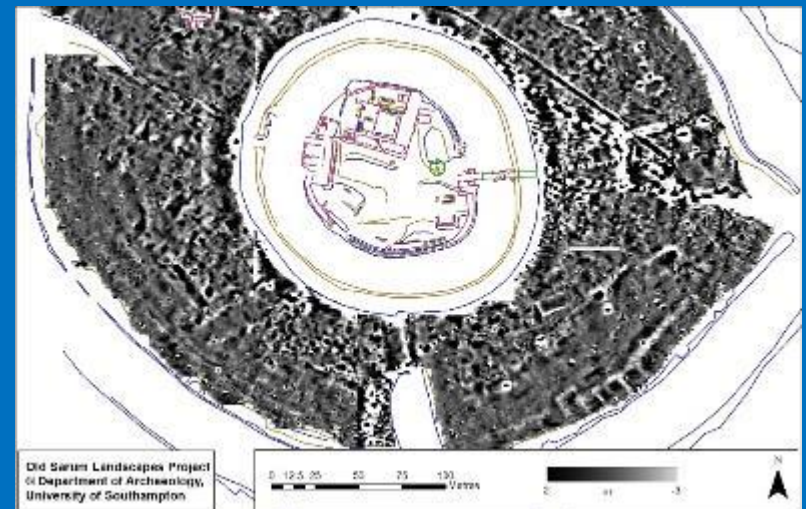
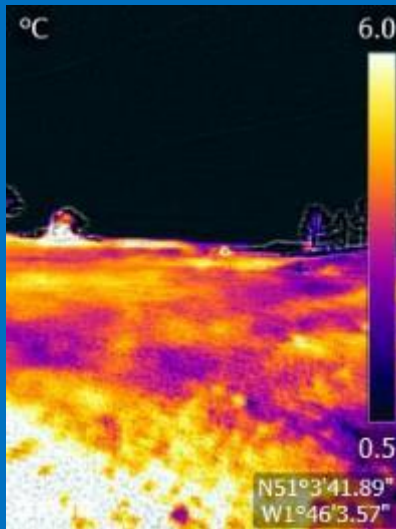


Old Sarum and its Environs. New Field Research in an Ancient Landscape



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Southampton

EPSRC

Engineering and Physical Sciences
Research Council

Site Background



Images: English Heritage

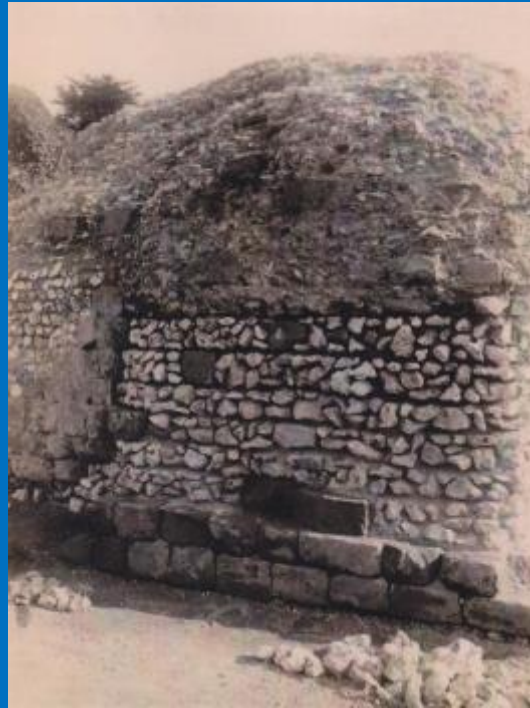
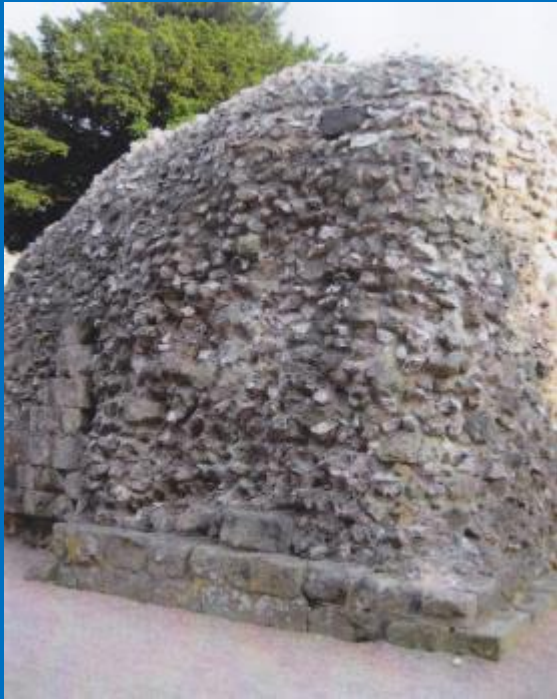
- The monument, number 1015675, includes a univallate Iron Age hillfort with evidence of Romano-British occupation and documentary evidence of a Saxon burh and mint. The hillfort is roughly oval in shape, enclosing an area of c.12ha, with entrances at the east and west ends.
- The site was rebuilt as a royal motte and bailey castle including a cathedral and bishop's palace and extra-mural settlement
- The site is the focus for a number of major Roman roads and the Roman town of Sorviodunum has been suggested as lying within the hillfort.
- The first cathedral was built in 1078,, and consisted of a nave separated from two side aisles by eight great arches on each side. At the apsidal east end, the main altar and two side chapels in the transepts were also enclosed by semicircular apses
- Rebuilding in the Norman style commenced in 1130 under Bishop Roger and involved the large scale levelling of this part of the hillfort interior

Previous Excavation and Survey



- Excavation has been conducted at the site in the 20th century, including Hope's work in the earlier part of the century (Hope 1911; 1914; 1916; 1917) and a number of trial excavations and archaeological mitigations prior to development in the area (for instance excavations on the trunk main replacement).
- Previous geophysical survey has been conducted at the site, with a survey of the supposed chapel site being conducted in 2003 (http://archaeologydataservice.ac.uk/archives/view/ehgsdb_eh_2011/fullrecord.cfm?id=2664), and resistivity survey of part of the monument in 2005 (http://archaeologydataservice.ac.uk/archives/view/ehgsdb_eh_2011/fullrecord.cfm?id=2804).

Old Sarum Then and Now



Photos: English Heritage



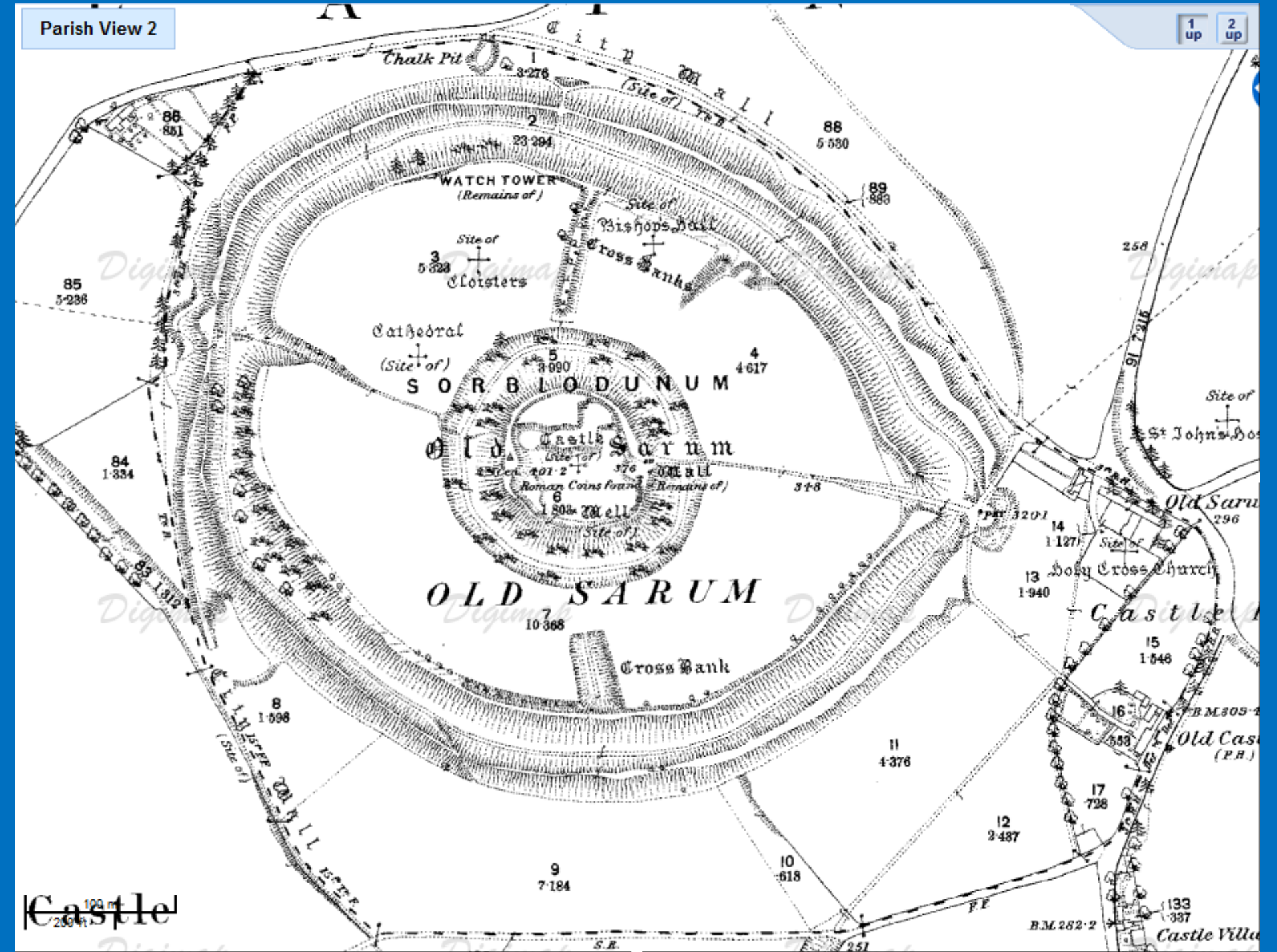


St Joseph 1945

Phot. G. W. G. Allen







Areas of Interest

- The scheduled area of Old Sarum Castle contains multi-period evidence that would benefit from geophysical investigation. The exact layout of the medieval castle plan, and the Saxon Burg would merit attention.
- The area immediately to the south of Old Sarum contains the remains of a Romano-British settlement, and medieval remains, that require investigation
- The north-west contains the medieval settlement associated with the castle.

Some General Themes

- Visibility of archaeology
- Nature and depth of deposits
- Types and forms of archaeology/geology
- Scale or extent of deposits across the site

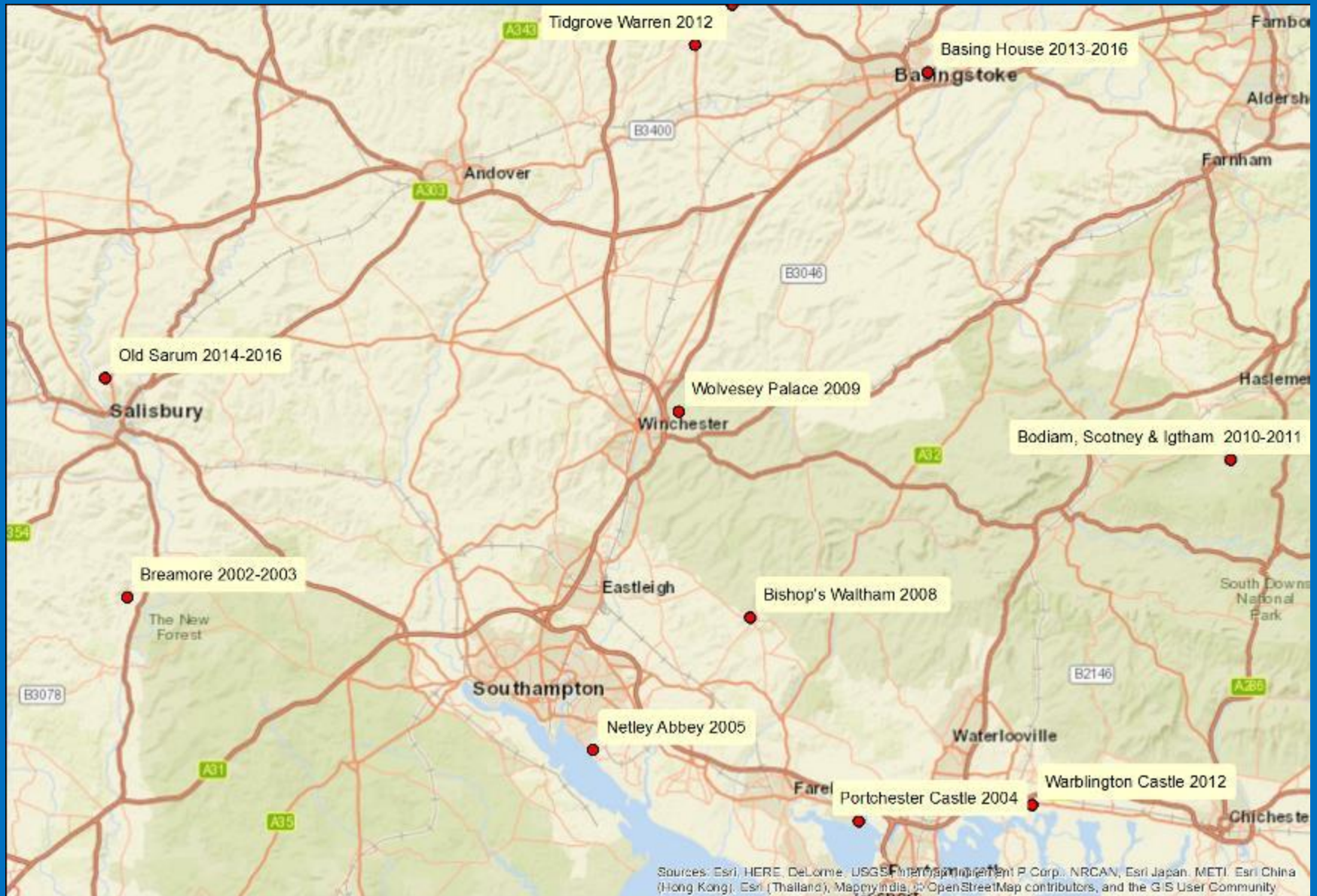


Survey Methodology

- Total station building survey
- GPS survey and gridding out
- Magnetometer (fluxgate gradiometer) survey
- Earth resistance survey
- Ground Penetrating Radar (GPR) survey
- Electrical Resistivity Tomography (ERT) survey

Photo: D. Barker

Surveys 2002-2013



Topographic survey was limited to detail on buildings and standing building survey because good quality LiDAR data was available free from the Environment Agency.





Smartnet GPS Survey



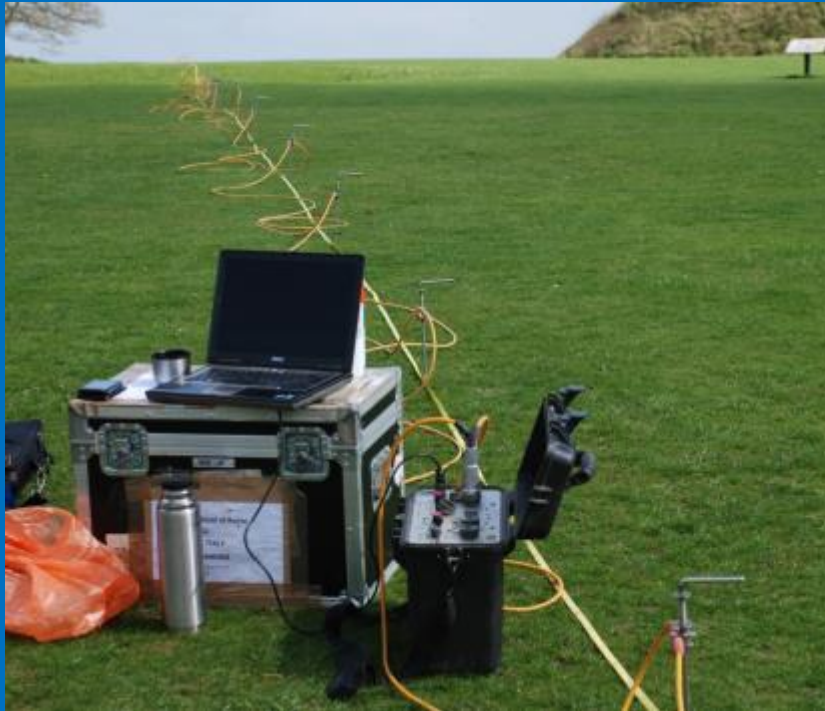
Fluxgate Gradiometer Survey



GPR Survey 200MHz antenna



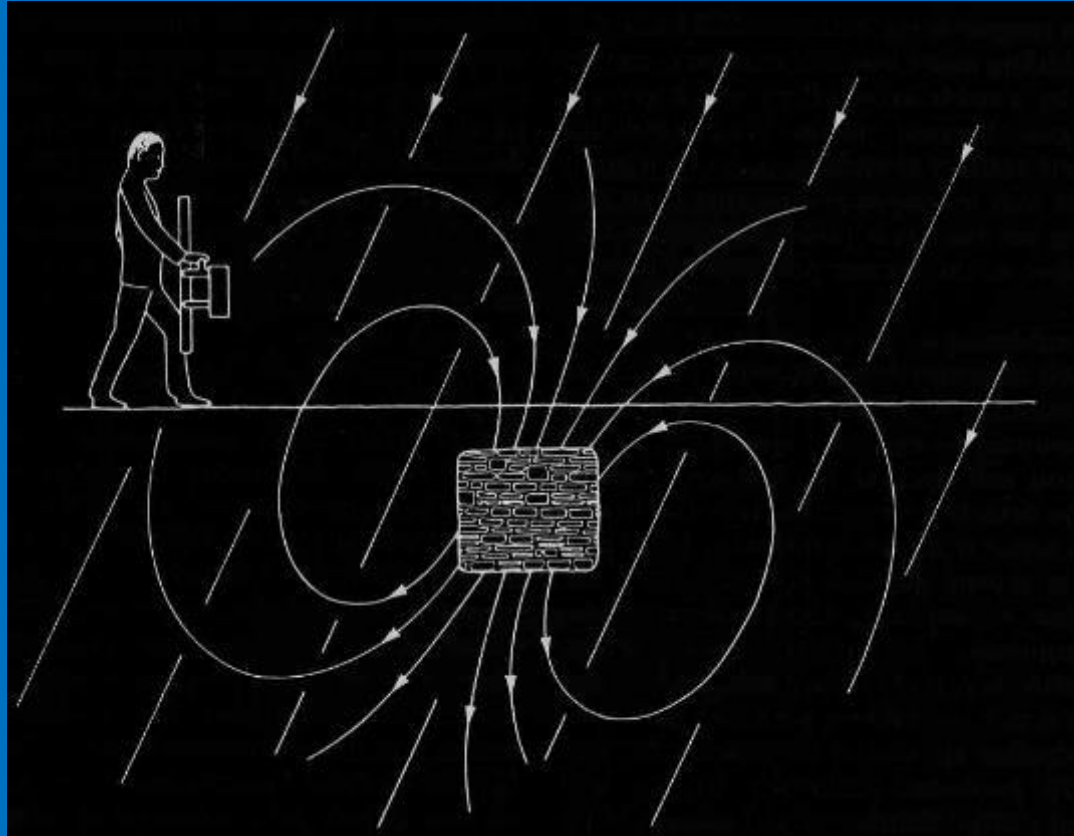
Earth Resistance Survey



ERT Survey Profile



Magnetometer Survey

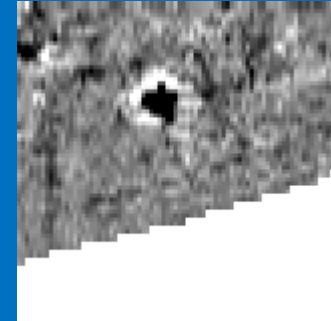


Clark 1996

Magnetic field of an archaeological feature



Magnetometry – Late Period and Roman Necropolis, Quesna, Egypt

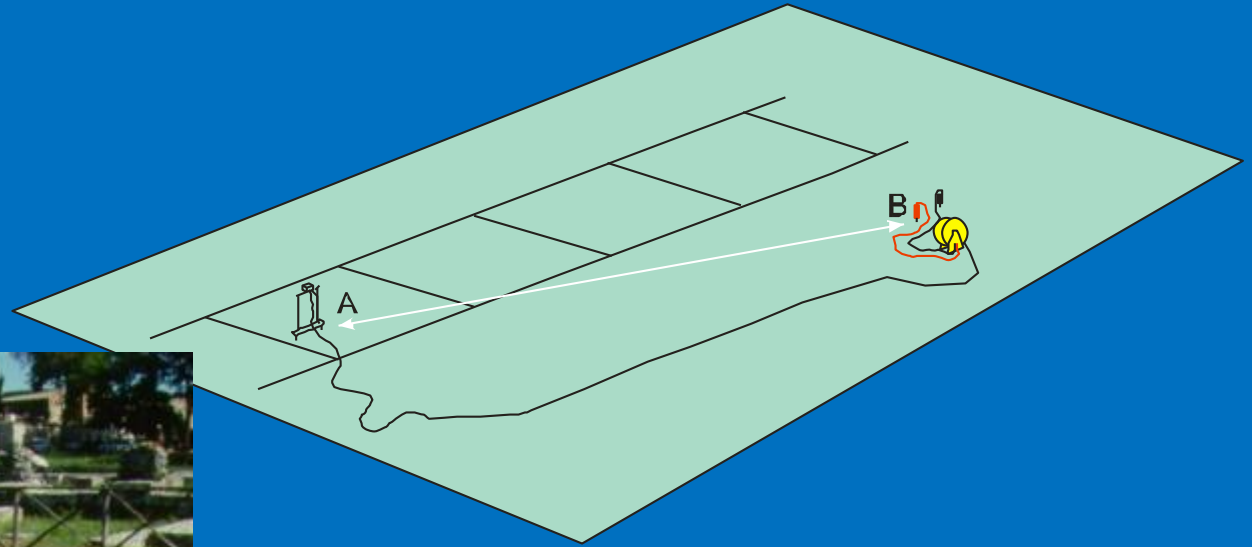


Dipolar Anomaly - Kiln



Negative and Positive anomalies – walls/ditches

Earth Resistance Twin Probe Array



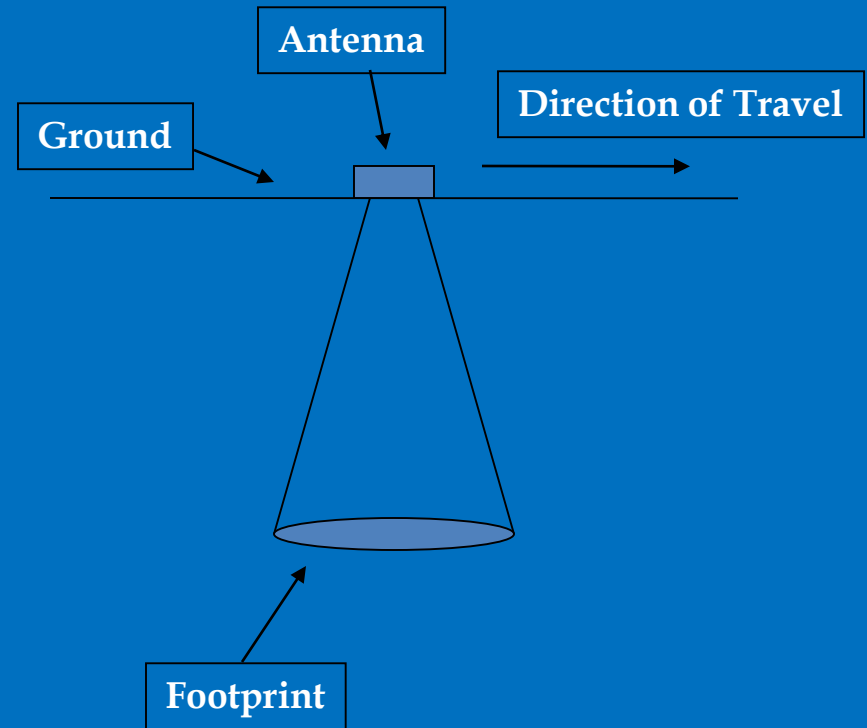
Distance between A and B should be infinity but is worked out as $30 \times \text{probe spacing}$

Ground Penetrating Radar



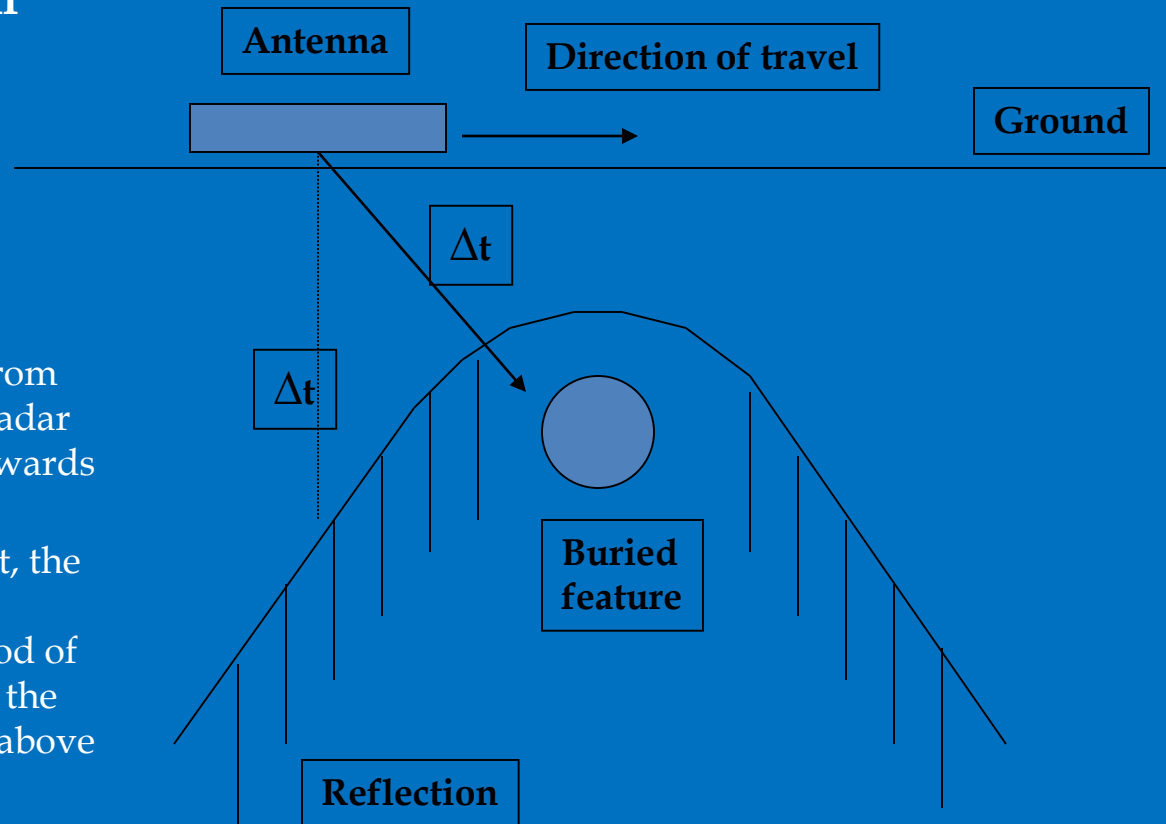
Ground Penetrating Radar

- Ground Penetrating Radar emits an electromagnetic signal at a particular frequency 250Mhz, 500Mhz etc..
- The antenna measures the time in nanoseconds for the signal to travel through the earth, and to be reflected from different buried objects.
- The antenna passes along the line of a series of traverses, with the distance travelled measured either by a manual logger, or using an odometer.
- A continuous profile of data are collected by the antenna, and can be visualised on the display console as the data is collected.
- Lowering the frequency of the antenna will increase the range of propagation for the radar wave

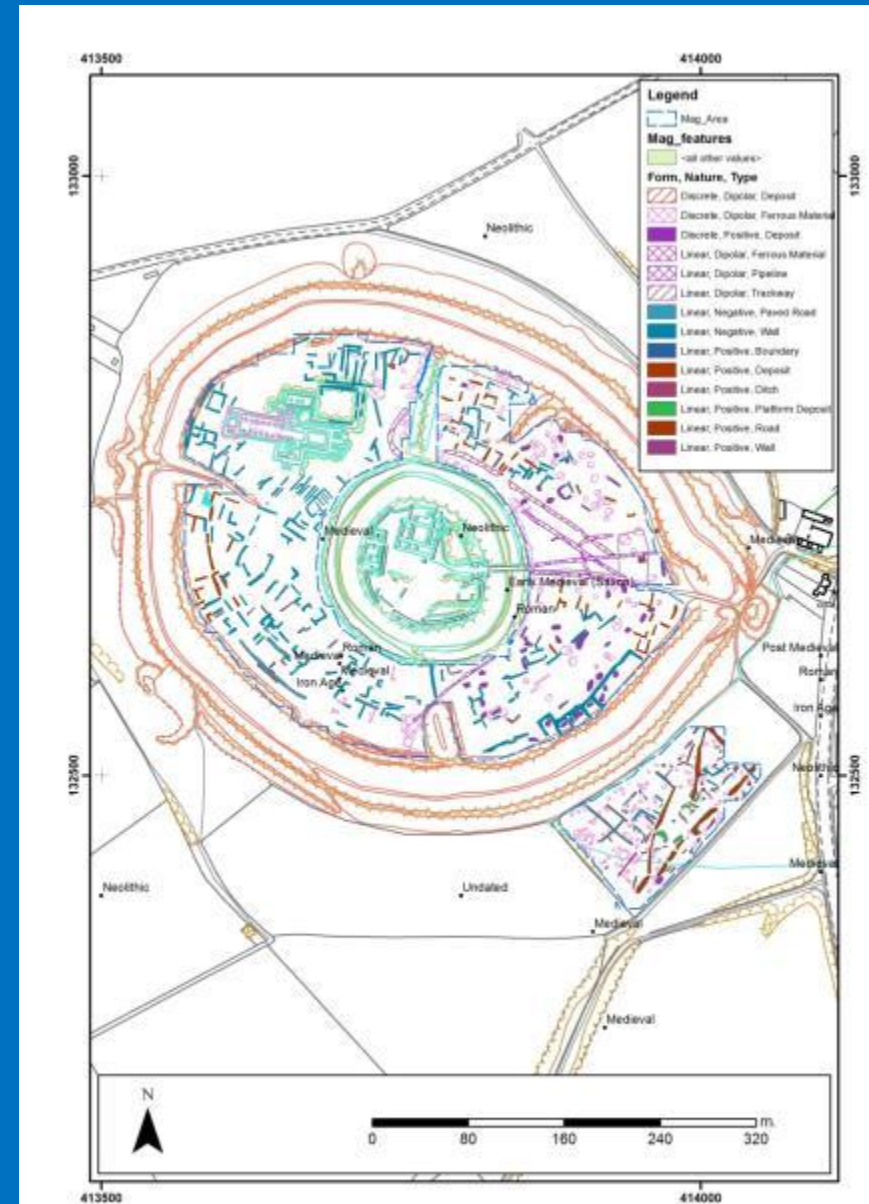
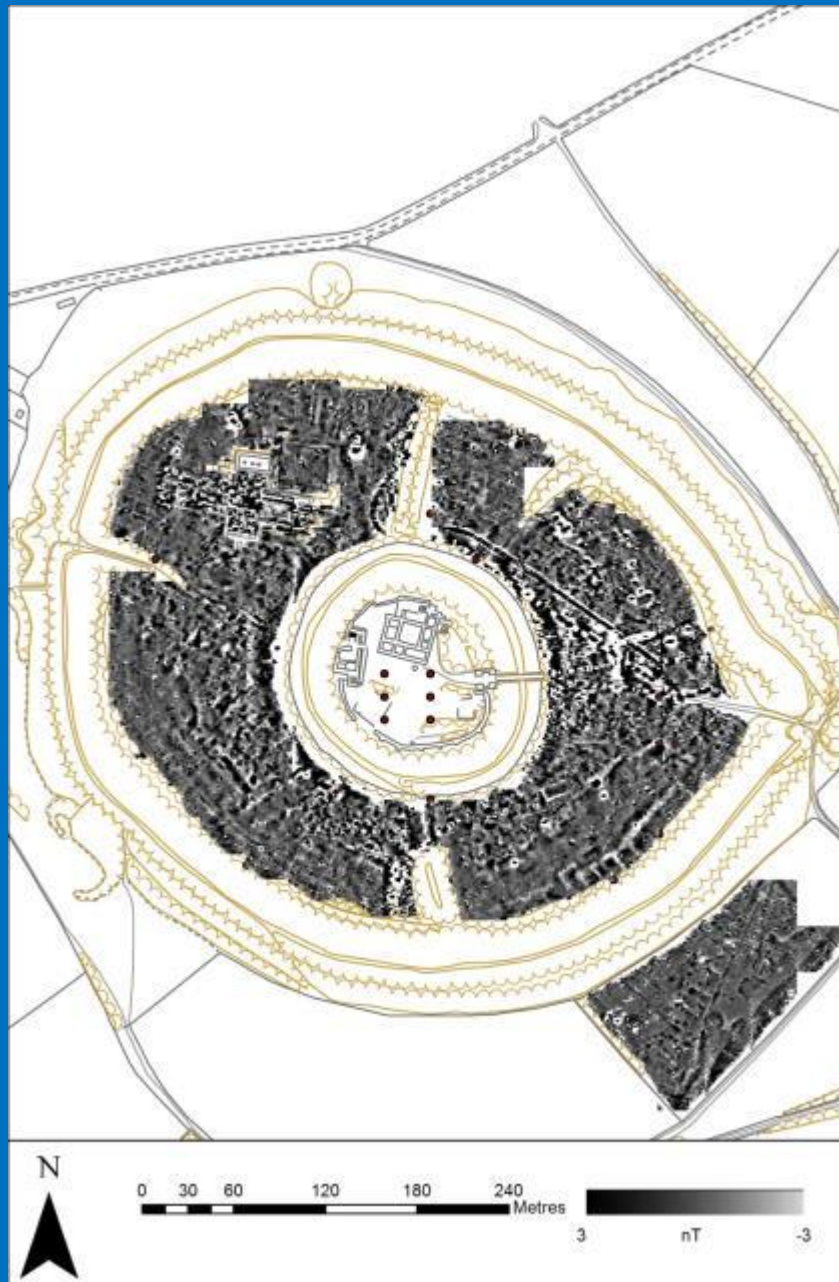


Ground Penetrating Radar example of response to target

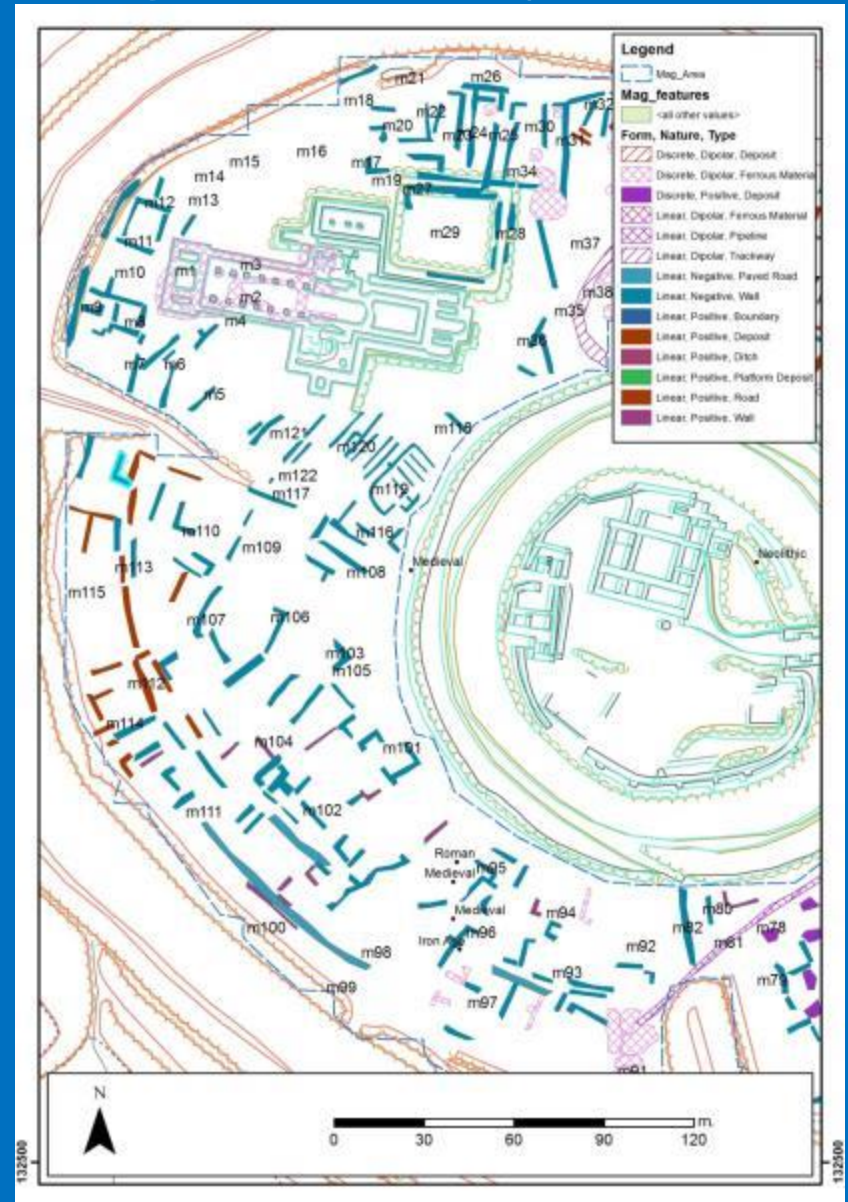
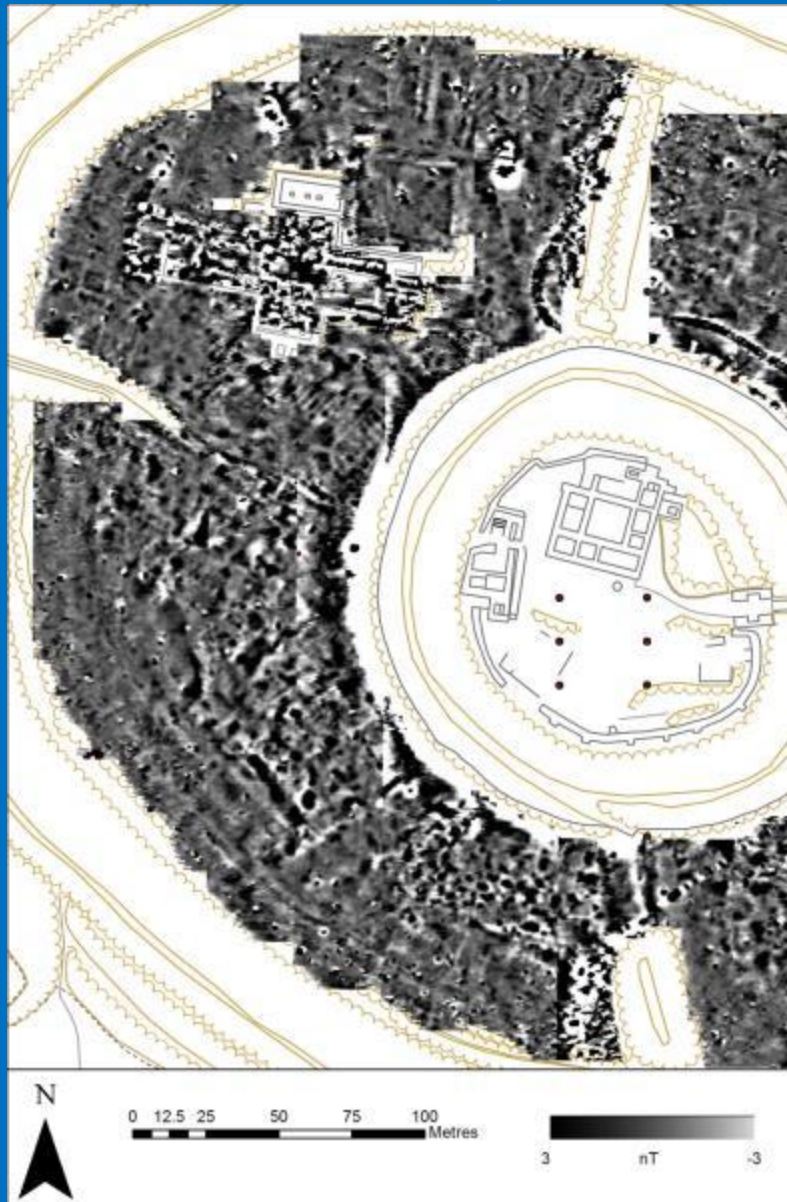
- The hyperbola effect of targets located in GPR results stems from the nature of the transmitted radar wave as the antenna moves towards and away from the object
- As the antenna nears the target, the radar signal is reflected by the feature but takes a longer period of time to be received than when the antenna is positioned directly above the object
- As the antenna moves away from the object, the effect is reversed



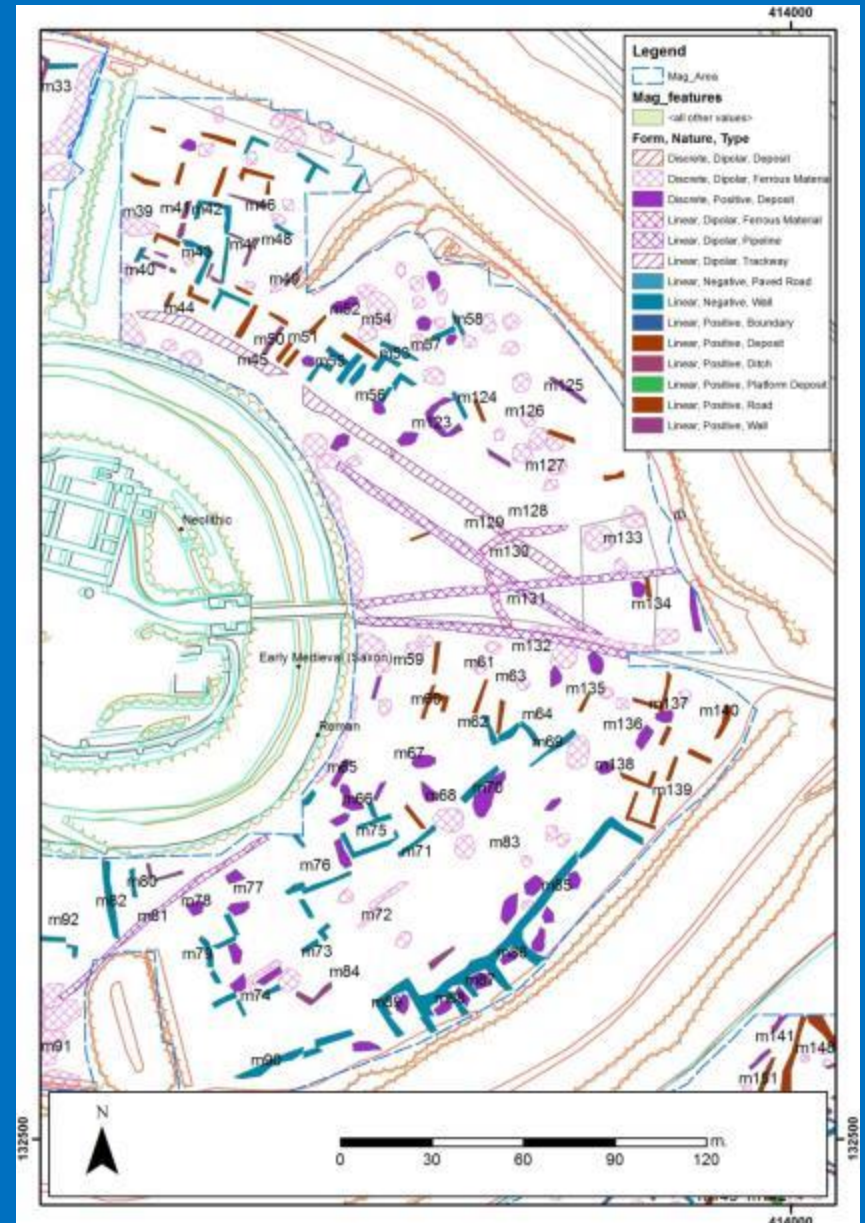
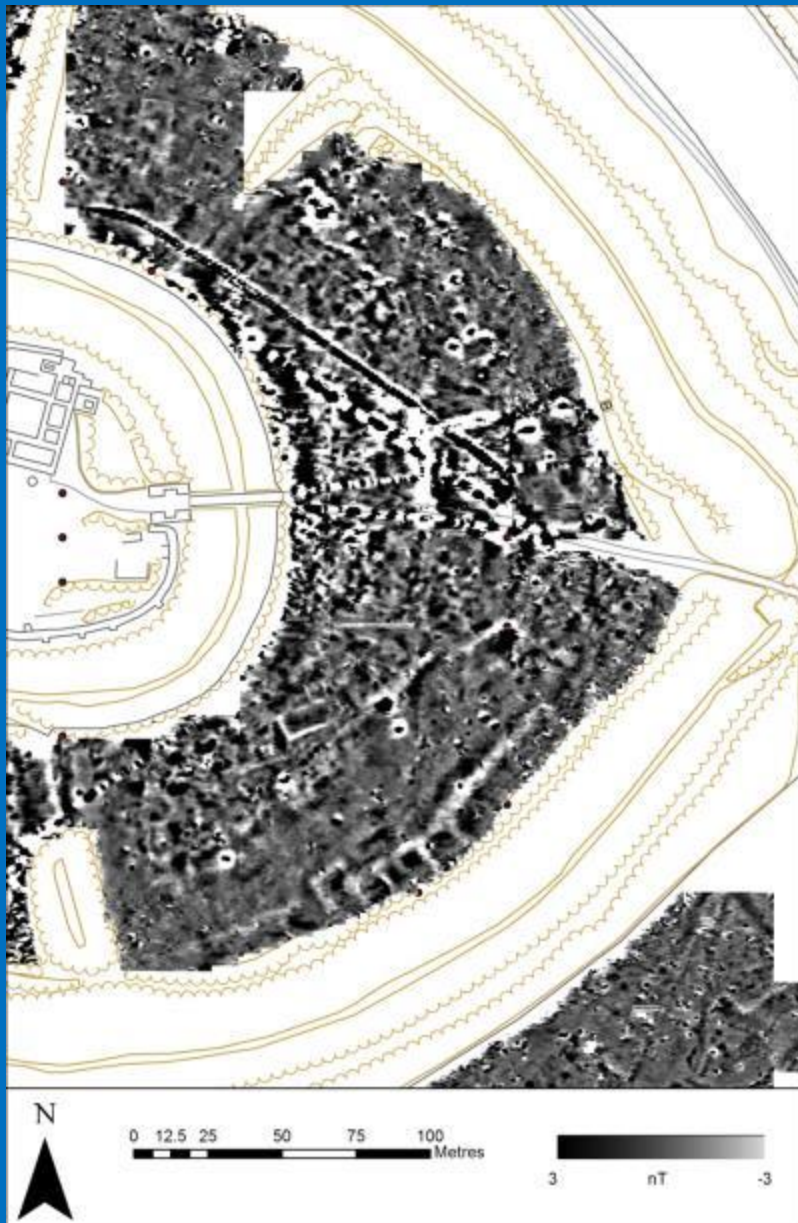
Survey Results - Magnetometry



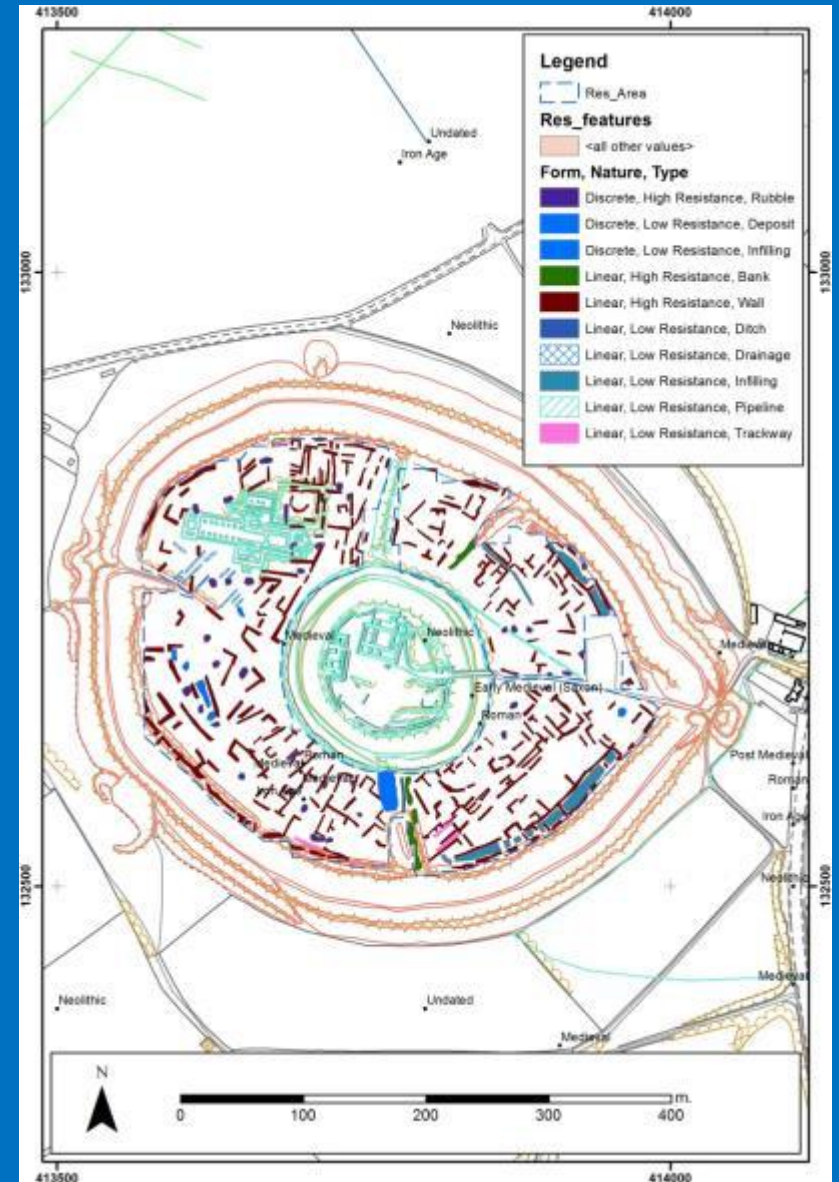
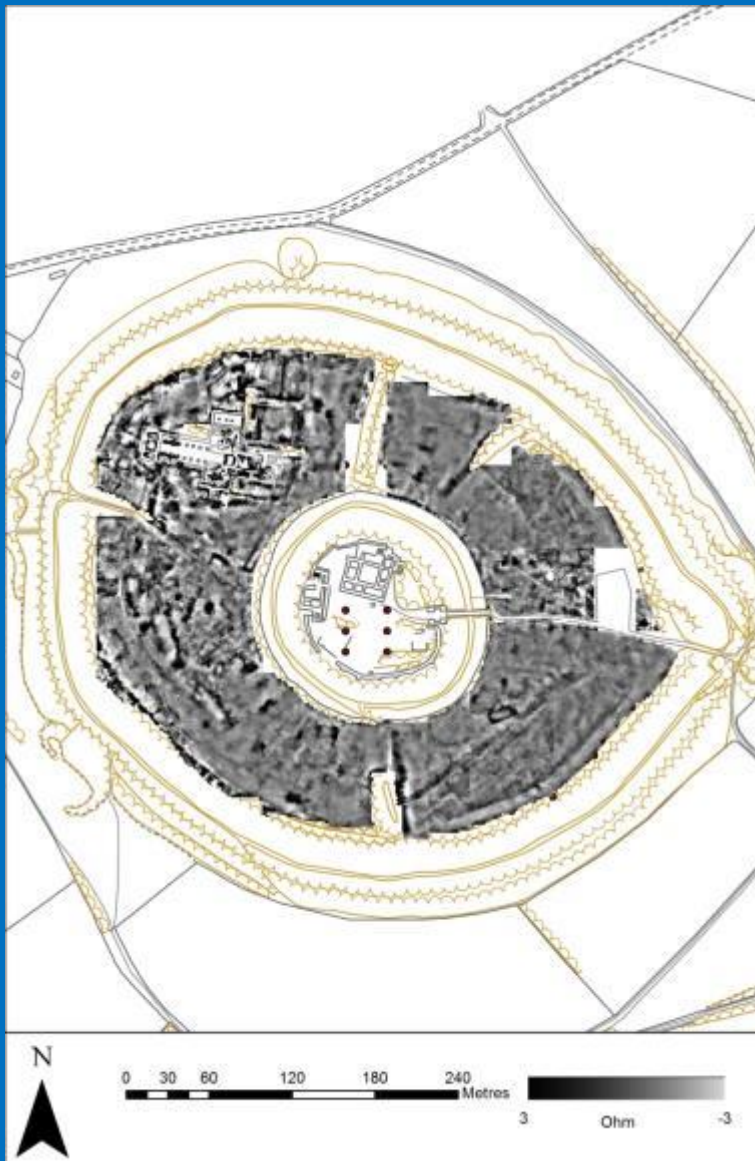
Survey Results - Magnetometry



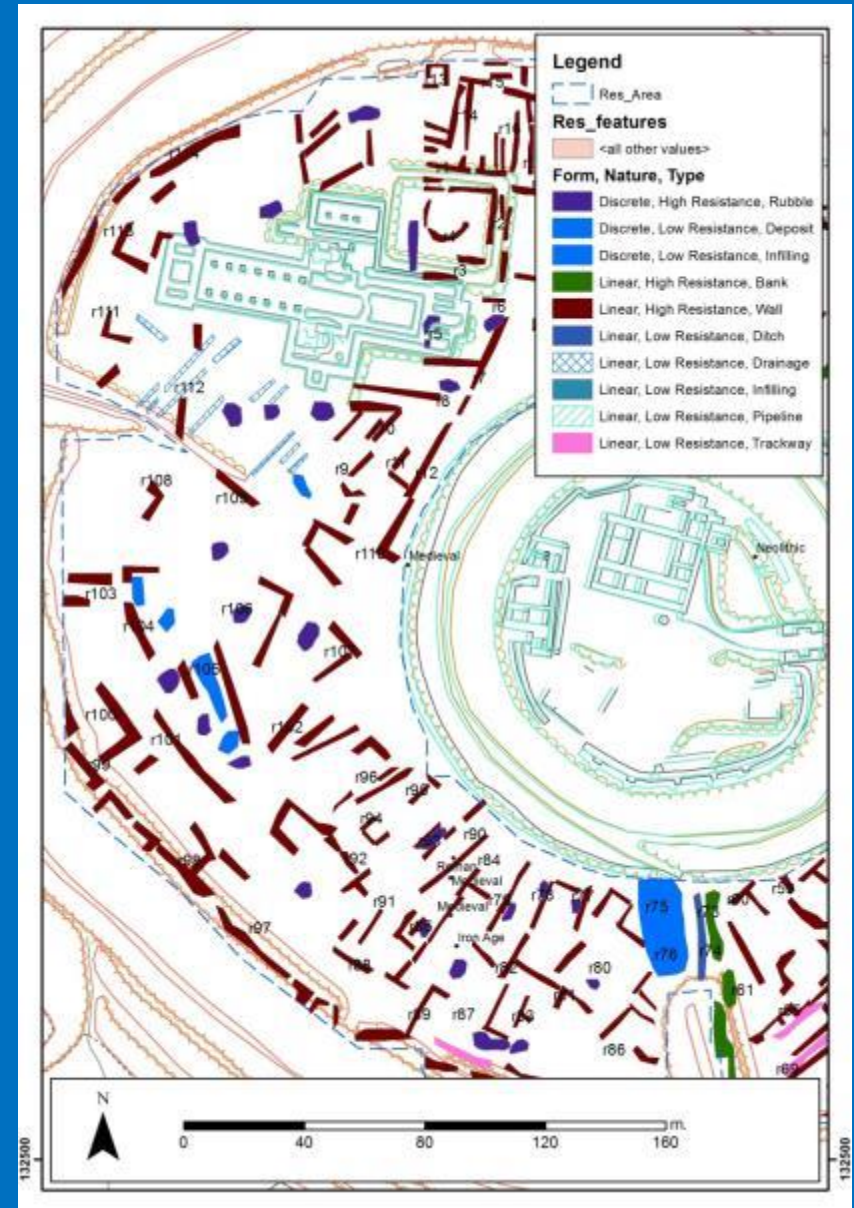
Survey Results - Magnetometry



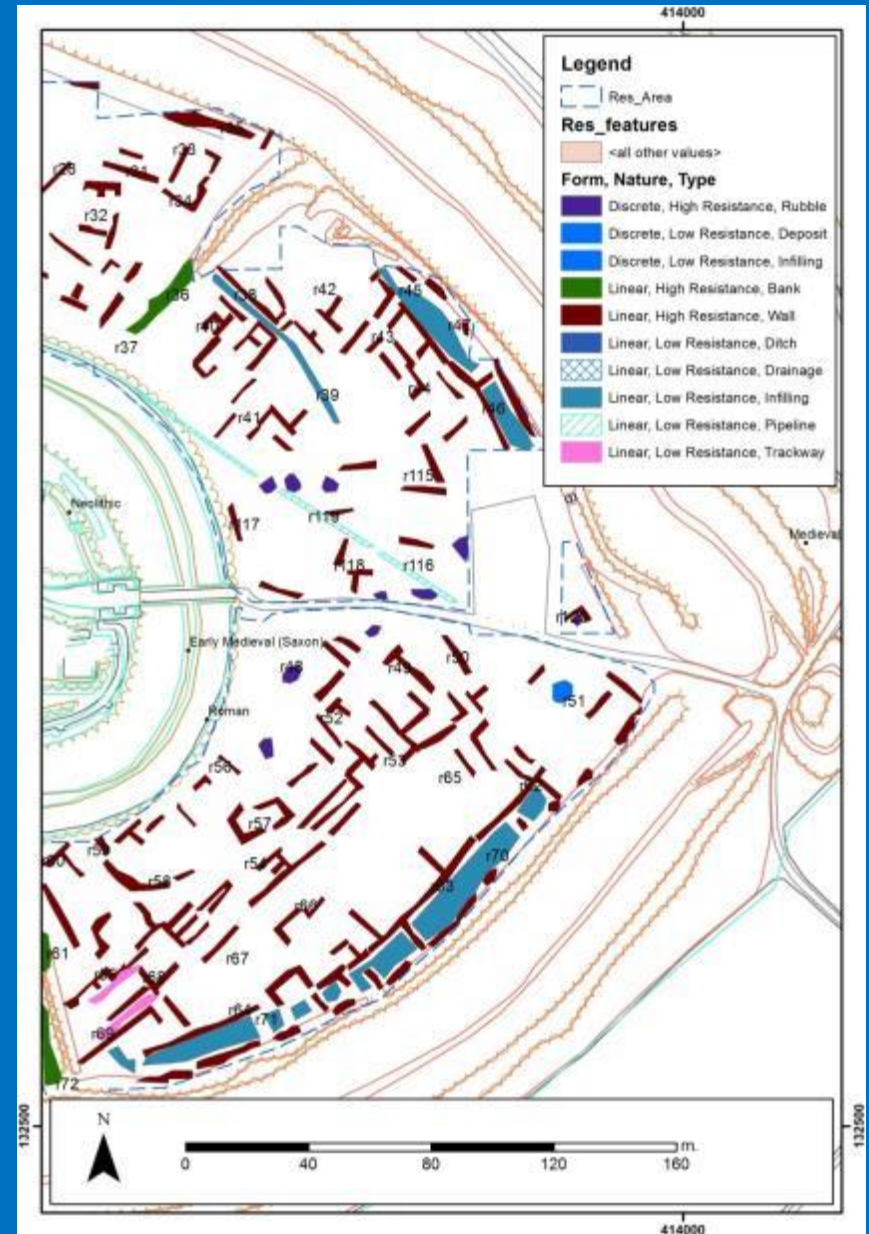
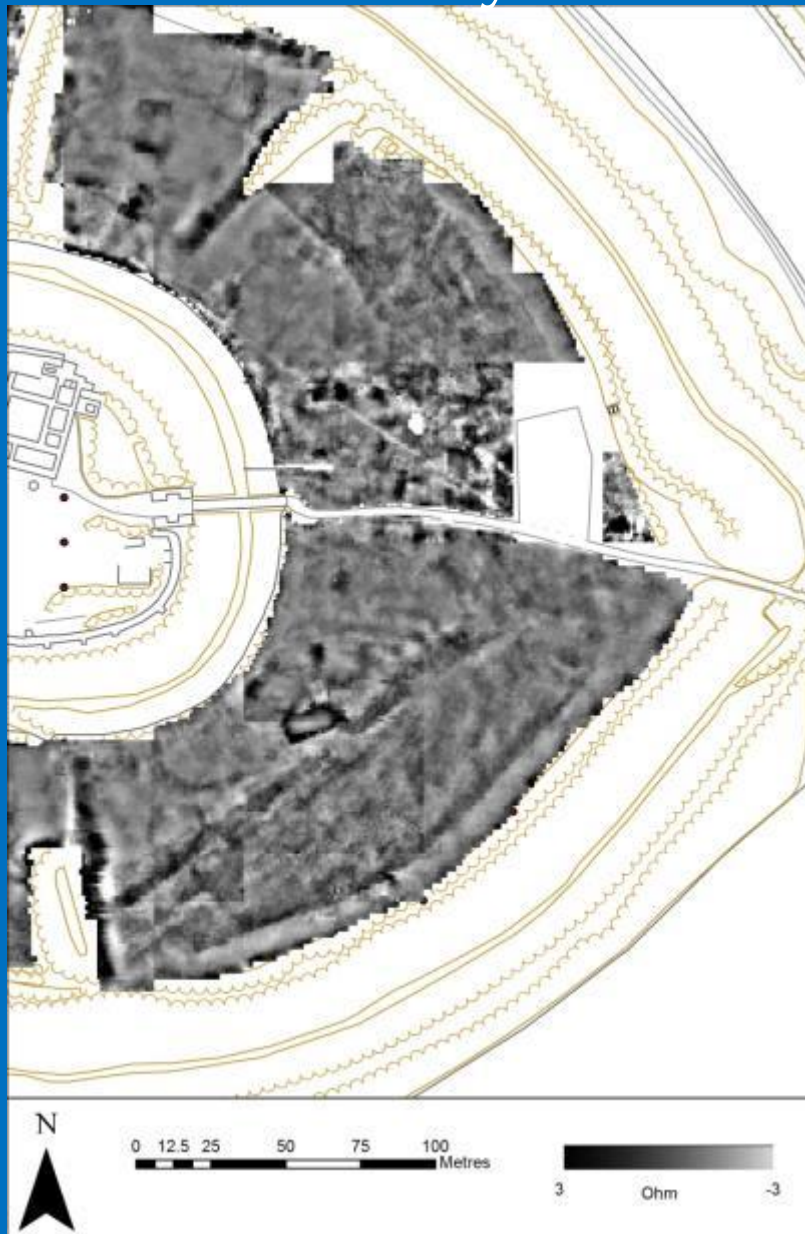
Survey Results – Earth Resistance



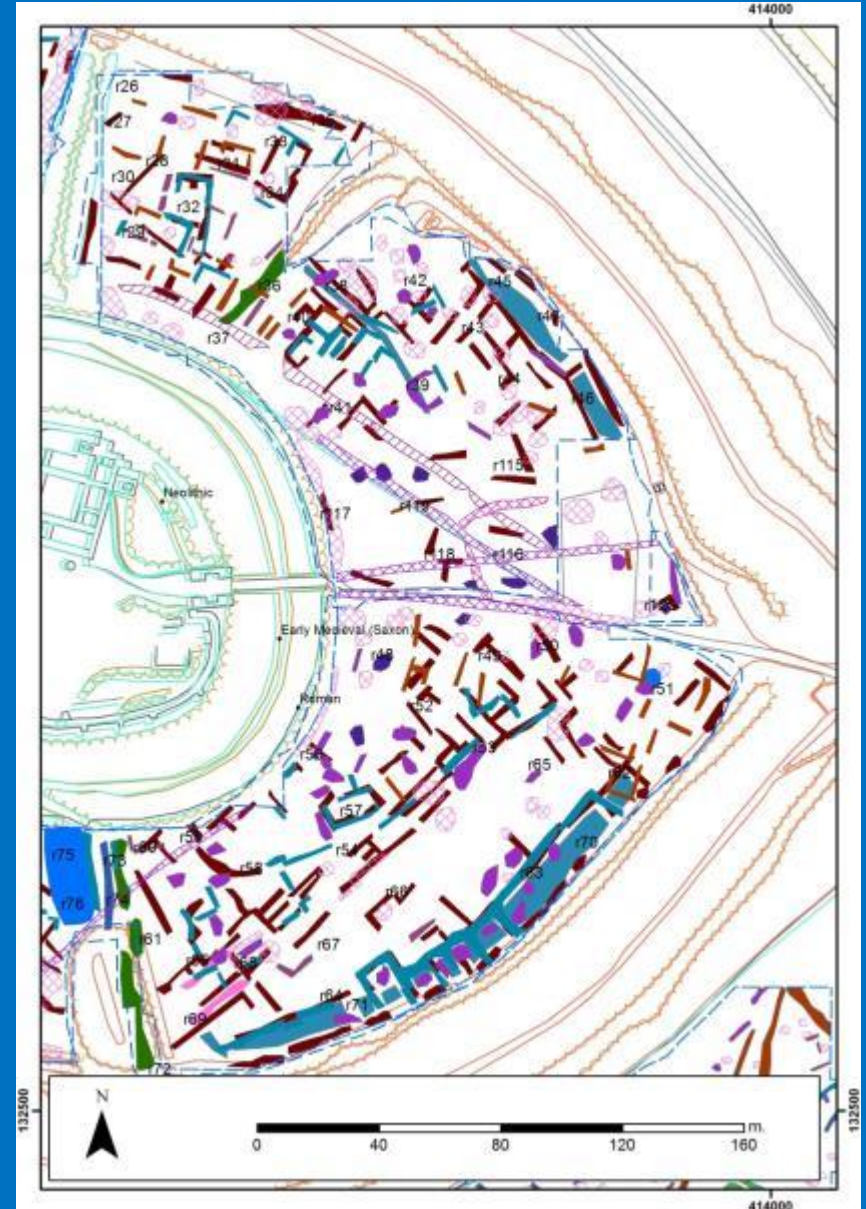
Survey Results – Earth Resistance



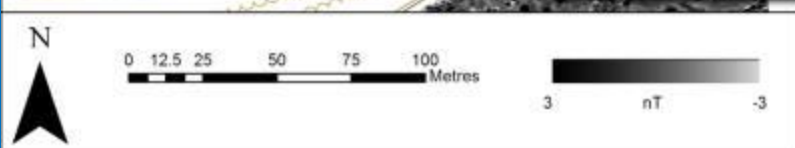
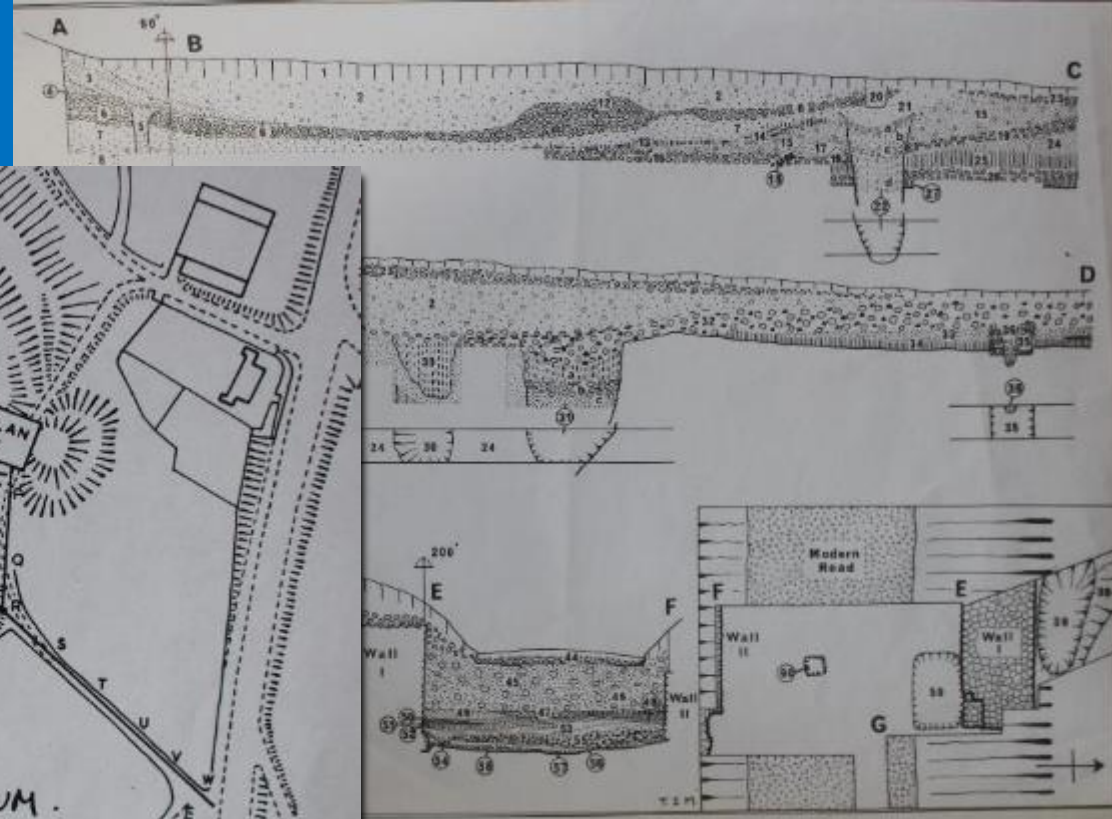
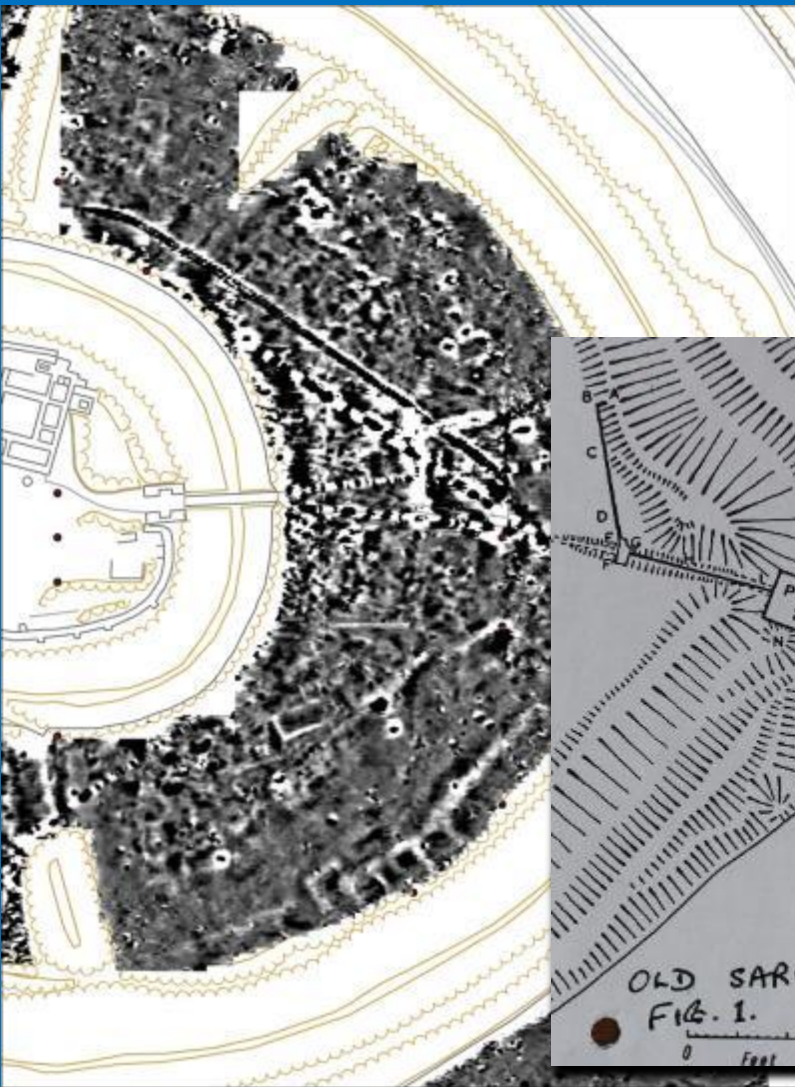
Survey Results – Earth Resistance



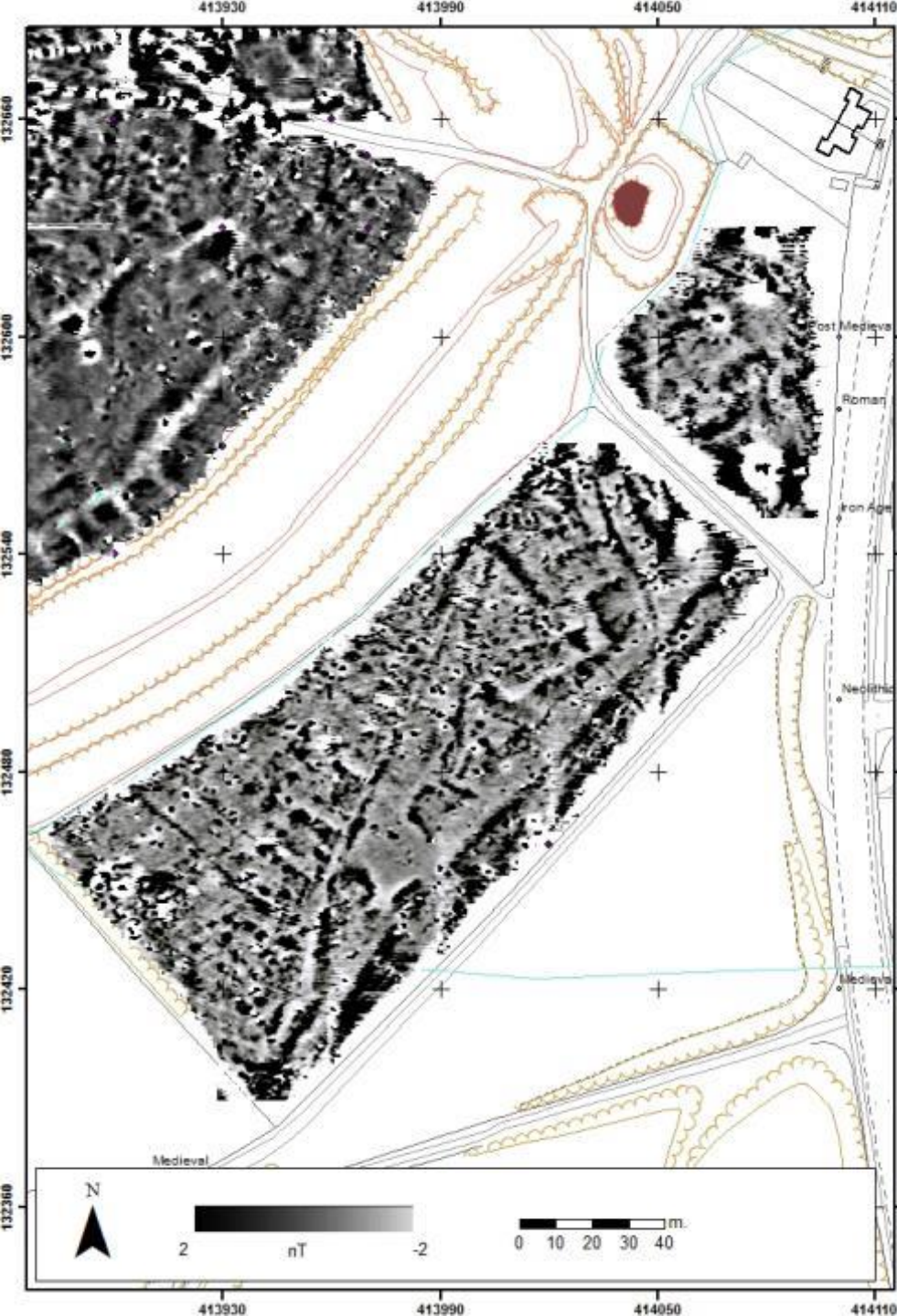
The map illustrates the archaeological site of Tell Fara, showing the layout of the city wall, the acropolis, and the surrounding area. The site is divided into several areas, with the central area labeled 'Medieval' and the surrounding area labeled 'Iron Age'. The map includes a scale bar (0 to 160 meters) and a north arrow. The site is divided into several areas, with the central area labeled 'Medieval' and the surrounding area labeled 'Iron Age'.

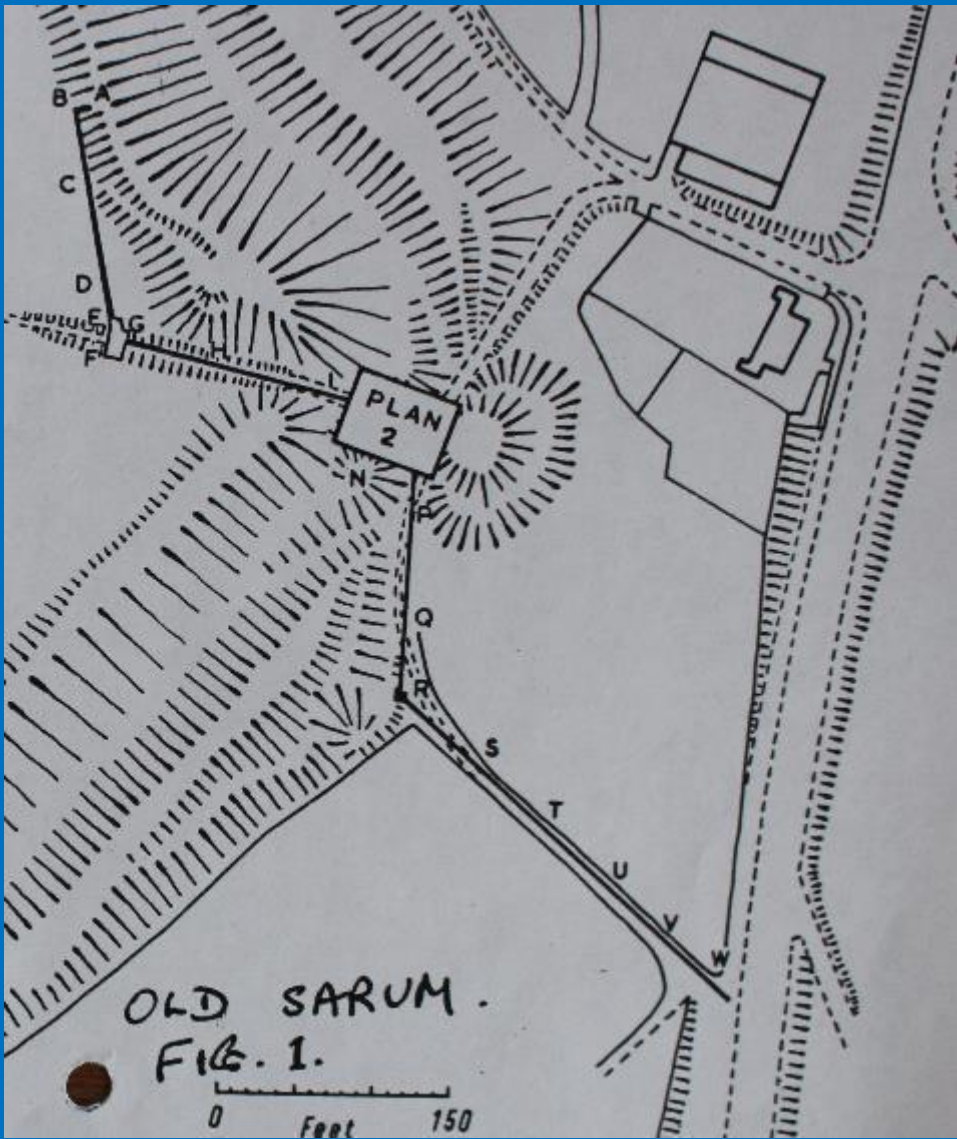


Ground Truthing with David Algar's plans

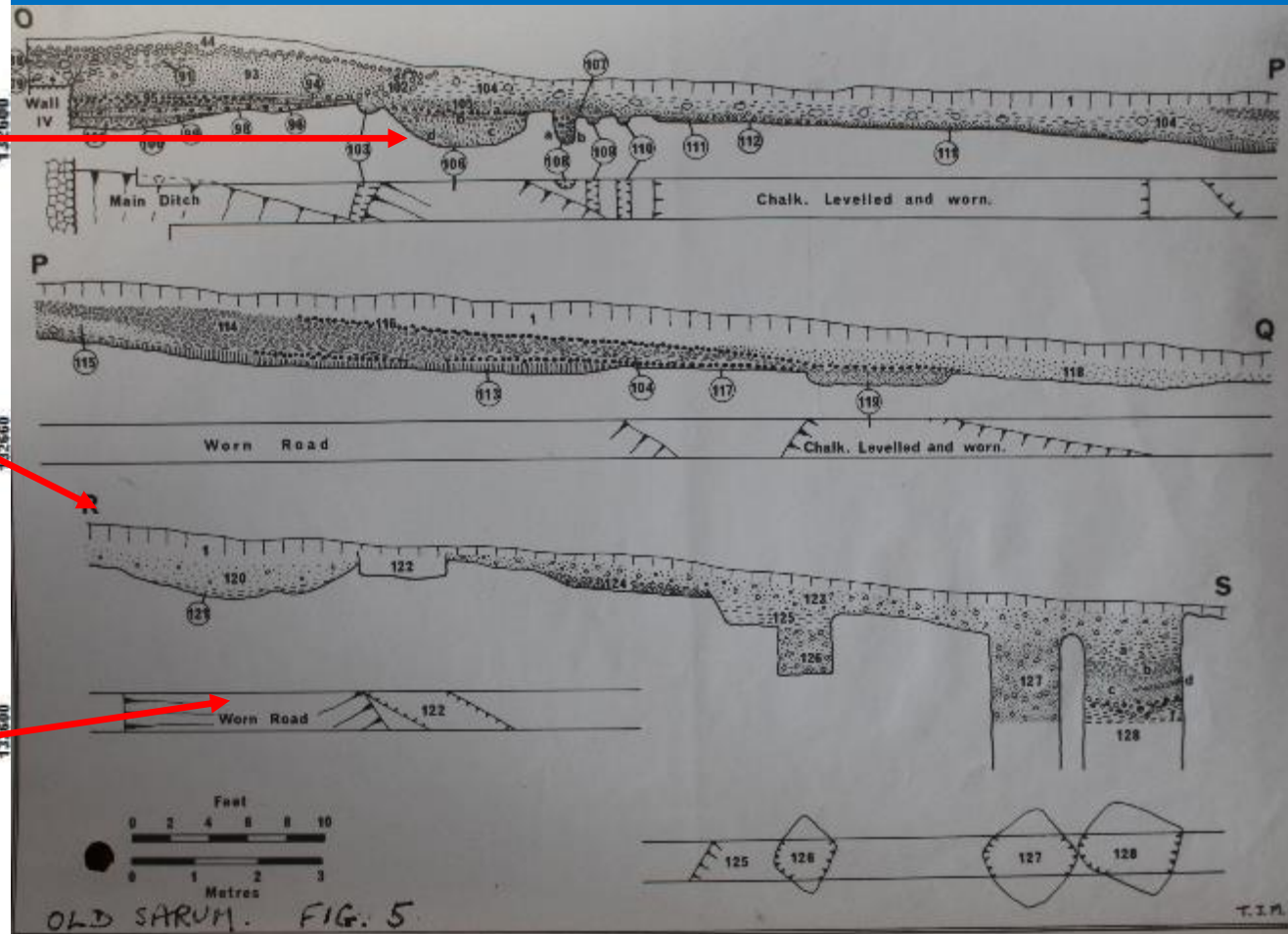
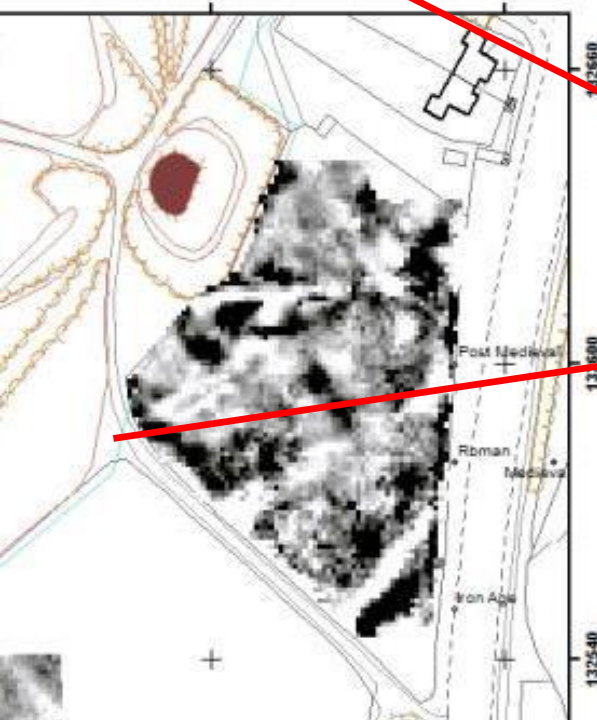
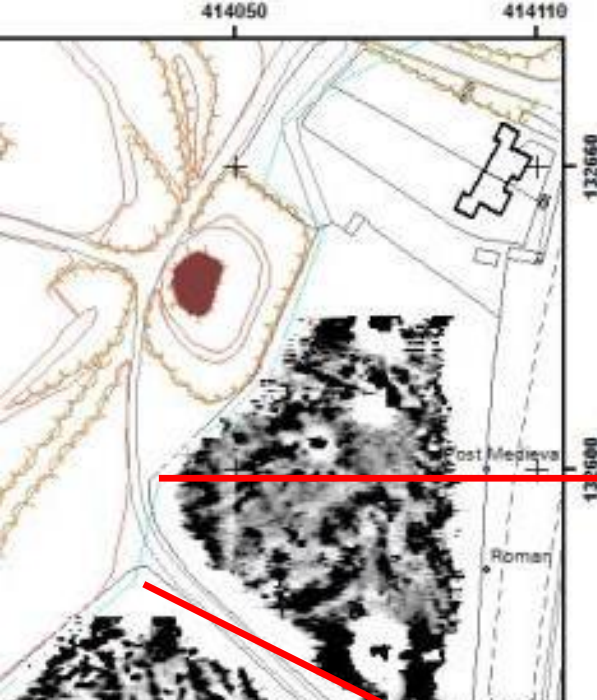


Survey Results April 2016 Magnetometry

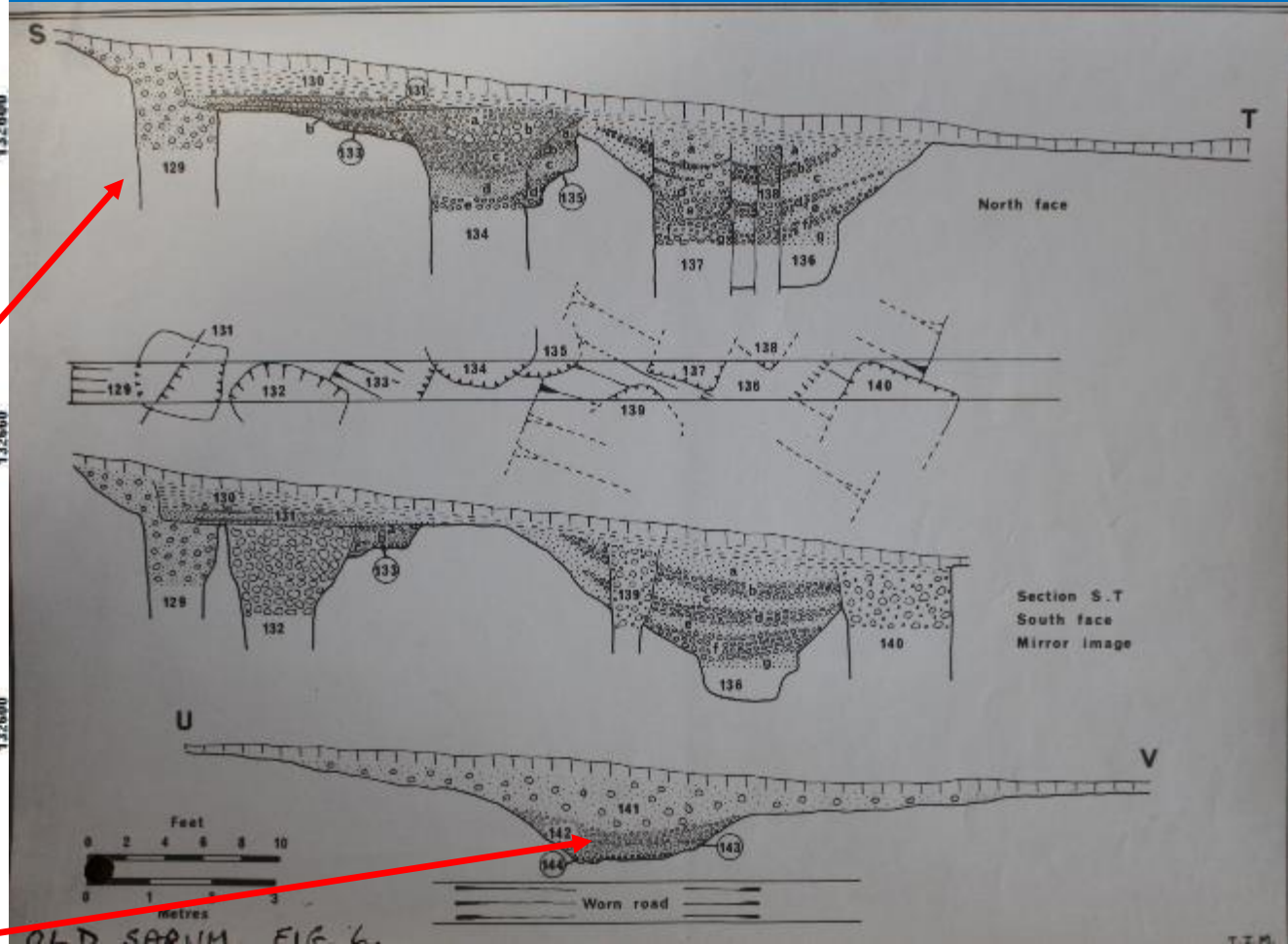




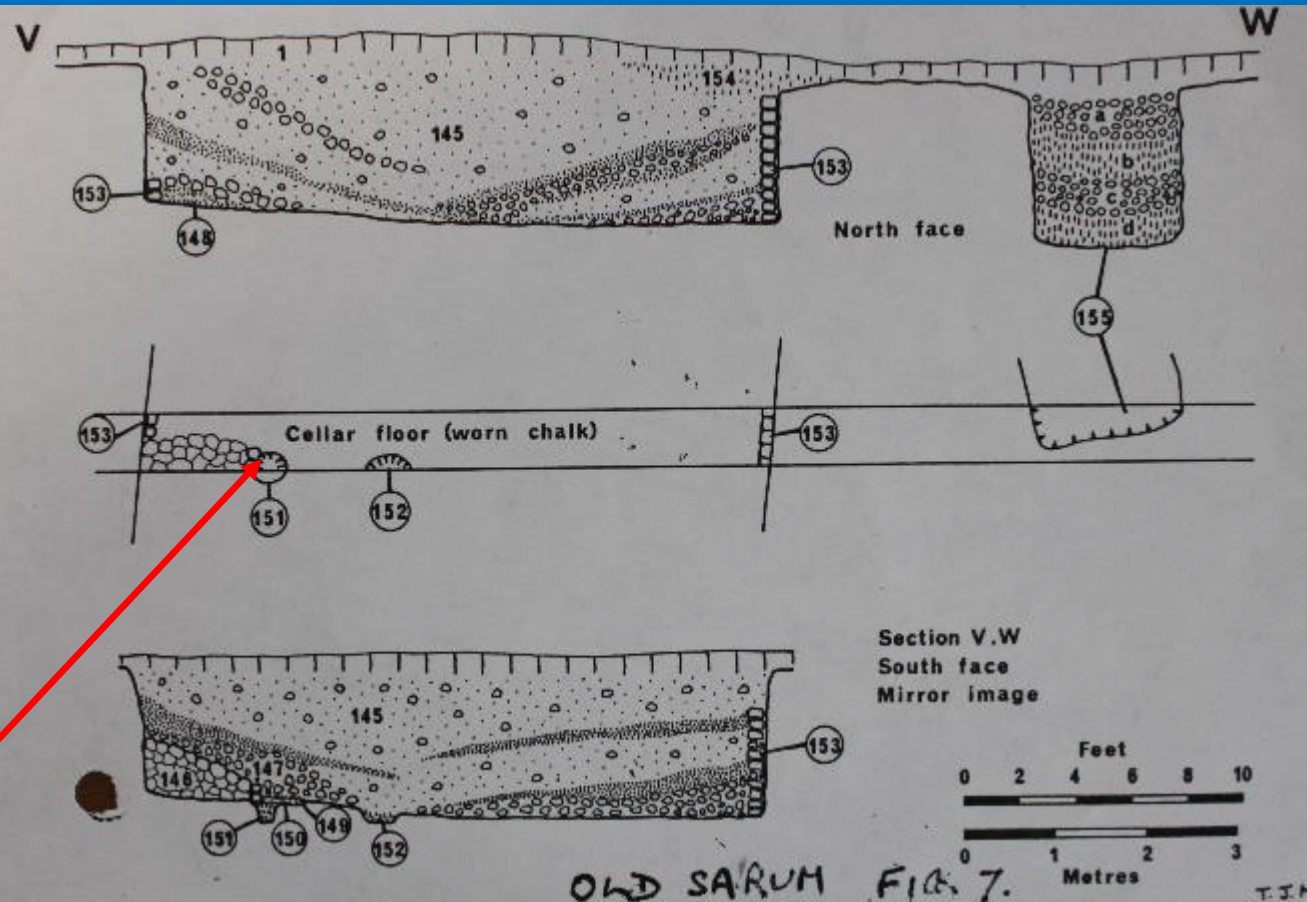
Ground Truthing with David Algar's plans



Ground Truthing with David Algar's plans

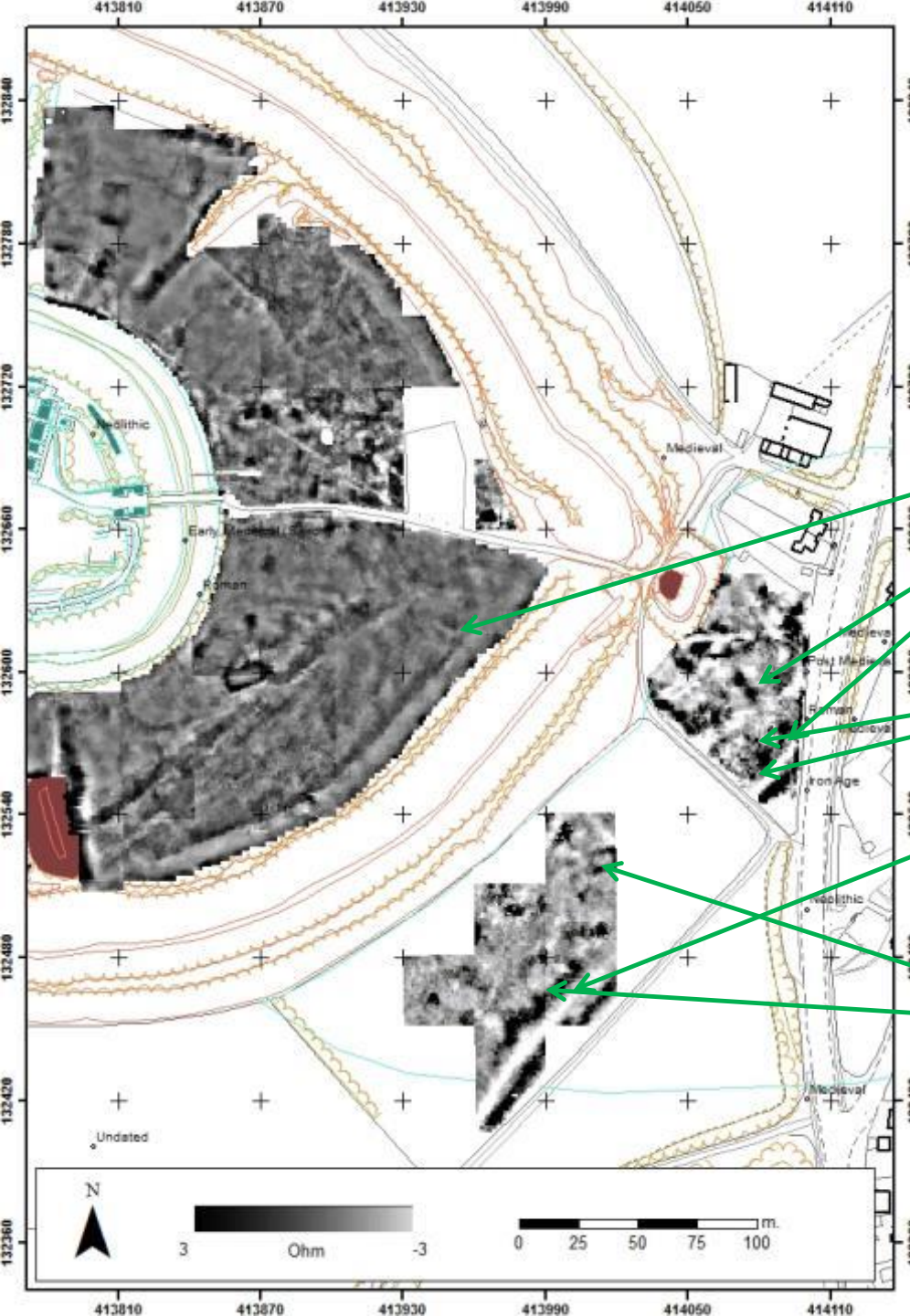


Ground Truthing with David Algar's plans



Survey Results

April 2016 Earth Resistance

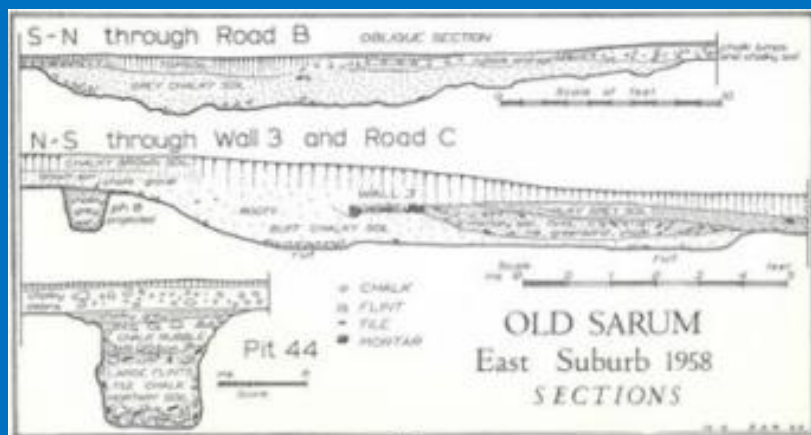
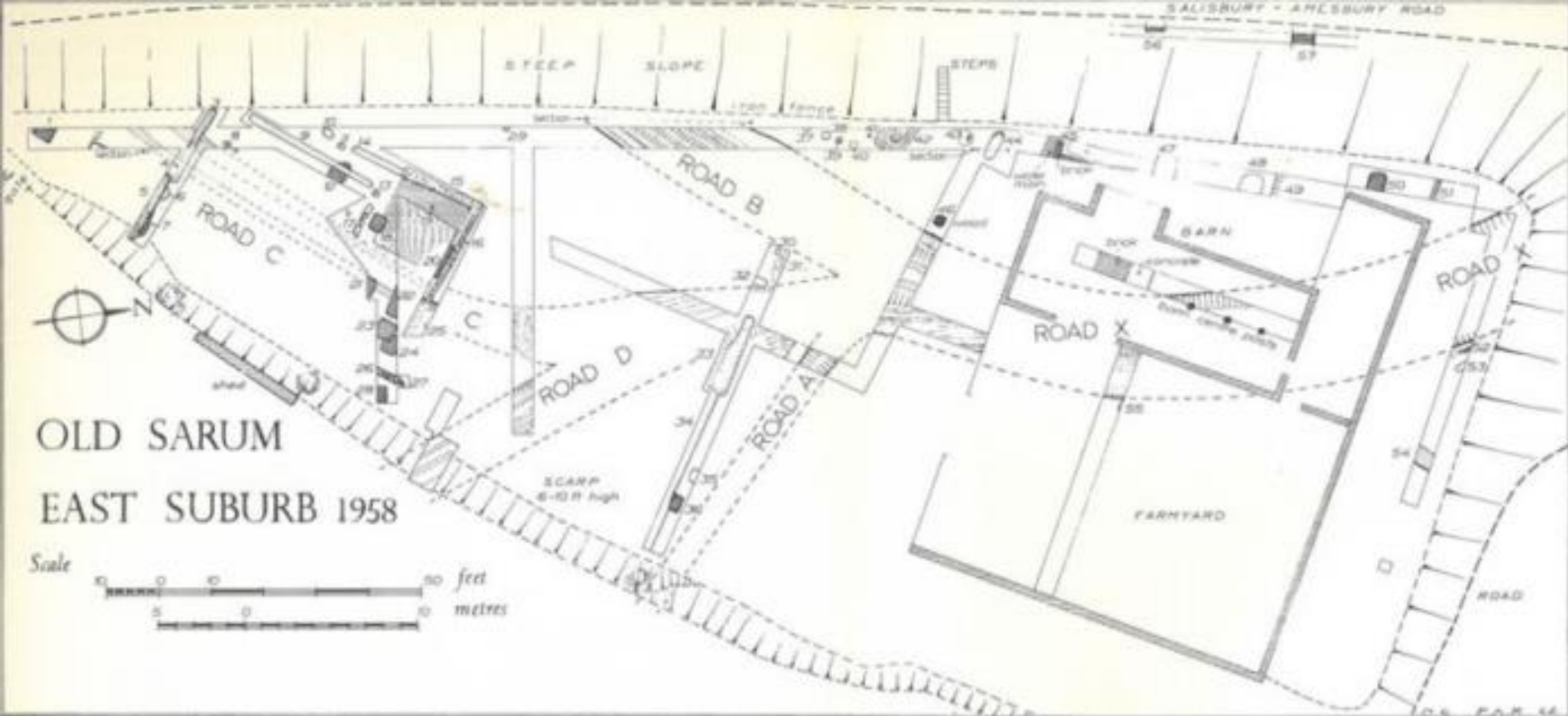


Buildings

Roads

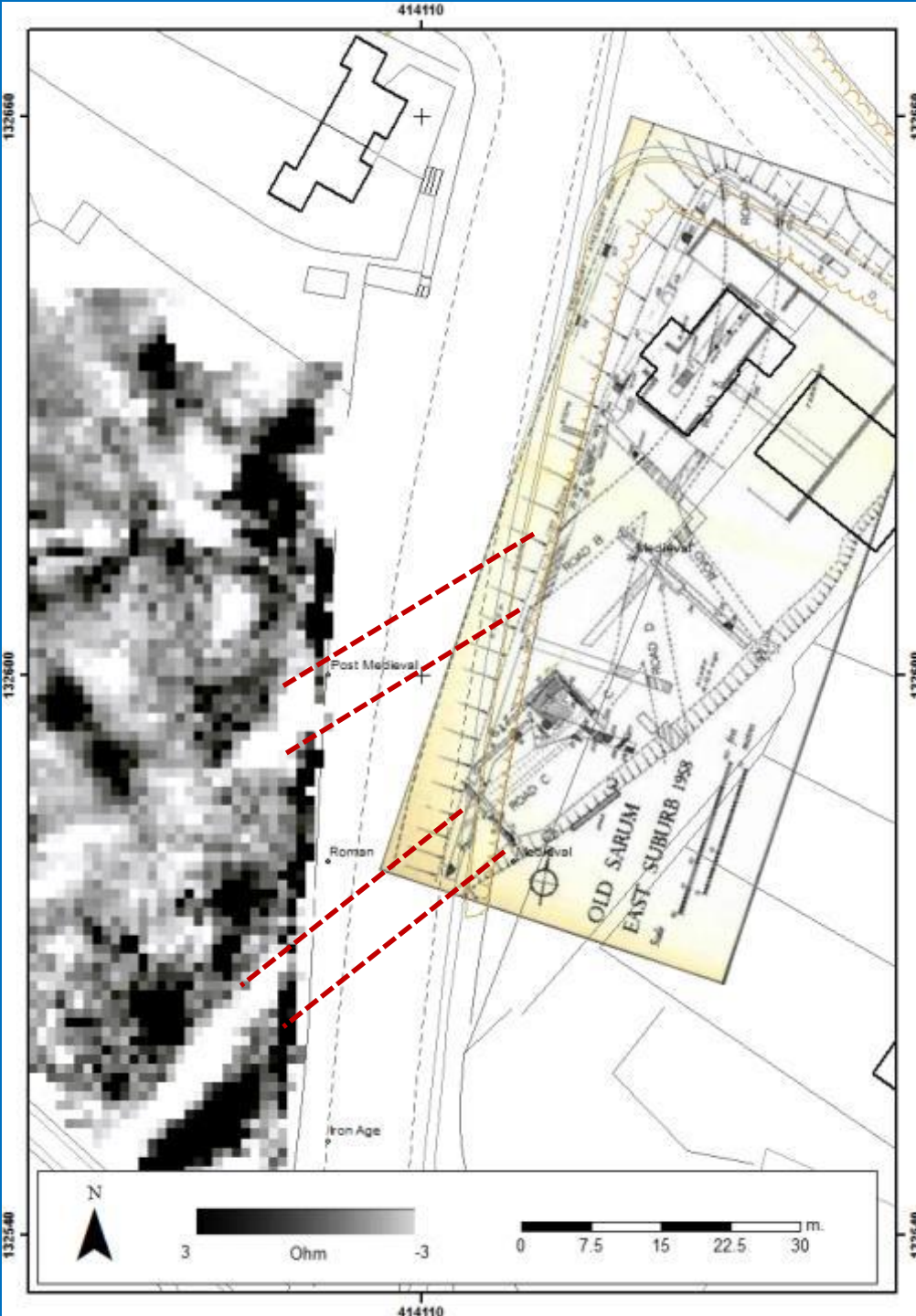
Roman/Medieval Road

Buildings

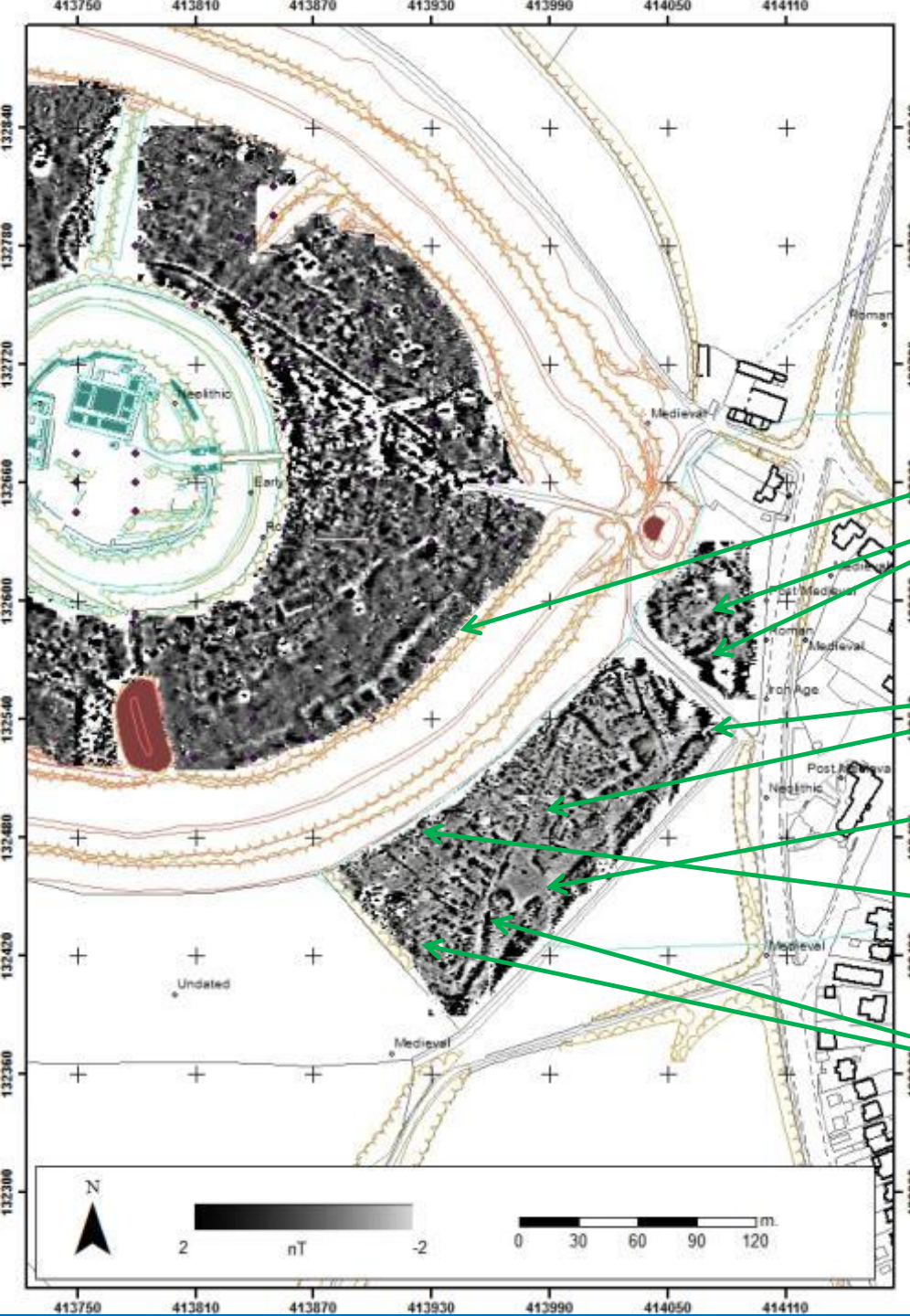


Musty and Rahtz 1964

Survey Results April 2016 and Musty and Rahtz 1964 Plan Overlay



Survey Results April 2016 Magnetometry



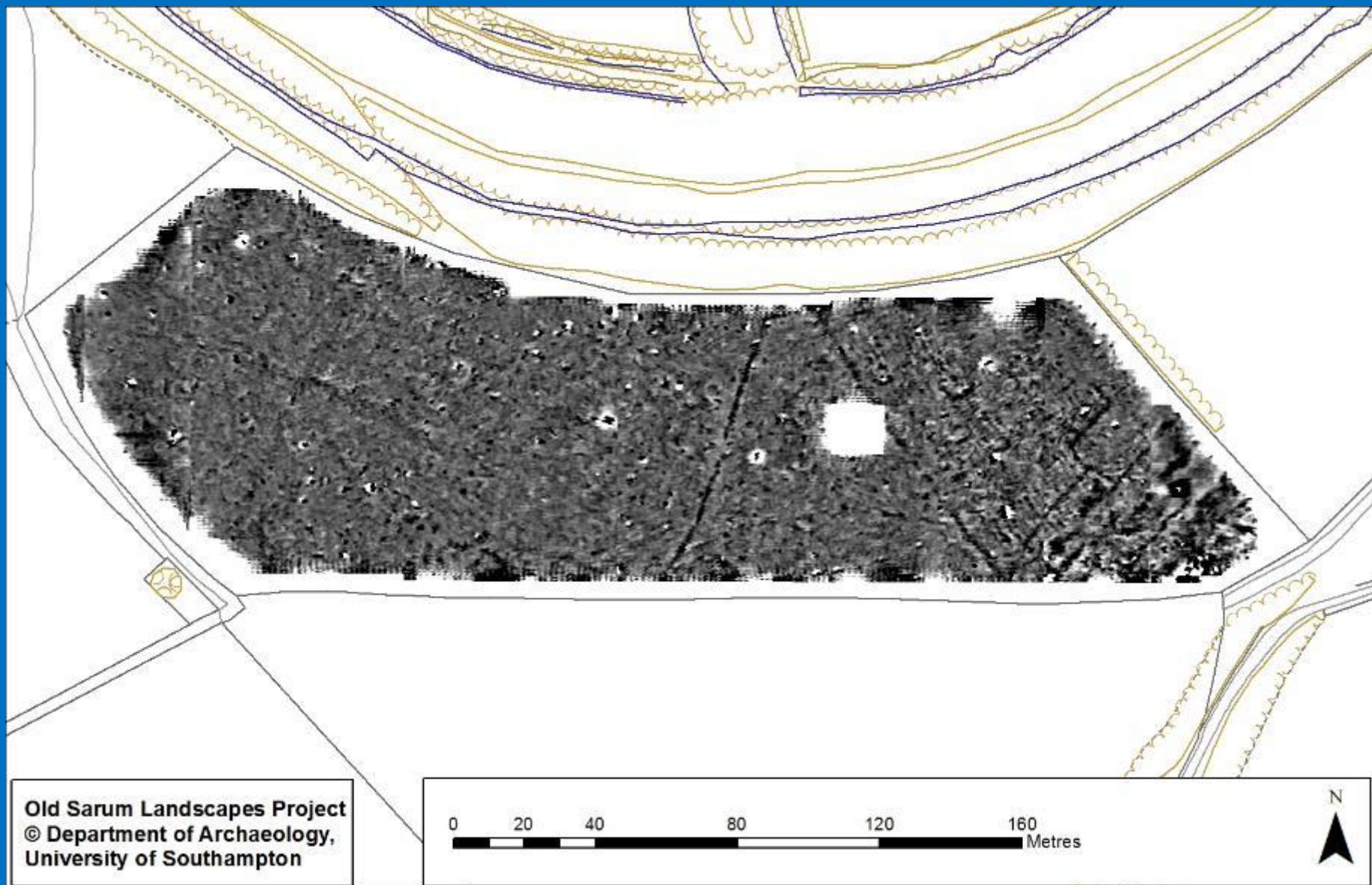
Buildings

Roads

Roman/Medieval Road

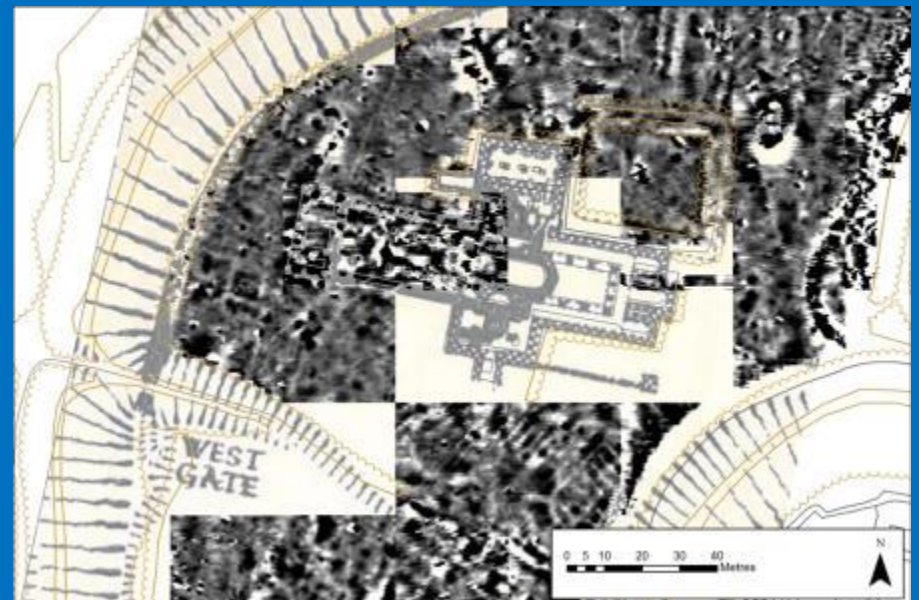
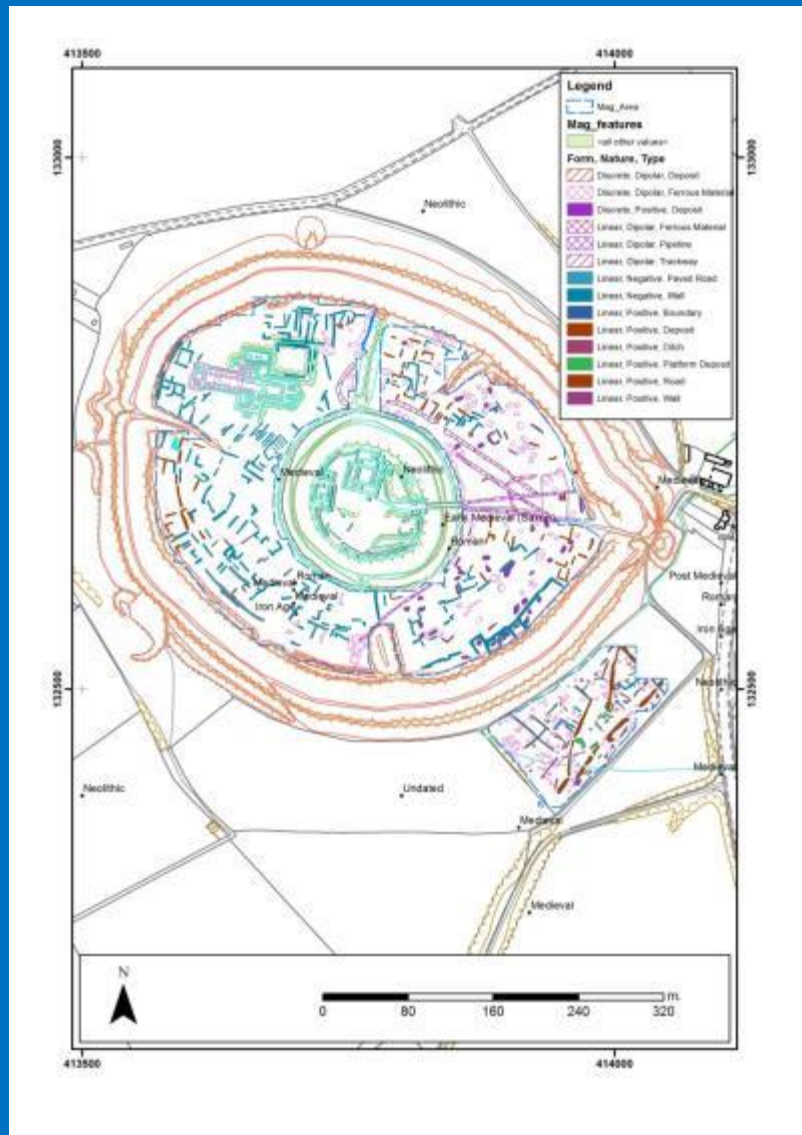
Burgage Plots?

Buildings

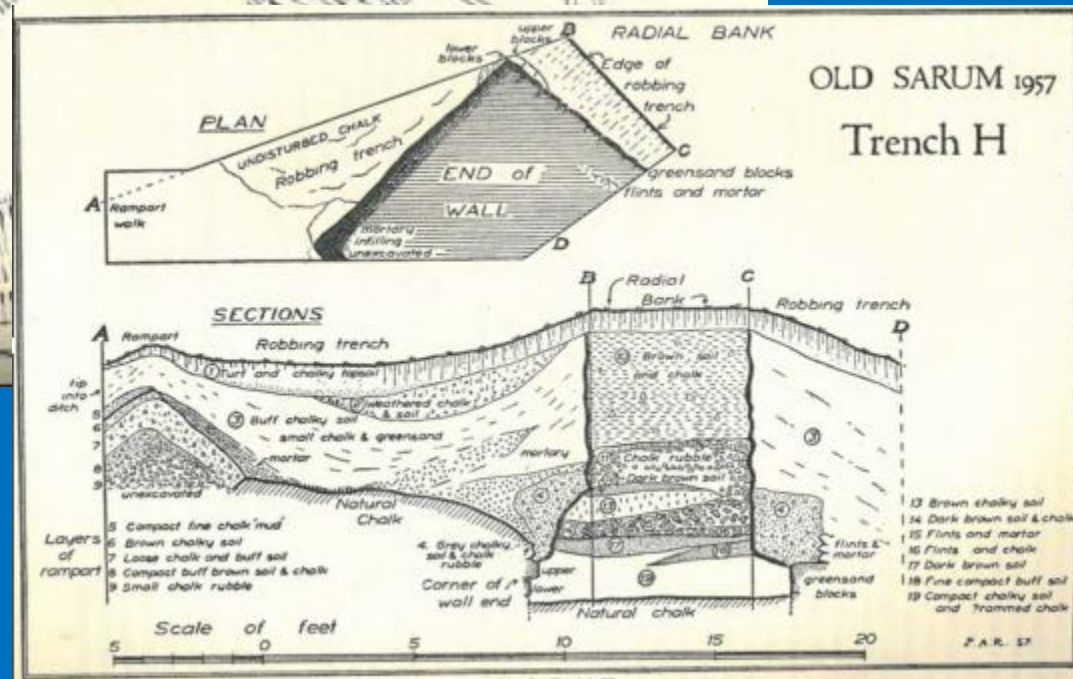
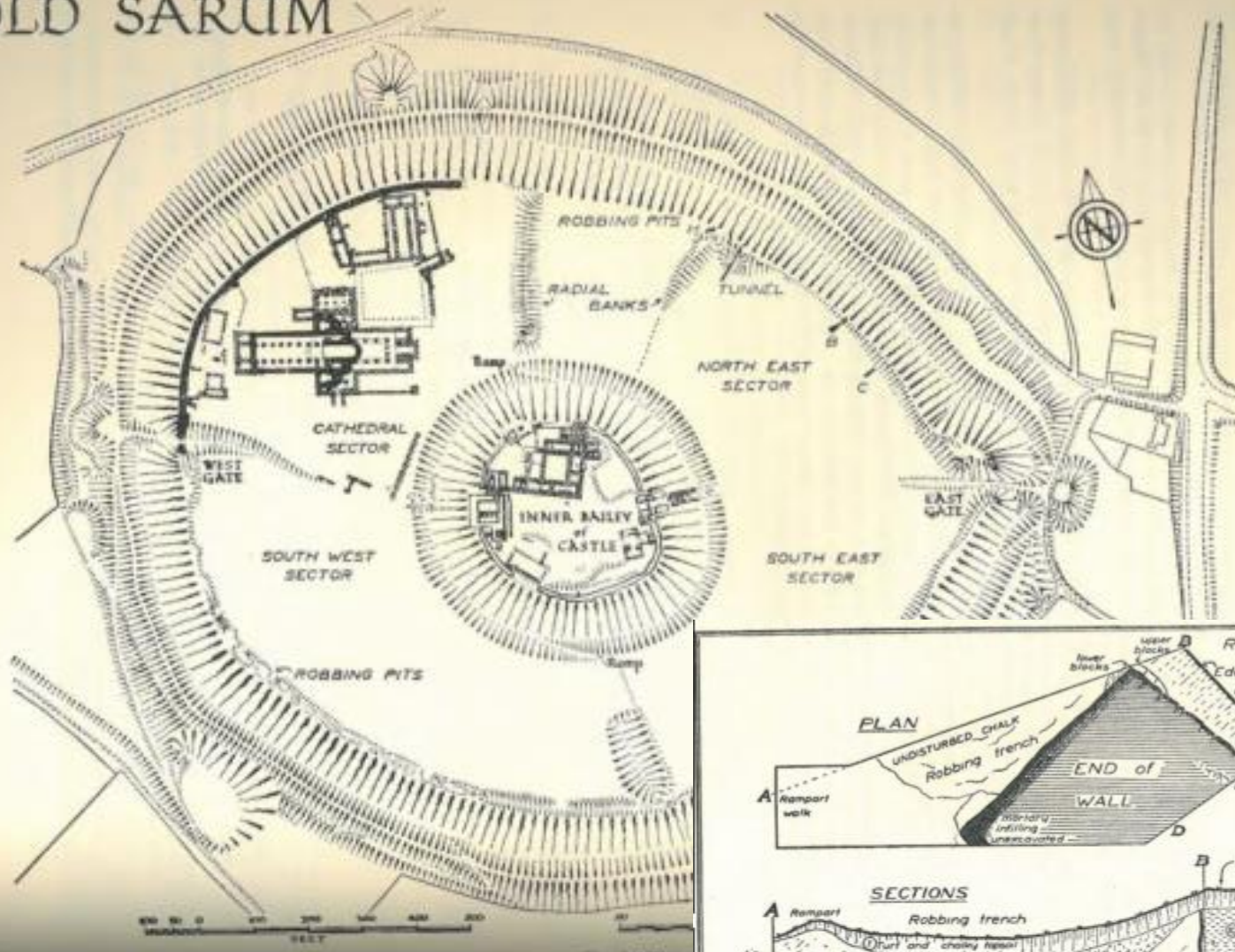


Old Sarum Landscapes Project
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University of Southampton

Survey Results Relating to Excavation Plans

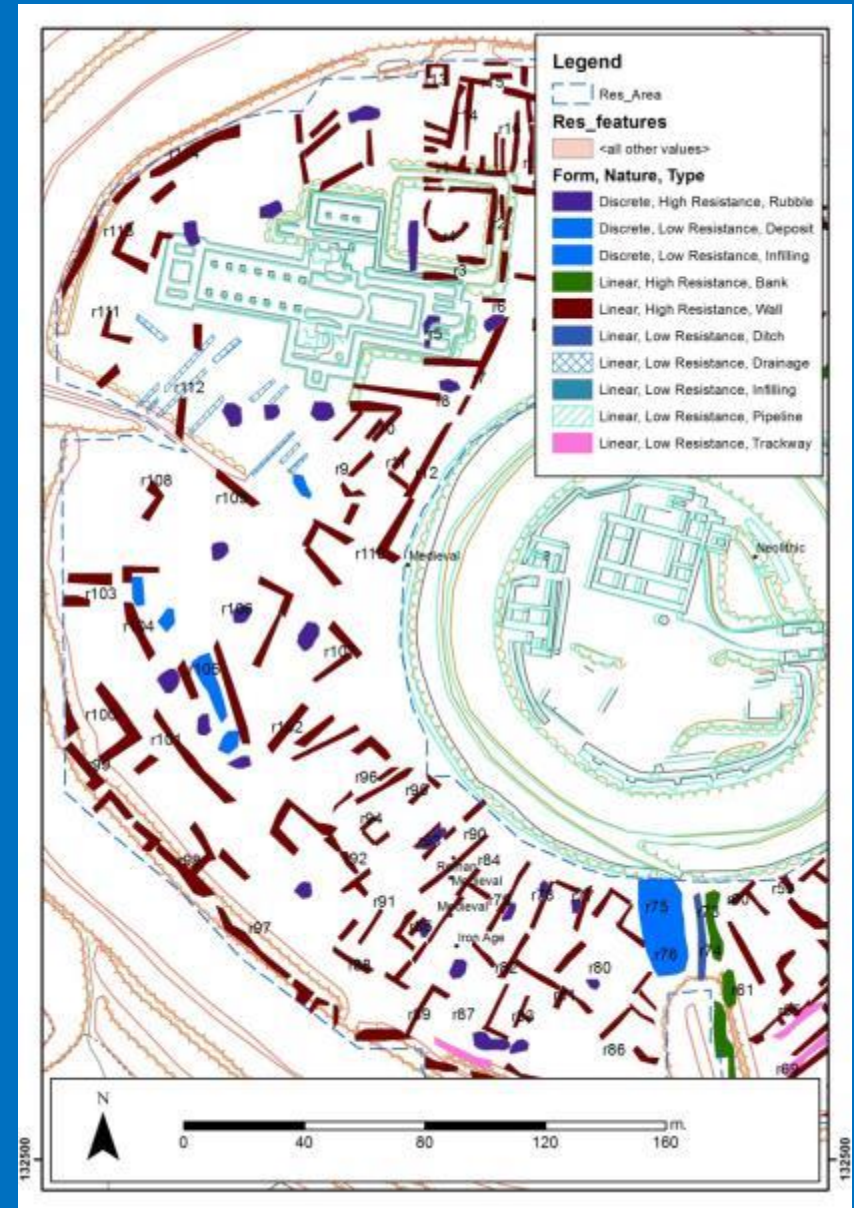


OLD SARUM

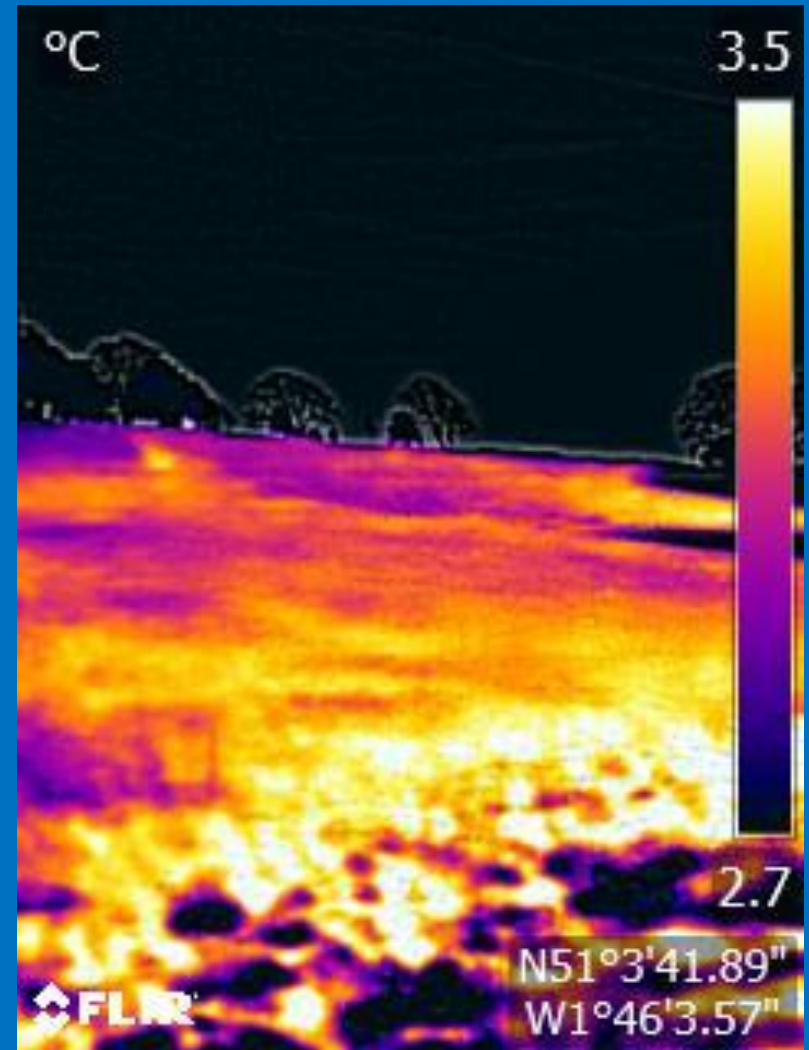
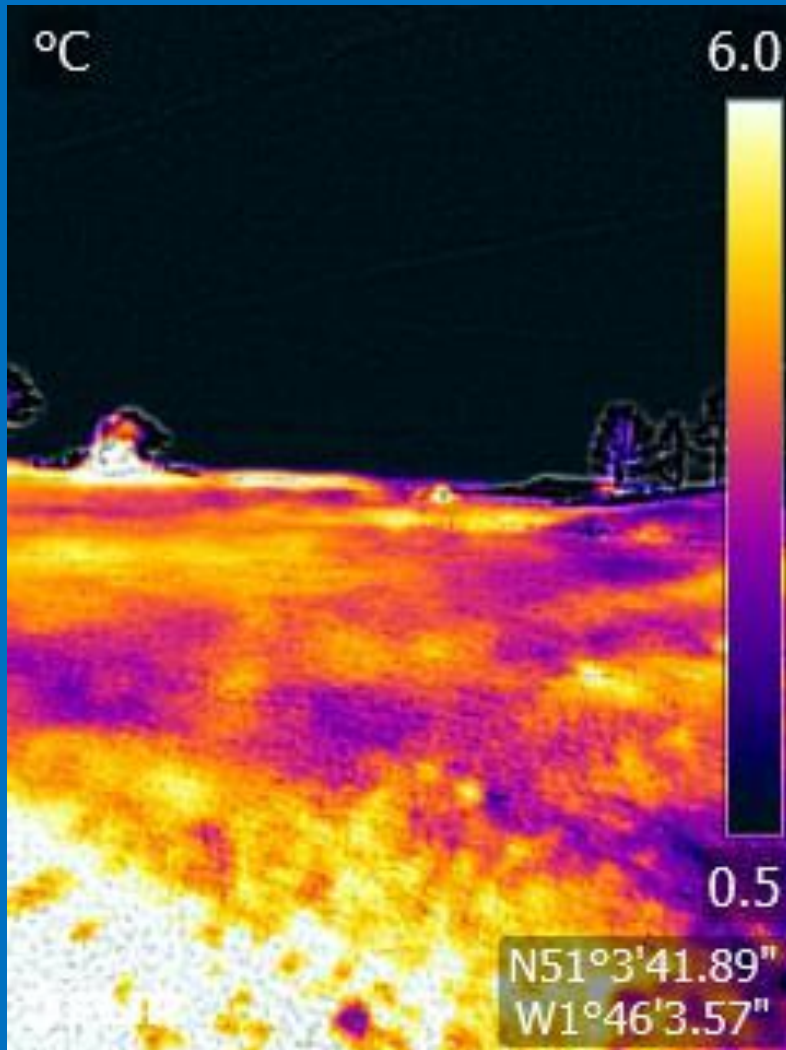


Rahtz and Musty 1960

Survey Results – Earth Resistance

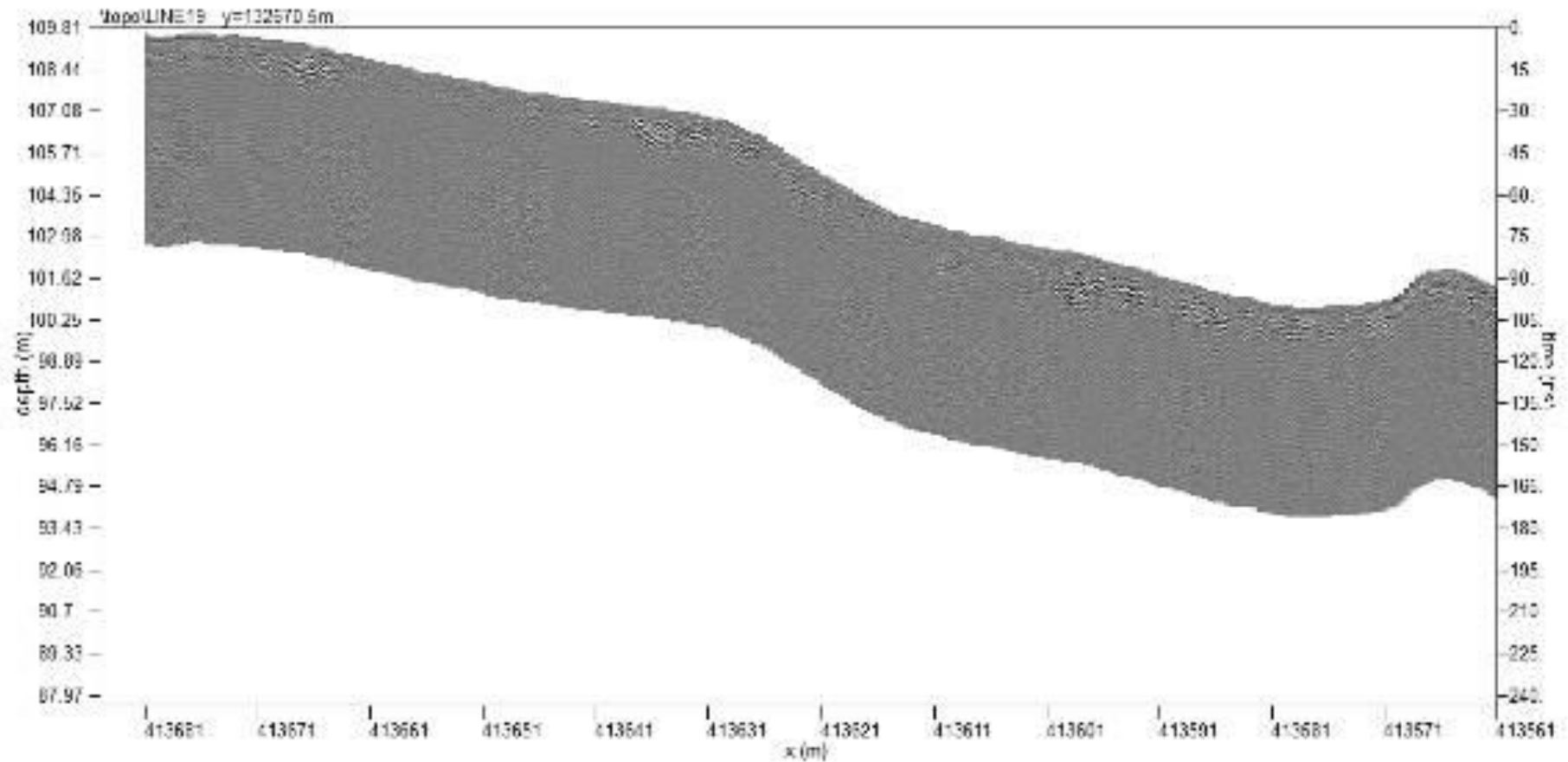


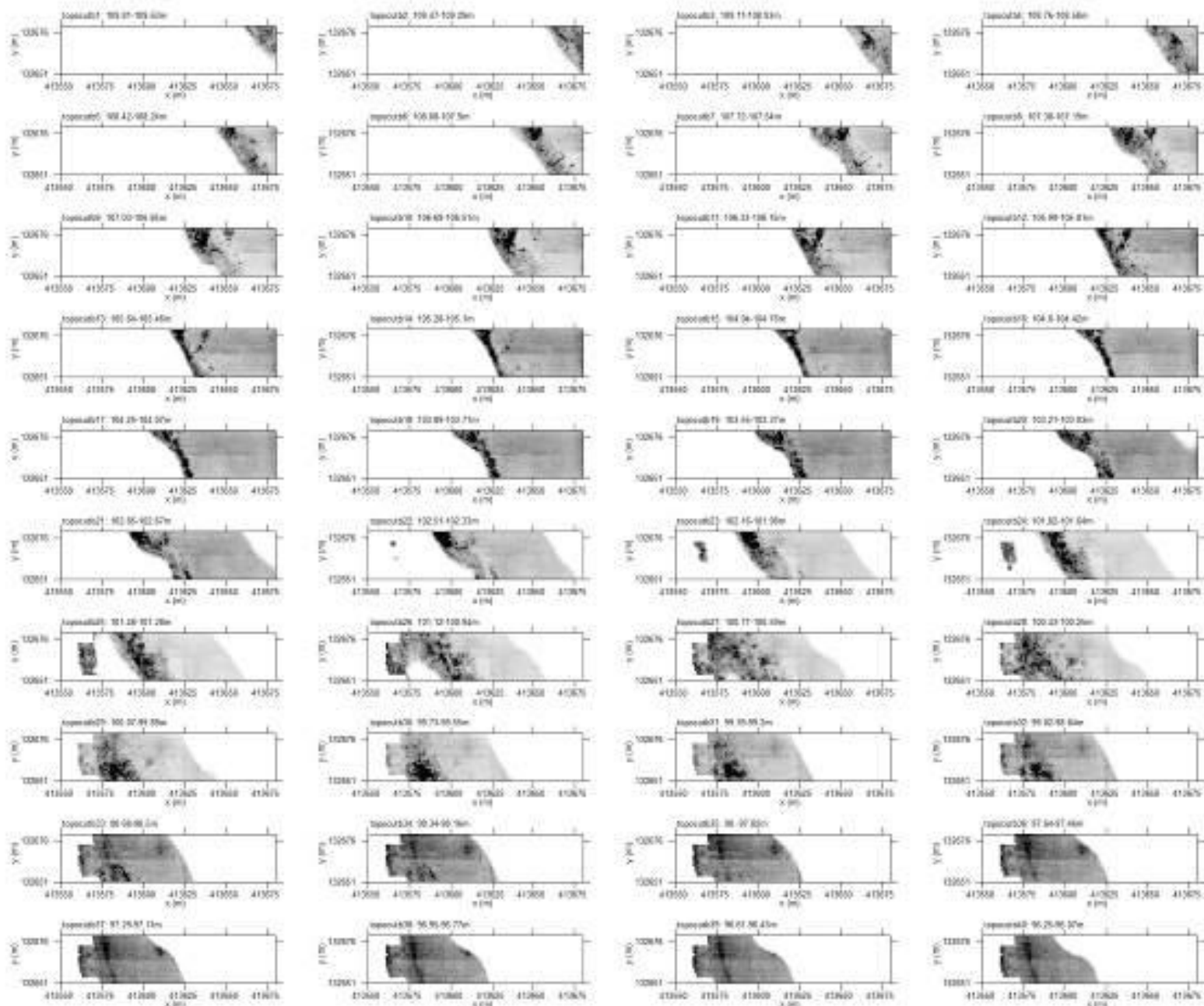
Thermal Imaging Camera – Outer Bailey

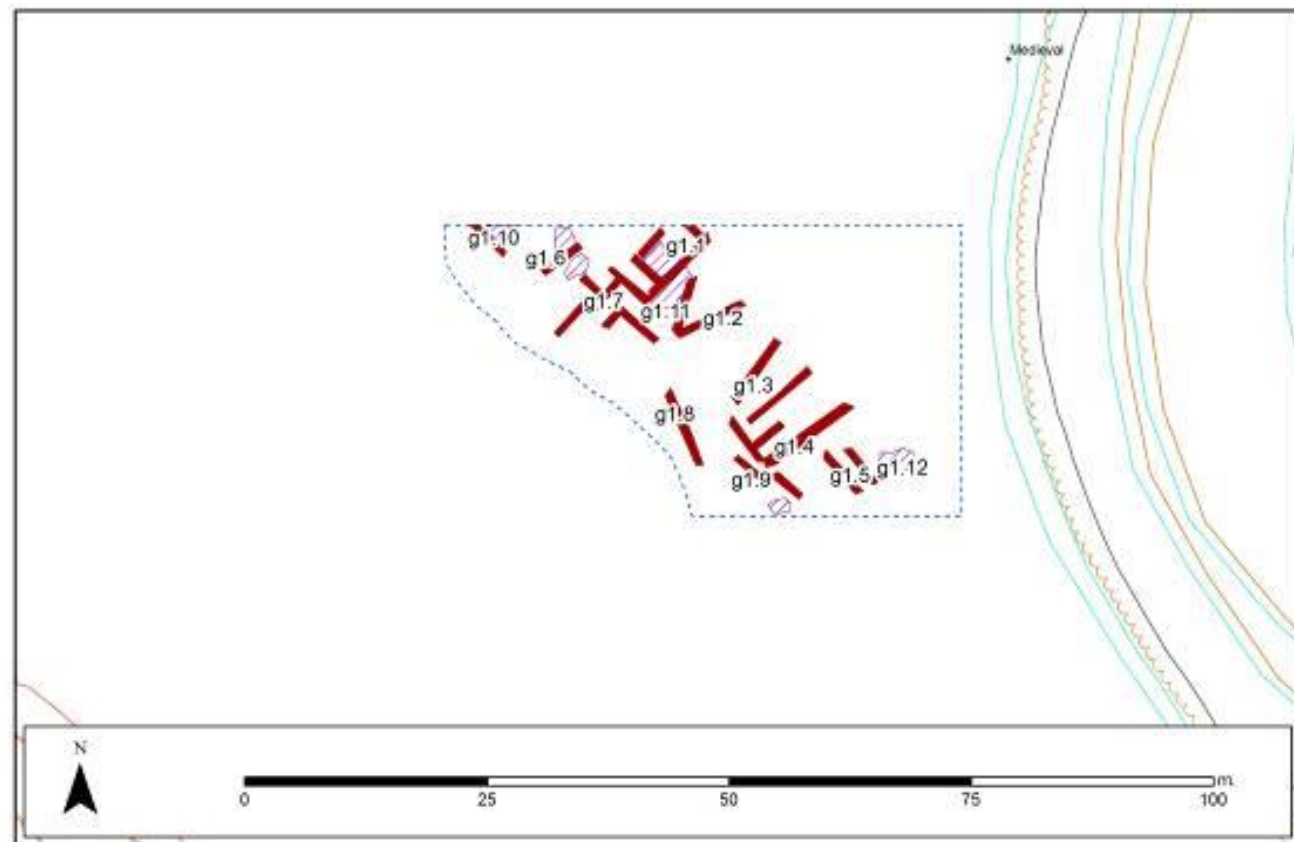
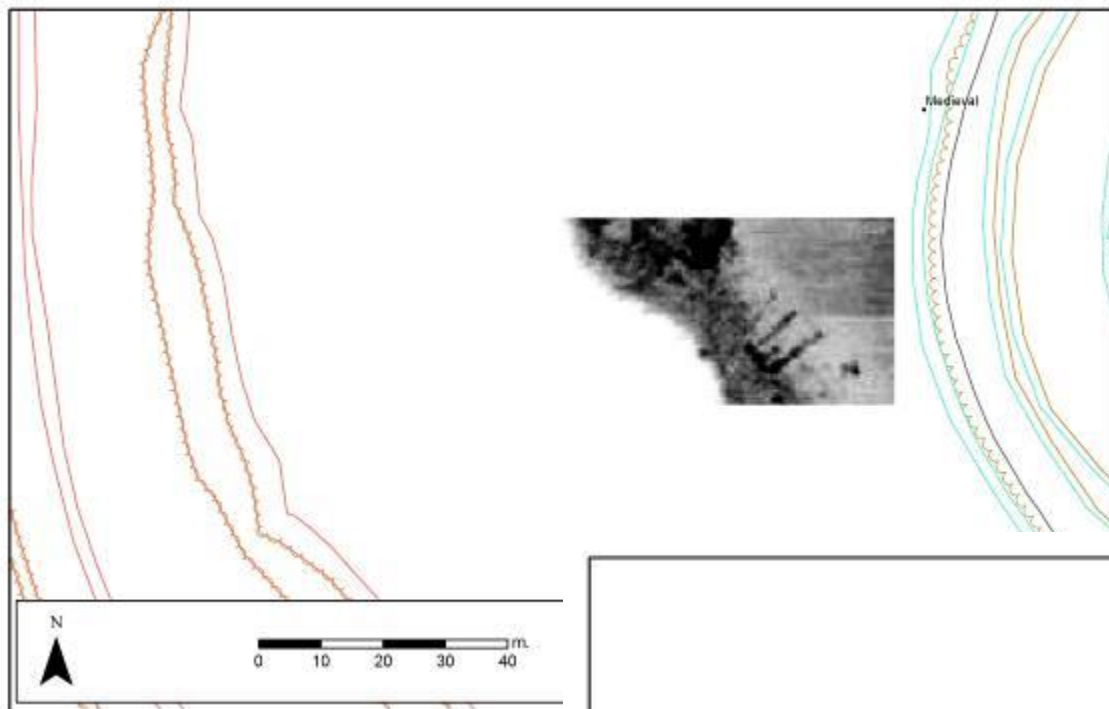


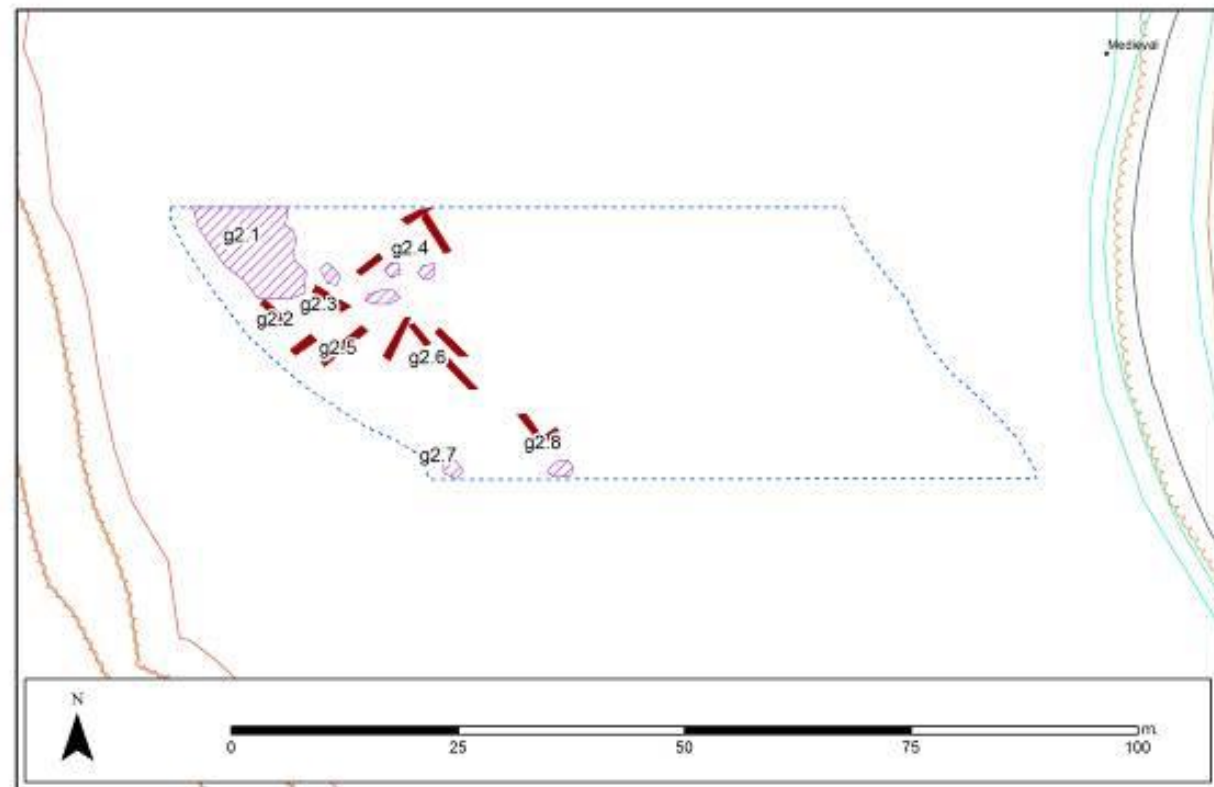
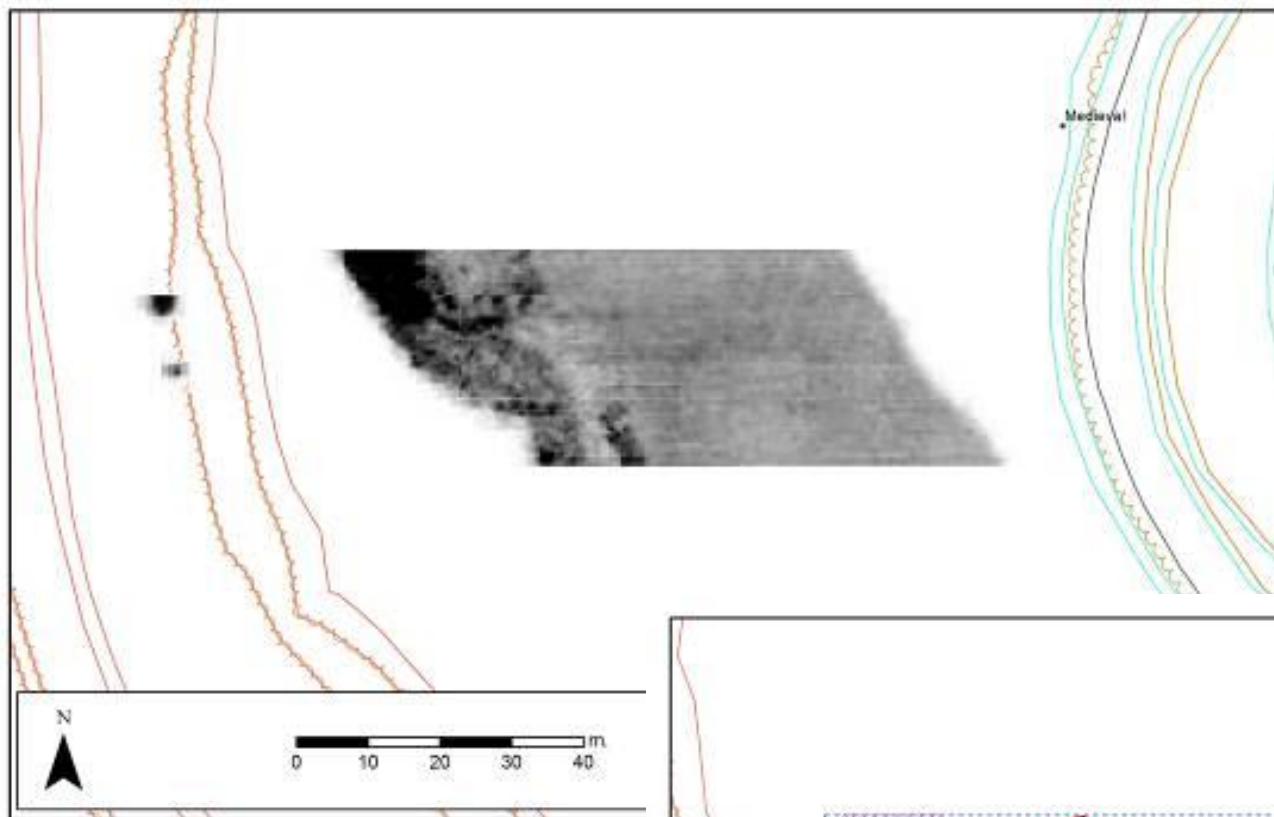


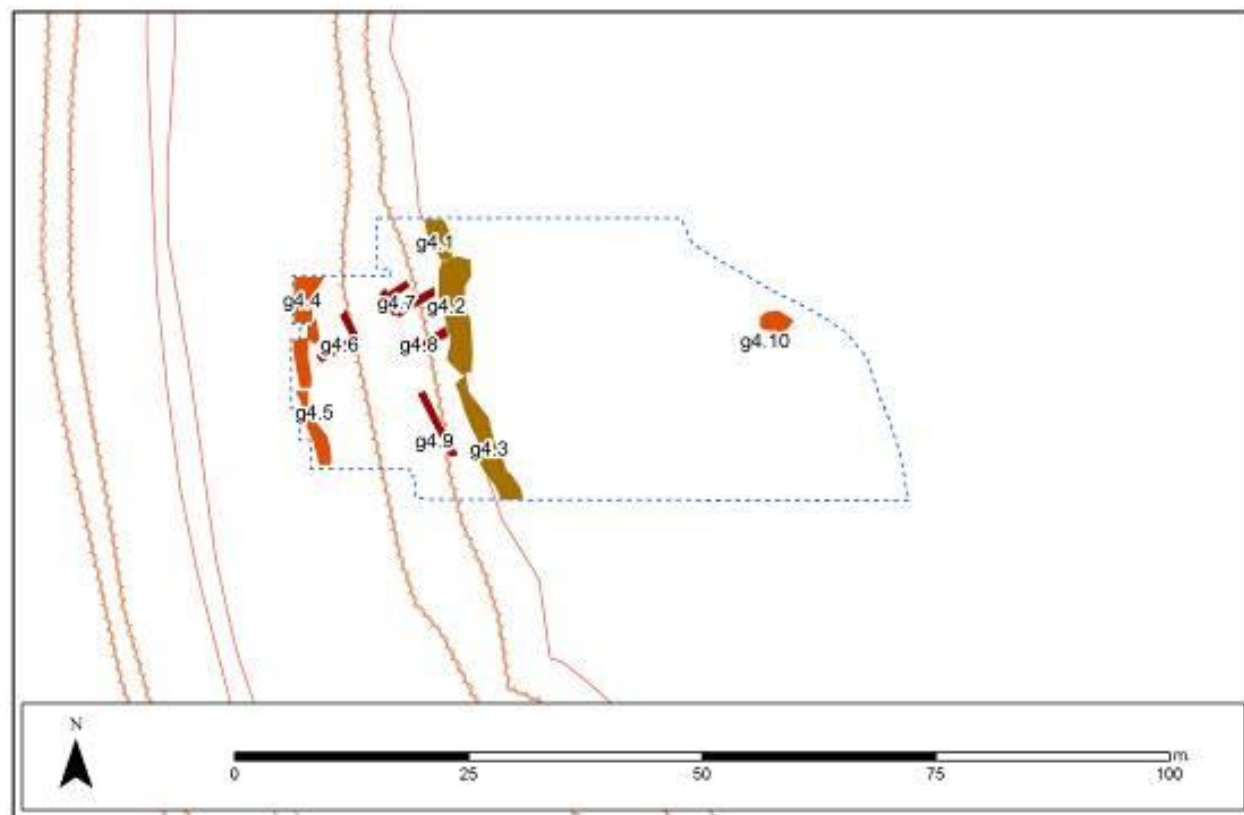
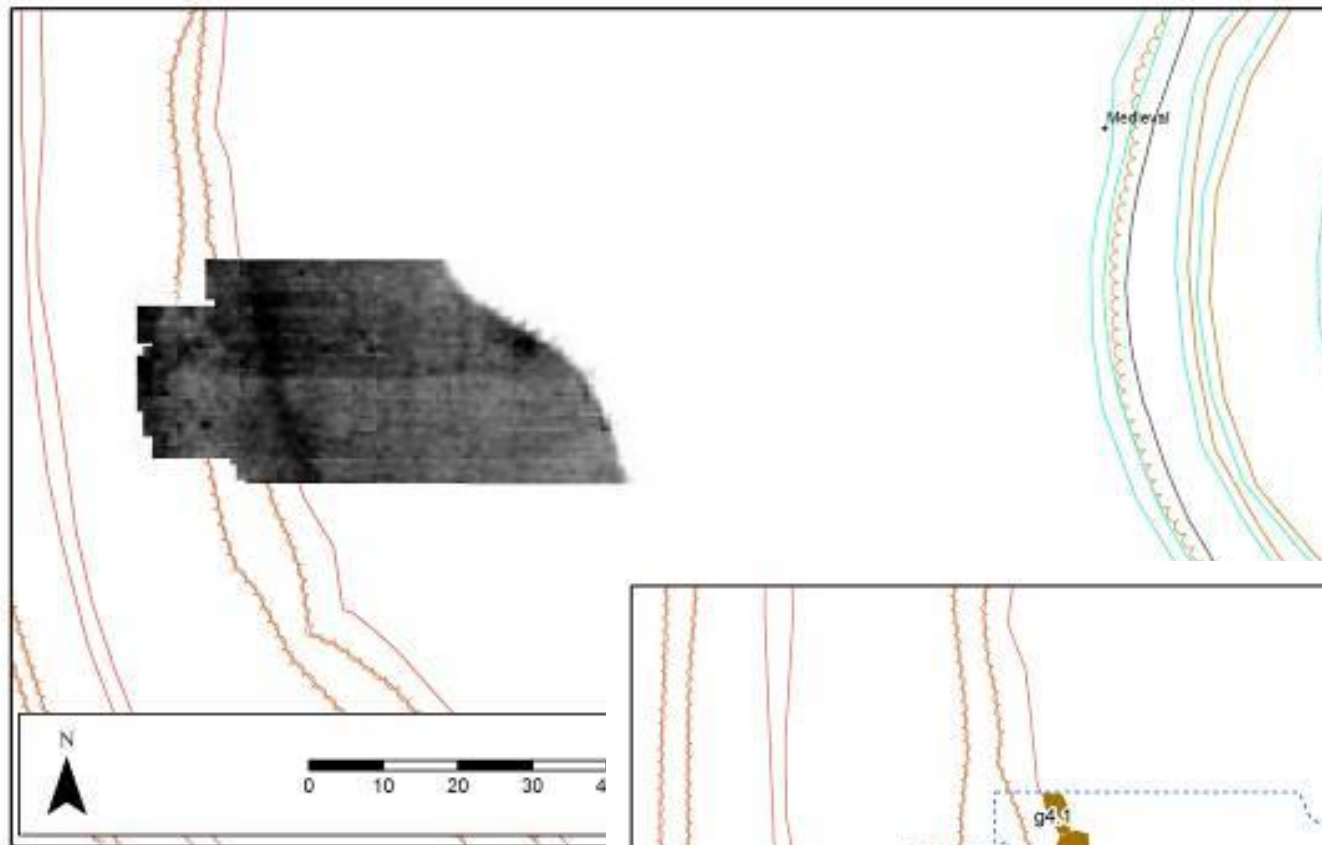
GPR Survey Results 2015 – Outer Bailey



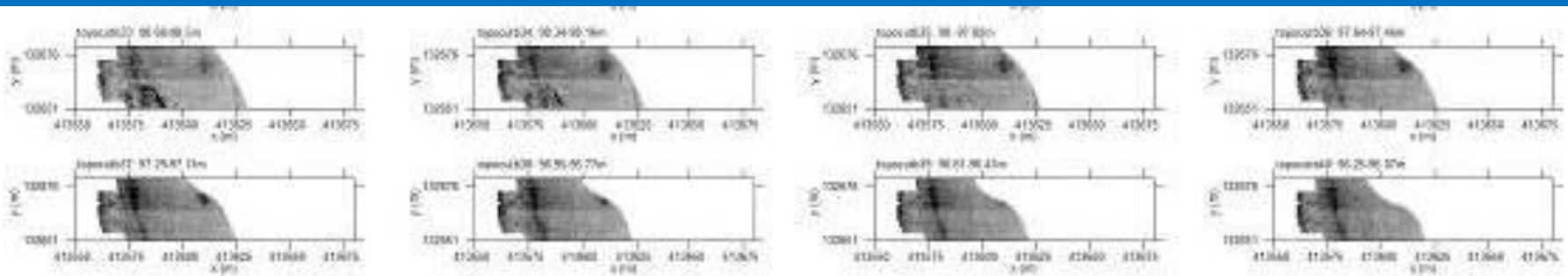




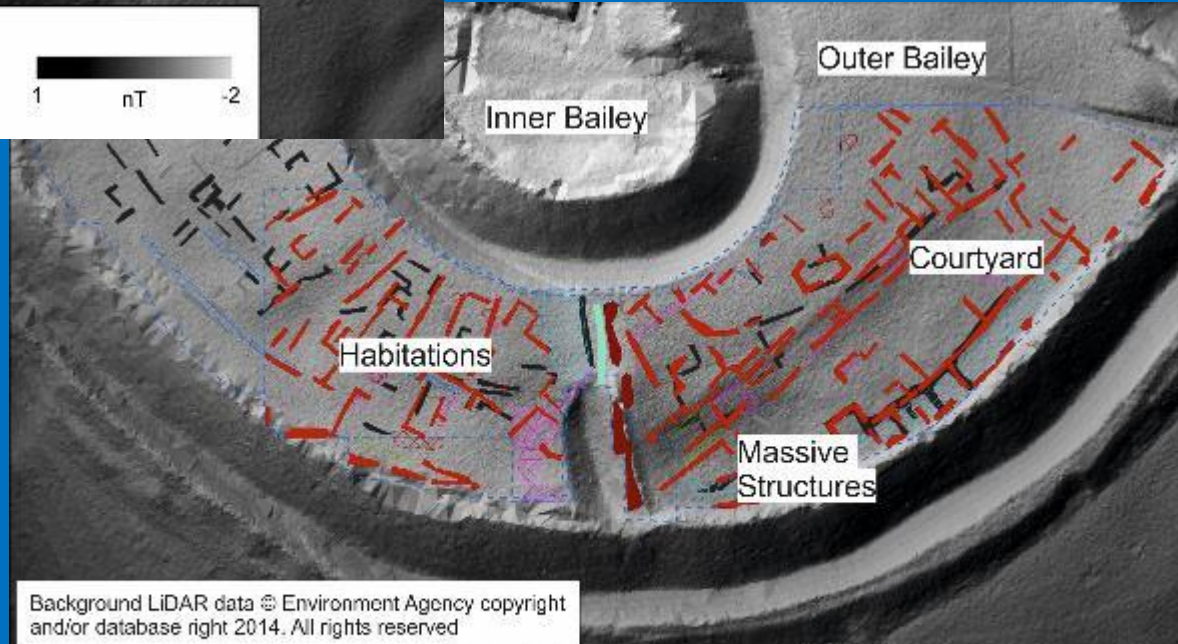
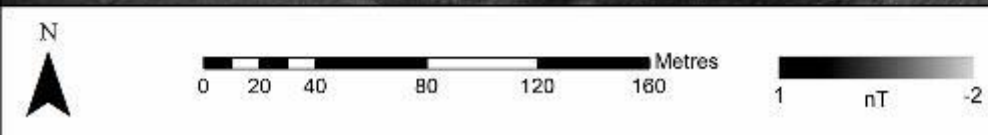




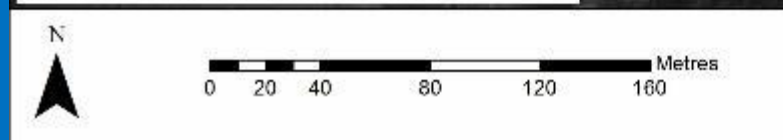
GPR Time Slices – Lower Portion



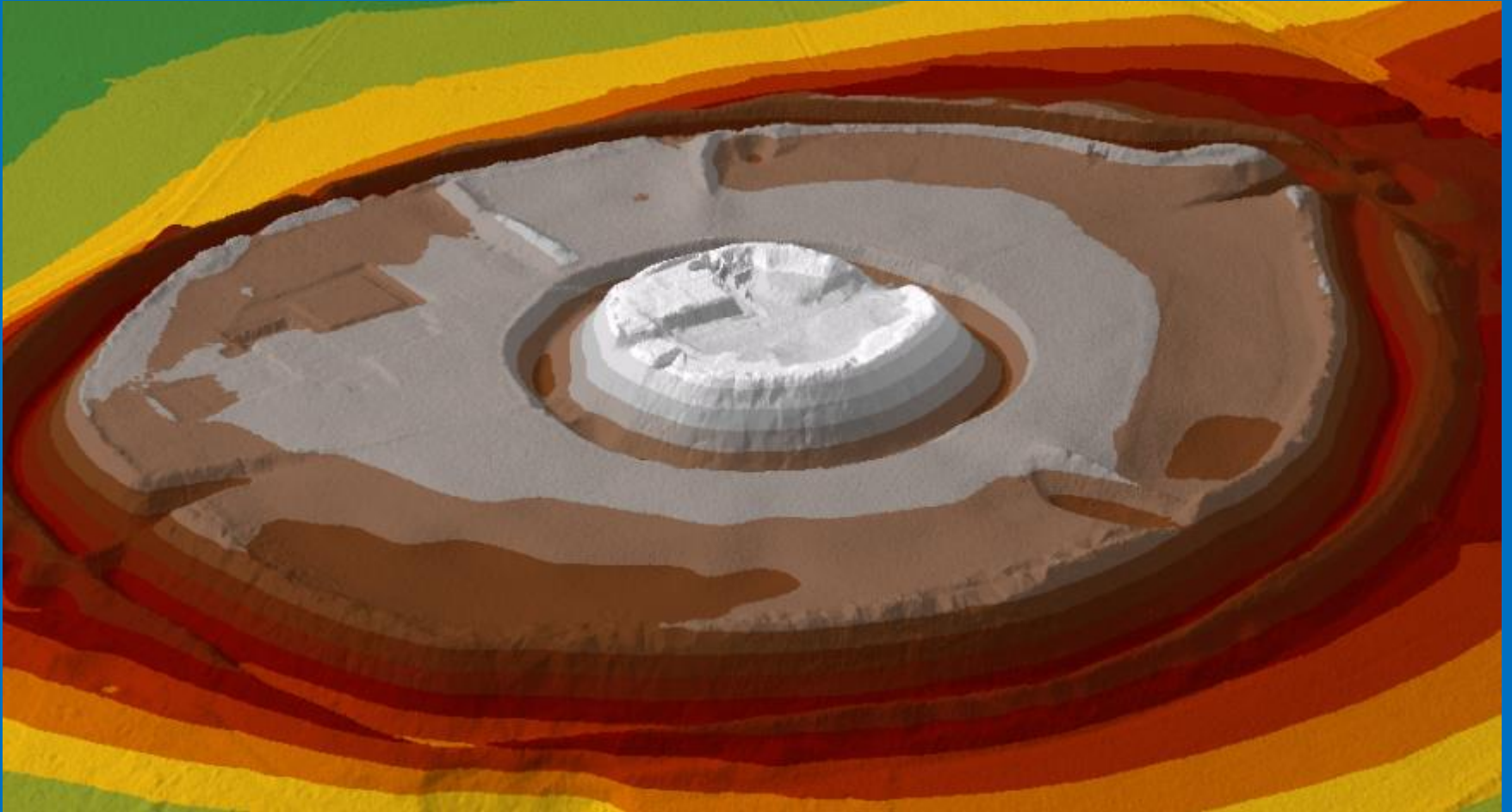
Background LiDAR data © Environment Agency copyright and/or database right 2014. All rights reserved



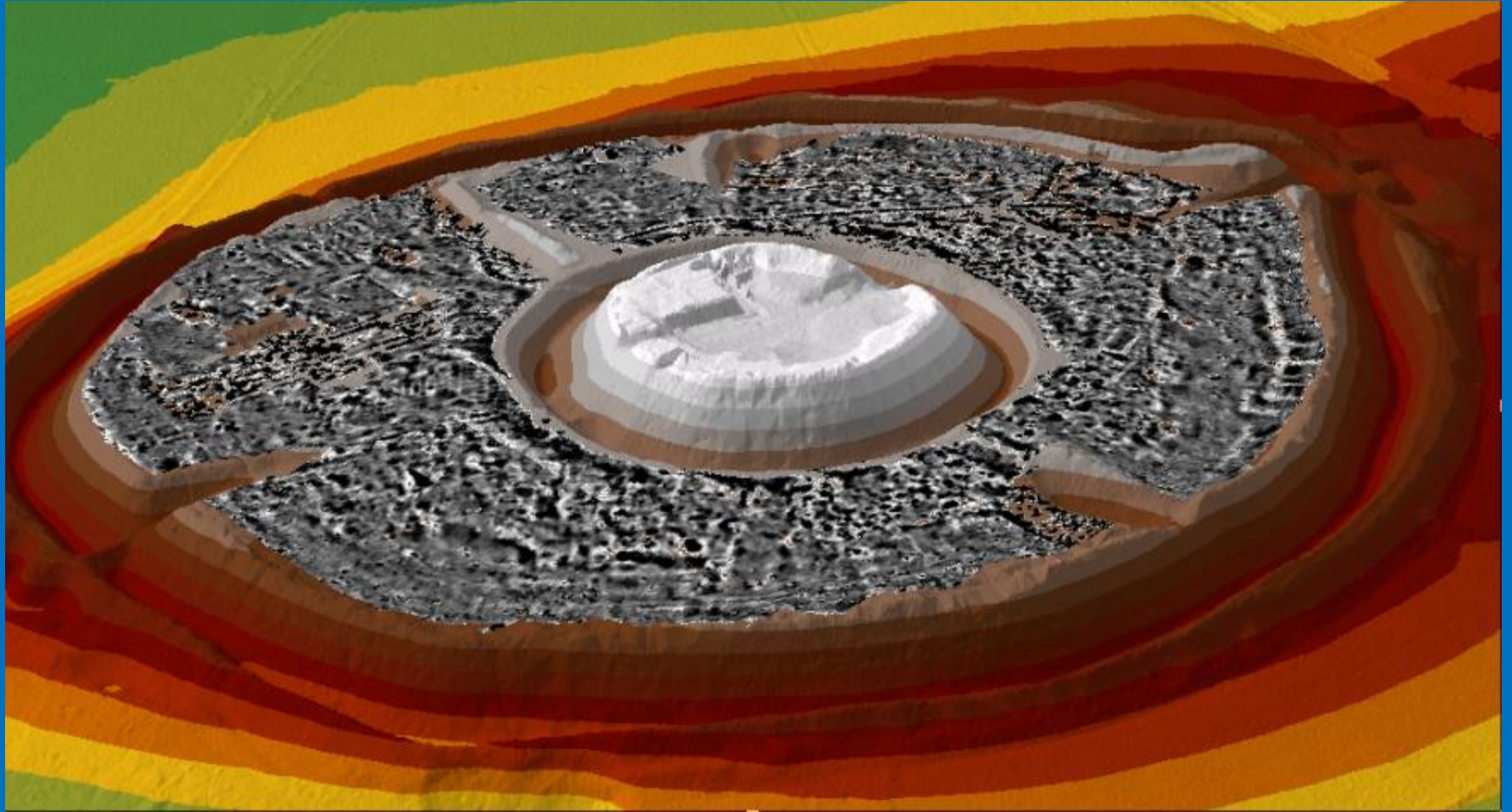
Background LiDAR data © Environment Agency copyright and/or database right 2014. All rights reserved



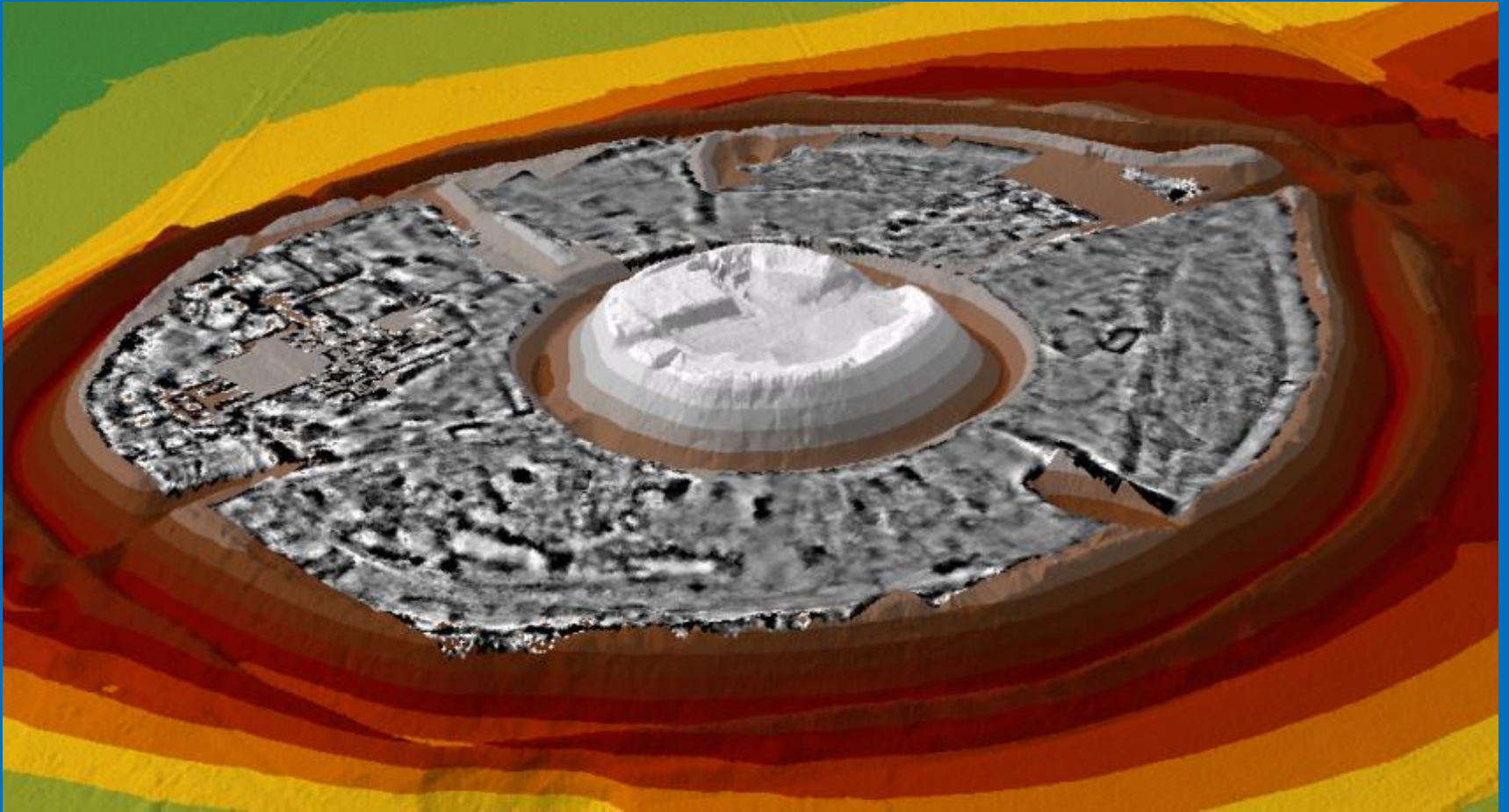
Old Sarum LiDAR Model



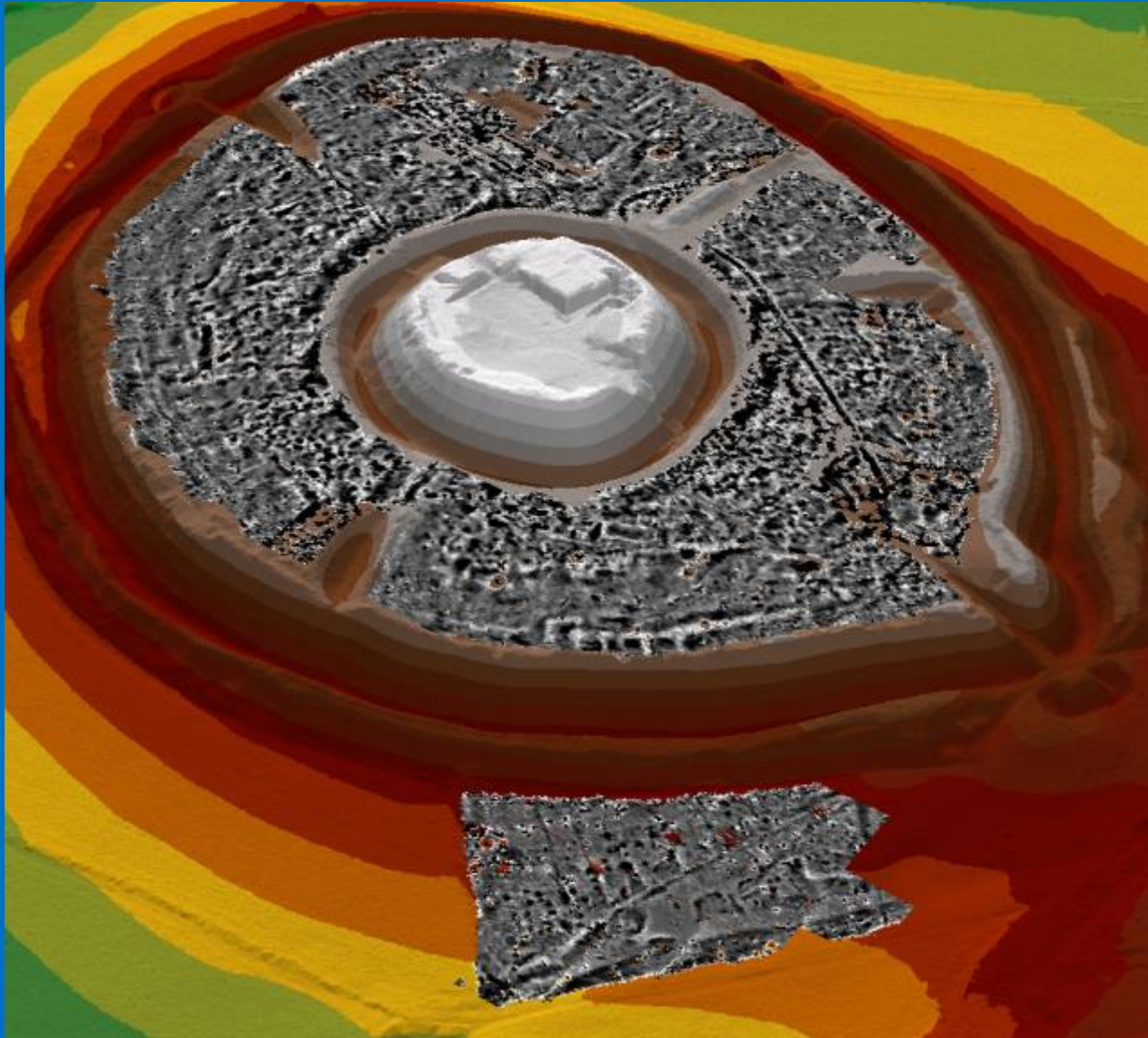
Old sarum LiDAR model with magnetometry



Old sarum LiDAR model with earth resistance



Old sarum LiDAR model with magnetometry



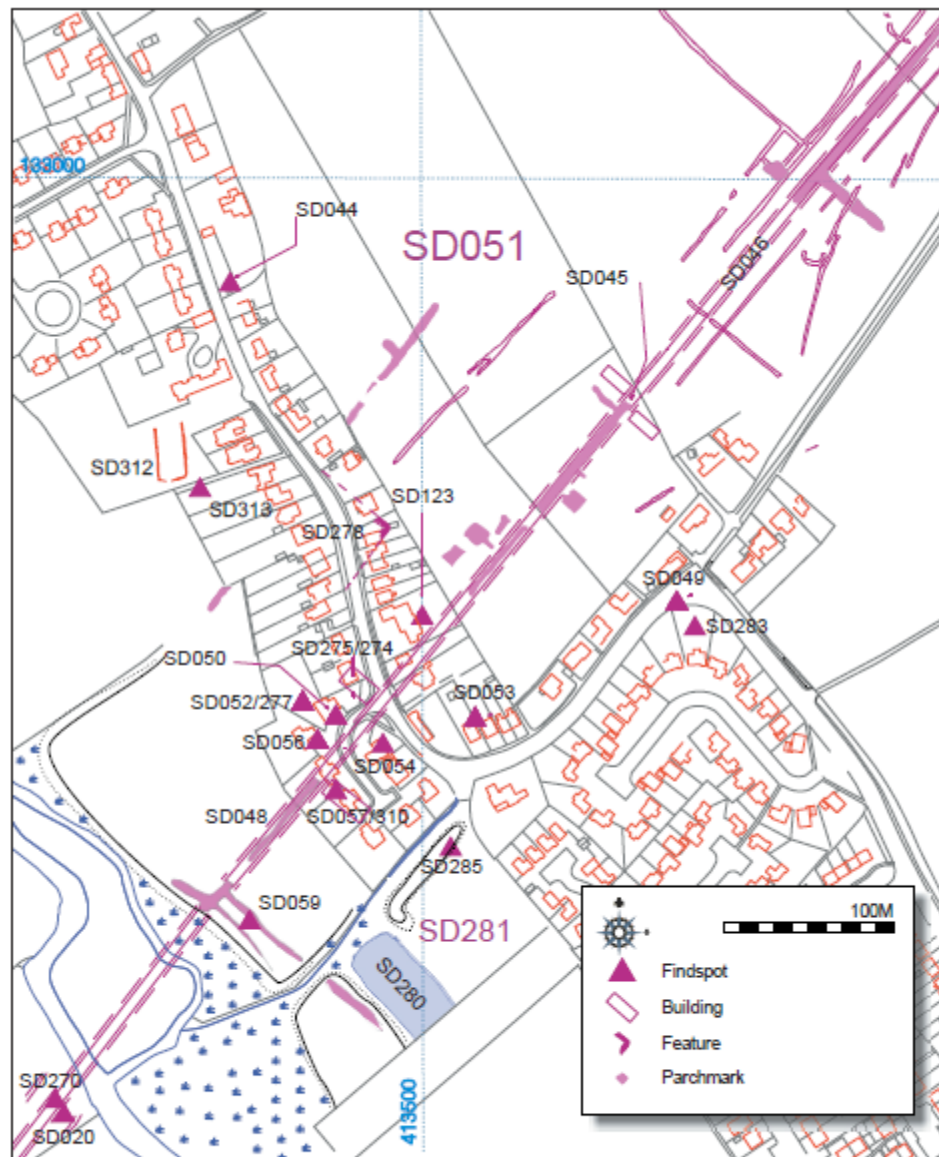


Figure 3.6: Roman urban elements in and around the village. (Features transcribed from Air Photography by Mark Corney (Corney 2002))

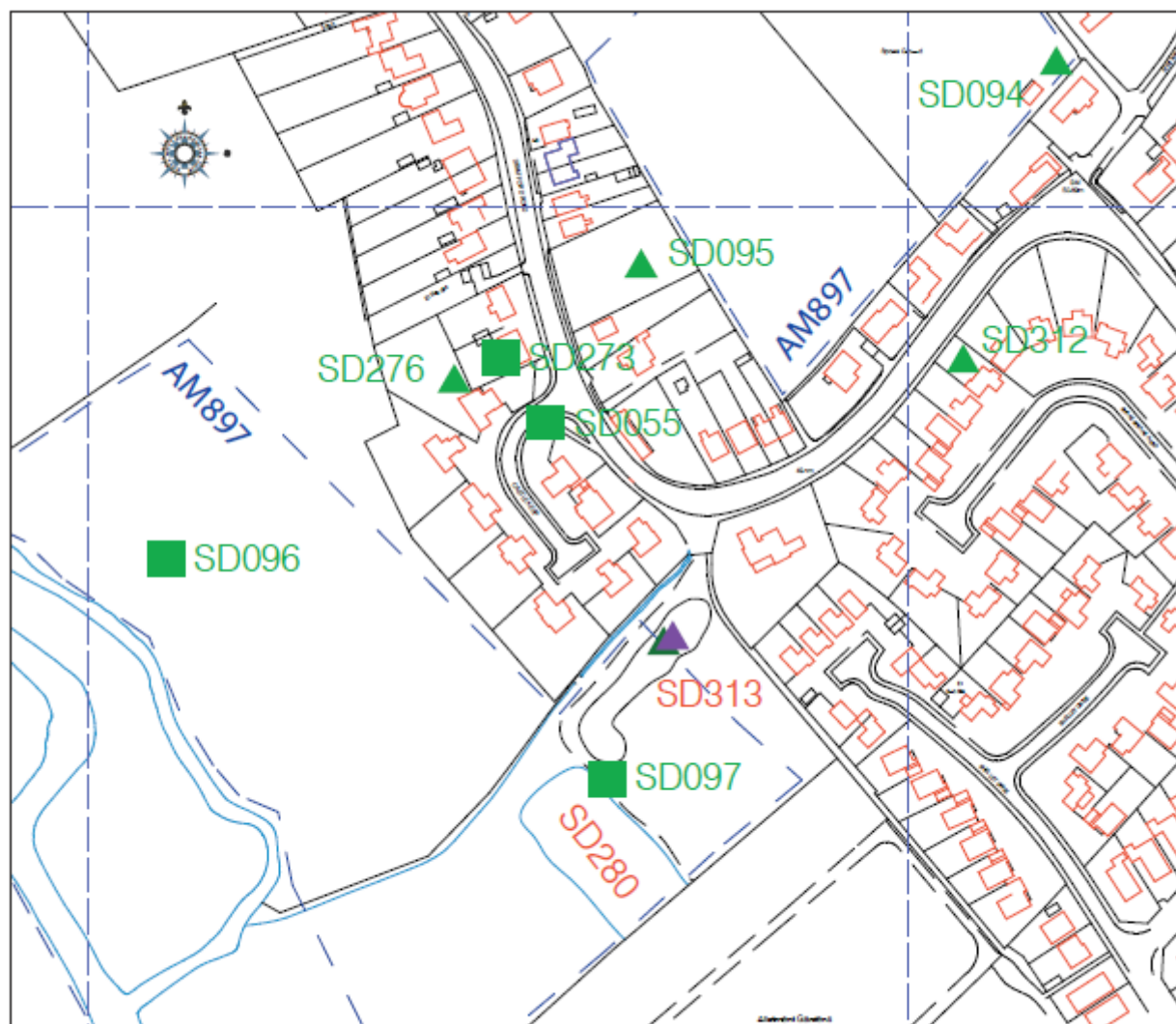


Fig 4.3: Findspots at the southern end of Stratford village. Green represents Medieval finds, with squares denoting structural remains and triangles isolated finds. Red site codes are undated.

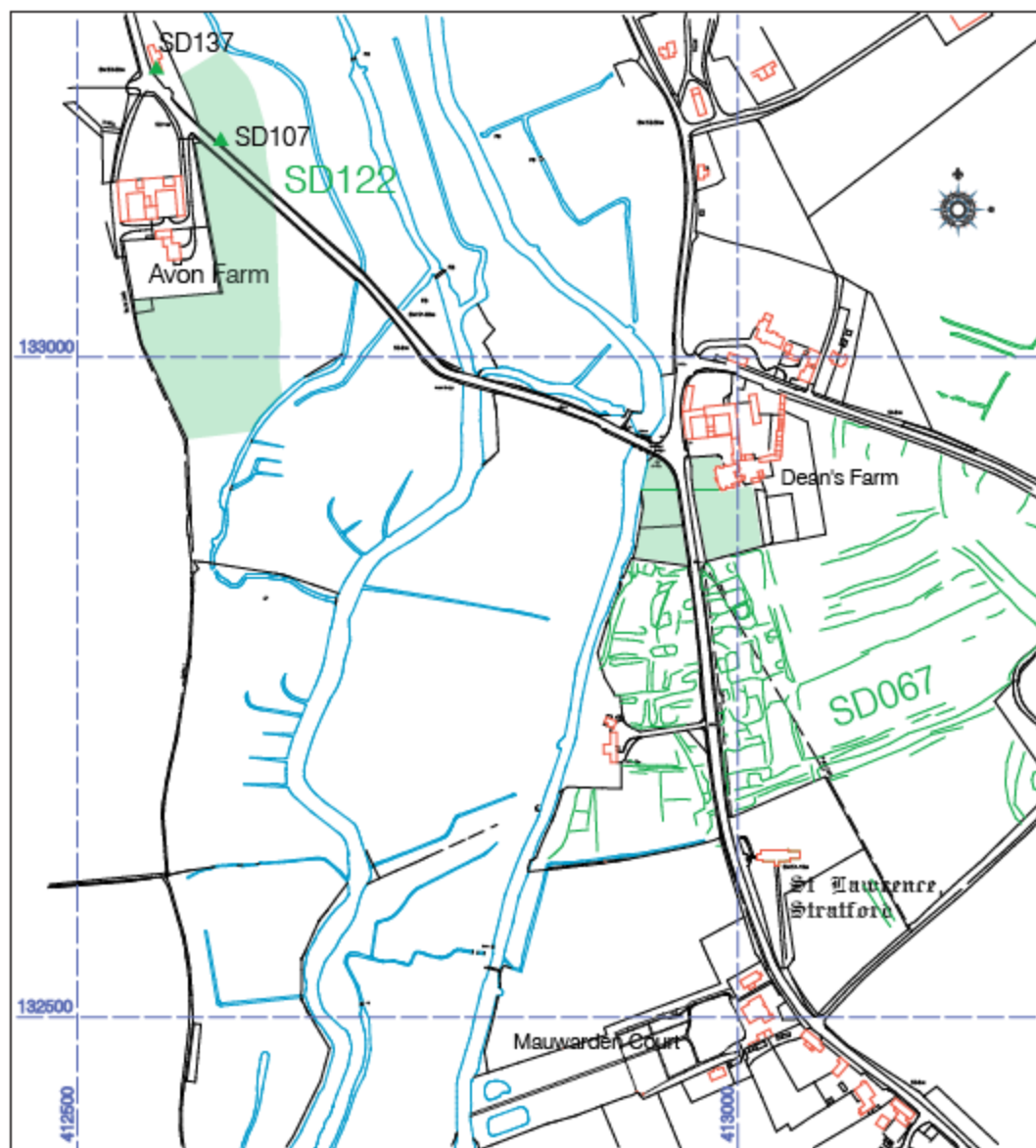


Fig 4.4: The Medieval villages of Afene and Stratford.

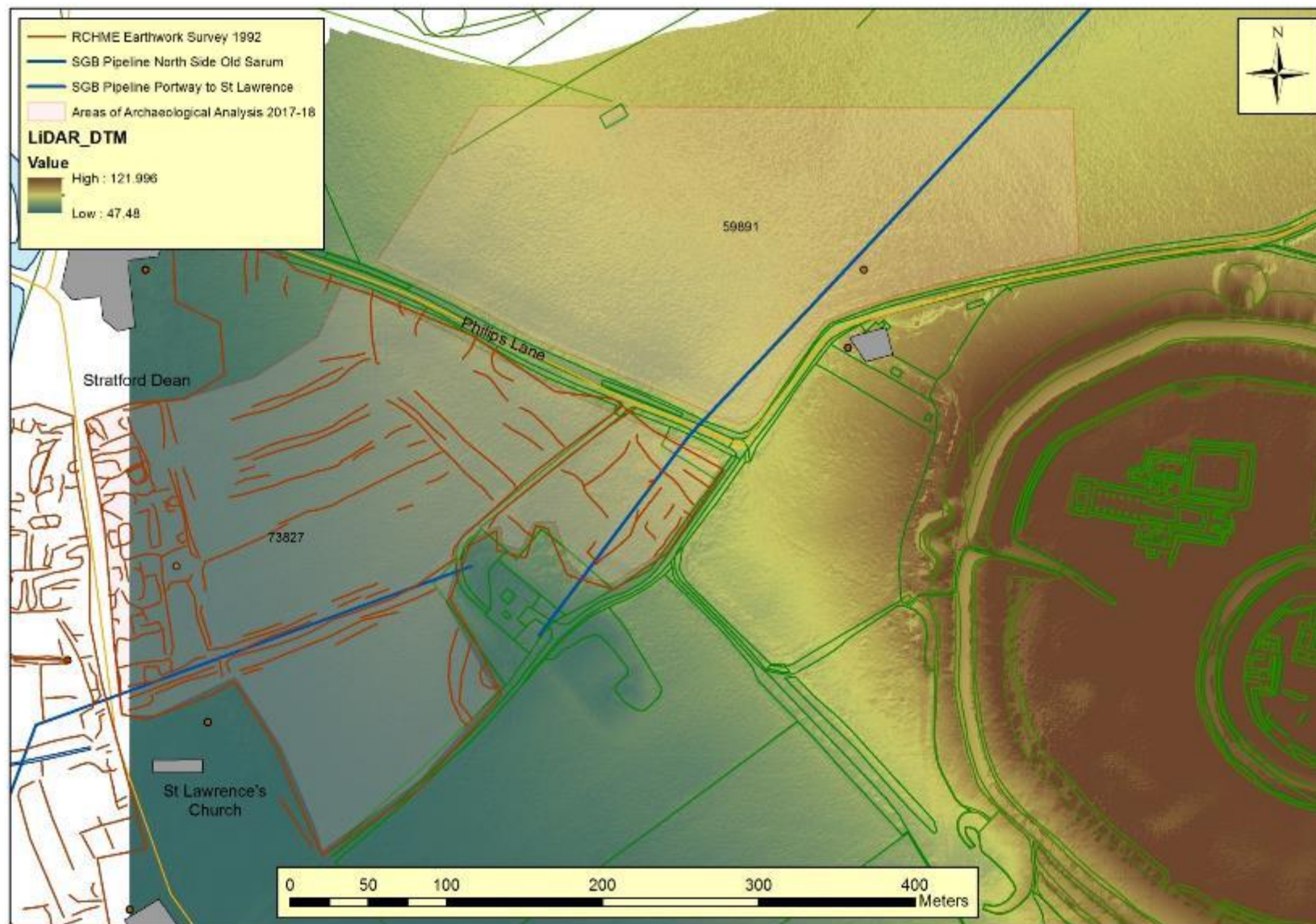
Preliminary Conclusions

- It is apparent from the results that the entire outer bailey was heavily built up in the Middle Ages. Possible evidence of earlier settlement in GPR data
- The plan of the settlement and the nature of some of the structures can be clearly identified. Among these is the presence of large structures abutting the defensive wall of the site, an open area in front of these structures with an urban residential plan surrounding the ditch to the inner bailey.
- A change is recognisable between the outer bailey in general and the area of the cathedral precinct.
- Several later structural features are visible, suggesting small scale settlement of the site in the late medieval period or post-medieval period.
- Outside of the monument curtilage evidence for Romano-British and medieval settlement, building platforms and orthogonal town planning near eastern entrance
- Clearly there remains much more work to do in terms of non-intrusive survey within Old Sarum itself, and in the surrounding hinterland.

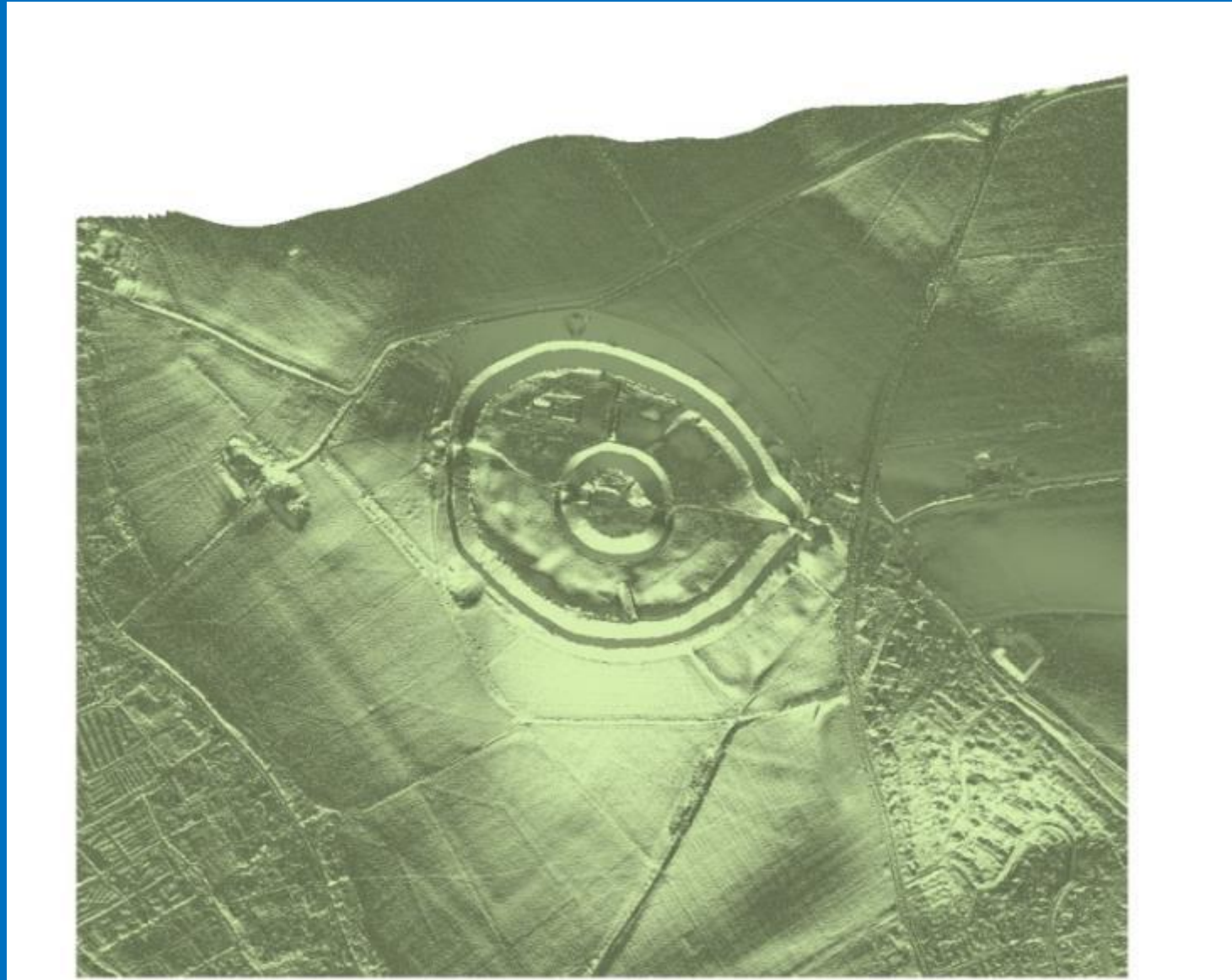
Future Work

- Plan to continue survey to extend over the hinterland of old Sarum and Stratford Sub-Castle, with geophysics, fieldwalking, laser scanning and possible excavation
- Phase of desk-based and archive assessment to incorporate material
- Project collaboration between Universities of Southampton, Swansea and local community
- Involvement of history department at University of Southampton for integration of historical records with the archaeological evidence





LIDAR data



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Acknowledgements

Considerable advice and assistance was received from a number of sources in the completion of this survey. Primarily, thanks go to English Heritage and the inspector of ancient monuments, Mr Phil McMahon, for support in the drafting of the project document and application for Section 42 licence. Warm thanks are also extended to Dr Heather Sebire the Property Curator for English Heritage in supporting the fieldwork and offering advice and assistance, and to Ms Cameron Moffett the collections curator at English Heritage. The continued assistance and collaboration with Wiltshire County Council Archaeology Service is also recognised, and special thanks are owed to Ms Clare King the assistant county archaeologist.

The authors are also particularly grateful to Bill Moffett and the Friends of Old Sarum for their input and support for the geophysical research programme.

Finally, whilst this survey was partly carried out by the authors, its successful completion would have been impossible without the hard work of the survey team. Warm thanks are extended to all of the students, both undergraduate and postgraduate, that attended the survey.

Thank you to everyone who has helped so far:

Naomi Matthews and her English Heritage staff at Old Sarum

Heather Sebire, Phil McMahon, Hugh Beamish

Clare King, Wiltshire County Council

Abigail Coppins at English Heritage

Adrian Green and Louise Tunnard at Salisbury Museum.

Heather & Jim Platt in Stratford Sub Castle

Alex Langlands and Bill Moffat.

All the tenant farmers and landowners who have allowed survey to be done on their land.

Staff and students in the Archaeology Department, University of Southampton.

The Old Sarum Landscapes Project:

On Facebook: <https://www.facebook.com/SarumLandscapes/>

On Twitter: <https://twitter.com/SarumLandscapes>

On Instagram: <https://www.instagram.com/sarumlandscapes/>

Website: <http://generic.wordpress.soton.ac.uk/oldsarum/>

(Due live soon)

