining for subsequent firings before being dispersed onto fields rather than being buried in pits as happened in Stanion.

Table 5: Quantification of ceramic roof tile

Context/ feature	No	Weight (g)	Comment
102, ploughsoil	17	820	5 ridge tiles 1 fine pale brown
104, moat fill	121	3500	6 ridge tiles 2 fine pale brown
202, ploughsoil	66	3240	6 ridge tiles 1 pale brown Kiln liner
205 / pit 204	62	2350	7 ridge 2 white
206 / pit 204	170	5010	5 ridge, 1 fine pale brown 1 fine pale brown
207 / pit 204	12	480	2 ridge
302, ploughsoil	12	470	4 ridge 1 fine pale brown
402, ploughsoil	36	1210	2 ridge
404, layer	26	690	1 ridge 1 kiln liner
Totals	552	17770	

Ceramic floor tiles

This assemblage of 60 floor tile sherds weighs 7.7kg (Table 6). These are all plain green glazed tiles in the same three hues as the roof tiles, and three unglazed sherds. They are either 23-25mm or 30mm thick with one sherd at least 160mm wide (6¼ inches) and another at least 145mm wide (5½ inches). The edges are chamfered

except for the three plain tiles. Some of the tiles had remnants of other tiles or bricks still adhering to the glazed surfaces, indicating either an accident or reuse as kiln furniture.

The main fabrics comprise hard fine sandy orange-brown or red clay; fine hard white clay; hard coarse red clay; hard sandy bright orange clay, and hard sandy clay reduced with brown surfaces. Hard sandy red tiles with black edges were probably used or reused in a kiln. These fabrics are similar to the roof tiles, except for the 18% in a white fabric, only two roof tile sherds are in the same fabric out of 552 sherds.

These are not the floor tiles as usually seen in religious establishments, but for at least a medium status household.

Table 6: Quantification of floor tiles

Context / feature	No	Wt (g)
102, ploughsoil	6	710
104, moat fill	11	1300
202, ploughsoil	8	1410
205 / pit 204	12	1740
206 / pit 204	20	2320
207 / pit 204	2	90
302, ploughsoil	1	160
Totals	60	7730

Brick

There are 157 brick fragments, weighing 6.2kg (Table 7). Only six have a measurable dimension, being between 40mm and 45mm thick (1½ and 1¾ inches). They are typically made from a fine sandy red fabric with buff streaks, or a sandy brown fabric, some with grog, flint and calcareous inclusions. Some fragments come from bricks that have been overfired to purple black or have vitrified surfaces, suggesting their use in a kiln.

The fragment from fill (207), pit 204, is more suggestive of kiln furniture as it is curved, not rectangular.

Table 7: Quantification of brick

Context / feature	No	Wt (g)
102, ploughsoil	3	290
104, moat	50	1520
202, ploughsoil	2	50
205 / pit 204	49	1460
206 / pit 204	45	2560
207 / pit 204	1	210
402, ploughsoil	1	50
404, layer	6	100
Totals	157	6240

Stone roof tile

This assemblage of roof tiles comprises 12 small fragments, one larger fragment and one nearly complete tile, all made from fissile limestone, probably Collyweston slate or something similar (Table 8). The near complete tile from pit 204 is 125mm wide, at least 200mm high (c 5x8 inches), just lacking the top, and 20mm thick. The small size suggests that this tile would have been used near the roof ridge.

Table 8: Quantification of stone roof tile

Context feature	/ No	Wt (g)	Dimensions (mm)
102, ploughsoil	1	80	11 thick, peghole 11 diameter
104, moat	1	30	9 thick, peghole 11 diameter
202, ploughsoil	1	150	13 thick, peghole 9 diameter
205 / pit 204	4	190	5-15 thick, 2x pegholes 7 and 9 diameter
206 / pit 204	3	360	12-15 thick, pegholes 9-11 diameter
	1	800	25 thick, 125mm wide, min 200 high peghole 9 diameter
207 / pit 204	2	560	9 and 13 thick, pegholes 5 and 9 diameter
402, ploughsoil	1	30	9 thick
Totals	14	2200	

Discussion

The ceramic roof and floor tile assemblages are datable to between the 14th and 16th centuries, contemporary with the pottery. They are probably a combination of rejected tiles from a kiln firing with some at least being reused in the kiln together with the brick. The stone tiles are the scattered remnants from a roof.

6 DISCUSSION

Whilst much has previously been researched and written about the life, buildings and garden of Sir Thomas Tresham at Lyveden, as far as is known, the recent evaluation is the first time that trial excavation has been undertaken to establish the existence or otherwise of evidence for the fine detail of that garden. The earthworks of the mounts and terrace, now cleared of the majority of the weed undergrowth, and the cleaned canals which surround the Moated Orchard allow the visitor to experience, perhaps for the first time since the gardens were abandoned after Tresham's death, the vision which he was in the process of creating. The death of his son shortly afterwards, and the depletion of the families fortunes by that errant son were partly responsible for the abandonment of the site. Archaeologically this has ensured its survival in a remarkably un-altered state, and if it were not for the ravages inflicted by the agricultural cultivation of the site after the Second World War there is every likelihood that the fine detail of the planting beds and paths would survive to this day. The consistent depth and sharp definition of the horizon between this plough soil and the underlying natural are exactly what would be expected of a recent agricultural intervention.

Whilst not unique (for the gardens at Holdenby, which are almost exactly contemporary and of similar scale, also survive as earthworks but have not been ploughed and most likely retain fine planting detail) the Lyveden example surely ranks amongst the finest un-altered late Elizabethan gardens in England.

Documentary evidence indicates the type of plants Tresham had in mind for the circular beds, and the exchange of letters between him and his gardener suggests that some level of finished detail, at least, was implemented. However, pollen analysis from core samples taken before the dredging of the canals did not confirm the presence of those plants described by Tresham (Hunt, Rushwick and Kirk 2000). Whilst this does not mean that the gardens were not planted, it does not either confirm that they were. The pollen evidence must therefore remain equivocal.

The evidence of what can perhaps be described as the first modern account of the site, that made by Colonel K Brown, has previously been largely discounted, and yet he appears to have been the first person to make note of (if not the first to notice) the visible evidence in variations in plant growth which revealed the presence of the diamond patterned parterre to the north of the New Bield. His observations, which record that this evidence could be seen both on the ground and from aerial photographs, seems to have been ignored yet may perhaps rank as one of the earliest

accounts of such evidence for historic garden remains. Sadly he made no similar observations of the area within the Moated Orchard, though it may be that that area was under a different farming regime at the time; if for example, it had been cut for hay (and he was there in summer), he would not have been able to see such surface evidence.

The earthwork and walk-over survey carried out in 1969 was undertaken after the period of prolonged modern ploughing, some of which is known to have been carried out using a caterpillar tractor, presumably due to the heaviness of the clay soil. Nothing was recorded within the Moated Orchard apart from a description of an apparently natural geological soil variation, seemingly wrongly attributed as evidence of a garden feature, perhaps a centrally gravelled area which contained a statue. No evidence has been found of either the gravel or any statue base (in the form of foundation or robbed foundation) in the geophysical surveys or evaluation. The diamond patterned parterre was still apparently visible as soil marks within the ploughed field at that time.

The recent geophysical surveys did not reveal any evidence of the concentric circular planting beds but produced very good plots of underlying, and chronologically earlier, archaeological features.

7 CONCLUSIONS

The archaeological trial excavation at Lyveden New Bield has indicated that the late sixteenth-century circular planting beds known from contemporary documents and the recently identified aerial photograph do not survive. Both sources indicate that whilst left incomplete, the elaborate gardens created by Sir Thomas Tresham were at least partly planted before his death in 1605. Ironically, this incompleteness and subsequent abandonment ensured the survival of the site until the 1940s when modern ploughing erased almost all earthwork, and potentially vegetative, evidence of this garden within the confines of the Moated Orchard. The relatively intensive modern cultivation in the form of ploughing continued until the early 1980s. Given the fact that the original planting beds, presumably in the form of concentric bedding trenches, would most likely have been relatively shallow, and cultivated for a relatively short period of time, and that the modern ploughing was relatively deep and prolonged, the chances of the former surviving the latter is not possible. The only survey carried out before this modern cultivation did record that garden features were visible on the site, although not within the Moated Orchard. Given that the person who recorded the

garden evidence elsewhere on the site was apparently camping on one of the mounds overlooking the central moated area, one can only assume that at the time he was there (mid summer), the grass had either been cut for hay or was grazed short by animals and any variation on growth was not visible. At that time of year, unless very early or late in the day shadows would not have been low enough to cast a raking light over any surviving earthwork remains.

The coverage of the trenches across the entire area of the central plot suggests that there are not likely to be pockets of survival of buried archaeology from the period of the garden within this moated part of the complex. What appear to be relict shallow headland ridges visible around the perimeter of the plot suggest that the modern ploughing was taken close to the top edge of the surrounding canals.

Underlying medieval features which are cut much more deeply into the natural substrate have survived beneath the layer of modern ploughsoil. One comprises the southern arm of a medieval moat known previously from aerial photographs, and the position of which has been confirmed by recent geophysical survey. This section of the moated enclosure extends into the field to the north-west of the Moated Orchard and is clearly visible on aerial photographs of the area although it too has undergone a prolonged period of ploughing and little is now visible on the surface. Whilst the exact nature of the extended enclosed area is uncertain, it appears to represent part of a medieval farmed landscape and was largely surrounded by ridge and furrow cultivation, also now obliterated. It seems likely that much of this altered landscape will survive below ground and be detectable by both geophysical and archaeological investigation. A second feature, almost certainly a pit and located to the east of the moat, was shown to be broadly of the same date and almost certainly relates to the moated enclosure. The pottery and other ceramic finds from the features suggest that the moat was finally backfilled during the second half of the sixteenth century, probably shortly before, and as part of, the creation of the Moated Orchard. The pottery from the pit suggests that it had been backfilled during the mid fifteenth-century, and was most likely not visible or known about at the time the circular flower beds were created.

The evaluation appears to confirm that the natural domed appearance of the central area within the canals is a natural topographical feature. This was determined partly by the completion of the topographic survey which shows that the domed appearance, while apparently regular when viewed from the ground, is in fact fairly irregular and seems to be the eastern limit of a natural ridge. Archaeological investigation further

confirmed that the doming was not connected with the creation of the surrounding canals for two reasons. Firstly a small sondage revealed no evidence of anything other than natural clays of different nature. Secondly, and perhaps more conclusive, is the fact that both of the medieval features, the moat and pit (Trenches 1 and 2) were both cut into the mid-brown clay which overlies the whiter, more mottled clay found in the central trench (Trench 5). If mid fifteenth-century (or in the case of the moat, probably earlier) features are cut into the mid-brown clay this can clearly not represent upcast from the sixteenth-century canals and therefore be re-deposited on top of the whiter clay in the centre. What seems more likely is that the mid-brown clay which overlies the whiter clay had been removed by the modern ploughing. It seems most likely that it was this whiter clay area which was observed during the 1969 walkover survey and mistakenly identified as a man-made central feature.

Plans to re-create the series of circular planting beds could be undertaken either by the continuation of the differential mowing regime or if desired, by the planting of species indicated by Tresham and his gardener on a design based on that extrapolated from the single aerial photograph. As long as any new cultivation or planting was restricted to the upper 300mm of modern ploughsoil there should be little potential for undisturbed buried archaeological remains to be further damaged. However, depending on the type of species planted, and the length of cultivation anticipated, there may be longer term implications for the contamination of more deeply buried archaeological features by root disturbance. It should also be considered that the use of organic or non-organic soil improvers may affect the chemical composition of the soil which may have implications for future soil investigation such as phosphate analysis. Expert advice should be sought before any planting scheme is implemented.

The layout of new planting beds within the Moated Orchard should be carefully recorded and all species noted so that any future analysis of pollen material from the canals would not be mistaken for evidence of historic planting. The site is notoriously exposed and windy, and given that historically the site appears to have been more sheltered (with Gotch writing in 1883 that the lodge could not be seen from the road) there may need to be some trial planting to determine whether intended species would survive a much more open aspect. The configuration of the planting beds would have to be set-out from the information displayed on the aerial photograph since neither the geophysical surveys or archaeological investigation have revealed any further evidence of their layout.

ACKNOWLEDGEMENTS

Thanks are extended to the National Trust staff for their help, hospitality and enthusiasm during the fieldwork and to Steve Scott and his team from Scotts Landscapes for their work during the de-turfing, excavation, backfilling and re-turfing of the trenches.

BIBLIOGRAPHY

Blinkhorn, P, 2008 The Pottery, in P Chapman *et al* 2008, 215 - 71

Blinkhorn, P, 2007 The Post-Roman pottery, in A Hardy, BM Charles and RJ Williams *Death and Taxes. The archaeology of a Middle Saxon estate centre at Higham Ferrers Northamptonshire*, Oxford Archaeol Monog, 100-111

Brown, A E, and Taylor, C C, 1972 The Gardens at Lyveden, Northamptonshire, *Archaeol Journal*, **129**, 154-60

Brown, K C, 1935 Lyveden New Bielding, *Northamptonshire Natural History Soc & Field Club*, **28**, 1-7

Chapman, P, 2008 Ceramic roof tile, in P Chapman *et al* 2008, 255-257

Chapman, P, Blinkhorn, P, and Chapman, A, 2008 A medieval potters' tenement at Corby Road, Stanion, *Northamptonshire Archaeol*, **35**, 215-270

Eburne, A, 2008 *The Passion of Sir Thomas Tresham: New Light on the Gardens and Lodge at Lyveden*, *Garden History*, **36(1)**, 114-134

Eburne, A, and Felus, K, 2008 (Draft) *Lyveden New Bield Conservation Management Plan*

EH 200? *Register of Parks and Gardens of Special Interest in England, Northamptonshire*, English Heritage

EH 2006 *Management of Research Projects in the Historic Environment, MoRPHE*, English Heritage Procedural Document

Gotch, J A, 1883 *The Buildings of Sir Thomas Tresham*

Hall, R, 2011 *Proposed Brief for Archaeological Trial Trenching within the Moated Orchard, Lyveden New Bield, Aldwincle, Northamptonshire*

Hunt, C O, Rushworth, G, and Kirk, I, 2000 *Sedimentation at Lyveden New Bield: a preliminary assessment*

Hunt, C O, Rushworth, G, and Kirk, I, 2000 *Sedimentation at Lyveden New Bield: Final Report*

IfA 2008 *Standard and guidance for archaeological field evaluation*, Institute for Archaeologists

Johnston, G, 1997 The Excavation of two Late Medieval Kilns with Associated Buildings at Glapthorn, near Oundle, Northamptonshire, *Medieval Ceramics*, **21**, 13-42

Malone, S J, 2011 *Land at Lyveden New Bield, Northamptonshire*, Geophysical Survey, APS report, **46/11**

Merrony C, forthcoming, Geophysical survey within the Moated Orchard

MPRG 2001 *Minimum Standards for the Processing, Recording, Analysis and Publication of post-roman Ceramics*, Medieval Pottery Res Group Occ Paper, **2**

MPRG, 1998 *Guide to the Classification of Medieval Ceramic Forms* MPRG Occasional Paper, **1**

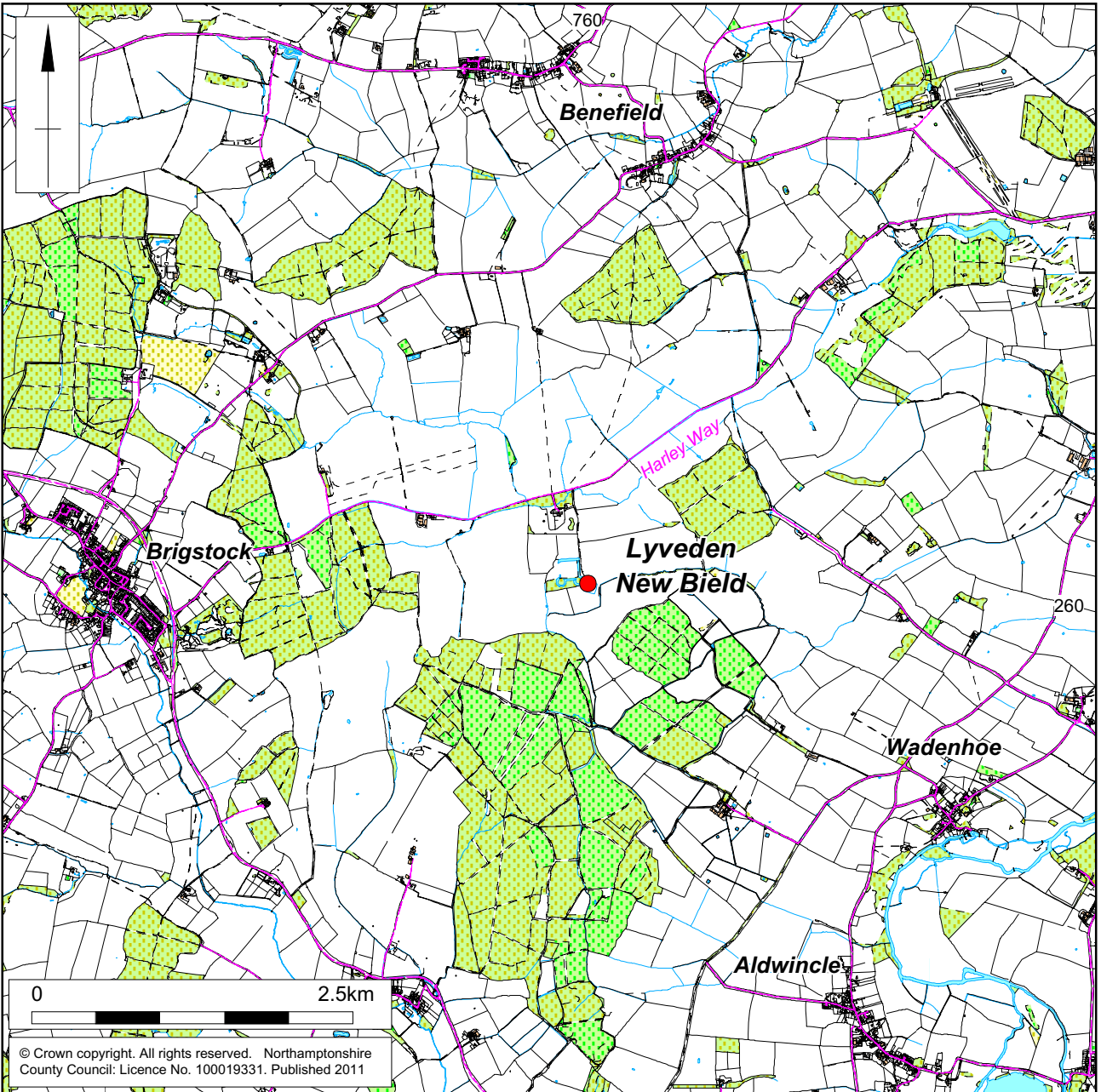
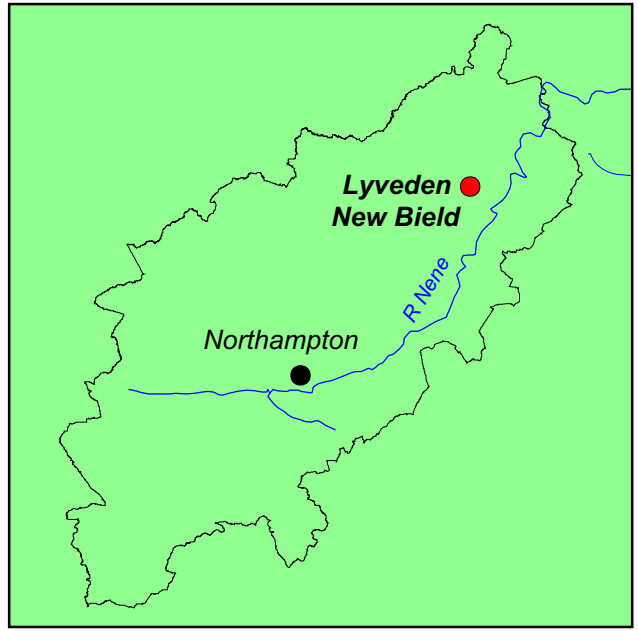
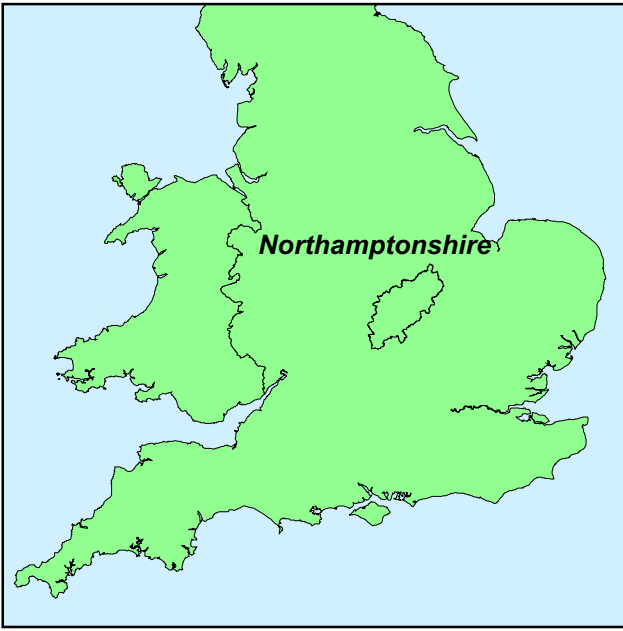
NA 2011 *Lyveden New Bield Moated Orchard Capability Statement and Project Design*. Northamptonshire Archaeology

National Trust Guidebook 2004 *Lyveden New Bield*

Orton, C, 1998-99 Minimum Standards in Statistics and Sampling, *Medieval Ceramics*, **22-23**, 135-8

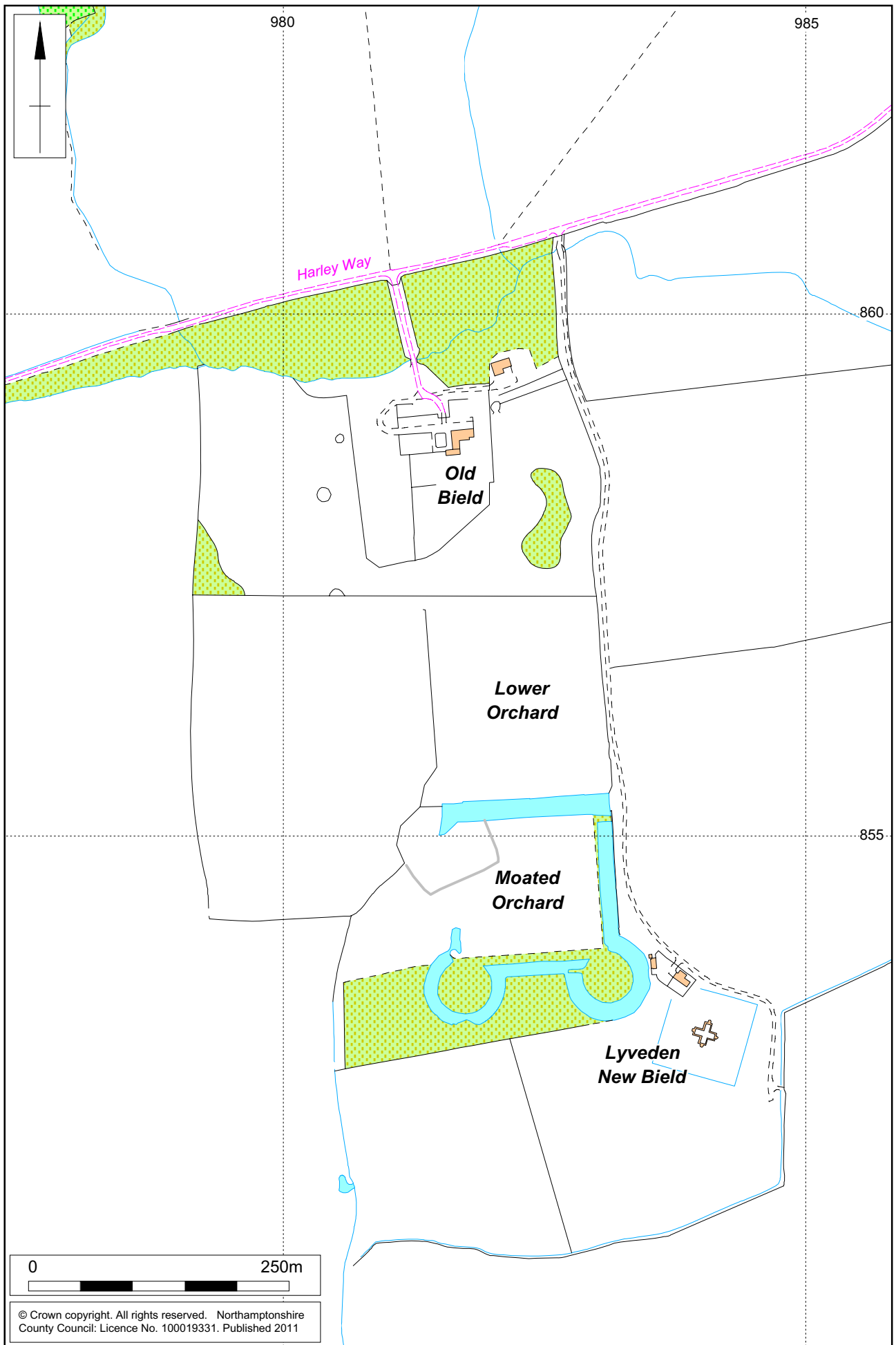
Slowikowski, A, 2011 *Genius in a Cracked Pot. Late Medieval Reduced Ware: A Regional Synthesis*, Medieval Pottery Research Group Occasional Paper, **4**

Steane, J M, and Bryant, G F, 1975 *Excavations at the Deserted Medieval Settlement at Lyveden, Northants*, J Northampton Museum & Art Gallery, **12**



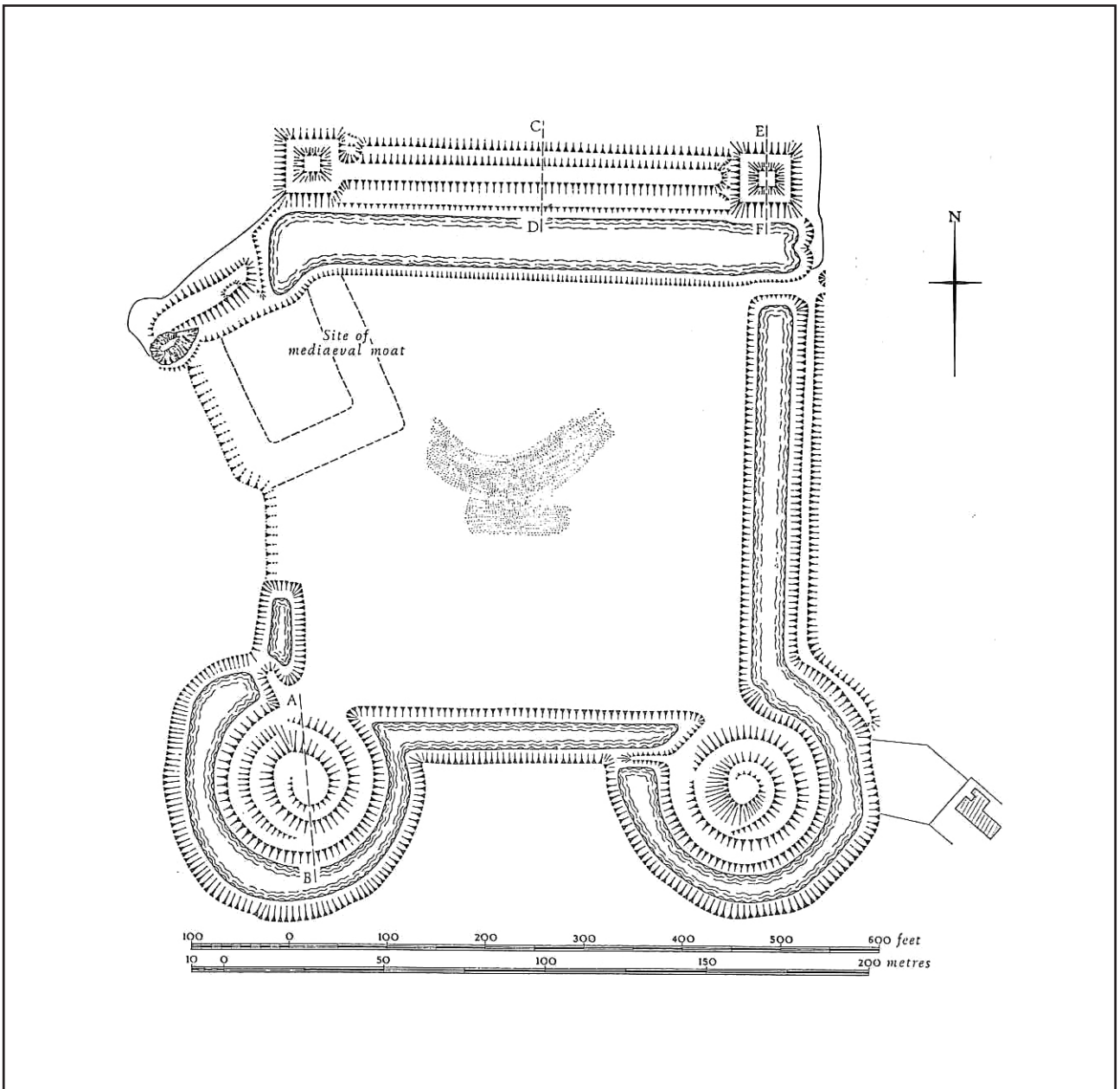
Scale 1:50,000

Site location Fig 1



Scale 1:5000

The Moated Orchard and New Field Fig 2



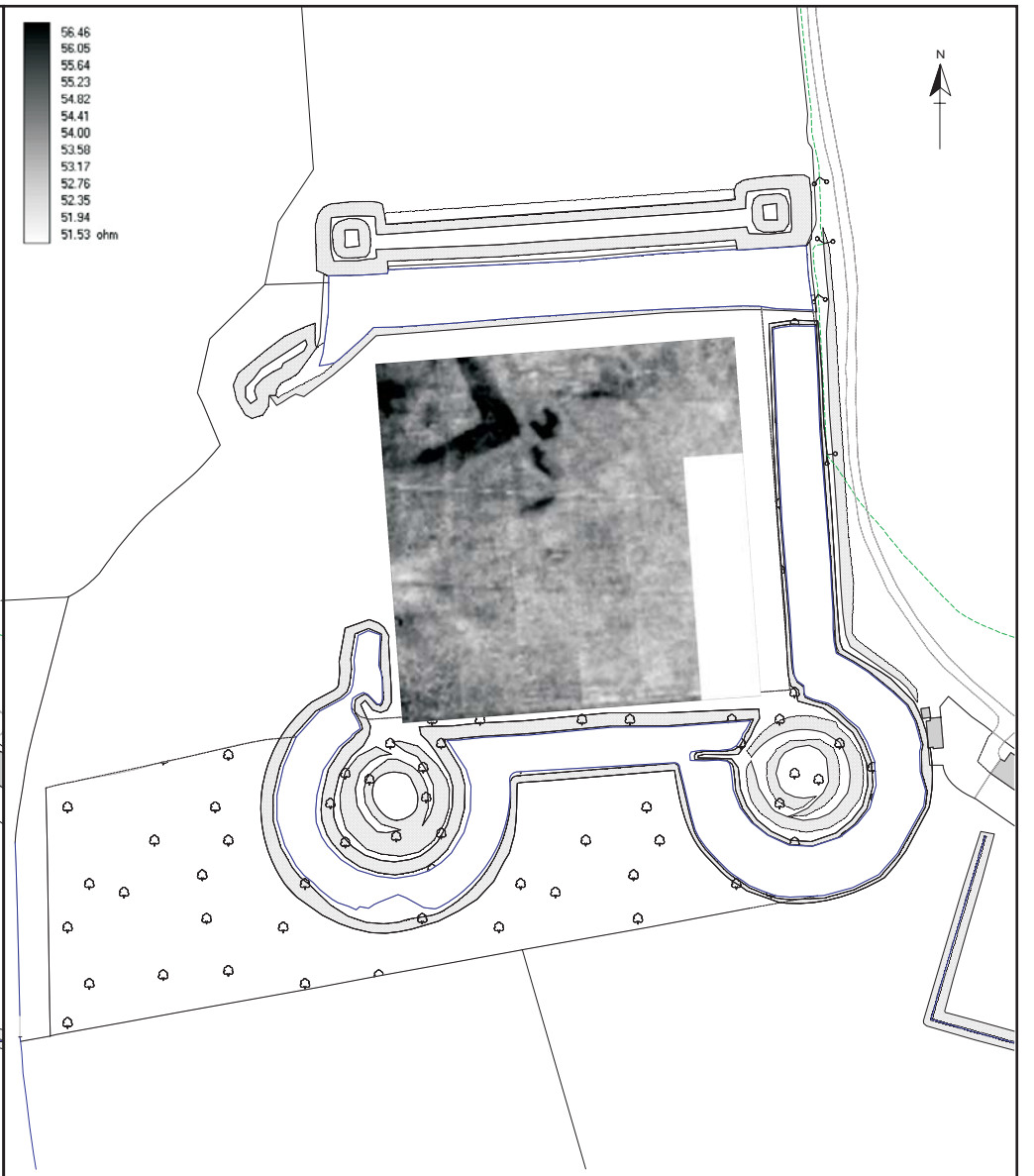
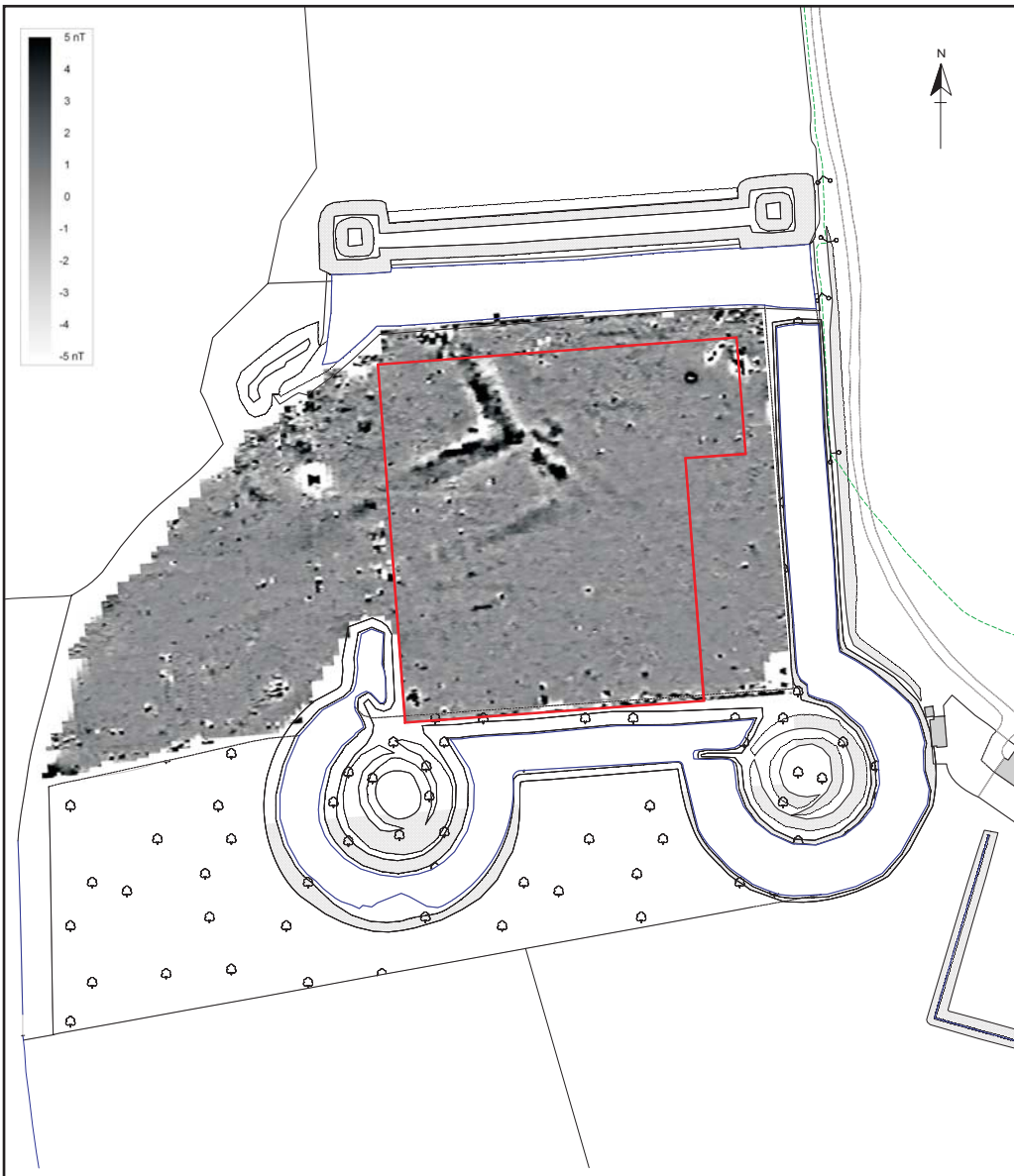
The Middle Garden (Moated Orchard) from Brown and Taylor, 1972, showing the gravel spread

Fig 3



Luftwaffe aerial photograph, c1944 Fig 4

Scale 1:2500 (A4)



Magnetic gradiometer survey of the Moated Orchard, Malone 2011 Fig 5

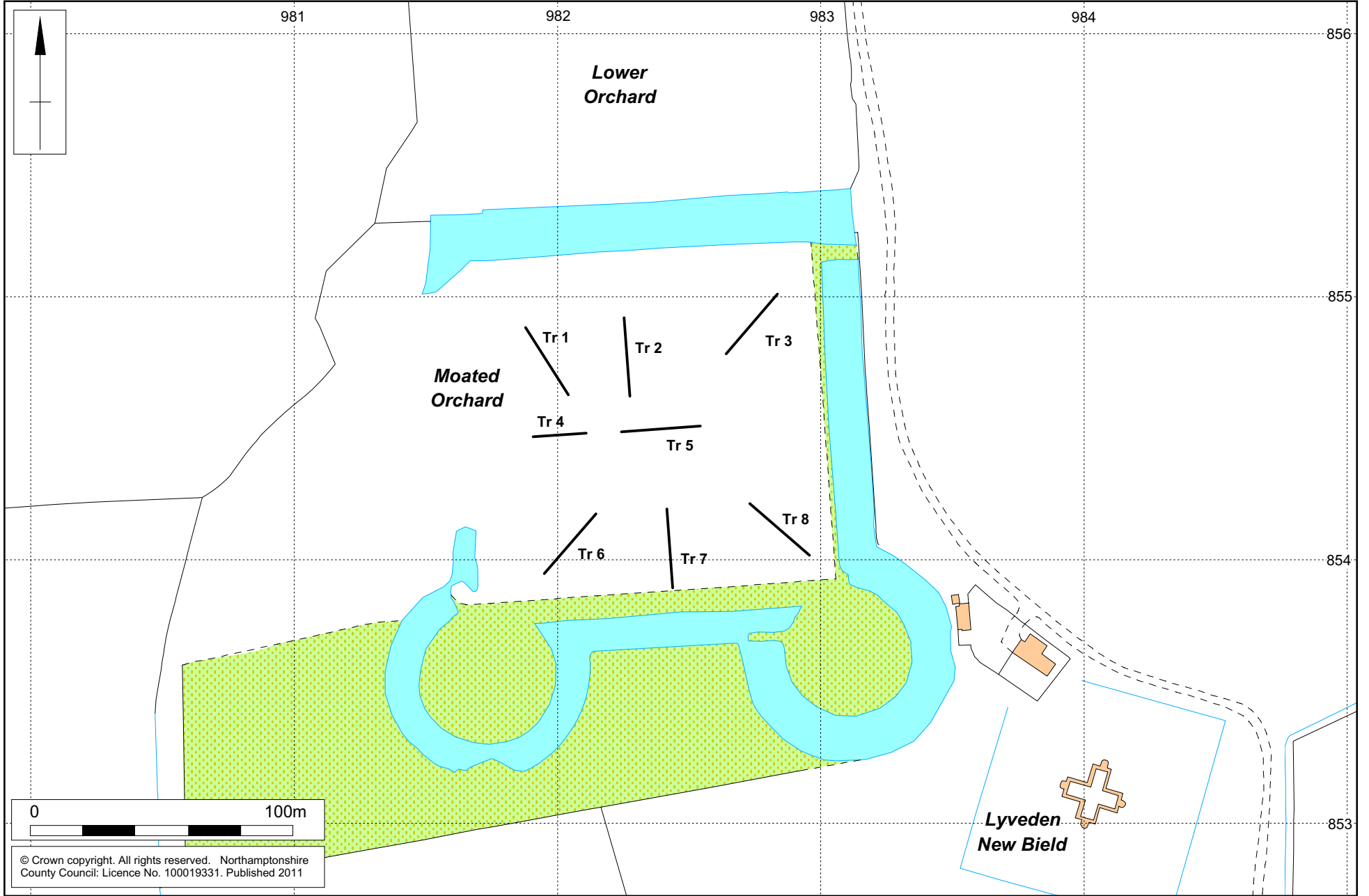
Resistivity survey of the Moated Orchard, Merrony forthcoming Fig 6

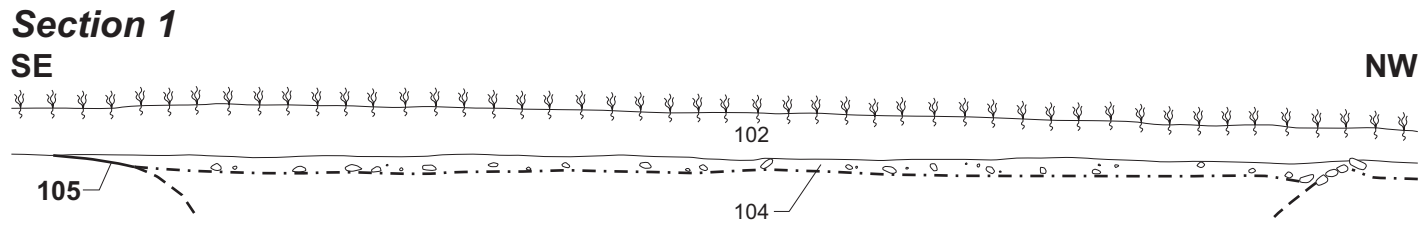
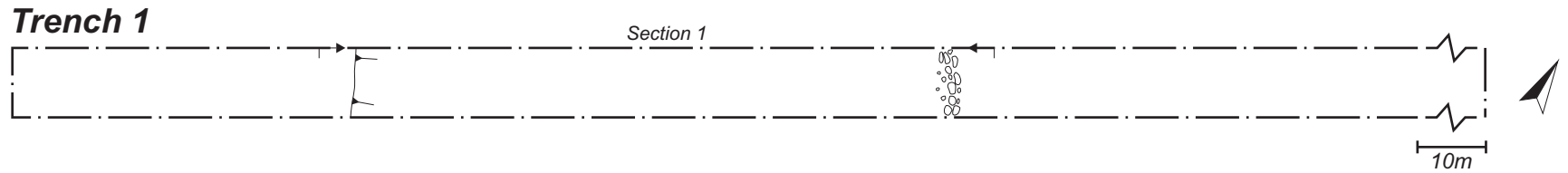
Fig 5 and Fig 6

Scale 1:2000

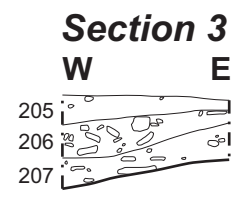
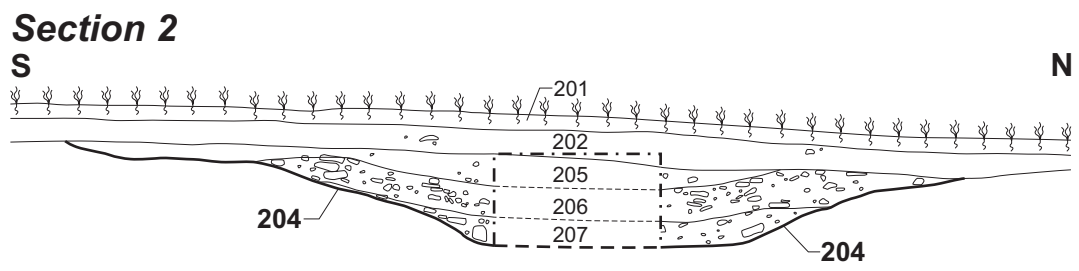
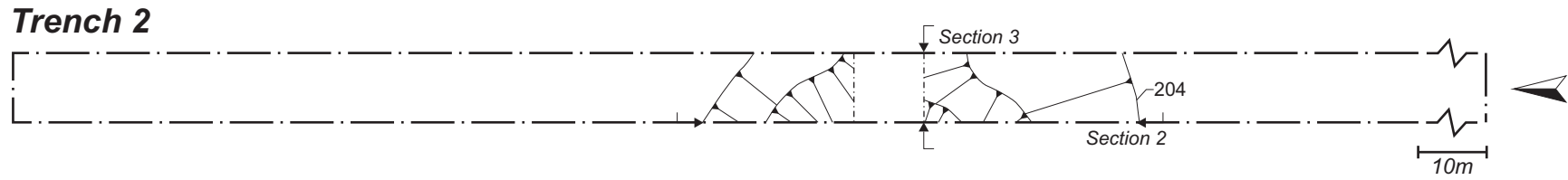
Location of the trenches within the Moated Orchard

Fig 7





Plan and section of Trench 1 Fig 8



Plan and sections of Trench 2 Fig 10



Trench 1, looking south-east, showing the stonework on the inner (northern edge) of the medieval moat Fig 9



Trench 2, looking north, showing fills [205], [206] and [207] within pit [204] Fig 11



Trench 3, looking north-east Fig 12



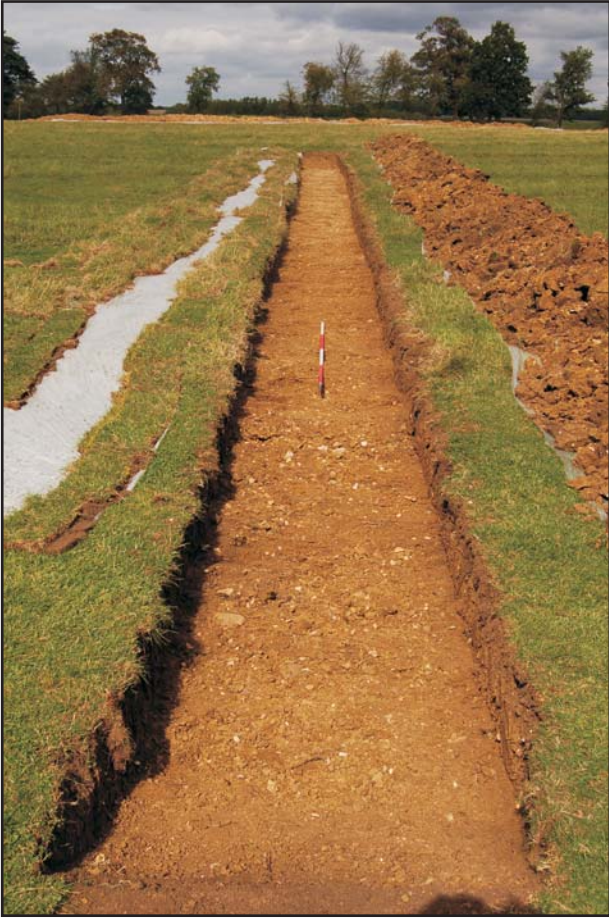
Trench 4, looking east Fig 13



Trench 5, looking east Fig 14



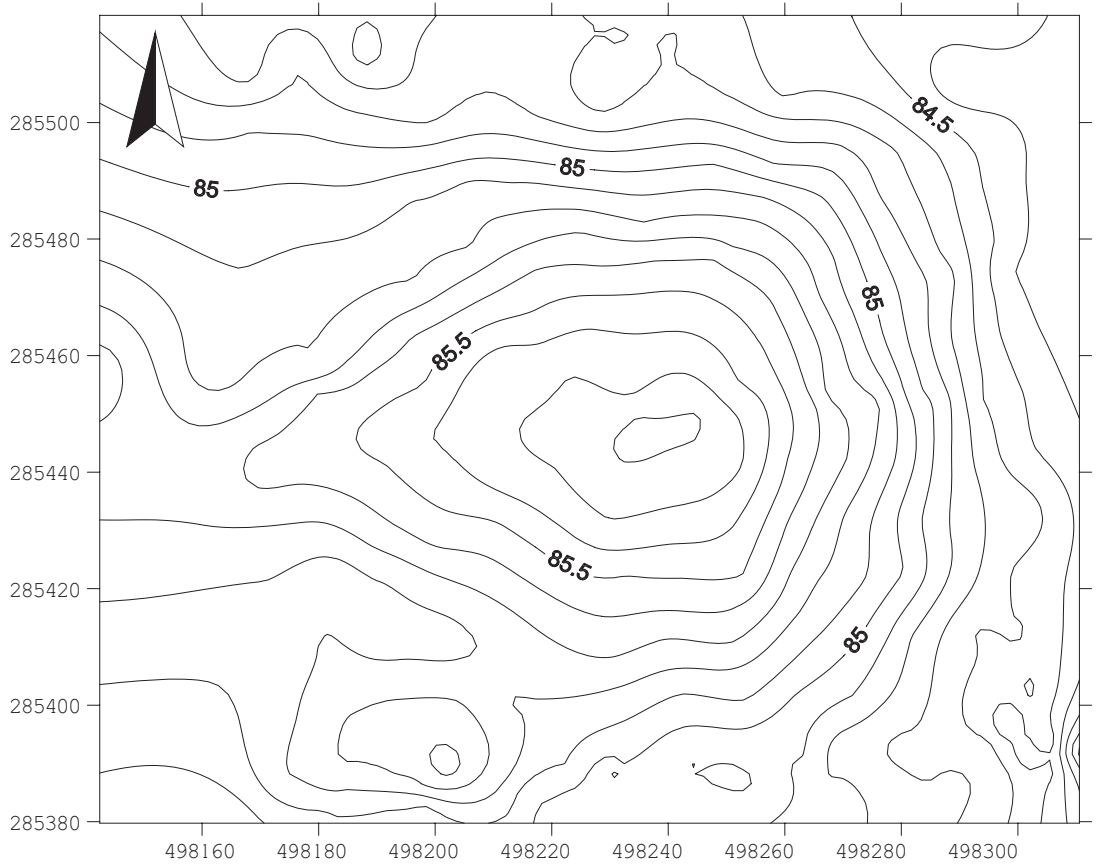
Trench 6, looking north-east Fig 15



Trench 7, looking north Fig 16

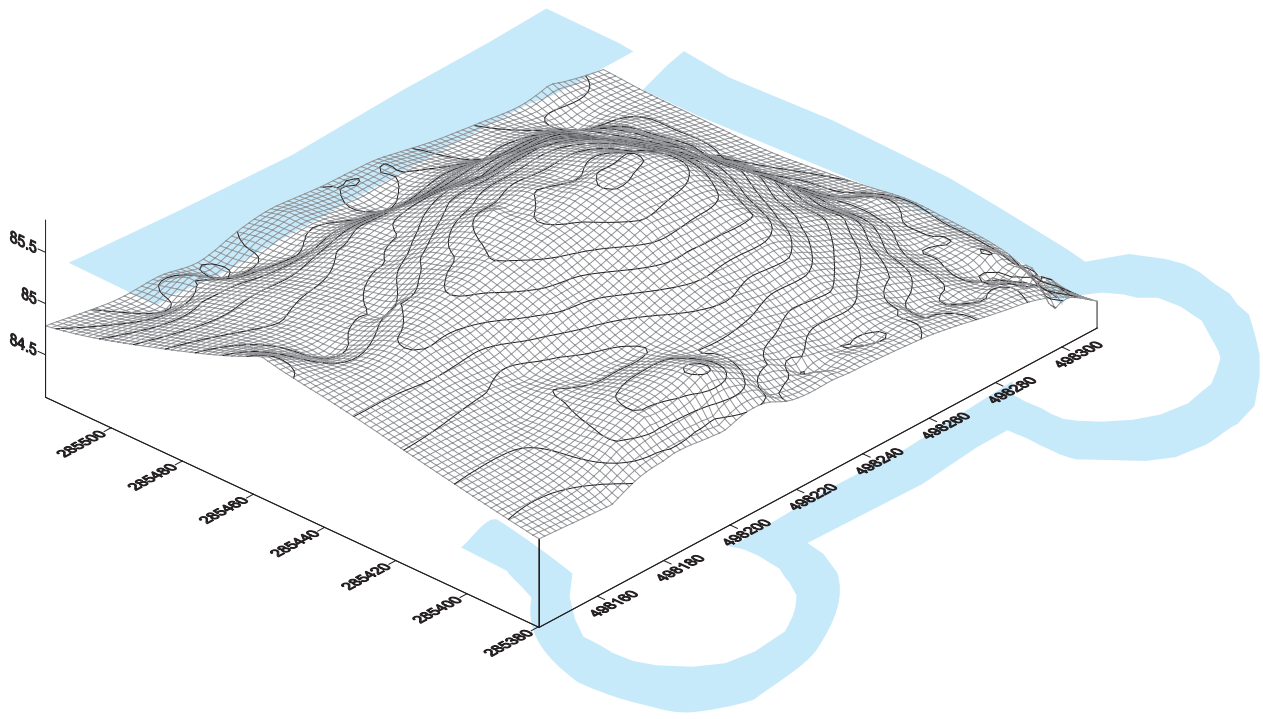


Trench 8, looking south-east Fig 17



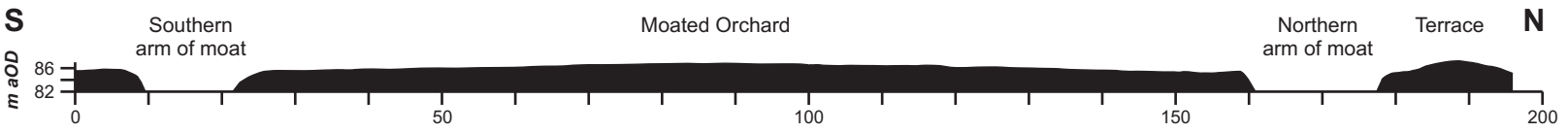
Not to scale

Contour survey of the Moated Orchard at Lyveden New Bield



Not to scale

Orthographic wire frame mesh of the Moated Orchard at Lyveden New Bield



Scale 1:1000 (A4)

Cross section from north to south across the terrace, north canal, Moated Orchard, south canal and ground surface to the south of the southern canal

Fig 19



Northamptonshire County Council

Northamptonshire Archaeology

Northamptonshire Archaeology

2 Bolton House
Wootton Hall Park
Northampton NN4 8BE

t. 01604 700493 f. 01604 702822

e. sparry@northamptonshire.gov.uk

w. www.northantsarchaeology.co.uk



Northamptonshire
County Council