

# Secrets Beneath the Surface: Using Today's Technology to Discover Vulci's Past



BASS CONNECTIONS

Katherine McCusker<sup>1</sup>, Maurizio Forte, PhD<sup>2</sup>

<sup>1</sup>Art, Art History and Visual Studies, PhD Candidate

<sup>2</sup>Departments of AAHVS and Classical Studies

"Smart Archaeology"

Bass Connections in Information, Society & Culture

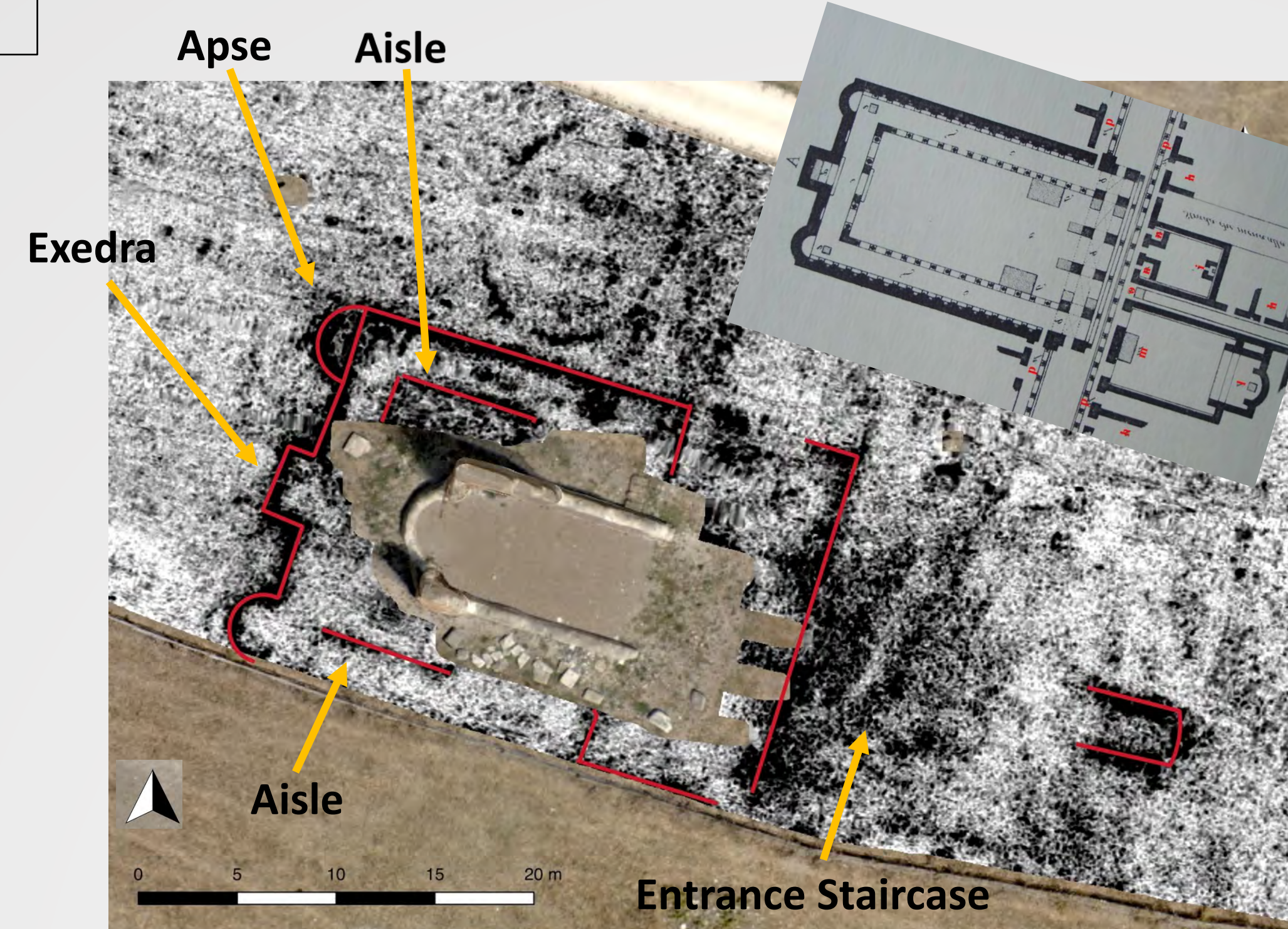
## The Project

This project, from the Bass Connections team "Smart Archaeology," shows the results of targeted excavation at the Etruscan-Roman site of Vulci (Viterbo, Italy) as well as additional wide-spread remote sensing surveys for higher resolution data. Previous Bass Connections projects provided the base off of which this project launched.



## Spatial Analysis

The layering of previous remote sensing data, historical data, excavation information and new GPR data, details about the layout and development of the urban space of Vulci have begun to emerge. Below details several of the most prominent conclusions from our spatial analysis.



**Structure Discovered:** 'Basilica', a large porticoed space that fulfilled a public function

**Date:** Roman, likely between the 1<sup>st</sup> c. BCE and 1<sup>st</sup> c. CE

**Attributes:**

- Two small apses with a rectangular exedra between them on the western side
- Two aisles dividing the interior space
- Entrance staircase on the eastern side

**Comparison:** Augusteum (c. 62 CE) from Roman city of Herculaneum (plan above, Camardo 2014)

## Excavation Update

Part of our Bass Connection team focuses on excavation and field surveys of the archaeological site of Vulci. Thanks to previous years of Bass Connection's projects, we were able to choose an excavation location focused on a particular building in the Western Forum area of Vulci's urban center. The team has uncovered an Augustan-age building (pictured below) with an Etruscan cistern hidden underneath the travertine floor.



Above is an aerial view of the excavation site at the end of the 2018 field season. The pictures show the top of the cistern (above right) and the view from the inside at the bottom (6 meters down)



## Ground Penetrating Radar (GPR) Survey

During the summer of 2018, we worked in conjunction with a specialized GPR team from the Ludwig Boltzmann Institute of Archaeological Prospection and Virtual Archaeology in Austria to complete a resistivity survey as well as collect new GPR data.



Left is a map illustrating the area of the archaeological park that were covered by the various technologies and frequencies. Our surveys remain focused on the center of city, a hub for public and private life in ancient times.

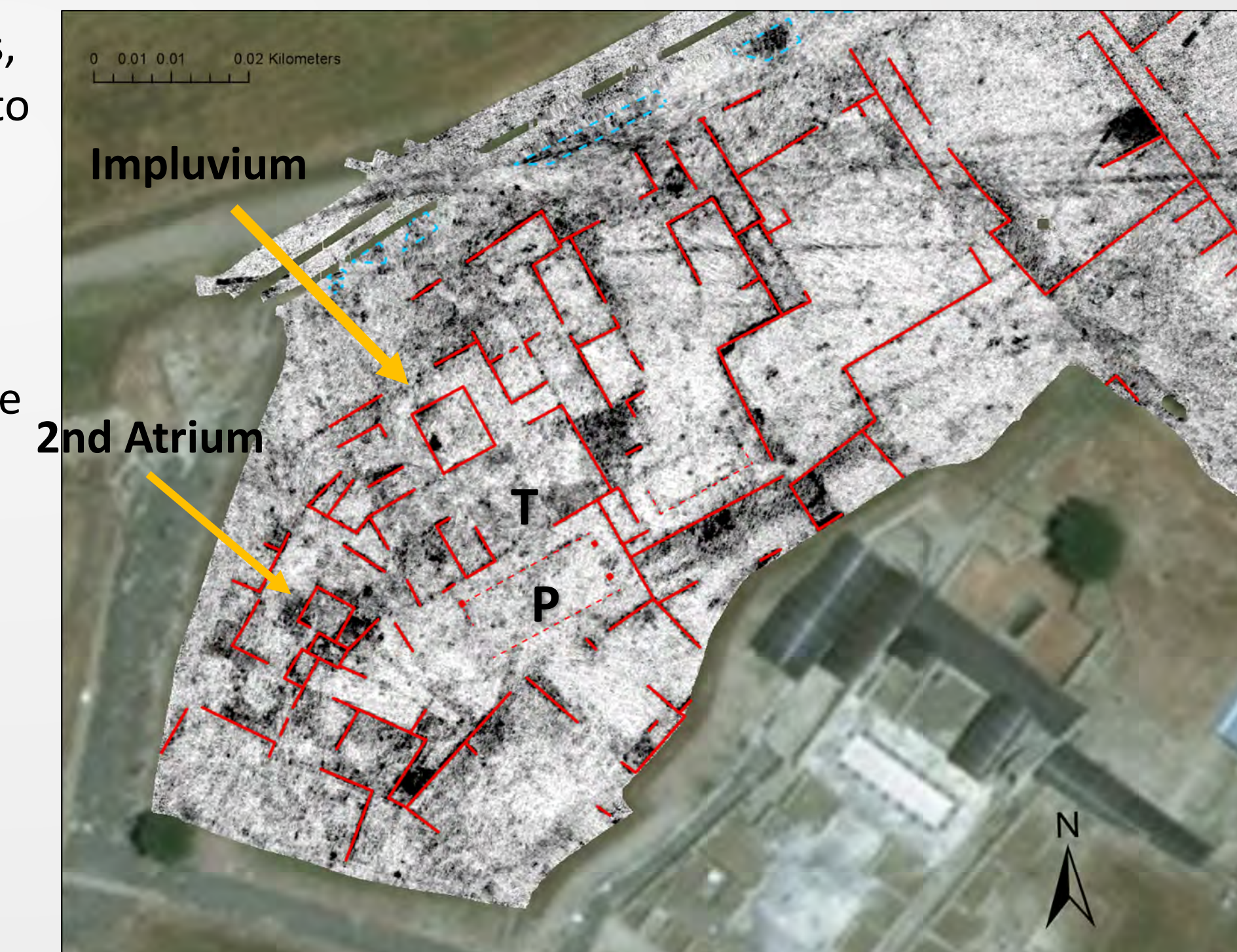
**Structure Discovered:** Domestic structures, which began as two but were later joined to become one domus

**Date:** 2<sup>nd</sup> c. BCE — the 2<sup>nd</sup> c. CE

**Attributes:**

- Prime Real Estate- located along main decumanus (road) between Great Temple and the wealthy Roman House of Cryptoportico
- Two atriums with Impluviums (sunken square pools in open-aired courtyards)
  - Southern atrium renovated into additional rooms, signaling the two buildings becoming one domus
- Surrounding cubicula (square rooms) around the atrium
- Tablinum (letter T), office of *paterfamilias*
- Peristyle courtyard (letter P)

**Comparison:** House of Cryptoporticus, the neighboring structure to the east which also had two atriums with one renovated to become more rooms after becoming one domus



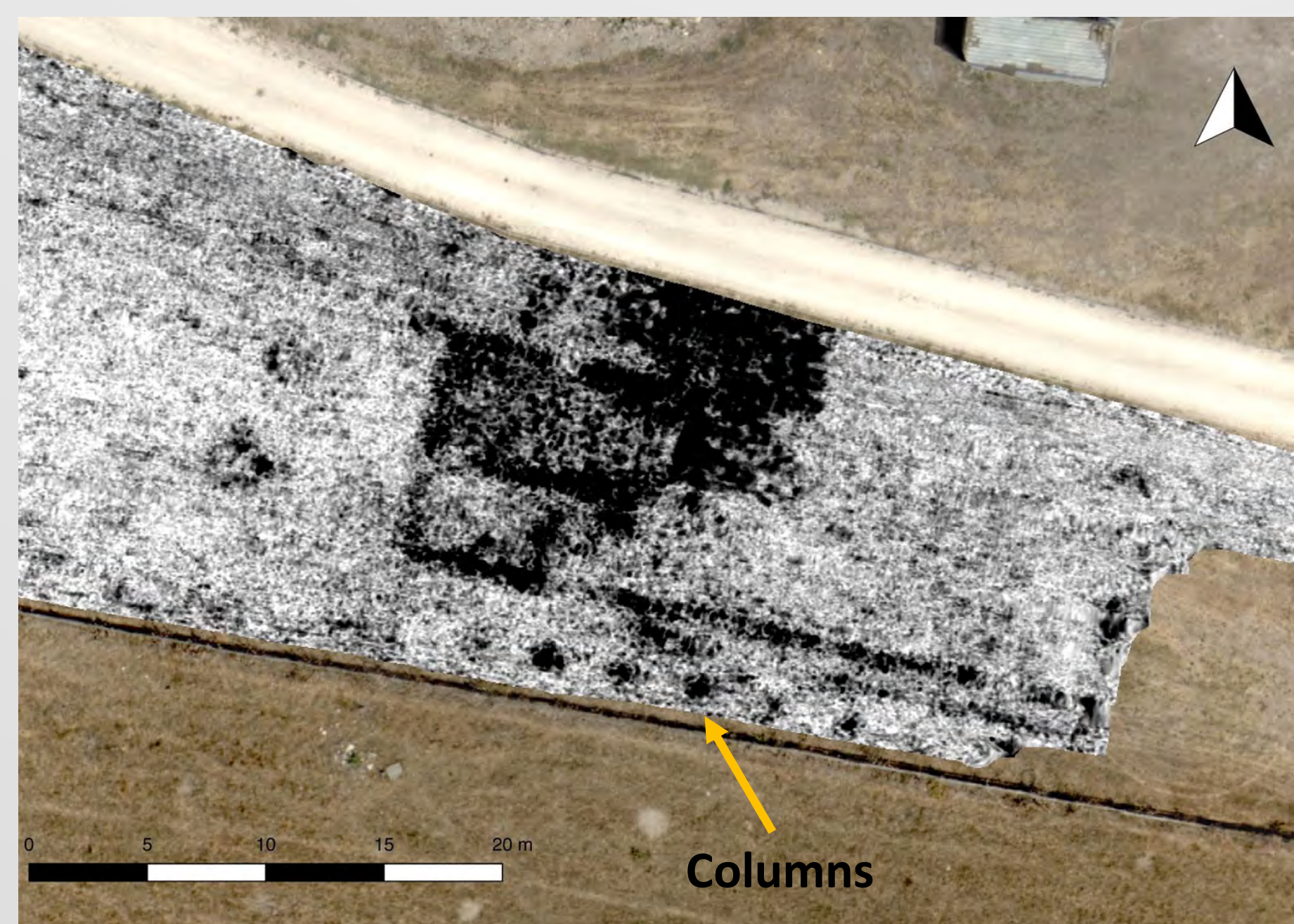
**Conclusions:** This new information paints a picture of a quarter of wealthy domestic structures aligned to the pre-existing Etruscan street network

## What is GPR?

Ground Penetrating Radar (aka GPR) is a technology which sends pulses of radar energy into the ground. This signal is reflected by dense materials to a receiving antenna, which records the elapsed time and strength of the returning signal. Results vary based on frequency and geology.



Pictured above is the 16-channel 400 MHz MALA Imaging Radar Array, onsite at Vulci, used to collect the new GPR data.



**Structure Discovered:** Row of columns connected to a larger structure, part of which is still undiscovered

**Date:** Unknown

**Attributes:**

- Row of five to six columns
- Double wall to north side of columns
- Several rectangular features, either rooms or platforms to northwest

**Conclusions:** Inconclusive, further exploration of field to the south is needed to provide a full interpretation of the building

## Future Research

During Summer 2019, the Vulci 3000 team returns to the field to continue excavation. This year the team will be utilizing a new archaeorobot (below left) and drone sensors (below right), which will scan and map additional areas of the site. Thanks to a Student Continuing Research Grant from Bass Connections, this summer I will be doing a more detailed analysis of our growing volume of geospatial data using a specialized computer program, Pix 4D.

