Berkshire Archæological Society

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Report of archaeological fieldwork carried out at Wormstall Estate, Wickham in 2021

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Wormstall Estate: Mr. Tett

Those who worked on site: Tim Lloyd, Ewan Montgomery. Martin Labram, Anne Helmore and Jo Skerry

West Berkshire Council Senior Archaeologist: Sarah Orr

Portable Antiquities Scheme Berkshire Finds Liaison Officer: Philip Smither

Berkshire Archaeological Society Council: Alison McQuitty, Ann Griffin, Anne Harrison, Andrew Hutt, Tim Lloyd, Catherine Petts, Griselda Truscott Wickes, Keith Abbott

Summary

The Berkshire Archaeological Society (BAS) was undertaking a Study Group project to collate all Romano-British evidence across Berkshire from the Late Iron Age until the end of the Late Roman period, which highlights that the Romano-British settlement at Wickham warrants further investigation.

This project aimed to better define and understand the archaeology on the Wormstall Estate where coins were found and through which the Roman road from Wickham to Bath was thought to have passed.

This project had three objectives:

- To identify the various coins found on the Wormstall Estate and held by Mr. Tett and to record them in the Portable Antiquities Scheme, and the records of the Wormstall Estate and the Berkshire Archaeological Society
- To carry out a geophysics survey of the fields of the estate to identify evidence which may give us insights as to why the coins were deposited and to find evidence of the Roman roads which were believed to cross the estate
- To carry out a woodland survey of Wormstall Wood to gain more insights into the many topological anomalies in the wood

The geophysics results showed that there was no evidence that the Roman road between Silchester and Bath passed through the estate. Furthermore, an informal estate-wide topology survey showed that it was very unlikely that Roman surveyors would have built a road through the area. This suggests that this road either passed to the west of the estate and hence joined the Silchester - Cirencester road north of Wickham or, more likely, continued along the north bank of the River Kennet to Thatcham.

Of the Roman coins, the earliest was dated to the 1st century AD with the majority dating to the 3rd and 4th centuries AD. The work showed that the Roman coins found in two of the fields were the result of spreading manure, probably brought from the adjacent Roman village of Wickham. Their presence gives insights to the road-side trade and the agriculture of Wickham in the 3rd and 4th centuries AD.

The geophysics surveys revealed evidence of a building on Church Hill which runs south of Wickham past St Swithun's Church.

0 Document control

0.1 Contents

0.2 List of figures and tables

0.3 Change control

This document is controlled by the authors

0.4 Change history

Issue 0108 contains the proof reading comments from Anne Harrison

Issue 0107 dated 28th December 2021 contained the results of the coins analysis carried out by Philip Smither of the Portable Antiquity Scheme

Issue 0104 dated 28th June 2021 was the first issue

0.5 Changes forecast

None

0.6 Acknowledgements

Thanks are due to Mr Tett, the owner of the Wormstall estate, for inviting us to do this work and for his support during the survey, and to Rob, the Estate Manager, for his practical support and guidance.

Thanks, are also due to Tim Lloyd, Ewan Montgomery, Martin Labram, Anne Helmore, Anne Harrison and Jo Skerry who helped with the work and reviewed this paper. Particular thanks are due to Martin Labram for his help with the maps, to the Berkshire Archaeological Society study group who reviewed the work and the Berkshire Archaeological Society for sponsoring the work.

Particular thanks are due to Philip Smither who worked on the coins and metal work from Wormstall and recorded them on the Portable Antiquity Scheme website.

1 This project

In 2020, the Berkshire Archaeological Society (BAS) was undertaking the Berkshire Roman Project 2 to collate all Romano-British evidence across Berkshire from the Late Iron Age until the end of the Late Roman period to understand the economy, society and power structures in Roman Berkshire. Part of this project was looking at the Roman evidence round Thatcham. and the Roman roads through the area.

In 2018, the Society published a paper by Hugh Davies (Davies 2018) which referred to a Roman road between Silchester and Cirencester and between Silchester and Bath. In his paper, Davies explained that the likely junction of these two roads was in Wormstall Wood (Davies 2018: 60). As a result of this suggestion Keith Abbott contacted Mr. Tett who owns Wormstall Wood to see if the Society could investigate this claim.

A meeting was arranged with Mr Tett the landowner of the Wormstall Estate to reconnoitre the site. During the meeting Mr. Tett showed us various features on his land, and over tea showed us his collection of 139 Roman coins which had been found on his land in 1999 during a metal detector rally and over subsequent years, together with a map outlining where some of the coins had been found. At this meeting it was agreed that the Society could help identify the coins, survey the features in the woodland and carry out a geophysics survey of the fields where the coins were found.

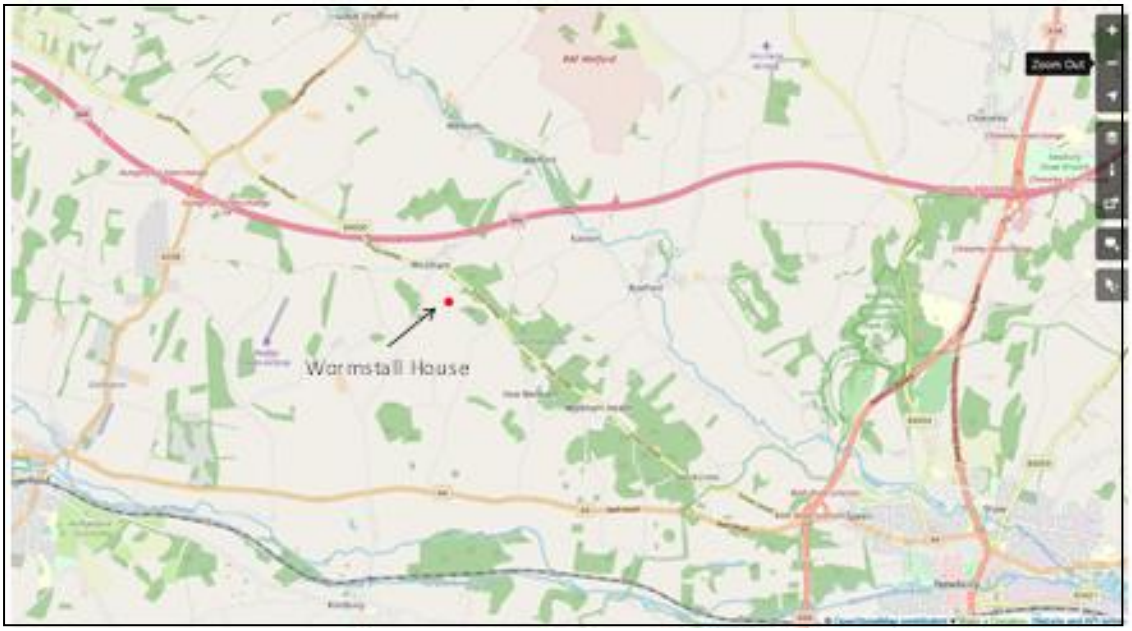

Figure 1.1 Location of Wormstall Estate (© OpenStreetMap contributors)

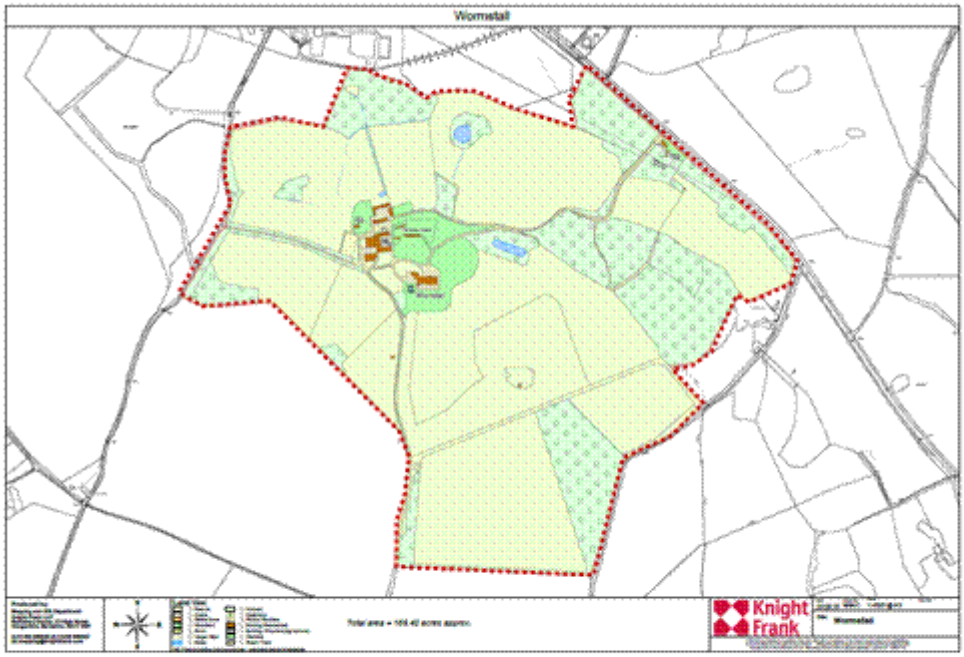

Figure 1.2. Present day boundary and buildings on the Wormstall Estate (Wormstall Estate Map 30th September 2016)

2 Geological and topographical background

The geology underlying Wickham and the Wormstall estate is Lambeth Group - Clay, Silt and Sand overlaying Newhaven Chalk Formation (British Geological Survey). The chalk forms a terrace of high ground with its corners at Hungerford, Lambourn, Bradfield and Basildon.

3 Historical and archaeological background

Keith Abbott

3.1 The West Berkshire Historic Environment Record: Buildings

The West Berkshire Historic Environment Record records the following buildings on and around the Wormstall estate:

Wormstall House (HER: MWB16687) is a Grade II listed mid-19th century AD country house within an older farming estate located in the parish of Welford, although the parish boundaries have changed as it is listed under Kintbury in the Victoria County History and Gelling's survey. The name 'Worm Stall' is marked by four schematic buildings around a square yard on the 1761 Rocque map of Berkshire, and Gelling gives the meaning as 'a place where cattle could obtain shelter from flies'. An earlier surname 'Wormestall' documented in the 16th century AD, and linked to St Bartholomew's School in Newbury, is probably derived from this place. Henry Wormestall gave money for a chantry, and a charity in Lambourn also had a house and land known as Wormstalls.

The listed building is described as mid-19th century and of Italianate appearance. A sale catalogue of the estate in 1909 gives details and images of the associated buildings and 155 acres of land as well as the house with 'large hall, four lofty reception rooms and 19 bed and dressing rooms'. It appears to have been a grander replacement for the earlier house, and was built around 1868. The local architect James Money was responsible for the redesign.

Figure 3.1. Wormstall House during WW2

Wormstall Park (HER: MWB20890) is not a Registered Park or Garden and appears to have been the focus of relatively little historic study. It abuts the designed landscape to the north around Wickham House, and is centred on Wormstall House. There were two gate lodges at drives from the Wickham and Kintbury roads, two yards of agricultural or estate buildings are shown on the First Edition mapping, and the estate apparently had its own beer house named 'The Lamb'.

The parkland was occupied during the Second World War by troops and evidence of manoeuvres on the grass can be seen in aerial photographs. Elements of the US 101st Airborne Division under the command of Brigadier General Anthony C McAuliffe and nine members of his staff were quartered at Wormstall House, with a Field Artillery Regiment billeted in woodland on the estate grounds (Day 2014).

3.2 The West Berkshire Historic Environment Record: Roman evidence

There has been very little archaeological investigation on the Wormstall estate; most of the fieldwork has focused on Wickham village, Wickham House to the north of the Wormstall Estate and Ermin Street. The records on the West Berkshire HER which record Roman evidence in the area (Figure 3.2) are:

Roman Settlement at Wickham (HER: MWB4306) (Map Ref: SU 394 714). The hilltop at Church Hill in Wickham was observed by antiquarians to be surrounded by a rectangular bank which was assumed to be Roman because of the number of Roman finds in the surrounding area (Peake 1931). This bank is no longer visible, but Wickham's location near to the intersection of two major Roman roads would indeed be a typical location for Romano-British settlement. From the excavations carried out to date, it has been concluded that there was indeed Romano-British settlement activity on Church Hill from the late-1st century AD through to the end of the 3rd century AD. However, the scale of occupation from the evidence revealed to date suggests a small farmstead rather than a larger settlement. The number of Roman finds at Wickham area have also led to speculation that it could be the location of *Spinis* of the Antonine Itinerary.

Wickham House Walled Garden (HER: MWB17733) (Map Ref: SU 396 715). 2nd century AD to early 4th century AD pottery was recovered from ditches and a pit during the excavation of three trenches for an evaluation. Subsequent excavations revealed Romano-British occupation features, rubbish pits and ditches from which sherds of Roman pottery can be dated to AD120-AD270, with 6 sherds dating from AD43-AD150. A small assemblage of animal bones indicated a diverse range of domestic animals which were burnt or showed signs of butchery. Also recovered was a small assemblage of ironwork and roof tiles which were found on this site (Mundin and Pine 2010). Pottery found included local grey and black sandy wares, some probable Alice Holt ware, plus Dorset black burnished ware and New Forest colour coated ware. The range of forms found include platter bowls, dishes, mortaria, beakers and jars. In addition, bovine and sheep remains, metalwork, three iron nails and brick were also recovered. The finds were seen to confirm the evidence of a Roman roadside settlement associated with Ermin Street Roman road. The date of the Roman occupation deposits suggests abandonment well before the arrival of the first Saxon.

Garden of (old) Rectory - now Wickham House (HER: MWB4307) (Map Ref: SU 395 715) Paving or building foundation, possibly Roman, found just below the surface to the north of the Rectory Garden. This area has never been excavated. A certain amount of Roman pottery has been found in the area including some from the Rectory Garden itself. From an article titled 'A Visit to Wickham Rectory', these extracts are taken: "In making a pond in front of the Rectory, in 1860, a large quantity of British sun-dried pottery was found" and "In 1889, a remarkable find of Roman coins was made near the Rectory, including a very fine gold solidus of the Emperor Constantius II, AD 337-61, and many others of silver and first and second brass" - position of coins is written on the OS map.- recorded as MWB12102. Pottery also seems to have been found in the garden in the 20th century AD - grey ware rims of large vessels, deposited in Newbury Museum.

(New) Rectory Wickham (HER: MWB15521) (Map Ref: SU 393 715). Excavations revealed a cobbled surface, thought to be Roman, found 0.5m below the current ground surface during the excavation of three fence post holes in 1999 together with Roman tile and pottery sherds. The cobbles were bedded into a layer of sand over a rough mixed layer of stones and earth.

Coin Hoard, Wormstall House (HER: MWB12099) (Map Ref: SU 398 711). A pot of silver coins was found during the digging of a pond northeast of Wormstall House in 1870. The pot was destroyed and the coins dispersed, only one being recorded at Newbury Museum which is described as a silver didrachm ('Roman Republic BC 222-205).

Near Wormstall (HER: MWB16716) (Map Ref: SU 395 713) Roman pottery found on north scarp of land north of Wormstall House.

Coin Find at Church Hill (HER: MWB14960) (Map Ref: SU 395 714) 4 Roman coins ranging in date from circa AD161-AD335 were found in the area of Church Hill, Wickham.

Fields to west of Wickham (HER: MWB16093) (Map Ref: SU 392 717) Many large flints, possibly from a building, have been seen in a 100 acre field colloquially known as Nicnocks (although the location of this field is unclear from the source). Copious quantities of Roman pottery including large storage jars, Samian (both plain and decorated), New Forest ware, flagon bases and coarse ware, as well as tile and Roman coins were seen in fields to the west and southwest of Rose Cottage, Wickham. This was 'some years ago' when the fields were machine ploughed for the first time, having only been ploughed using horses previously. The field names (seen on the Tithe map of 1837) are Black Close, Peter's Meadow, Ten Acres & Patches and the Meadow.

Peters Meadow, Wickham (HER: MWB16095) (Map Ref: SU 394 716) Roman coins found in 1996.

Wickham (HER: MWB12114) (Map Ref: SU 395 715) Romano-British pottery sherds found dating to the 1st-2nd centuries AD during field walking.

New Copse Wickham (HER: MWB12115) (Map Ref: SU 391 712) When trees were felled in New Copse in 1980 Roman coins were found and placed in the Newbury Museum.

Wickham - general area (HER: MWB14457) (Map Ref: SU 38 71) 13 Roman coins found within a rectangular area near Wickham Church.

Rose Cottage (HER: MWB16089) (Map Ref: SU 394 717) Numerous finds including Roman pottery from 1st century AD to 4th century AD as well as wasters have come from the garden of Rose Cottage.

Northwest of Wickham Village (HER: MWB12302) (Map Ref: SU 391 719) 9 sherds of Roman pottery were recovered by field walking.

Southwest of Wickham (HER: MWB 12112) (Map Ref: SU 392 714) Roman pottery and tile found on more than one occasion in early 20th century.

Wickham – General Area (HER: MWB14462) (Map Ref: SU 38 71) Small rectangular buckle found – could be Roman.

Wickham – General Area (HER: MWB12128) (Map Ref: SU 389 710) Roman coin of Victorinus found.

East of the (old) Rectory, Wickham (HER: MWB12102) (Map Ref: SU 398 715). In 1889 a remarkable find of Roman coins was made near the Rectory, including a gold solidus of the Emperor Constantius II, AD 337-61, and many others of silver and brass at SU 3985 7157. The Victoria County History of 1924 makes reference to a mound at the entrance to the garden of Wickham House (sic) where it was stated that "some gold coins were found in it about sixty years ago", but the mound shown on historic and modern OS mapping is oval with a rectangle in the centre, and at a different location closer to the house at c SU 3960 7146 (MWB4308).

Buried surface NE of Cedar Bungalow, Wickham (HER: MWB15861) (Map Ref: SU 394 716) Initially observed by a member of the public, Mr Mike Smallwood, during the excavation of a cable trench to the NE of Cedar Bungalow. Mr Smallwood noticed that there was a distinct concentration of a buried 'stony' surface within a length of the trench. The site was visited by V Fiorato in the company of Mr Smallwood in April 2002 and the open trench was inspected. It is Mr Smallwood's theory that this may be the Roman road through Wickham and large quantities of Roman material have been recovered in the vicinity. However, there was insufficient of this feature to establish this.

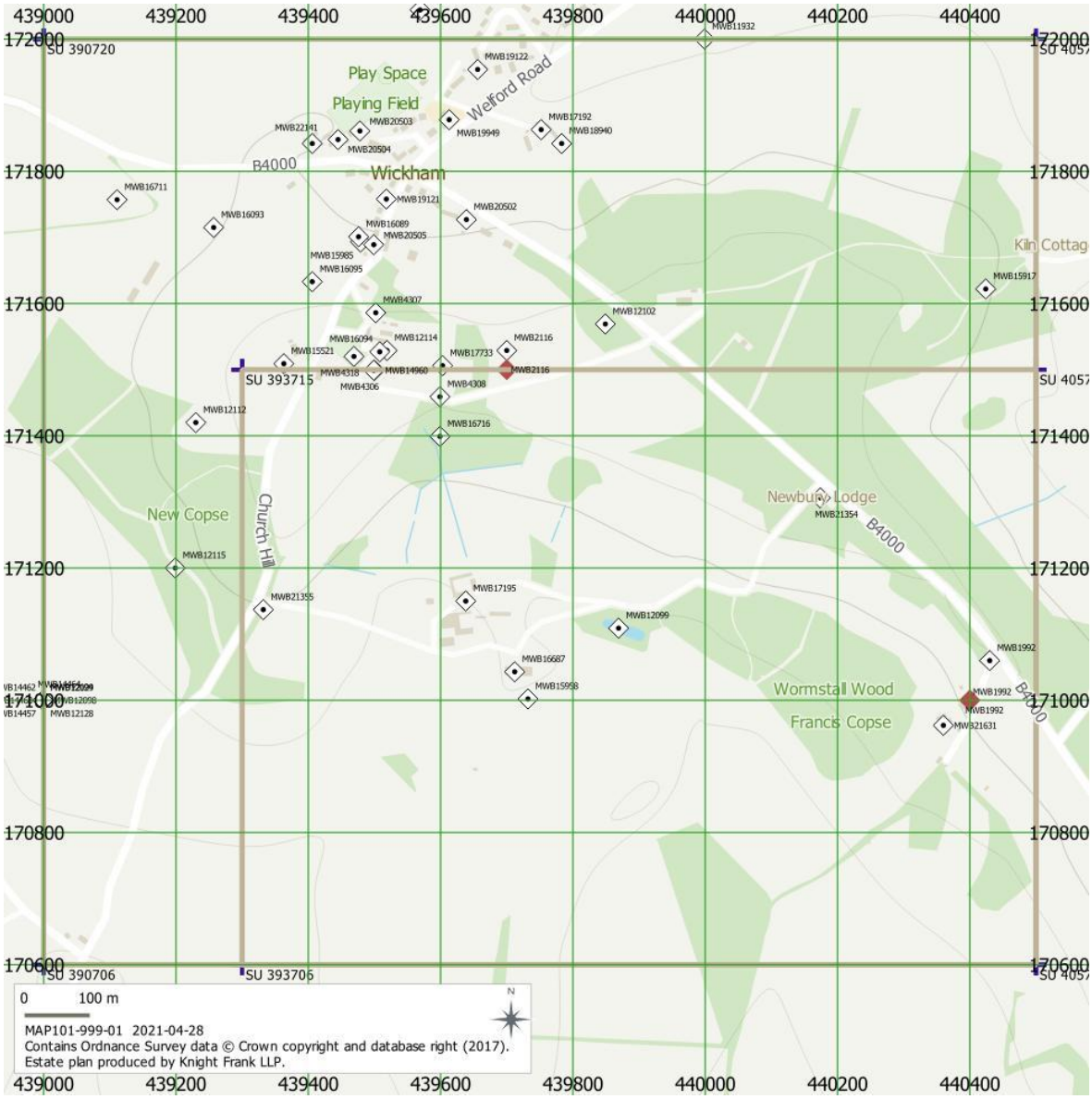

Figure 3.2. HER monuments from the Roman period within 1km radius of Wormstall House
Scale 20mm to 100m

Ermin Street - from west side of Sole Common to Wickham (HER: MWB2116/MWB2108) (Map Ref: SU 397 715) stretch of Roman road south of Wickham not traceable. Baydon Road very closely aligned, although road not traceable where the modern road deviates. It is in this area that the road to Bath (Margary 53) joins the line although the exact location has not been established. Peake, however, thought there were 'faint indications of it (the track of the Roman road) below the stables of Wickham House'. Williams could see small pieces of the Ridge in the wood above the Sandpits, but thought it was lost in the grounds of Wickham Rectory. Margary thought the line ran through Wickham Park just east of the house.

Wickham to Bath Roman Road (HER: MWB1993) (Map Ref: SU 387 706). The line of the Roman Road from Bath to Wickham (Margary 53) can be traced through Orpenham Copse and former farm to the west of Wormstall House where the 'Ridge' agger has been found in Orpenham Copse and at Elgar's Farm (Map Ref: SU38487064). In 2013, Toller references Williams' work, but does not mention this agger, and suggested the route of Margary's Roman road 53 ran from somewhere near Newbury Lodge aka formerly Wormstall Lodge (HER: MWB21354) through Orpenham Copse to Three Gate Copse (HER: MWB1986).

Junction of Roman Roads Margary 53 and Margary 41b at Benham Burslot (HER: MWB1992) (Map Ref: SU 404 710). The point where the Margary 53 road to Bath joins Ermin Street (Margary 41b) is not known. No trace can be seen where extrapolation of known lines would place it. However, Peake suggests that after crossing Wormstall Park the road negotiates a steep slope obliquely as at Radley Bottom. This can be traced and brings the line further east. In 2013, Toller suggested the route of Margary's Roman road 53 ran from somewhere near Newbury Lodge aka Wormstall Lodge (HER: MWB21354) through Orpenham Copse to Three Gate Copse (MWB1986).

Wormstall Estate (West Berks HER MWB15958) (Map Ref: SU 397 710). A series of finds on the Wormstall Estate by metal detectorists in 1999 (see Figure 3.2).

3.3 The Roman road between Silchester and Bath

The above references from the West Berkshire HER contains references to the Roman road between Silchester and Bath. In 2013, Toller published a paper on the route of the Roman road from Wickham to Bath. He confirmed the opinion that the road passed through the Wormstall estate (Figure 3.3).

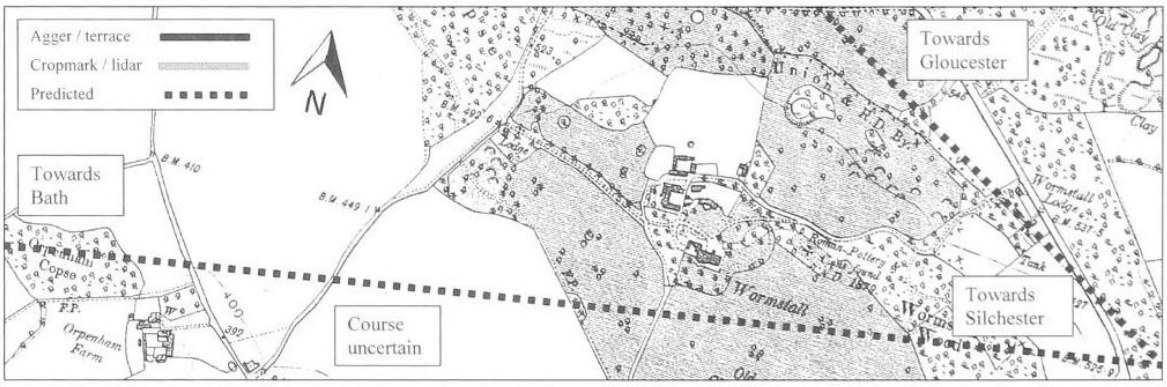

Figure 3.3. The line of the Roman road between Wickham and Bath (Toller 2013: 54)

3.4 Landscape and Historic Environment

This section contains copies of old maps of the Wormstall estate in the order oldest to latest. The key features on these maps which relate to the line of the Silchester to Bath road are outlined below.

On Rocque's map of 1761 (Figure 3.4) the area now occupied by Wormstall Wood is shown as a field with lines running across it which may indicate that it was an arable field. To the east of this field was a road running north from Elcot. This is road still exists albeit as the Lip Lane byway. A comparison with the West Berkshire HER entries shows that the junction of Lip Lane and the B4000 (Figure 3.2 entry WBM1992 – red square) is the point where the West Berkshire HER provisionally records the Silchester to Bath road as exiting the Wormstall Estate.

Figure 3.4. The Rocque map of Berkshire from 1761 showing Wormstall House (J Rocque, 1761, Topographical Survey of the County of Berkshire)

Figure 3.5. Ordnance Survey Drawing of 1812 showing of the Wickham Area by William Stanley (British Library Lambourn (bl.uk))

Figure 3.6. Ordnance Survey 6inch to the mile map of 1878 showing the Wormstall Estate (Reproduced with the permission of the National Library of Scotland)

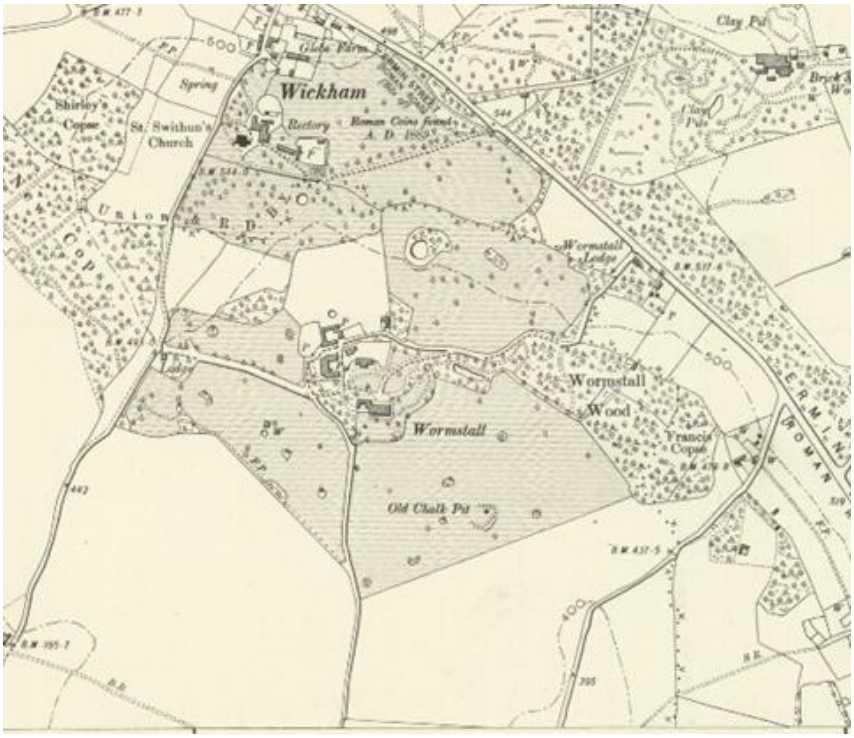

Figure 3.7. Ordnance Survey Map of 1899 showing the Wormstall Estate (Ordnance Survey 1899, Berkshire XXXIV.NW)

3.5 Map of coin finds on the Wormstall Estate

Over time various coins and other metalwork has been found on the Wormstall Estate. The approximate locations of where these items were found is recorded on an 1880 OS map held by Mr Tett.

Figure 3.8 shows the marked up estate map using notation taken from the 1880 OS map used in the 1999 metal detecting rally to indicate the areas where coins and other metal objects of interest were found. The locations of finds must be considered to be approximations only, and there is no cross-referencing with the finds in Mr Tett's collection of artefacts. It is assumed that "RC" indicates the position of a Roman coin find(s), that "RB" indicates the position of Roman bronze coin find(s) and that other descriptions such as "Denarii" and "Stater" are self-explanatory.

The locations of subsequent metal detecting finds have not been recorded.

Figure 3.8. Section of the 1880 map showing the location of the coins and other finds

4 Project objectives

This project had three objectives:

- To identify the various coins found on the Wormstall Estate and held by Mr. Tett and to record them in the Portable Antiquities Scheme, and the records of the Wormstall Estate and the Berkshire Archaeological Society
- To carry out a geophysics survey of the fields of the estate to identify evidence which may give us insights as to why the coins were deposited and to find evidence of the Roman roads which were believed to cross the estate
- To carry out a woodland survey of Wormstall Wood to gain more insights into the many topological anomalies in the wood

The next three sections explain the work that was done to meet each of these objectives and the results.

5 Identifying the coins and other artefacts

Anne Harrison and Keith Abbott

5.1 The coins found at Wormstall

Mr Tett kindly loaned his collection of historical artefacts found on the Wormstall Estate to BAS for identification and dating. This collection of 139 Roman coins, plus coins from other periods, a wide array of other metal artefacts and some pieces of pottery, all found on the Wormstall Estate. Also lent was a 1:2500 (1 inch to 208.33 feet; 25.344 inches to 1 statute mile) Ordnance Survey map dated to 1880 of the Welford and Kintbury Parishes. This showed the Wormstall Estate with, in pencil, the find spots, where known, of coins and other artefacts had been found (Figure 3.8).

Anne Harrison had a look at the artefacts and wrote a brief summary. As these artefacts had not been recorded in the Portable Antiquities Scheme (PAS), they were given to Philip Smither the PAS Liaison Officer for identification and recording.

The condition of the 139 Roman coins found at Wormstall was in general fair, and most were at least partially legible after some basic cleaning, although many showing some signs of post depositional corrosion. The majority of the coins were found to belong to the late 3rd or 4th centuries AD, and were all copper-alloy apart from 1 silver plated copper-alloy coin and 2 of silver. In total 103 of the coins were definitively dated by Reece Period (Reece 1991), 129 have had their denomination identified and the mint/place of issue has been identified for 50 of the coins. The details of each coin are shown in table 5.1 together with their PAS identifier (PAS ID). This can be used to access the PAS web site where further information about the coin can be found.

5.2 Analysis of the coins

The results of Philip Smither's analysis of the coins is in Appendix A. The columns in the table record:

1. The identifier given to the coin on the Portable Antiquity Scheme web site
2. The metal used to make the coin
3. Its denomination
4. The date period when the coin was produced
5. The Reece period assigned to the coin (Reece 1991 and below))
6. The emperor whose head appeared on the coin
7. The mint where the coin was struck
8. The obverse description
9. The obverse inscription
10. The inverse description
11. The inverse inscription

5.3 Reece period analysis

Reece devised a method of analysing Roman coins where he assigned the period in which they were in production to one of 21 periods (Reece 1991). A column in the table in appendix 1 records the Reece period of the coins.

Using this information, Figure 5.1 records the number of coins assigned to each of these periods. It highlights that with the exception of 7 coins from periods 4 (AD 69-96) to 12 (AD 238-260), the Roman coins found at Wormstall were minted in periods 13-21 (AD 260 to AD 402). The main peak of coin loss occurred in period 19 (AD 364-378), and in period 17 (AD 330-348). This pattern of coin loss is atypical for British sites, as whilst the main peaks of loss correspond to those normally encountered on British sites, it is unusual for coins of period 19 to dominate an assemblage to such an extent (Reece 1991).

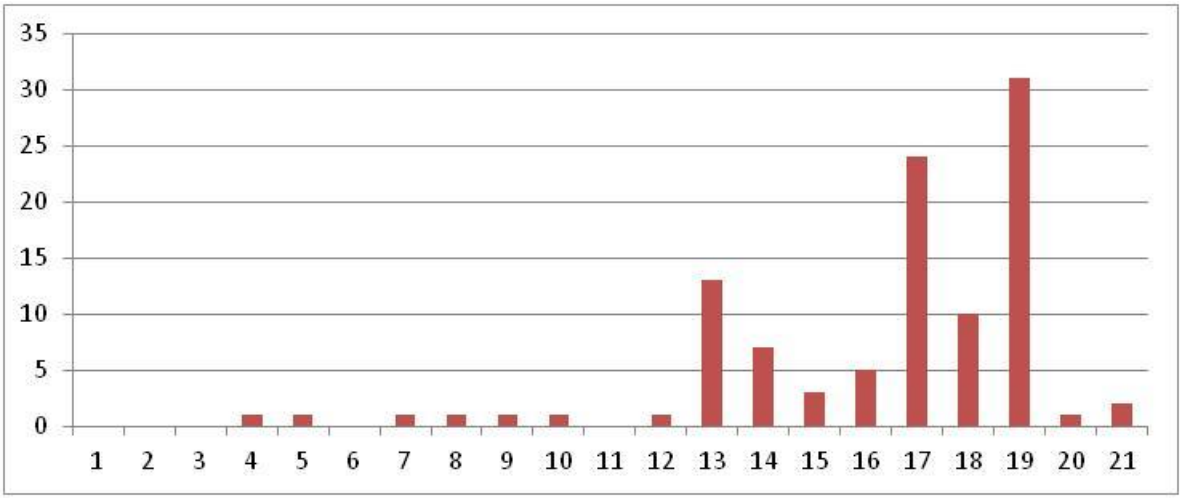

Figure 5.1. The distribution of coins found at Wormstall by Reece Period

5.4 The coins

One of the earliest coins found in the collection was coin BERK-B9D713, an As made in Rome of copper alloy with a head facing right dating to the Flavian period (AD 69 – 96) (Figure 5.2).

Figure 5.2. Coin BERK-B9D713
(The Portable Antiquities Scheme/ The Trustees of the British Museum)

The best preserved coin in this collection is coin BERK-B96824, a Nummus of Constantine II made in Lugdunum (Lyon) of copper alloy in the period AD 317 to 330.

Figure 5.3. Coin BERK-B96824
(The Portable Antiquities Scheme/ The Trustees of the British Museum)

One of the more interesting coins is coin BERK-B966E9, a Q radiate of Allectus made at mint C in England in the period AD275-296 (Figure 5.4). Some believe that mint C was Camulodunum or Calleva Atrebatum.

Figure 5.4. Coin BERK-B966E9
(The Portable Antiquities Scheme/ The Trustees of the British Museum)

6 The geophysics surveys

Andrew Hutt

Given the distribution of the Roman coins, it was decided to survey each of the areas where according to the Wormstall 1880 map (Figure 3.8) Roman coins had been found. Five areas were subjected to geophysics surveys. They were:

- Area 1: in the field south of Wormstall house
- Area 2: in the field south of the green track
- Area 3: to the south of Wormstall Wood
- Area 4: to the south of the Wormstall Lake
- Area 5: in Camp field

In each area, the survey was carried out in compliance to CIfA guidelines (CIfA 2014). This involved establishing a survey grid typically a rectangular array of control points positioning 20m x 20m data collection grid squares. All of the squares were surveyed with a Bartington 601 gradiometer dual sensor gradiometer. The results were processed using Snuffler (Snuffler 2006) and the resulting geophysics plots reviewed for anomalies.

Some of the anomalies which showed evidence of human activity were then surveyed using a Frobisher TAR-3 resistance meter. Again, the results were processed using Snuffler and geophysics plots produced.

For each of the five areas, an image stack was produced. Each image stack recorded the location of the survey grid, the files of geophysics data collected from the grid, the resulting geophysics plots and the anomalies which may be evidence of human activity

The details of the geophysics survey may be found in Appendix B.

The rest of this section identifies the anomalies found in the five areas.

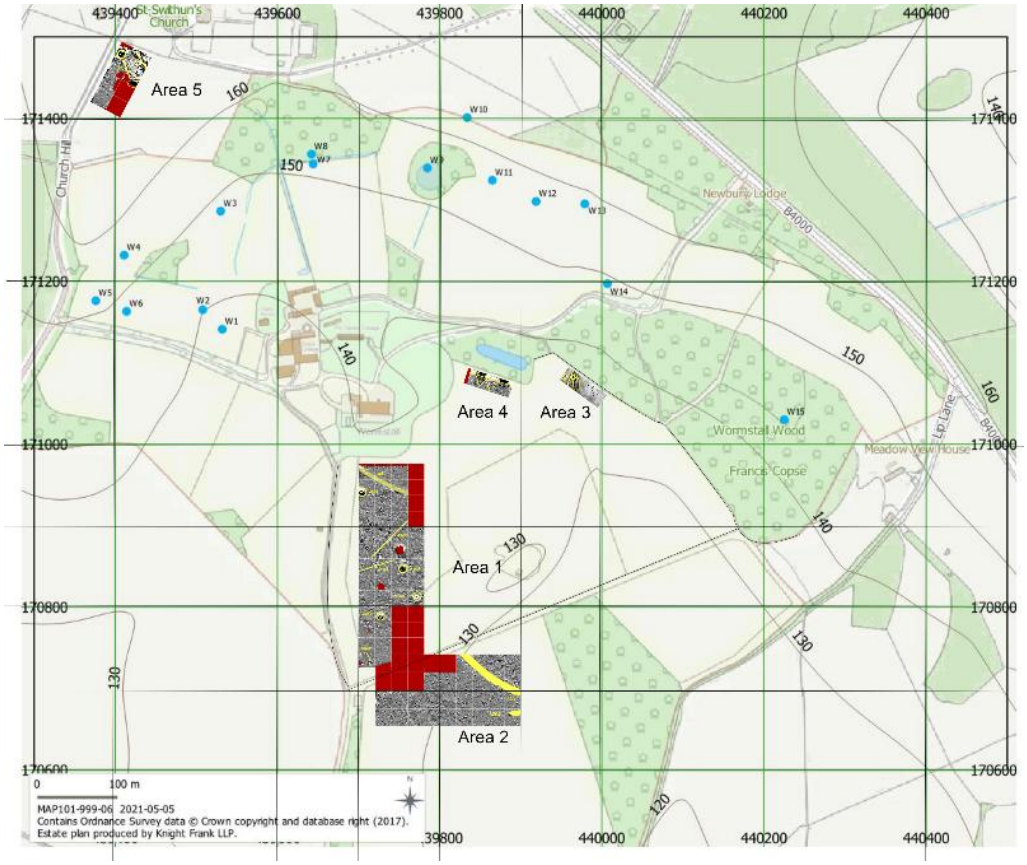

Figure 6.1. The geophysics survey areas positioned on the Ordnance Survey map Scale 10mm to 100m

6.1 Area 1

This area to the south of Wormstall house and to the east of the track running south of Wormstall House was the site where 3 Roman coins were found.

6.1.1 The gradiometer survey

Figure 6.2. shows the 9 anomalies identified in the results.

These were:

A1G1: a curved anomaly which probably represents the remains of a farm track

A1G2: a circular anomaly, which is probably the result of a tree throw

A1G3 a linear anomaly which is on a similar alignment to a fence line shown in Figure 6.2.

A1G4: a linear anomaly which aligns with a corner of a fence line shown on Figure 6.3.

There may be a show of this fence line just to the south of anomaly A1G6

A1G5, A1G6 and A1G7 are all the remains of tree throws

A1G8 is a very faint circular anomaly some 15m in diameter which may be the remains of a circular enclosure

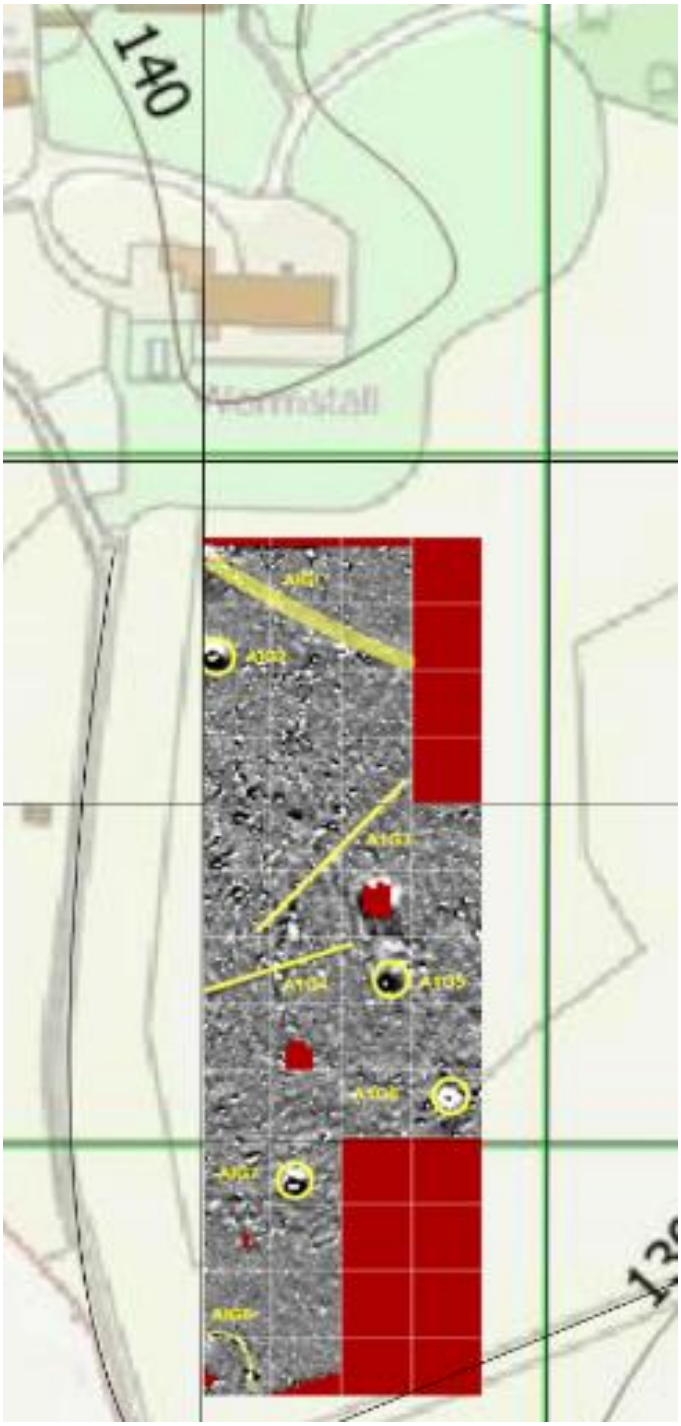

Figure 6.2. The area 1 gradiometer anomalies

6.1.2 Area 1 resistance surveys

Given the above results, it was decided to survey two of the anomalies with a resistance meter

Anomaly A1G2 was interpreted as a tree throw; this was surveyed with a resistance meter to confirm this interpretation. The survey found a linear anomaly A1R1 which crossed the corner of the data collection square.

A1R2 is a linear anomaly which exactly matches part of A1G3 (Figure 6.2) and hence represents part of an old field boundary.

Given that A1R1 and A1R2 are almost parallel it is very likely that the former presents part of an old field boundary.

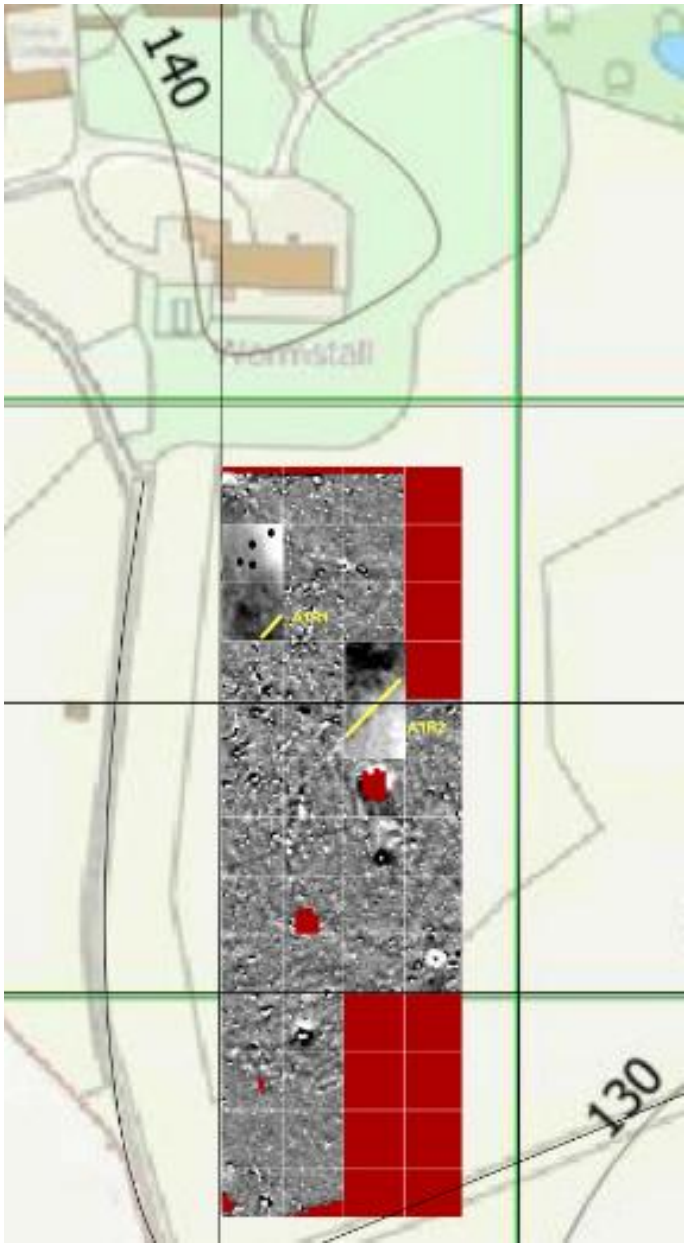

Figure 6.3. Area 1 resistance survey results with the gradiometer results as background

6.2 Area 2

Area 2 was located in the field south of the greenway. It was surveyed because the Wormstall 1880 map (Figure 3.8) showed that Roman coins had been found in the field south of the green way. The details of the survey can be found in Appendix B; the results are shown in Figure 6.4.

Only 2 anomalies were found in these results:

- A2G1 is a curved anomaly which as shown in Figure 6.4 matches the green path through the woodland to the west.
- A2G2 is the stud of a similar feature.

Given this evidence, no further work was done in this field.

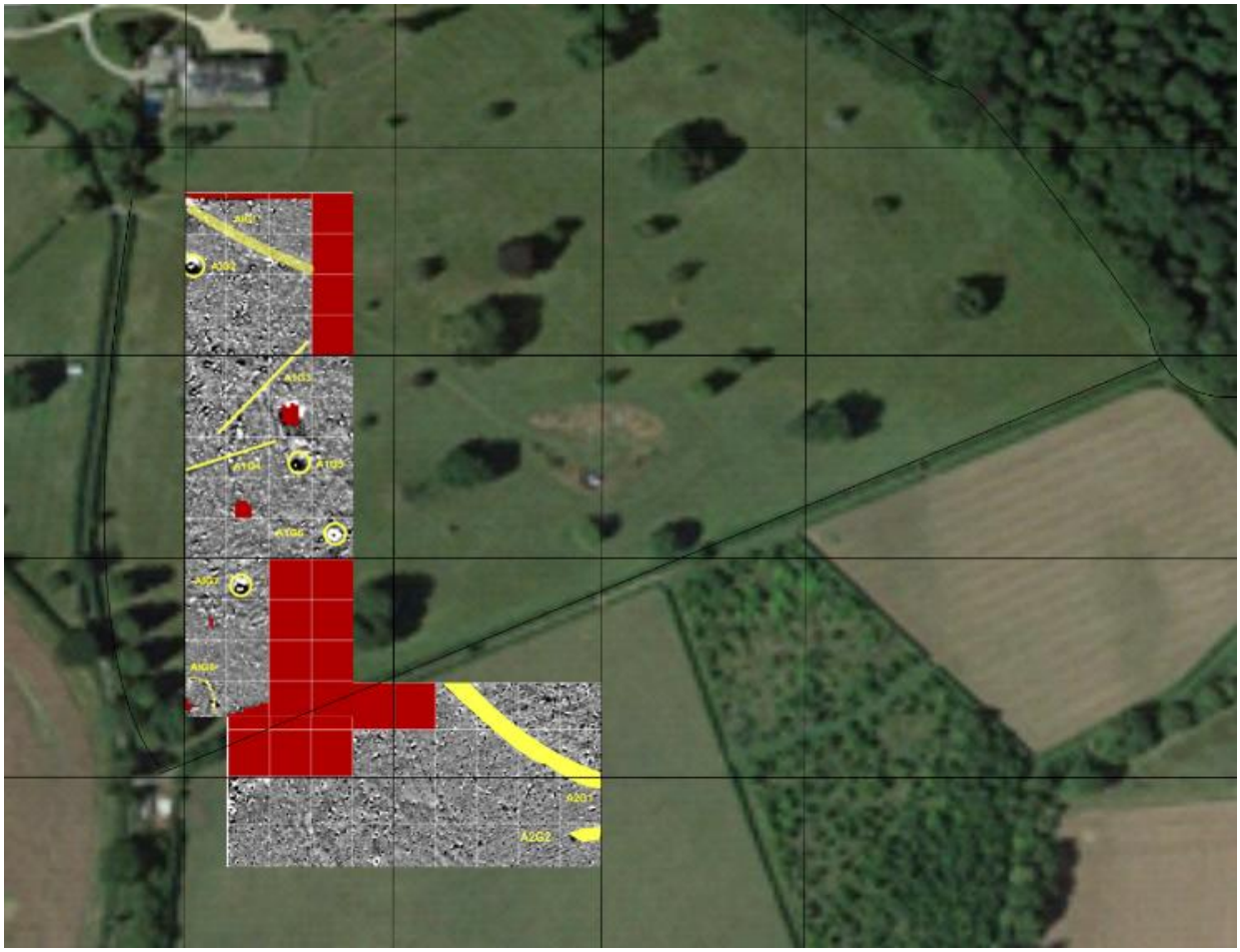

Figure 6.4. Area 1 and 2 gradiometer results shown on an image from Google Earth

6.3 Area 3

The Wormstall 1880 map (Figure 3.8) shows that a group of Roman coins had been found just to the west of Wormstall Wood. A line of 4 20m x 20m squares was positioned adjacent to the wood line. Three of the squares were surveyed with both the gradiometer and the resistance meter. Figure 6.1 shows the position of the survey grid

Figures 6.5 and 6.6 show the gradiometer and resistance survey results and identify the following anomalies:

- A3G1 to AGG4 are a sequence of semi-circular anomalies on the woodland side of the grid with negative and positive magnetic signatures. There is a significant difference in height between the land in the field where the survey was conducted and the adjacent woodland. It is likely that these differences in magnetic signature are evidence of erosion of soil from the woodland into the field.
- A3R1 is a 9m x 5m rectangular anomaly which probably represents a building
- A3R2 is a linear 20m long high resistance anomaly which may represent a wall
- A3R3 is a short 5m long high resistance linear anomaly which may represent another wall
- A3R4 is a 4m x 6m rectangular anomaly which probably represents the remains of a building
- A3R5 is an anomaly occupying an area 20m x 8m with parallel sides and a pointed end, which as shown in Figure 6.1 is on an approximate north south alignment. This probably represents the remains of a building.

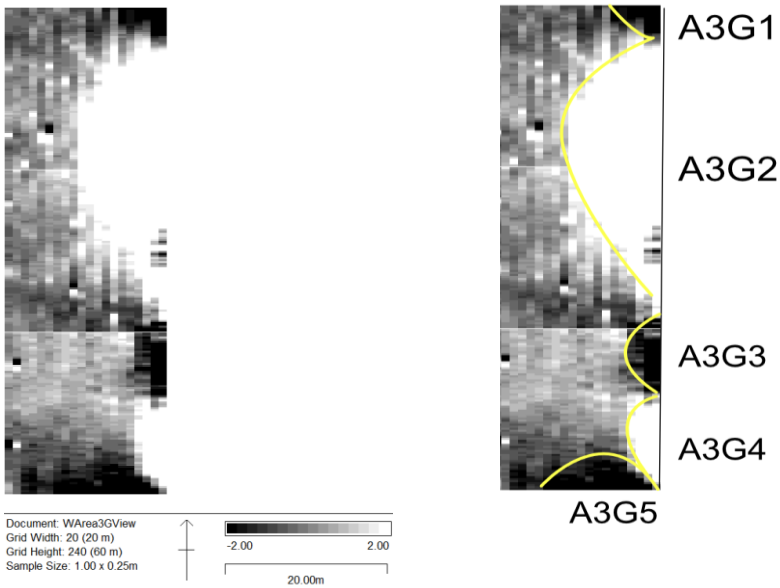

Figure 6.5. Area 3 gradiometer results and anomalies
Scale 20mm to 20m

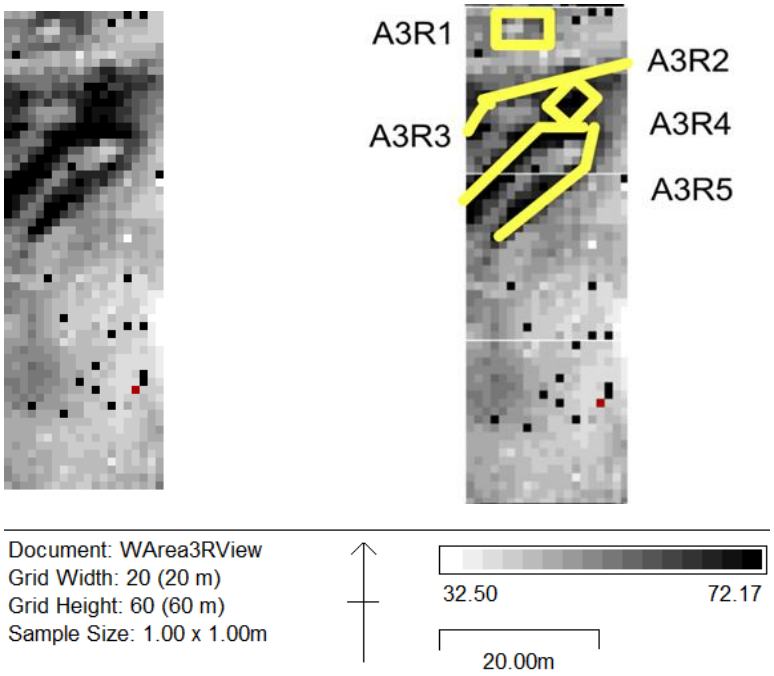

Figure 6.6. Area 3 resistance geophysics plot and anomalies
Scale 20mm to 20m

6.4 Area 4

The Wormstall 1880 map (Figure 3.8) shows that 3 Roman coins had been found just to the south of the Wormstall pool. This area has a metal fence so a survey grid of 3 20m x 2m squares was laid out parallel to and 5m from the fence. This area was surveyed using both the gradiometer and the resistance meter, the results are shown in Figures 6.7 and 6.8.

Figure 6.7 shows lots of anomalies were found in the gradiometer results. They included:

- A4G1 a rectangular area 5m x 9m with a high positive magnetic signature
- A4G2 a triangular area 15m base and 15m high with a faint negative magnetic signature
- A4G3 an area 5m x 10m with a high negative magnetic signature
- A4G4 a triangular area 15m base and 15m high with a faint negative magnetic signature
- A4G5 an area 5m x 15m with a high positive magnetic signature
- A4G6 an area 5m x 10m with a high negative magnetic signature
- A4G7 a triangular area bounded by the edge of the grid with a high positive magnetic signature
- A4G8 a linear anomaly which ran the length the survey grid with a negative magnetic signature

The key feature of these anomalies is A4G8, which suggests that this may have been a old fence line before the Wormstall pool was constructed and that the anomalies to the right of this line represent places where earth was moved to create the bank along the adjacent bank to the pool.

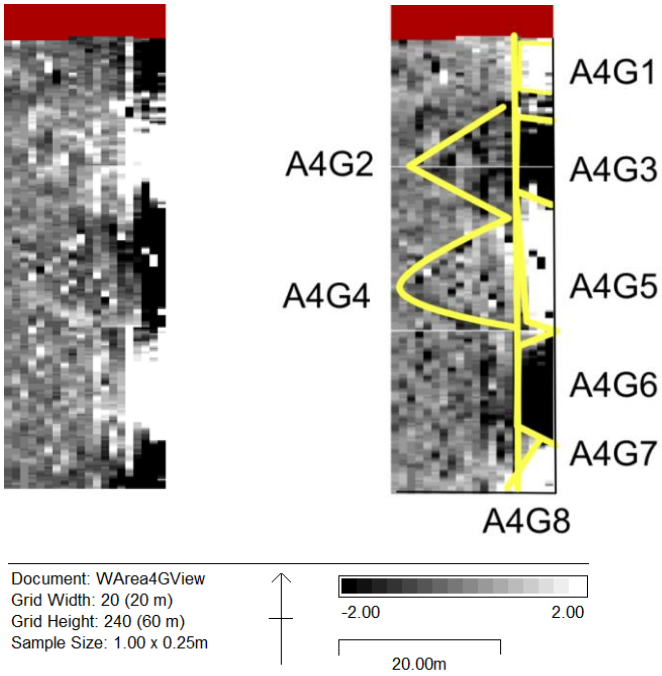

Figure 6.7. Area 4 gradiometer results and anomalies
Scale 20mm to 20m

The resistance survey plot (Figure 6.8) covers a slightly wider area than the gradiometer survey because it was possible to take the resistance meter closer to the metal fence than the gradiometer. The anomalies found in the plot were:

- A4R1 a linear anomaly 1m wide and 8m long. An area of low resistance with high resistance on each side which suggest it may represent a trench with the fill deposited on the side
- A4R2 a linear anomaly which is 1m wide and 30m long. The levels of resistance increase to the left end which suggests it may represent the remains of a structure
- A4R3 a linear anomaly of low resistance across the corner fo the survey grid

These three anomalies appear to be parallel and run across the land which the gradiometer results suggest was distributed by the creation of the Wormstall pool. The fact that they continue into the edge of the survey grid suggests that more work is necessary before they can be interpreted.

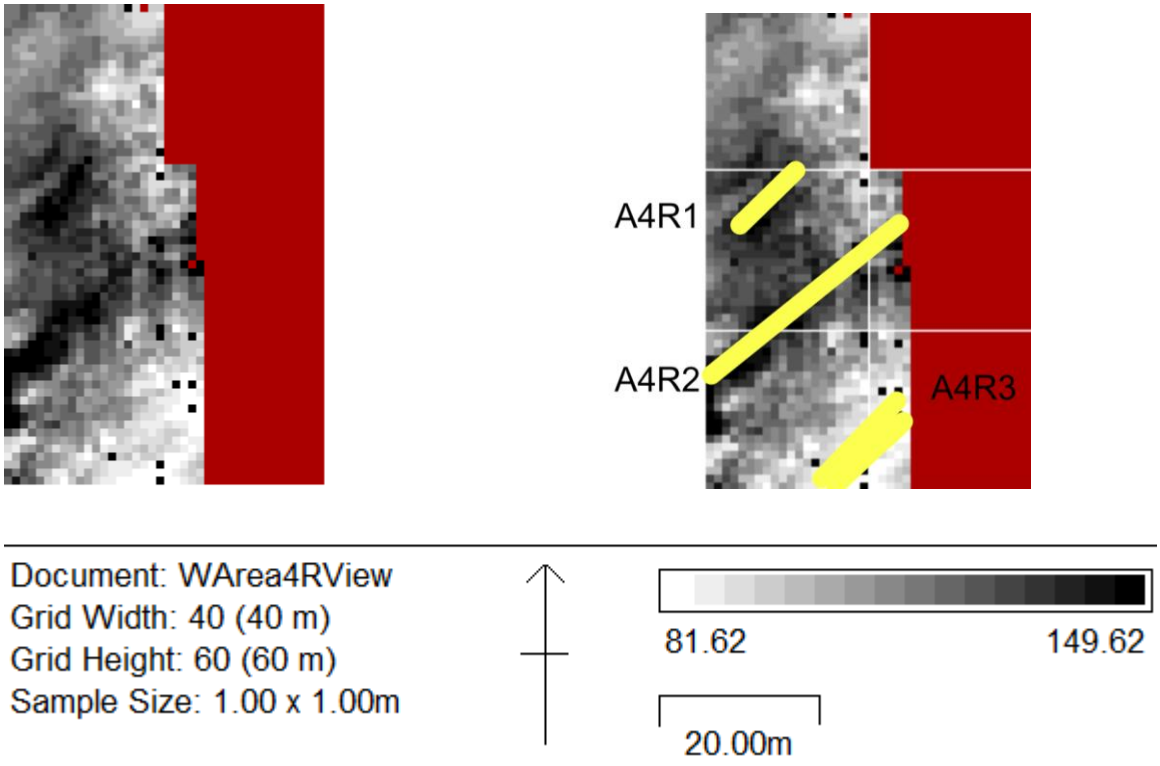

Figure 6.8. Area 4 resistance geophysics plot and anomalies
Scale 20mm to 20m

6.5 Area 5

Area 5 was located at the top of the Wormstall estate on an area of relatively flat ground adjacent to Church Hill and the boundary with Wickham House. The area was chosen because the boundary between the Wormstall and Wickham House estates is marked by a significant ditch which just below area 5 has a 2m high bank on the Wickham House side.

A survey grid with 4 x 2 20m x 20m squares was laid out parallel to and 5m from the wire fence along the field by Church Hill. Six of the squares were surveyed with the gradiometer. This limit was imposed by the lie of the land which fell away sharply on the east and south sides of the grid. Four were surveyed with the resistance meter. The survey details are in Appendix B. The anomalies found on the geophysics plots are shown in Figures 6.9 and 6.10.

Five anomalies were identified in the gradiometer results (Figure 6.9). They were:

- A5G1 a circular anomaly 10m in diameter with a high magnetic signature. This may be a tree throw or a structure
- A5G2 a linear anomaly 25m long and 4-6m wide with a vibrant magnetic signature. This could be evidence of a large ditch
- A5G3 an area 16m x 20m with a mix of magnetic signature. This was an area where the subsequent the resistance meter probes kept on coming into contact with stones
- A5G4 a linear anomaly some 30m in length
- A5G5 a 10m x 5 m rectangular anomaly on the edge of the survey grid

There were various anomalies along the fence line; they have been ignored because they were probably due to the proximity of the wire fence.

Three anomalies were identified in the resistance survey results. They are:

- A5R1 a 16m x 6m rectangular anomaly which probably identifies the remains of a building
- A5R2 a 45m long linear anomaly across the survey area. Given its proximity to the road and boundary of the Wormstall estate this may represent a service trench
- A5R3 is an odd shaped anomaly measuring 25m x 15m. This area of high resistance may represent a dump of building or demolition material

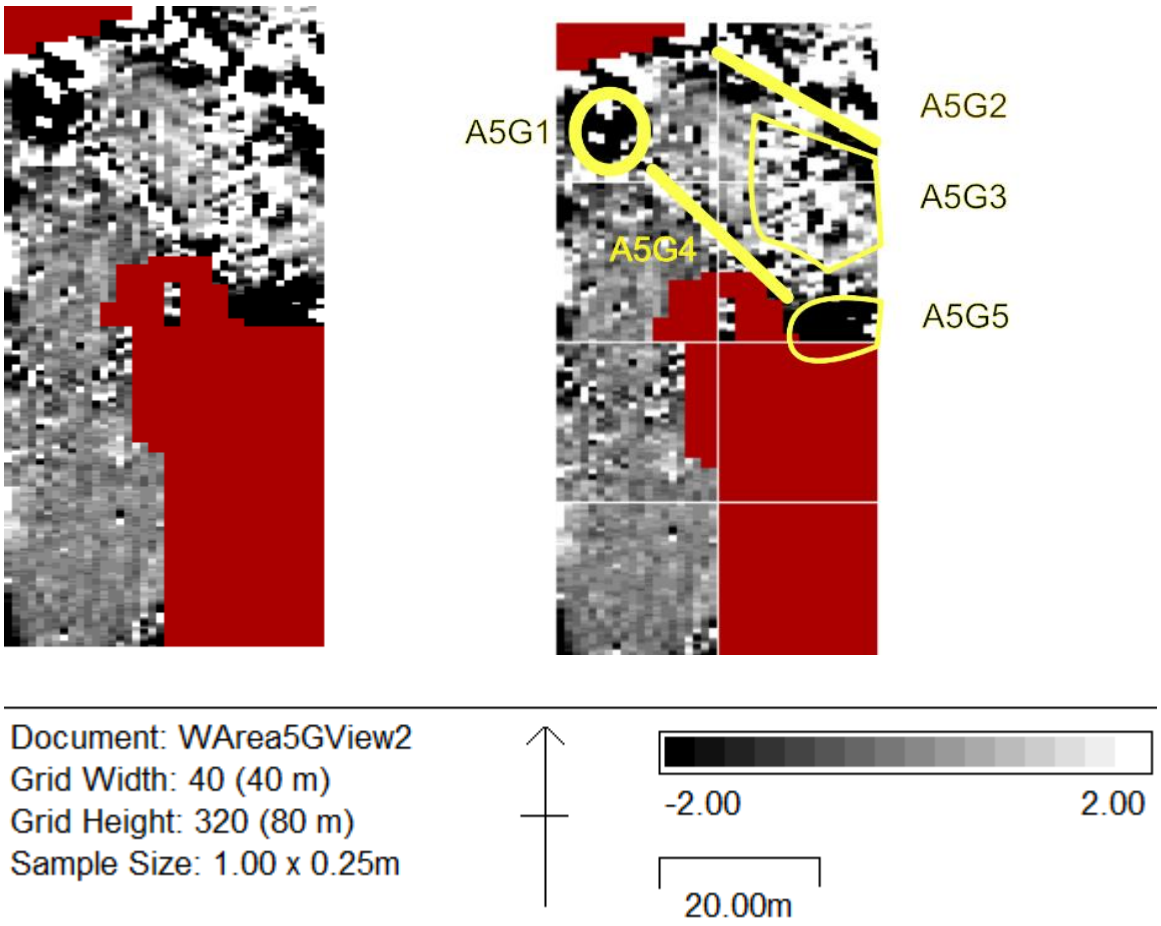

Figure 6.9. Area 5 gradiometer results and anomalies
Scale 20mm to 20m

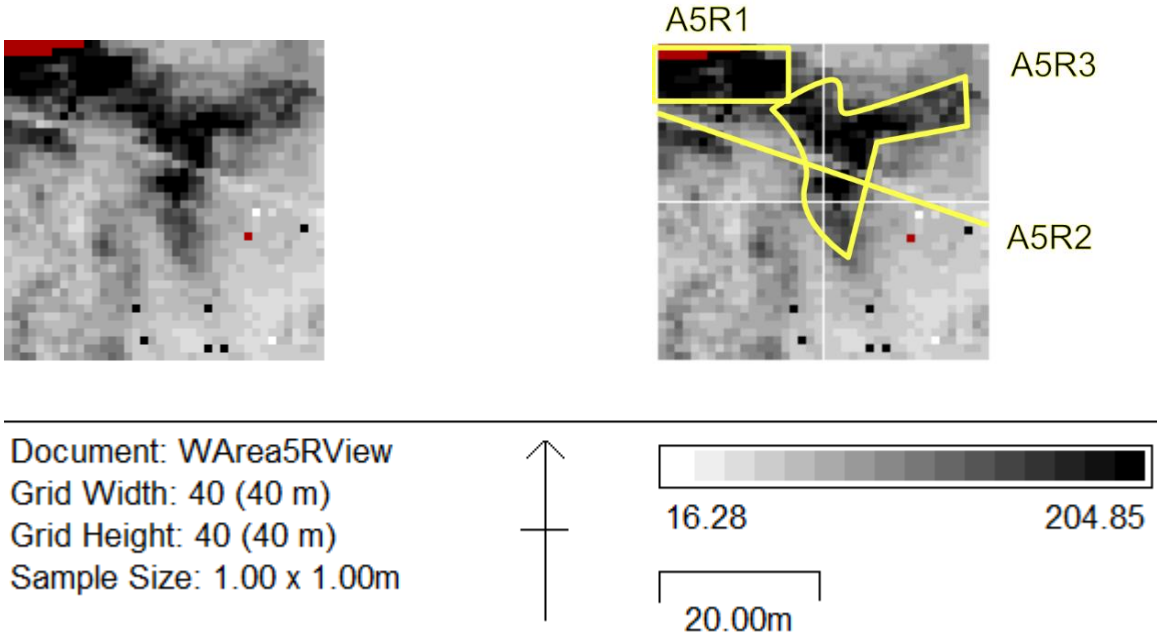

Figure 6.10. Area 5 resistance geophysics plot and anomalies
Scale 20mm to 20m

7 The topological survey

When this project started, it was planned to survey Wormstall Wood for evidence of the Roman road between Bath and Silchester. However, the fact that the geophysics survey failed to find any evidence of a road suggested that this survey be widened into an informal survey of the estate.

This focused on three features in the landscape:

- The boundary between the Wormstall and Wickham House estates: this was interesting because of the 2m high bank along part of the boundary
- The many ponds and mires across the hillside to the north and east of the estate. This was surveyed to rule out any possibility that the Roman road between Bath and Silchester could have passed to the north of Worrmstall House
- The banks and ditches in the woodland

The rest of this section describes how this was done and the results.

7.1 Surveying the boundary between the Wormstall and Wickham Houses estates

Starting from the A308, the boundary was walked as far as Church Road.

From the A308, the boundary is marked with a bank, with evidence of modern building rubble as far as the end of the playing field wood. After that the boundary is marked by a ditch. In the section just down-hill from Camp field, the Wickham House side of the ditch boasts a 2m high bank.

The results of this informal survey are recorded in Figure 7.1.

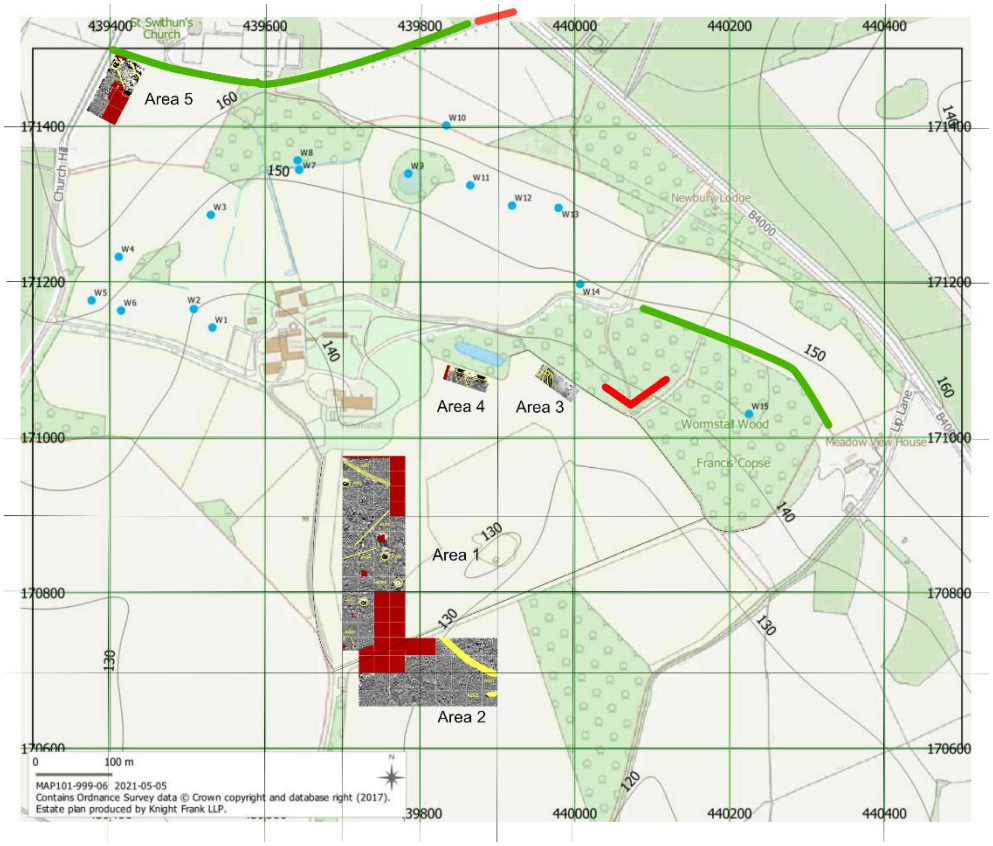

Figure 7.1. The location and results of the topography survey red lines represent banks, green lines represent ditches blue dots represent pools and mires . Scale 10mm to 100m

7.2 Surveying the ponds and mires across the hillside to the north and east of the estate

Prior to starting this survey, the surveyors had measured the number of paces they took to traverse 20m. thereby providing a metric to convert paces into metres.

This survey was conducted by visiting each pond and mire and in each case establishing a bench mark at its south west corner and recording its position with a GPS. Using a compass, the extent of the pond or mire was measured to the east and the north by pacing and then converting the paces into metres (Figure 7.2).

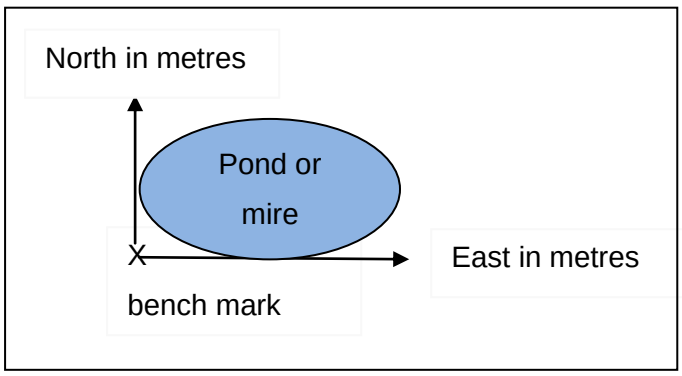

Figure 7.2. Recording the position and extent of a pond or mire

The results were recorded and then the central point of each pond or mire was calculated (Table 7.1). This information was then fed into the BAS Gazetteer and a plot of the results produced (Figure 7.3).

7.3 Surveying Wormstall Wood

The project surveyed Wormstall Wood using Greenway's method of walking traverses and recording features seen in the woodland floor (Greenaway 2006). They conducted 4 traverses to the east of the track through the woods shown on the OS Map (Figure 7.1). These showed that the south east edge of the wood was raised above the level of the adjacent field by about 1m and that apart from a platform and a well there was nothing to record until the north east boundary where there was a ditch some 4m wide and 1m deep.

East of the track the most notable feature was a stream bed with a series of three small dams which were no longer in use.

		SW corner				Centre	
Site	Site type	Northing	Easting	North length	East length	Northing	Easting
W1	Pond	439522	171131	20	20	439532	171141
W2	Bog	439504	171160	8	10	439508	171165
W3	Bog	439499	171266	62	40	439530	171286
W4	Bog	439408	171224	5	15	439411	171232
W5	Bog	439366	171172	20	8	439376	171176
W6	Bog	439409	171158	10	10	439414	171163
W7	Spring line	439682	171338	3		439644	171344
W8	Spring and bog	439637	171351	10	10	439642	171356
W9	pond	439770	171324	30	30	439785	171339
W10	light bog	439824	171395	20	12	439834	171401
W11		439857	171319	15	10	439865	171324
W12	Dry bog	439911	171268	15	60	439919	171298
W13		439971	171277	15	35	439979	171295
W14		439982	171187	50	20	440007	171197
W15	well	440156	171130			440156	171130
W16	stream with dams	440281	171028			440225	171030

Table 7.1. Details of the ponds and mires surveyed on the Wormstall hillside

8 Discussion and Conclusion

The Silchester to Bath Roman road

The geophysics surveys in areas 1 and 2 have detected evidence of the changes made to these fields, which confirm that the equipment is producing credible results on this geology.

The fact that no evidence of anything which resembles the footprint of a Roman road (2 side ditches and agger), suggests that either the road between Silchester and Bath did not cross these fields or that the evidence is buried too deep in the soil to be detected. The most likely scenario is that the Roman road did not cross this land.

This narrative is reenforced by the topology survey which shows that taking a road across this land would have required the road builders to control and manage the water emerging from the springs across the Wormstall hillside. To address this, they would have had to build a very visible agger and ditches and again we have not found any evidence of this.

As a result of this, it can be concluded that the Roman road between Silchester and Bath either passed through Wickham and then turned south back to the Kennet Valley or, as is more likely, took the road along the riverside westwards from Thatcham.

The deposition of the Roman coins

These geophysics surveys in areas 1 and 2 suggest that it is most likely that the Roman coins and other artefacts found in these areas came to be there as a result of manuring, the most likely source of which was the Roman village of Wickham. This evidence also gives insights into Roman Wickham's agriculture.

The geophysics surveys in area 3 identified a number of anomalies which may represent the remains of buildings which may be Roman in date. For this reason, more work is required before it can be said for sure whether the coins arrived there as a result of manuring or a specific deposition.

The coins

Given the above understanding of how the coins came to be in the Wormstall fields, an analysis of the coin gives insights in to the development of Roman Wickham.

The preliminary analysis suggests that many of them were minted in the 3rd and 4th centuries, at a time when Britain was recovering from being part of the Gallic Empire and exporting goods to Europe. The fact that these coins were passing through the hands of the people of Wickham and that they could afford to lose them suggests that their roadside and agricultural businesses were flourishing. Again, more work in Wickham may give us more insights into this.

Other information about the history of the area

The topology survey has provided some details of the boundary between the Wormstall and Wickham estates. However, the 2m high bank may be the result of ancient boundary building or more modern landscaping and this work leaves us none the wiser.

The surveys in area 5, identified the footprint of a building on Church Hill. Its size suggests it was a cottage but gives us no further details. More work is required to establish when it was built.

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Appendix A – Coin identification and dating

PAS Record ID	Metal	Denomination	Date	Reece Period	Emperor	Mint	Obverse Description	Obverse Inscription	Reverse Description	Reverse Inscription
BERK-BA30FE	Copper Alloy	Sestertius	AD117-250							
BERK-BA2FD4	Copper Alloy	Sestertius	AD138-196							
BERK-BA2EA2	Copper Alloy	Dupondius	AD180-192	9	Commodus					
BERK-BA2D6D	Copper Alloy	Sestertius	AD98-117	5	Trajan					
BERK-BA2BE2	Copper Alloy	Sestertius	AD41-250							
BERK-BA2AD1	Copper Alloy	Sestertius	AD41-250							
BERK-BA297D	Copper Alloy	Sestertius	AD138-196							
BERK-BA2829	Copper Alloy	As	AD117-161		Hadrian/ Antoninus Pius					
BERK-BA26DB	Copper Alloy	As	AD138-161	7	Antoninus Pius			[FAVSTINA AVG PII AVG F]	Venus standing left holding an apple and leaning on a column	[VENVS]
BERK-BA2562	Copper	Nummus	AD348-	18	House of		Unclear bust		Soldier advancing left spearing fallen	FEL TEMP REPARATIO

PAS Record ID	Metal	Denomination	Date	Reece Period	Emperor	Mint	Obverse Description	Obverse Inscription	Reverse Description	Reverse Inscription
	Alloy		364		Constantine				horseman	
BERK-BA23FD	Copper Alloy	Nummus	AD330-361)		House of Constantine					
BERK-BA22EC	Copper Alloy	Nummus	AD330-402							
BERK-BA2131	Copper Alloy	Nummus	AD330-348	17	House of Constantine		Helmeted bust left	[VRBS ROMA]	Wolf and twins	
BERK-BA2017	Copper Alloy	Radiate or Nummus	AD260-402							
BERK-BA1EF3	Copper Alloy	Nummus	AD330-348	17	House of Constantine		Diademed bust right		Two victories	[VICTORIAE DD AVGGQ NN]
BERK-BA1CB3	Copper Alloy	Nummus	AD364-378	19	House of Valentinian	Siscia			Victory advancing left	SECVRITAS REI PVBLICAE
BERK-BA1B87	Copper Alloy	Nummus	AD330-402							
BERK-BA1A5D	Copper Alloy	Radiate	AD260-275	13			Radiate bust right			
BERK-BA18EC	Copper Alloy	Nummus	AD348-364	18	Constantius II		Bust right		Soldier advancing left spearing a fallen horseman	[FEL TEMP REPARATIO]
BERK-BA173E	Copper Alloy	Nummus	AD388-402	21	House of Theodosius		Pearl-diademed, draped and cuirassed right		Victory (unclear) advancing left	
BERK-BA15D2	Copper	Nummus	AD364-	19	Gratian	Lugdunum	Pearl-diademed,		Emperor advancing right	GLORIA ROMANORVM

PAS Record ID	Metal	Denomination	Date	Reece Period	Emperor	Mint	Obverse Description	Obverse Inscription	Reverse Description	Reverse Inscription
	Alloy		378				draped and cuirassed right			LRBC
BERK-BA149F	Copper Alloy	Nummus	AD364-378	19	Valentinian I		Pearl-diademed, draped and cuirassed right	D N VALENTINI-ANVS P F AVG	Emperor advancing right	GLORIA ROMANORVM
BERK-BA1374	Copper Alloy	Nummus	AD330-348	17	House of Constantine		Helmeted bust left	CONSTANTINOPOLIS	Victory standing left on a prow holding a sceptre and shield	
BERK-BA124E	Copper Alloy	As	AD41-196							
BERK-BA10F9	Copper Alloy	Nummus	AD348-364	18	Constantius II		Pearl-diademed, draped and cuirassed right		Soldier advancing left spearing fallen horseman	[FEL TEMP REPARATIO]
BERK-BA0FE3	Copper Alloy	Nummus	AD364-378	19	House of Valentinian		Unclear bust		Victory advancing left	[SECVRITAS REI PVBLICAE]
BERK-BA0E81	Copper Alloy	Nummus	AD364-378	19	House of Valentinian		Pearl-diademed, draped and cuirassed right		Emperor advancing right	GLORIA ROMANORVM
BERK-BA0D35	Copper Alloy	Nummus	AD330-348	17	House of Constantine		Helmeted bust left	[CONSTAN]-TINOPOLIS	Victory standing left on a prow holding a sceptre and shield	[CONSTANTINOPOLIS]
BERK-BA0B33	Copper Alloy	Nummus	AD348-364	18	Constantius II		Diademed bust right		Soldier advancing left spearing fallen horseman	[FEL TEMP REPARATIO]

PAS Record ID	Metal	Denomination	Date	Reece Period	Emperor	Mint	Obverse Description	Obverse Inscription	Reverse Description	Reverse Inscription
BERK-BA0A01	Silver Plated/ Copper Alloy	Denarius	AD41-402				Unclear bust right		Standing female figure, raising hand and holding sceptre	
BERK-BA0855	Copper Alloy	Nummus	AD364-378	19	Valentinian I	Lugdunum	Pearl diademed, draped and cuirassed right	[D N VALENTINI-ANVS P F AVG]	Emperor advancing right	GLORIA ROMANORVM LRBC
BERK-BA06E7	Copper Alloy	Radiate	AD260-275	13	Victorinus	Mint I, Gaul (Uncertain, France or Germany)	Radiate, draped and cuirassed right	IMP C VICTORIANVS P F AVG	Sol standing left raising right hand and whip	
BERK-BA0584	Copper Alloy	Nummus	AD355-378				Diademed bust right			
BERK-BA043A	Copper Alloy	Radiate	AD260-296							
BERK-BA02D7	Copper Alloy	Radiate	AD260-275	13	Victorinus	Mint I, Gaul (Uncertain, France or Germany)	Radiate, draped and cuirassed right	IMP[...]	Unclear female figure left	
BERK-BA0173	Copper Alloy	Nummus	AD378-388	20	Gratian	Lugdunum	Pearl diademed draped and cuirassed right	[D N GRATIA-NVS P F AVG]		VOT / X(V?) / MVLT / XX in wreath LRBC
BERK-BA0023	Copper Alloy	Nummus	AD330-348	17	House of Constantine	Trier	Unclear bust right		Two solider and one standard	[GLORIA EXERCITVS]
BERK-B9FE0A	Copper Alloy	Radiate	AD260-275	13	Tetricus I	Mint I, Gaul (Uncertain, France or	Radiate bust right	IMP [ ]	Pax standing left holding branch and vertical sceptre	[PAX AVG]

PAS Record ID	Metal	Denomination	Date	Reece Period	Emperor	Mint	Obverse Description	Obverse Inscription	Reverse Description	Reverse Inscription
						Germany)				
BERK-B9FD25	Copper Alloy	Radiate	AD260-275	13	Victorinus		Radiate bust right	[ ] S P F AVG		
BERK-B9FBC6	Copper Alloy	Radiate or Nummus	AD260-402							
BERK-B9FA92	Copper Alloy	Nummus	AD330-348	17	House of Constantine		Unclear bust		Two soldiers and two standards	GLORIA EXERCITVS
BERK-B9F974	Copper Alloy	Nummus	AD330-402							
BERK-B9F85C	Copper Alloy	Radiate	AD260-275	13	Tetricus II	Mint II, Gaul (Uncertain, France or Germany)	Radiate and draped right seen from behind		Sacrificial implements	[PIETAS AVGG/AVGVSTO]
BERK-B9F73D	Copper Alloy	Nummus	AD330-348	17	Theodora	Trier	Draped bust right	FL MAX THEO-DORAE AVG	Pietas standing holding infant	PIETAS ROMANA RIC VIII
BERK-B9F5F6	Copper Alloy	Nummus	AD364-378	19	House of Valentinian	Arles or Lyons	Pearl diademed, draped and cuirassed right		Emperor advancing right	[GLORIA ROMANORVM]
BERK-B9F4BA	Copper Alloy	Nummus	AD364-378	19	Gratian	Lugdunum	Pearl diademed draped and cuirassed right		Emperor advancing right	GLORIA ROMANORVM LRBC
BERK-B9F38C	Copper Alloy	Nummus	AD348-364	18	House of Constantine		Pearl-diademed, draped and cuirassed right		Emperor standing left on galley holding victory and standard	[FEL TEMP REPARATIO]

PAS Record ID	Metal	Denomination	Date	Reece Period	Emperor	Mint	Obverse Description	Obverse Inscription	Reverse Description	Reverse Inscription
BERK-B9F158	Copper Alloy	Radiate	AD260-402							
BERK-B9EFDE	Copper Alloy	Nummus	AD330-348	17	House of Constantine	Lugdunum	Unclear bust right		Two victories	[VICTORIAE DD AVGGQ NN] RIC VIII
BERK-B9EC73	Copper Alloy	Nummus	AD330-348	17	House of Constantine		Unclear bust right	CONST[...]	Two soliders one standard	GLORIA EXERCITVS
BERK-B9EB32	Copper Alloy	Nummus	AD364-378	19	House of Valentinian		Pearl-diademed, draped and cuirassed right		Victory advancing left	SECVRITAS REI PVBLICAE
BERK-B9E9BA	Copper Alloy	Nummus	AD317-330	16	Constantine I				VOT (X?) in wreath	
BERK-B9E88C	Copper Alloy	Radiate	AD260-275	13	Claudius II	Mediolanum	Radiate draped and cuirassed right seen from behind		Aequitas standing left	AEQ [VITAS AVG]
BERK-B9E5F5	Copper Alloy	Radiate	AD260-275	13						
BERK-B9E41C	Copper Alloy	Radiate	AD260-275	13	Victorianus or Tetricus I		Radiate bust right		Unclear standing figure	
BERK-B9E2E6	Copper Alloy	Radiate or Nummus	AD260-402		Magnentius or Decentius					
BERK-B9E1AC	Copper Alloy	Nummus	AD348-364	18	Magnentius or Decentius		Bare-headed bust right		Two victories holding a wreath inscribed VOT / V / MVLT / X	[VICTORIAE] DD NN AVG [ET CAE]

PAS Record ID	Metal	Denomination	Date	Reece Period	Emperor	Mint	Obverse Description	Obverse Inscription	Reverse Description	Reverse Inscription
BERK-B9E082	Copper Alloy	Radiate	AD275-296	14						
BERK-B9DF19	Copper Alloy	Nummus	AD330-402							
BERK-B9DDED	Copper Alloy	Radiate or Nummus	AD260-402							
BERK-B9DAE4	Copper Alloy	Radiate or Nummus	AD260-402							
BERK-B9D9BA	Copper Alloy	Radiate	AD260-75	13			Radiate bust right			
BERK-B9D713	Copper Alloy	As	AD69-96	4	Flavian	Rome	Unclear head right			
BERK-B9D5E9	Copper Alloy	Radiate	AD260-402							
BERK-B9D4A6	Copper Alloy	Nummus	AD364-378	19	House of Valentinian	Lugdunum	Pearl-diademed, draped and cuirassed right		Emperor advancing right	[GLORIA ROMANORVM]
BERK-B9D378	Copper Alloy	Nummus	AD330-402							
BERK-B9D167	Copper Alloy	Nummus	AD364-378	19	House of Valentinian				Victory advancing left	SECVRITAS REI PVBLICAE
BERK-B9CFBD	Copper Alloy	Nummus	AD364-378	19	Valentinian I	Arelatum	Pearl-diademed, draped and		Victory advancing left holding a wreath and	SECVRITAS REI PVBLICAE

PAS Record ID	Metal	Denomination	Date	Reece Period	Emperor	Mint	Obverse Description	Obverse Inscription	Reverse Description	Reverse Inscription
							cuirassed right		palm	
BERK-B9CE73	Copper Alloy	Radiate	AD260-275	13	Victorianus or Tetricus I					
BERK-B9CC3B	Copper Alloy	Nummus	AD364-378	19	Valentinian I	Siscia	Diademed bust right	[...] INI [...]	Emperor advancing right	[GLORIA ROMANORVM] LRBC
BERK-B9CA76	Copper Alloy	Radiate	AD260-275	13	Victorianus, Tetricus I or Tetricus II		Radiate bust right		Unclear standing figure	
BERK-B9C933	Copper Alloy	Radiate or Nummus	AD260-402							
BERK-B9C7A4	Copper Alloy	Radiate or Nummus	AD260-402							
BERK-B9C677	Copper Alloy	Nummus	AD355-402				Pearl-diademed,, draped and cuirassed right			
BERK-B9C4D8	Copper Alloy	Radiate or Nummus	AD260-402							
BERK-B9C25E	Copper Alloy	Radiate or Nummus	AD260-402							
BERK-B9BF19	Copper Alloy	Nummus	AD330-348	17	House of Constantine		Laureate and cuirassed right		Two soldiers and one standard	GLORIA EXERCITVS
BERK-B9BDCA	Copper Alloy	Radiate	AD275-296	14	Tetricus II		Radiate bust right	[ ]VS CAE[ ]	Sacrificial implements	PIETAS[ ]
BERK-B9BCA8	Copper Alloy	Nummus	AD364-378	19	House of Valentinian	Arelatum	Pearl diademed draped and		Victory advancing left	SECVRITAS [REI PVBLICAE]

PAS Record ID	Metal	Denomination	Date	Reece Period	Emperor	Mint	Obverse Description	Obverse Inscription	Reverse Description	Reverse Inscription
							cuirassed right			
BERK-B9BB79	Copper Alloy	Nummus	AD364-378	19	Valens	Arelatum	Pearl diademed, draped and cuirassed right	[ ] - (S) [ ] VG	Victory advancing left	[SECVRITAS] REI PVLICAE
BERK-B9BA39	Copper Alloy	Nummus	AD364-378	19	Valens	Lugdunum	Pearl diademed draped and cuirassed right	D N VALEN-S P F AVG	Victory advancing left	SECRITAS REI PVBLICAE
BERK-B9B904	Copper Alloy	Nummus	AD330-348	17	House of Constantine		Helmeted bust left	[CONSTANTINOPOLIS]	Victory standing on prow left holding sceptre and shield	
BERK-B9B70A	Copper Alloy	Radiate	AD275-296	14	Claudius II		Radiate head right	[DIVO CLVDIO]	Altar	CONSECRATIO
BERK-B9B5BB	Copper Alloy	Nummus	AD364-378	19	Valens	Trier	Pearl-diademed draped and cuirassed right	D N VALEN-S P F AVG	Victory advancing left holding wreath and palm	GLORIA ROMANORVM RIC IX
BERK-B9B451	Copper Alloy	Nummus	AD364-378	19	Gratian	Arelatum	Pearl diademed, draped and cuirassed right	D N GRATIANVS AVGG AVG	Emperor standing holding standard and shield	GLORIA NOVI SAECVLI RIC IX
BERK-B9B2D6	Copper Alloy	Nummus	AD330-348	17	Constantine II		Laureate and cuirassed right	[ ]-NVS IVN (NC	Two soldiers and one standard	GLORIA EXERCITVS
BERK-B9B0A5	Copper Alloy	Nummus	AD364-378	19	Gratian	Arelatum	Pearl-diademed, draped and cuirassed right	[D N GRATIANVS AVGG AVG]	Emperor standing, holding standing and shield	GLORIA NOVI SAECVLI RIC IX
BERK-B9AA46	Copper Alloy	Nummus	AD348-364	18	Constantius II	Lugdunum	Pearl-diademed bust right		Soldier advancing left spearing fallen horseman	[FEL TEMP REPARATIO]

PAS Record ID	Metal	Denomination	Date	Reece Period	Emperor	Mint	Obverse Description	Obverse Inscription	Reverse Description	Reverse Inscription
BERK-B9A8F7	Copper Alloy	Nummus	AD364-378	19	Gratian	Arelatum	Pearl diademed draped and cuirassed right	D N GRATIA-NVS P F AVG	Victory advancing left	SECRITAS REI PVBLICAE LRBC
BERK-B9A77B	Copper Alloy	Nummus	AD348-364	18	Magnentius,		Bare-headed bust right	[...] AVG	Two Victories holding wreath inscribed VOT / V / MVLT / X	[VICTORIAE DD NN AVG ET CAE/S]
BERK-B9A631	Copper Alloy	Nummus	AD330-348	17	Constantine I		Diademed bust right		two soldiers and two standards	GLORIA EXCERTIVS
BERK-B97551	Copper Alloy	Nummus	AD348-364	18	Constantius II		Diademed bust right		Soldier advancing left spearing a fallen horseman	[FEL TEMP REPARATIO]
BERK-B973D2	Copper Alloy	Nummus	AD330-348	17	Constantine I		Rosette diademed, draped and cuirassed right		Two soldiers and one standard	[GLORIA EXERCITVS]
BERK-B9728C	Copper Alloy	Nummus	AD388-402	21	Eugenius	Trier	Pearl-diademed, draped and cuirassed right	DN EVGENI-VS P F AVG	Victory advancing left holding a wreath and palm	VICTORIA AVGGG
BERK-B970C4	Copper Alloy	Nummus	AD330-348	17	Constans	Trier	Rosette-diademed, draped and cuirassed right	CONSTANS-P F AVG	Two soldiers and one standard	GLORIA EXERCITVS RIC VII
BERK-B96F64	Copper Alloy	Nummus	AD330-348	17	Constantius II	Arelatum	Rosette and laureate diademed, draped and cuirassed right	CO[NSTANTINI?] [VS? P F AVG]	Two victories	RIC VIII
BERK-B96E0D	Copper Alloy	Nummus	AD330-348	17	Constantius II	Lugdunum	Laureate, draped and cuirassed right	[CONSTANTI?]-[VS?] P F AVG	Two Victories	VICTORIAE DD AVGGQ NN RIC VIII

PAS Record ID	Metal	Denomination	Date	Reece Period	Emperor	Mint	Obverse Description	Obverse Inscription	Reverse Description	Reverse Inscription
BERK-B96CE3	Copper Alloy	Nummus	AD330-348	17	Constantine I	Arelatum or Trier	Rosette-diademed, draped and cuirassed right		Two soldiers and two standards	[GLORIA EXERCITVS] RIC VIII
BERK-B96B79	Copper Alloy	Nummus	AD296-317	15	Licinius I	Trier	Laureate and curiassed right	IMP LICINIVS P F AVG	Genius standing left holding patera and cornucopiae	GENIO POP ROM RIC VI
BERK-B96980	Copper Alloy	Radiate	AD275-296	14		Gaul mint I or II	Radiate bust right	[ ] CVS AVG	Pax standing left, holding branch and vertical sceptre	[PA]X [AVG]
BERK-B96824	Copper Alloy	Nummus	AD317-330	16	Constantine II	Lugdunum	Laureate, diademed and cuirassed right seen from behind	CONTANTINVS IVN N C	Globe on altar, inscribed VO/TIS/XX above, three stars	BEATA RIC VII
BERK-B966E9	Copper Alloy	Radiate	AD275-296	14	Allectus	C mint (Uncertain, England)	Radiate and cuirassed right	IMP C ALECTVS P F AVG	Galley left with mast, prow and cabin, no waves	[VIRTVS] AVG RIC V
BERK-B965A6	Copper Alloy	Nummus	AD296-317	15	Constantine I	Trier	Laureate and cuirassed bust facing right	[ ] INVS P F AVG	Sol standing left holding globe	[SOLI INVIC]TO COMITI RIC VI
BERK-B963C5	Copper Alloy	Nummus	AD348-364	18	Constans		Pearl diademed, draped and cuirassed left, holding globe	D N CONSTA-NS P F AVG	Soldier advancing right holding small figure	FEL TEMP REPARATIO
BERK-B96281	Copper Alloy	Nummus	AD317-330	16	Constantine II	Londinium	Radiate draped and cuirassed left	CONSTANT-INVS N C	Globe on altar, inscribed VOT/IS/XX	BEATA TRA-NQUILITAS
BERK-B96117	Copper Alloy	Nummus	AD364-378	19	Valentinian I	Lugdunum	Pearl-diademed, draped and cuirassed right	D N VALENTINI-ANVS P F AVG	Emperor advancing right holding standard and dragging captive	SECVRITAS REI PVBLICAE LRBC

PAS Record ID	Metal	Denomination	Date	Reece Period	Emperor	Mint	Obverse Description	Obverse Inscription	Reverse Description	Reverse Inscription
BERK-B95EEC	Copper Alloy	Nummus	AD364-378	19	Valens	Aquileia	Pearl-diademed, draped and cuirassed right	[D N VALEN]-S P F AVG	Victory advancing left	SECRITAS REI PVBLICAE LRBC
BERK-B95D95	Copper Alloy	Nummus	AD364-378	19	Gratian	Lugdunum	Peal-diademed draped and cuirassed right	D N GRATIANVS AVGG AVG	Emperor advancing right	GLORIA ROMANORVM LRBC
BERK-B95C07	Copper Alloy	Nummus	AD364-378	19	Valens	Aquileia	Pearl-diademed, draped and cuirassed right	D N VALEN - [ ]	Victory advancing left holding wreath and palm	SECRITAS REI PVBLICAE LRBC
BERK-B959E3	Copper Alloy	Nummus	AD364-378	19	Valens	Arelatum	Pearl-diademed, draped and cuirassed right	D N VALN-S P F AVG	Emperor advancing right	GLORIA ROMANORVM LRBC
BERK-B9584E	Copper Alloy	Nummus	AD364-378	19	Valens	Arelatum	Pearl-diademed, draped and cuirassed right	D N VALN-S P F AVG	Victory advancing left	SECRITAS REI PVBLICAE
BERK-B95670	Copper Alloy	Radiate	AD260-275	13	Claudius II		Radiate head right	IMP C [ ]	Genius standing left holding patera and cornucopaie, to the left an altar	[GENIVS AV]G
BERK-B95513	Copper Alloy	Nummus	AD330-348	17	Constantine I	Trier	Laureate bust right		Two soldiers and two standards	GLORIA EXERCITVS
BERK-B953C8	Copper Alloy	Nummus	AD330-348	17	Constantine I		Rosette diademed, draped and cuirassed right	CONSTANTI-NVS MAX AVG	Two soldiers and two standards	GLORIA EXERCITVS RIC VII
BERK-B95253	Copper Alloy	Nummus	AD330-348	17	Theodora,	Trier	Draped bust right	FL MAX THEO-[DORAE] AVG	Pietas standing holding infant	PIETAS ROMANA RIC VIII

PAS Record ID	Metal	Denomination	Date	Reece Period	Emperor	Mint	Obverse Description	Obverse Inscription	Reverse Description	Reverse Inscription
BERK-B950FB	Copper Alloy	Nummus	AD364-378	19	Valentinian I		Pearl-diademed, draped and cuirassed right	D N VALENTINI-[ANVS P F AVG]	D N VALENTINI-[ANVS P F AVG]	SECRITAS REI PVBLICAE
BERK-B94E79	Copper Alloy	Nummus	AD364-378	19	Valentinian I	Aquileia	Pearl-diademed draped and cuirassed right	[D N VALENTINI-ANVS P F AVG]	Emperor advancing right	GLORIA ROMANORVM
BERK-B94BE4	Copper Alloy	Nummus	AD364-378	19	Valens	Lugdunum	Pearl-diademed draped and cuirassed right	[D N VALEN-S P F AVG]	Victory advancing left	[SECVRITAS] REI PVBLICAE
BERK-B94A35	Copper Alloy	Radiate	AD275-296	14			Radiate head, bust right	I P C [ ]	Providentia standing left holding branch and cornucopiae	
BERK-B941FF	Copper Alloy	Nummus	AD364-378	19	House of Valentinian	Arelatum	Pearl-diademed, draped and cuirassed right		Emperor advancing right	[GLORIA ROMANORVM]
BERK-B91DF5	Copper Alloy	Nummus	AD330-348	17	House of Constantine		Helmeted bust left	CONSTAN-TINOPOLIS	Victory standing left on prow, holding sceptre and shield	
BERK-119A2D	Silver	Radiate	AD258-259	12	Gallienus		Bust of Gallienus, radiate, cuirassed, right	GALLIENVS P F AVG	Victory, winged, draped, standing on globe; flanked on each side by captive	[VICT GERMANICA]
BERK-11A28E	Silver	Denarius	AD225-235	10	Julia Maesa	Rome	Bust of Julia Mamaea, draped, right	IVLIA MAMAEA AVG	Juno, diademed, veiled, draped, standing left, holding patera in right	IVNO CONSERVATRIX

PAS Record ID	Metal	Denomination	Date	Reece Period	Emperor	Mint	Obverse Description	Obverse Inscription	Reverse Description	Reverse Inscription
									hand and sceptre in left hand; at feet, peacock	
BERK-11A8D9	Copper Alloy	Dupondius or As	AD 117-180			Rome	Bust facing right		Standing figure	
BERK-11B137	Copper Alloy	Sestertius	AD 176-180	8	Marcus Aurelius	Rome	Bust of Faustina II, draped, hair elaborately waved in nearly vertical lines and fastened in a low chignon at back of head, down cheek, curls, right	DIV[A FAVST]INA P[IA]		
BERK-11BA7F	Copper Alloy	Sestertius	AD100-200							
BERK-11BFD4	Copper Alloy	Nummus	AD300-305	15	Maximian I		Laureate and cuirassed bust right	[MAXIMIANV]S NOBIL C	Genius standing left holding a patera and cornucopia	[GENIO POPVLI ROMANI]
BERK-11C916	Copper Alloy	Dupondus or As	AD200-250				Bust facing right	[...]S AVG[...]		
BERK-11CD48	Copper Alloy	Radiate	AD286-293	14	Carausius		Radiate and cuirassed bust right		Standing figure left, holding sceptre or spear	
BERK-11D2E5	Copper Alloy	Nummus	AD310-331	16	Constantine I		Bust of Constantine I, laureate, cuirassed, right	[IMP C]ONS[TANTINVS P F AV]G	Mars, helmeted, draped, cuirassed, standing right, leaning on reversed spear with right hand and placing left hand on shield	MARTI CON-[SE]RVA[TORI]

PAS Record ID	Metal	Denomination	Date	Reece Period	Emperor	Mint	Obverse Description	Obverse Inscription	Reverse Description	Reverse Inscription
BERK-11D69B	Copper Alloy	Nummus	AD364-378	19	House of Valentinian		Diadem bust facing right	DN VALEN[...]		
BERK-11D9B9	Copper Alloy	Nummus	AD330-336	17	House of Constantine		Bust facing right		Two soldiers, two standards	[GLORIA EXERCITVS]
BERK-11DD4E	Copper Alloy	Nummus	AD313-319	16	House of Constantine		Laureate bust right		Sol? standing right	
BERK-11E8D5	Copper Alloy	Nummus	AD340-402				Diademed bust right			
BERK-11EBF3	Copper Alloy	Nummus	AD313-317	15	House of Constantine		Bust facing right		Mars? advancing right	
BERK-11F073	Copper Alloy	Nummus	AD306-361		House of Constantine		Bust facing right		Figure standing left	
BERK-11F504	Copper Alloy	Nummus	AD342-348		House of Constantine		Bust facing right		Two victories, facing, holding wreaths	
BERK-121015	Copper Alloy	Radiate or Nummus	AD260-402							

Appendix B. Geophysics

This appendix contains the details of the geophysics surveys.

Area 1

This area was surveyed because, as marked on the Wormstall map, 3 silver Roman coins and a loom weight had been found in the area.

Area 1 survey grid

A survey grid was laid out as a 100m x 100m square aligned to the British National Grid using a GMS 2 GPS system. This has an accuracy of ±2m accuracy so the length of the sides was confirmed using tapes and geometry.

This grid was subdivided into 20m x 20m squares using tapes. It was then extended to the north and south using tapes to create an area 260m south to north and 100m west to east (Figure Area 1.1).

Area 1 gradiometer survey

28 20m x 20m grids were surveyed in Area 1 in two phases of surveying.

In phase 1, data was collected after a period of dry weather with an overnight frost; data was collected from 26 squares. For all the squares data was collected starting in the south west corner facing north except for grid WG1S9 where data was collected starting in the north east corner facing south.

This data was imported into Snuffler import file *WA1Gimport1* from which was generated 26 geophysics data files with names: WG1nn with nn in the range 1 to 26 and another 26 geophysics data files with names: WG1Snn with nn in the range 1 to 26. The difference between the two sets of geophysics data files was that the WG1 series were surveyed from the south west corner facing north while the WG1S were surveyed from the north east corner facing south.

In phase 2, data was collected after overnight snow which had melted, another 12 grids were collected to gain more information about anomalies A1G2 and A1G3 (Figure A2) found in the phase 1 results. This data was imported into Snuffler import file *WA1Gimport2* from which was generated: 12 geophysics data files with names: WG2nn with nn in the range 1 to 12.

Figure Area 1.1 shows the position of the individual survey grids surveyed with the gradiometer and the files which hold the results.

Figure Area1.2 shows the resulting geophysics plot and the anomalies found in it.

Area 1 resistance survey

Two anomalies A1G1 and A1G2 were surveyed. A1G1 was believed to be a tree throw; the survey was to confirm this interpretation. A1G2 was a linear anomaly with potentially another just to the north; this survey was to confirm this understanding.

All the resistance survey data from all the survey areas was collected into a file TAR3DATA.txt dated 24/4/2021 in the folder *Wormstall 2021 Resistance survey data*. This was downloaded into a single Snuffler project *Wormstall2021R* to create 16 geophysics data files with names: WRnn with nn in the range 1 to 16.

Figure Area 1.3 shows the position of the grids which were surveyed while figures Area 1.4 and A1.5 show the geophysics plots and the anomalies.

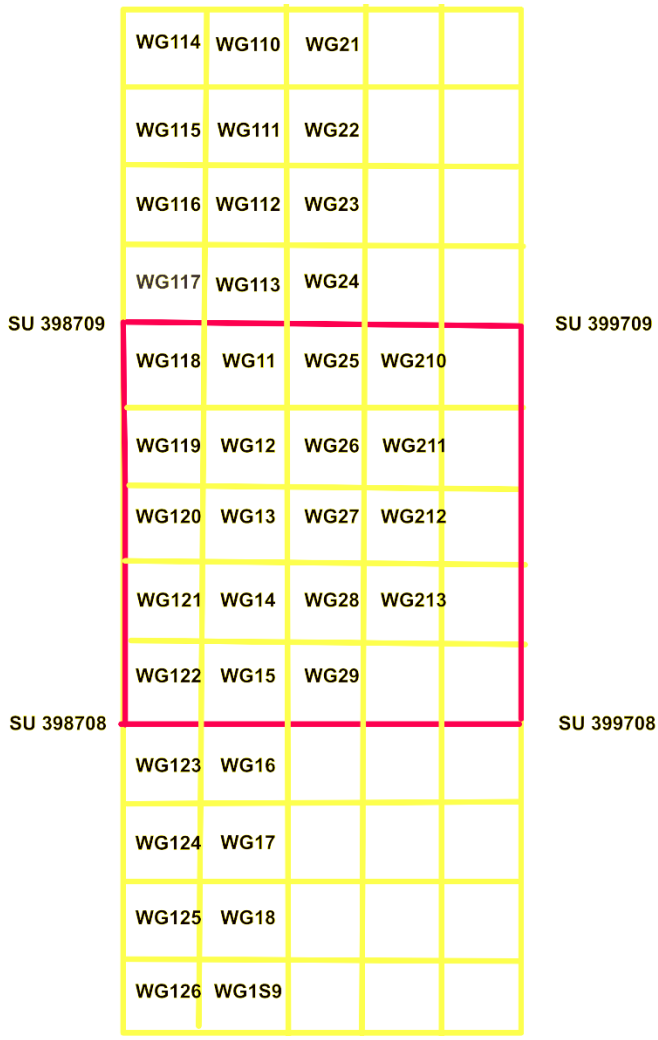

Figure Area 1.1. Area 1 survey grid with the gradiometer survey filenames (Scale 10mm to 20m)

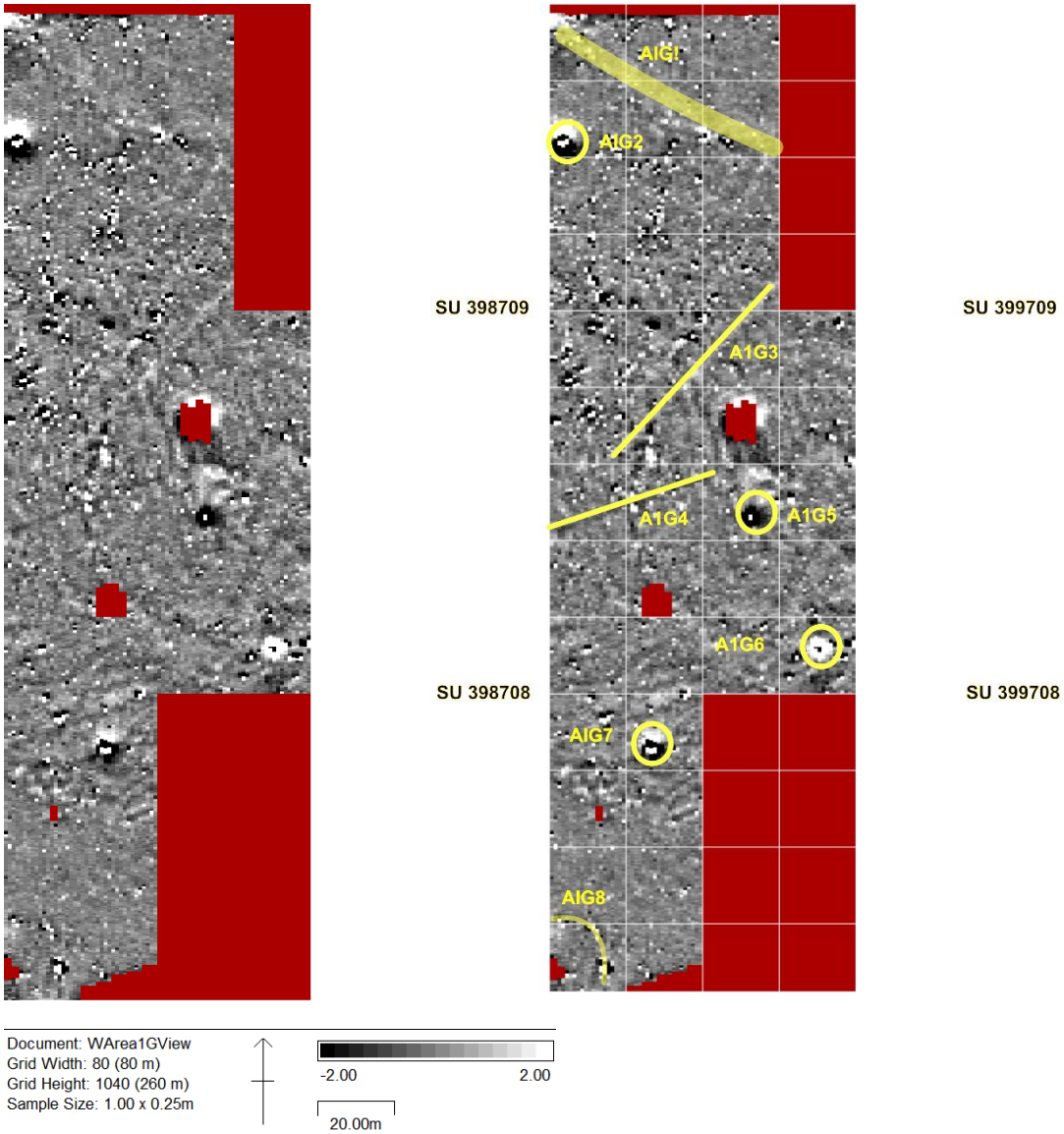

Figure Area 1.2. Area 1 gradiometer results
On the left the geophysics plot, on the right the anomalies found in the plot
Scale 10mm to 20m

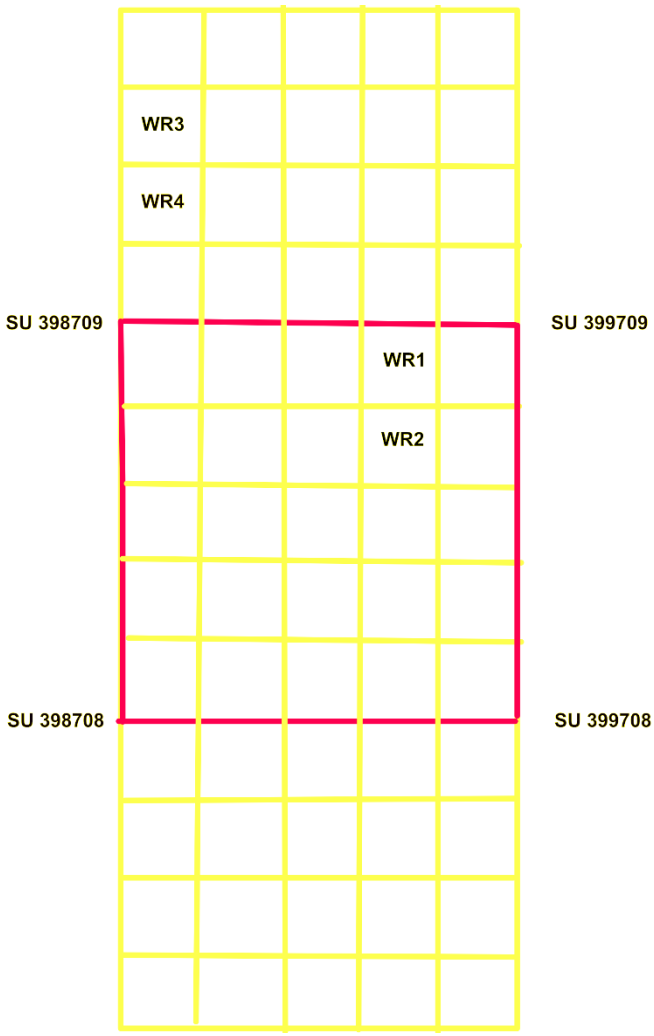

Figure Area 1.3. Area 1 survey grid with the resistance survey filenames (Scale 10mm to 20m)

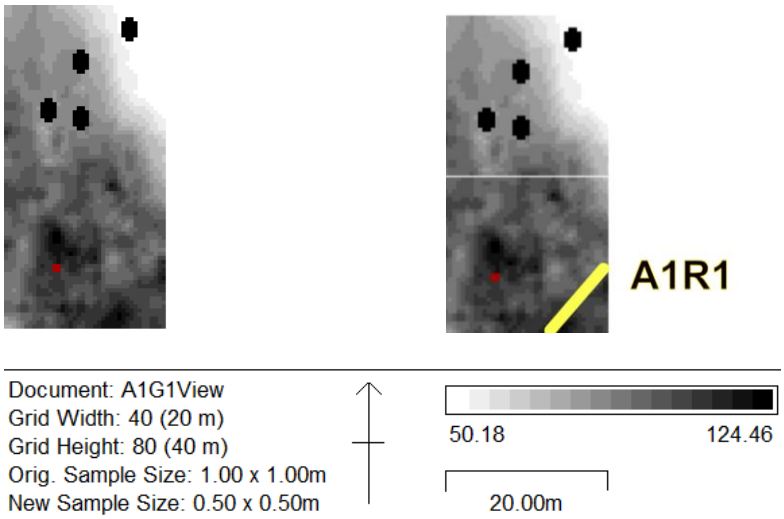

Figure Area 1.4. Area 1 A1G1 resistance survey results
On the left the geophysics plot, on the right the anomalies found in the plot (Scale 20mm to 20m)

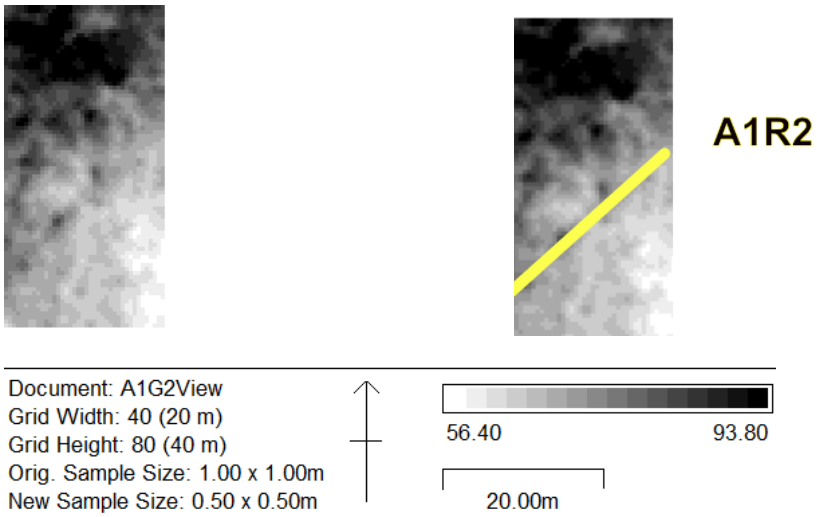

Figure Area 1.5. Area 1 A1G2 resistance geophysics plot and anomalies
On the left the geophysics plot, on the right the anomalies found in the plot (Scale 20mm to 20m)

Area 2

This area south of the green way was surveyed because, as shown on the Wormstall 1880 map (Figure 3.8), a number of Roman coins had been found there.

Area 2 survey grid

A baseline for the survey grid was established using a GMS 2 GPS system. The end points were:
SU 398707 and SU 399707. The line between the end points was confirmed using a 100m tape and 20m x 20m grids laid out on each side of the baseline using geometry (Figure Area 2.1). The grid was then extended to the west to the end of the field using tapes and geometry.

Area 2 gradiometer survey

All the whole grids on each side of the baseline were surveyed using a Bartington 601 gradiometer with 2 sensors. In all 28 20m x 20m squares covering 1.1 hectares were surveyed in a day.

The Snuffler project folder: *Wormstall2021Area2G* was created to hold the results. There was only one download from the gradiometer to create import file *WA2Gimport.* This was used to create 28 geophysics data files labelled WG3nn with nn in the range 1 to 28 (Figure Area 2.1).

Figures Area 2.2 and Area 2.3 show the gradiometer survey results and the anomalies found in the results.

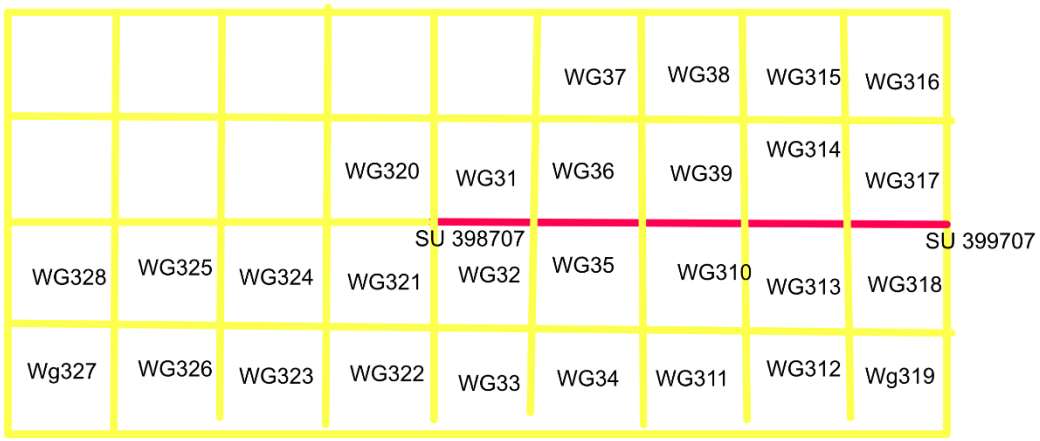

Figure Area 2.1. Area 2 survey grid with the gradiometer survey filenames (Scale 10mm to 20m)

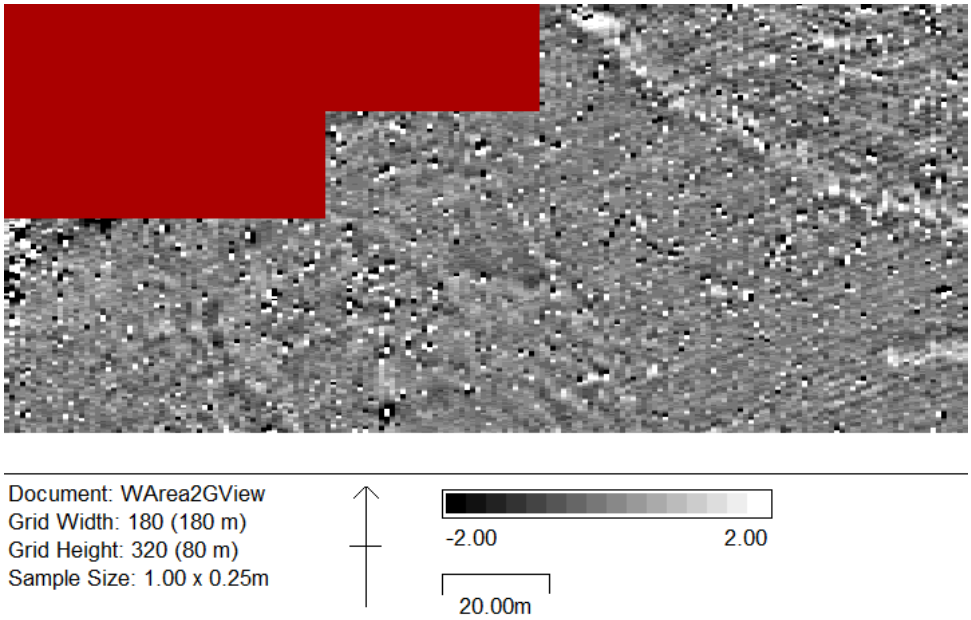

Figure Area 2.2. Area 2 gradiometer results (Scale 10mm to 20m)

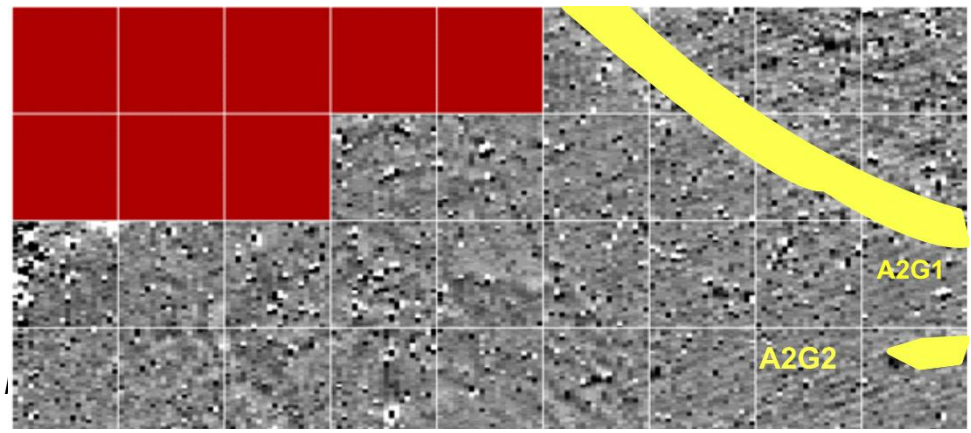

Figure Area 2.3. Area 2 gradiometer results with anomalies (Scale 10mm to 20m)

Area 3

Area 3 was along the south edge of Wormstall Wood in an area where the Wormstall map showed that 6 Roman coins had been found.

Area 3 survey grid

The south edge of Wormstall Wood is bounded by a wire fence on a south west to north west alignment. The survey grid was laid out on a line parallel to and 7m from the fence. It consisted of a single row of 4 20m x 20m grids (Figure Area 3.1)

Area 3 gradiometer survey

Three grids were surveyed. The fourth grid was left unsurveyed because most of the ground was boggy.

The gradiometer results from areas 3, 4 and 5 were all held in a single Snuffler project *Wormstall2021Area345G*. There was only one download from the gradiometer to create import file *WA345Gimport.* This was used to create 14 geophysics data files labelled WG345nn with nn in the range 1 to 14.

Figure Area 3.2 shows the results.

Area 3 resistance survey

The three grids in area 3 were surveyed with a Frobisher TAR03 resistance meter. The survey was conducted after a period of dry weather and the ground was dry. Figure Area 3.3 shows the grids which were surveyed while Figure Area 3.4 shows the results and anomalies.

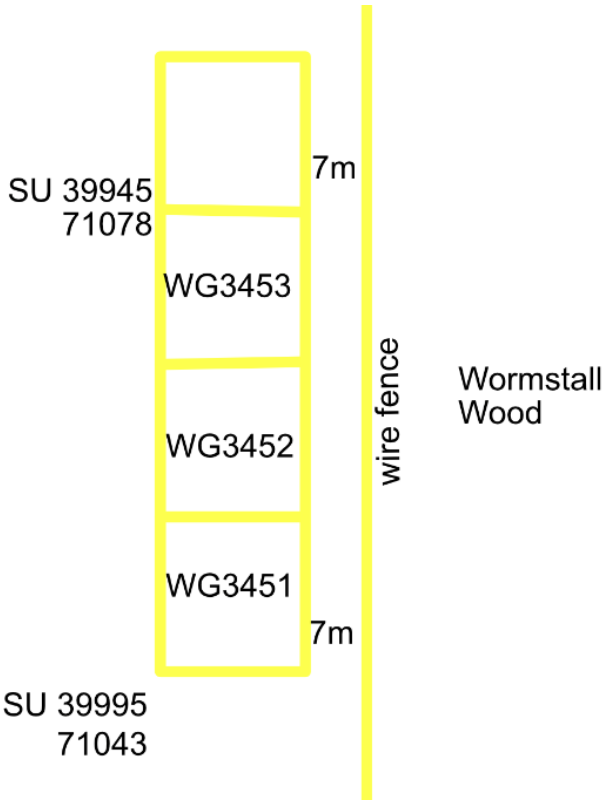

Figure Area 3.1. Area 3 survey grid and gradiometer file names (Scale 20mm to 20m)

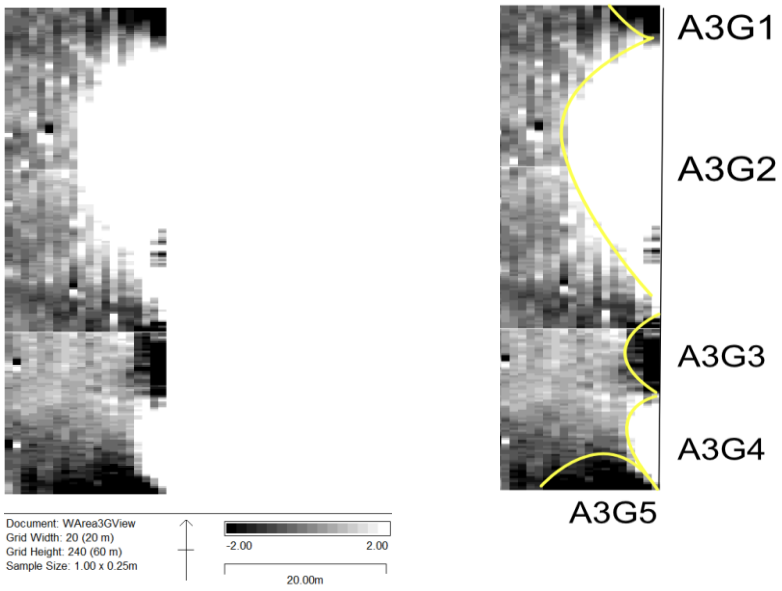

Figure Area 3.2. Area 3 gradiometer results and anomalies (Scale 20mm to 20m)

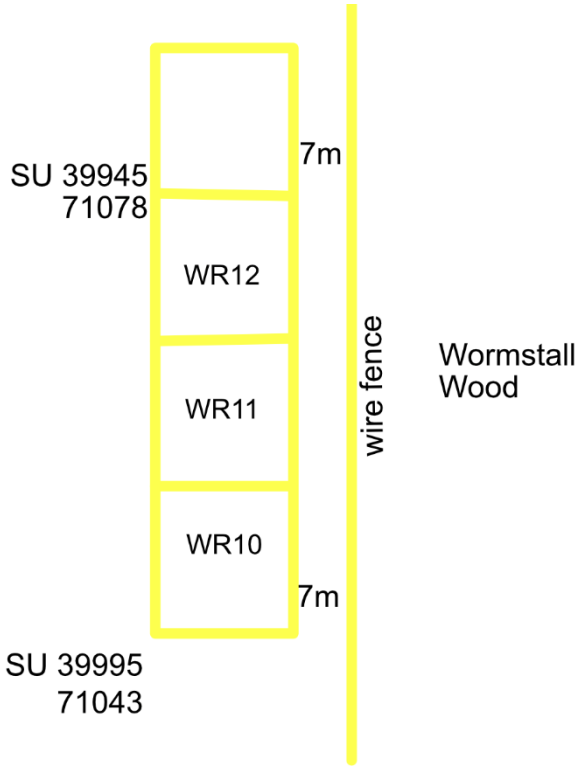

Figure Area 3.3. Area 3 survey grid and resistance survey filenames (Scale 20mm to 20m)

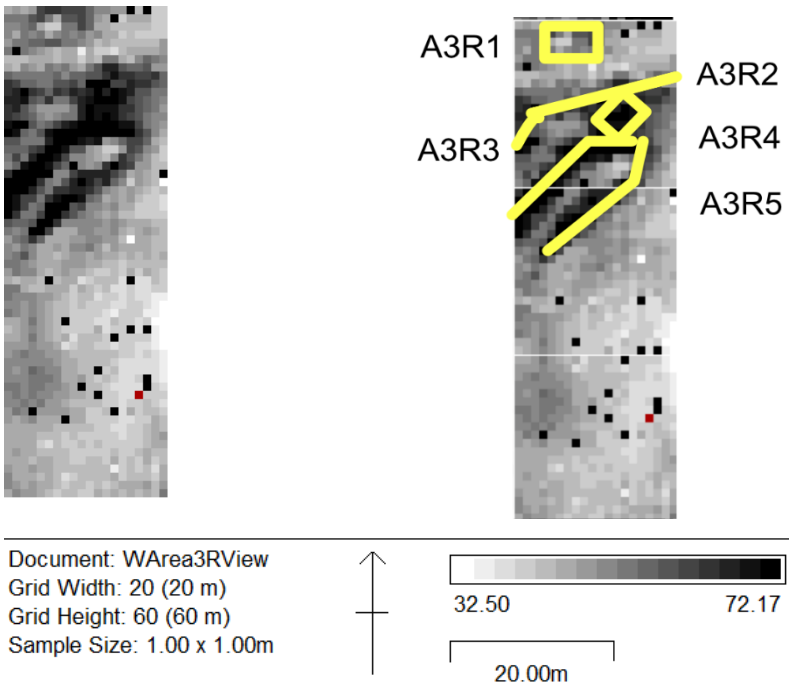

Figure Area 3.4. Area 3 resistance geophysics plot and anomalies (Scale 20mm to 20m)

Area 4

Area 4 was an area to the south of the Wormstall pool covering an area where 3 Roman coins were found.

Area 4 survey grid

The southern edge of this pond was marked by a metal fence. The survey grid was laid out on a line parallel to and 5m from the fence. It consisted of a single row of 3 20m x 20m squares (Figure Area 4.1).

Area 4 gradiometer survey

Three squares were surveyed. The gradiometer survey results together with those from Areas 3 and 5 were held in a single Snuffler project *Wormstall2021Area345G*. Figure Area 4.1 shows the filenames of the file which held the results which are shown in Figure Area 4.2.

Area 4 resistance survey

The squares surveyed using the gradiometer were positioned 5m from the metal fence to the south of the Wormstall pool because the metal disturbs the gradiometer results. The resistance survey was able to survey some of these 5m squares by adding an additional line of grid to the north of the grid (Figure Area 4.3)

The three grids in area 4 were surveyed with a Frobisher TAR-3 resistance meter. The survey was conducted after a period of dry weather and the ground was dry. Figure Area 4.3 shows the grids which were surveyed while Figure Area 4.4 shows the results and anomalies.

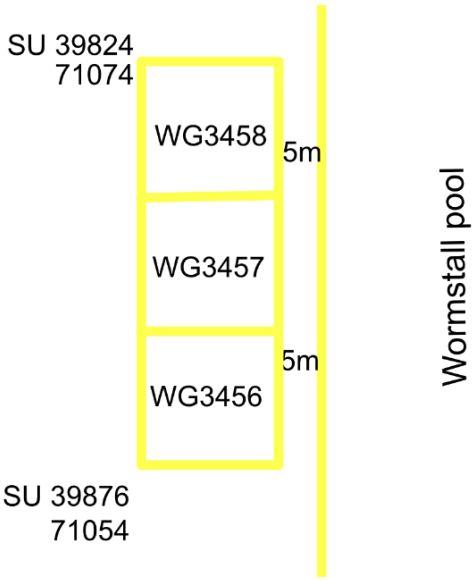

Figure Area 4.1. Area 4 survey grid and gradiometer file names (Scale 20mm to 20m)

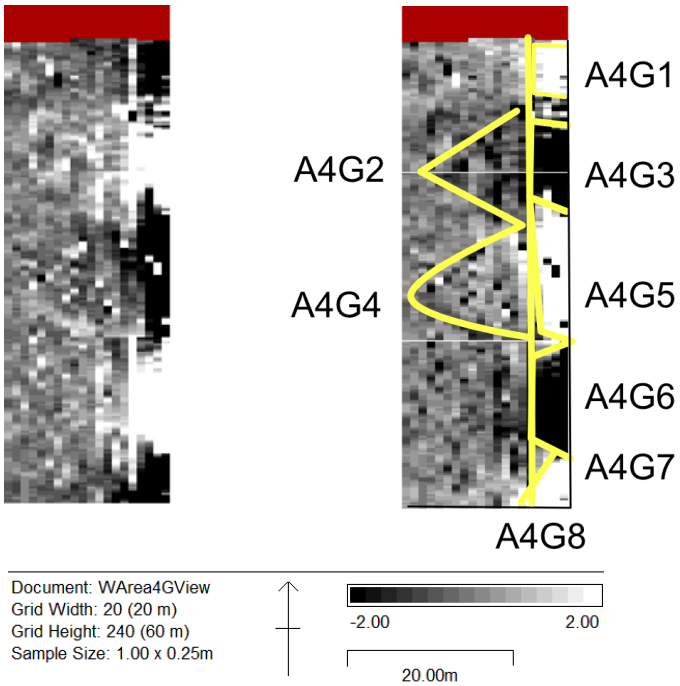

Figure Area 4.2. Area 4 gradiometer results and anomalies (Scale 20mm to 20m)

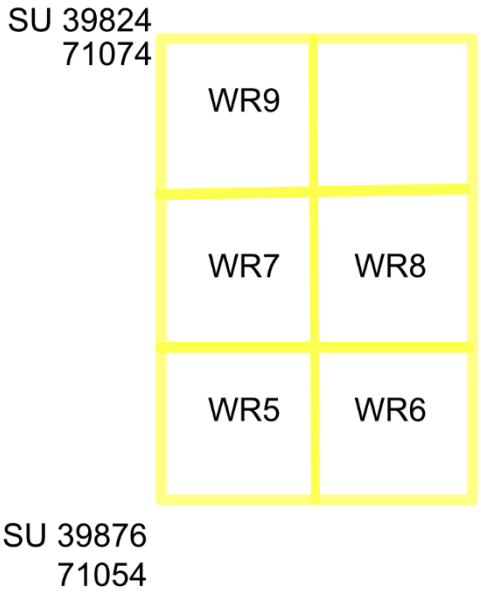

Figure Area 4.3. Area 4 survey grid and resistance survey filenames (Scale 20mm to 20m)

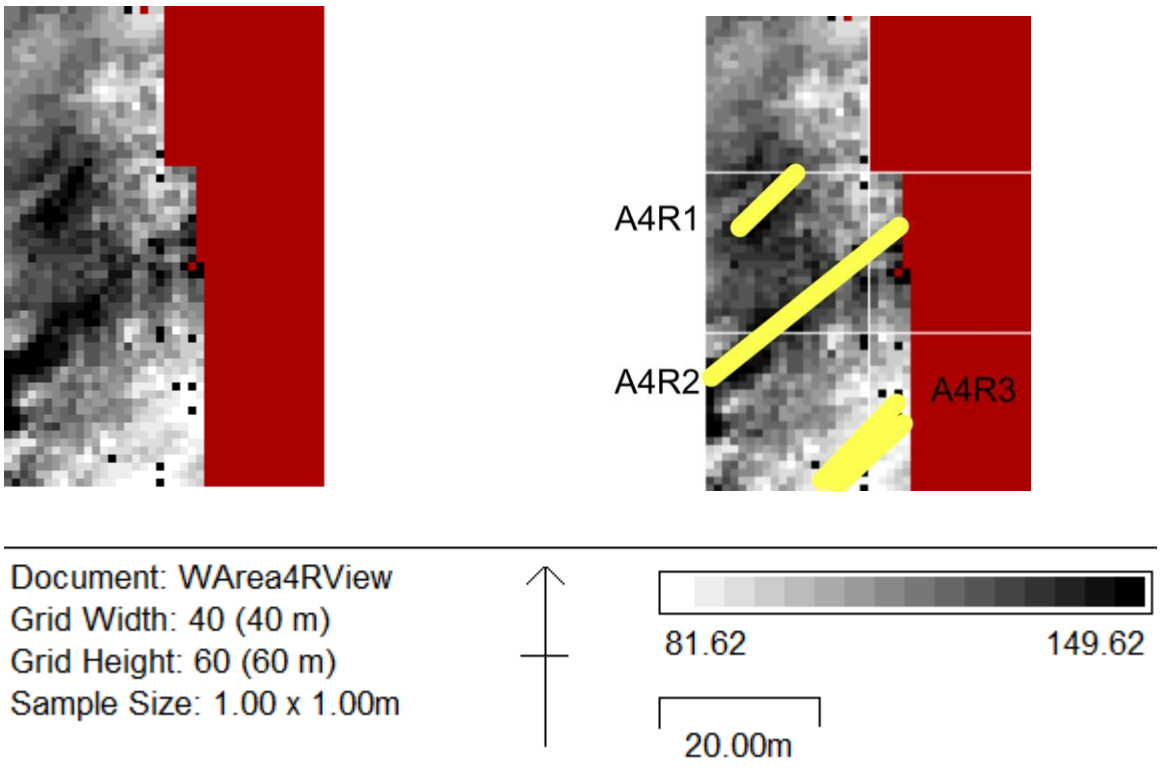

Figure Area 4.4. Area 4 resistance geophysics plot and anomalies (Scale 20mm to 20m)

Area 5

Area 5 was in Camp field on the north edge of the Wormstall estate adjacent to the land at Wickham House. Wickham House is significant because it is adjacent to Wickham Church with its tower which incorporates Roman architectural elements. Furthermore, between the Wickham House lands and the Wormstall lands was a substantial ditch which may be boundary ditch but being more than 2m high in places may have served as a defensive structure rather than just a boundary ditch.

The objective of this survey was to see if there were any detectable structures on the level area at the top of Camp field.

Area 5 survey grid

The western side of Camp field is bounded by a wire fence, a narrow woodland and the Church Hill road. A survey grid of a line of four 20m x 20m grids was established on a line 5m from the wire fence and then extended by adding two more grids at the north east end (Figure Area 5.1).

Area 5 gradiometer survey

Six grids were surveyed. The gradiometer survey results together with those from Areas 3 and 4 were held in a single Snuffler project *Wormstall2021Area345G*. Figure Area 5.1 shows the filenames of the files which held the results. This survey was obstructed by low hanging branches of a large tree as shown by the irregular unsurveyed area in grid WG34513 (Figure Area 5.2). The anomalies found in the survey are shown in figure Area 5.2.

Area 5 resistance survey

The Area 5 resistance survey was conducted before the gradiometer survey results had been analysed because there was evidence of a lot of stones in that area of the grid. Four 20m x 20m grids were surveyed (Figures Area 5.3 and Area 5.4)

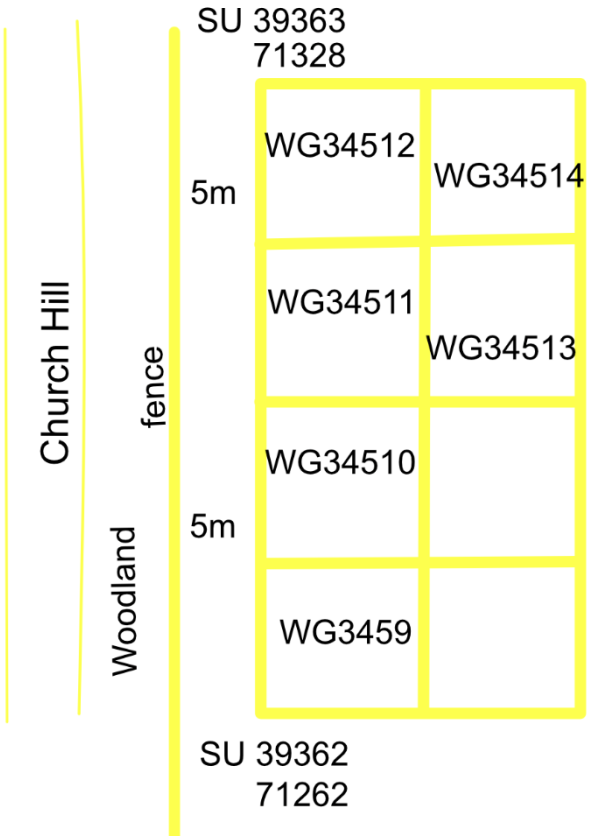

Figure Area 5.1. Area 5 survey grid and gradiometer file names (Scale 20mm to 20m)

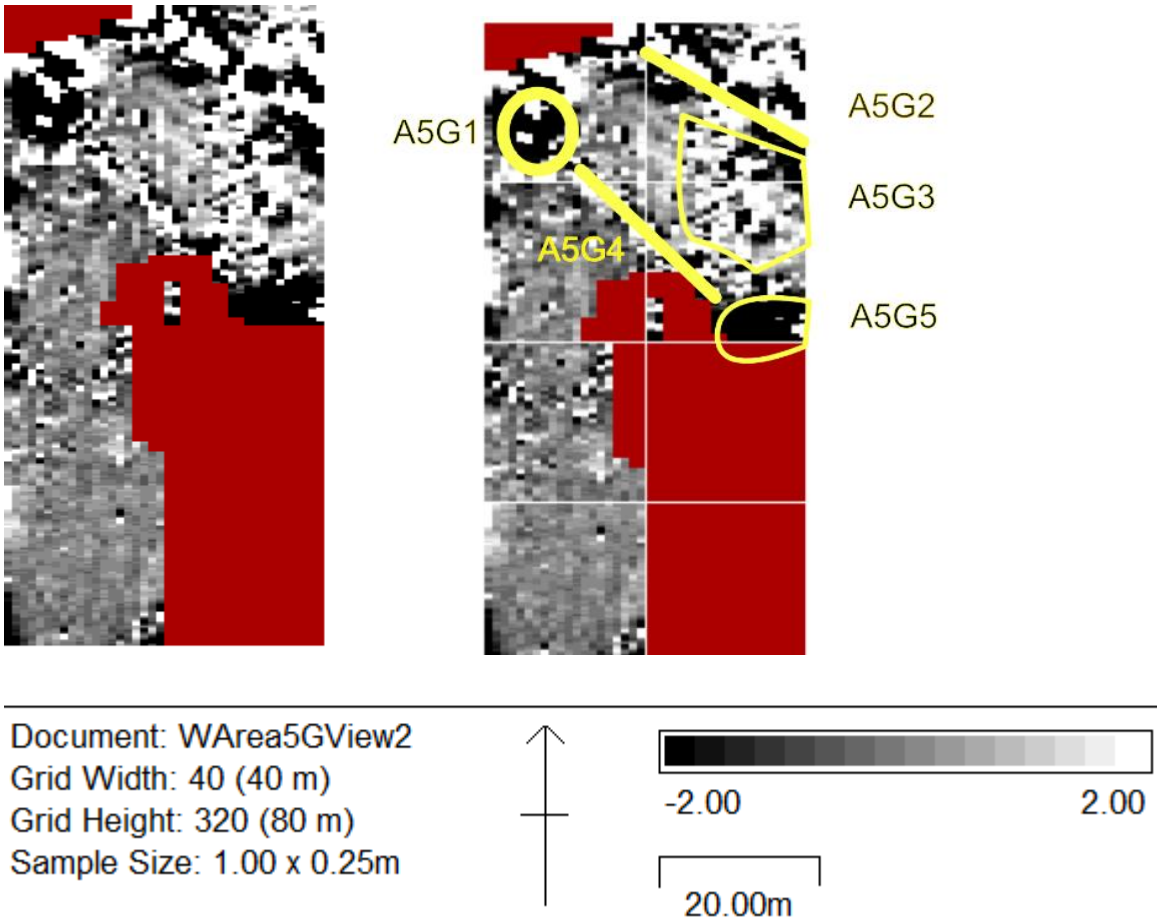

Figure Area 5.2. Area 5 gradiometer results and anomalies (Scale 20mm to 20m)

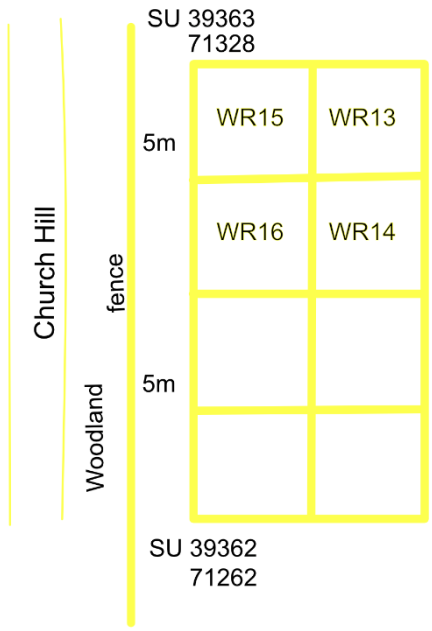

Figure Area 5.3. Area 5 survey grid and resistance survey filenames (Scale 20mm to 20m)

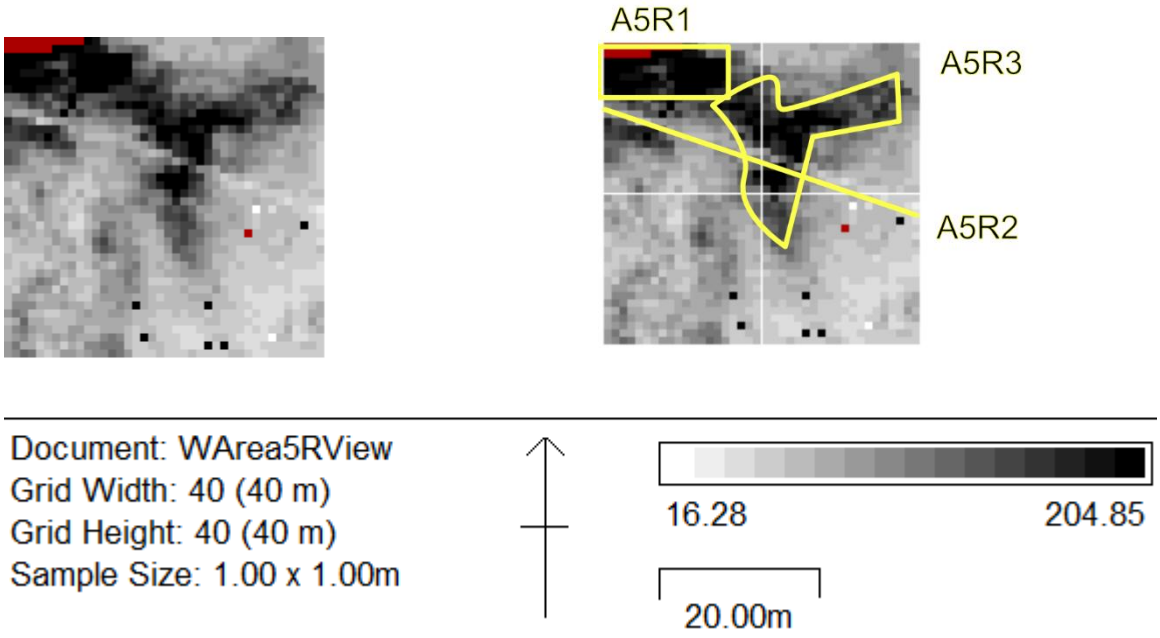

Figure Area 5.4. Area 5 resistance geophysics plot and anomalies (Scale 20mm to 20m)