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FONDACIJA TEMPUS

Mapping archaelogical sites

PART OF ARCHAELOGOCAL RECONNAISSANCE

НАРОДНИ МУЗЕЈ ЗАЈЕЧАР

PREPARATION FOR THE ARCHAELOGICAL EXPLORATION

- includes preparatory work:

1. A review of the known literature
2. Getting to know the terrain by using the non-invasive method of archaelogical review (archaelogical reconnaissance)
3. Geophysical exploration

REVIEW OF THE KNOWN LITERATURE

- In case the literature about the site exists (or any other kind of notes, drawings, sketches, plans, photographs and similar)

GETTING TO KNOW THE TERRAIN BY NON-INVASIVE METHOD OF ARCHAELOGICAL REVIEW

- reconnaissance by touring the terrain
- Photogrametric modeling;
- 3D laser scanning (earthly laser scanning / LIDAR)

Reconnaissance by touring the terrain

- Collecting the superficial material and locating visible structures, data recording, entering discovered structures and/or and collected artefacts in a coordinated grid, taking pictures.

  If a bigger number of structures which spread over a wider area is spotted, we will get a better picture of them by their mapping. Field mapping is very helpful when it comes to planning future archaelogical campaigns, and such an approach to the making plans is particularly important on areas of very dense vegetation.

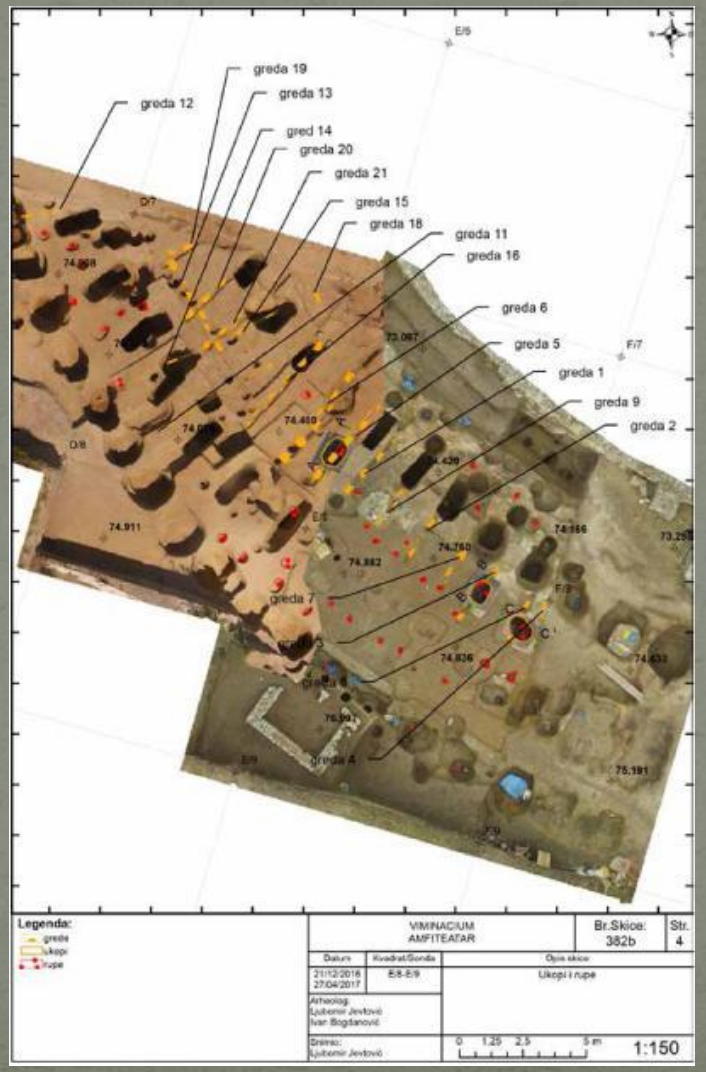
PHOTOGRAMETRIC MODELING

PHOTOGRAMETRY – the method for method of representing and dimensioning 3D objects using data from 2D photographs / reconstructing the position and shape of the captured object (or details) based on photographs, without direct contact with the object

photogrammetric measurement includes measurement planning, marking of objects with marks (markers), photography, measurement based on photos, photo processing to obtain 3D coordinate points and analysis of results

- After recording the object, modeling is accessed in a suitable program (e.g. Agisoft PhotoScan); we get a cloud of points that build the primary model, which is then optimized in 3ds max. Computer manipulation of the three-dimensional model allows us to see the structures on the site in relation to each other without the dense vegetation to get in the way, which gives a clear picture of the terrain.

Viminacium –amphitheater 1

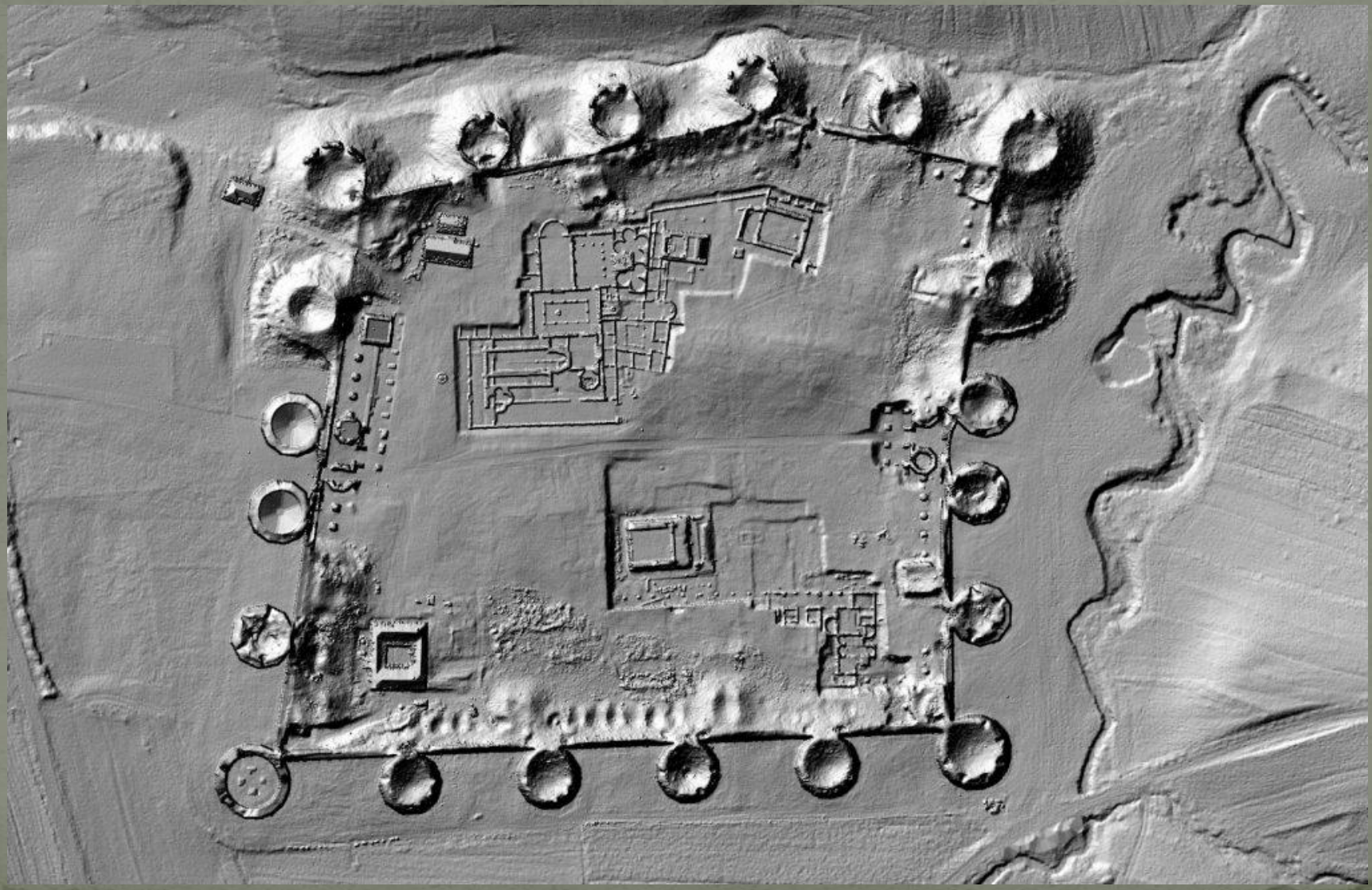


Viminacium –amphitheater 2

3D LASER SCANNING
(terrestrial laser scanning / LIDAR)

New generation technology. It involves the collection of a large amount of data (up to a million points per second) and thus provides a high-quality display of the observed object. Terrestrial laser scanning has an extremely wide application in: architecture, 3D modeling, construction, protection of cultural monuments, industry, calculation of quantities in mines/quarries, etc.

LIDAR: FELIX ROMULIANA



GEOPHYSICAL EXPLORATION

On site whose location is already known or assumed because it requires a lot of time. The main purpose: to detect anomalies in the terrain that may originate from human activity.

Geophysical surveying relies on two classes of instruments:

1. Ohm meters (resistance meters) - determine the resistance of the toast when passing an electric current
2. Magnetometers - measure variations in the magnetic properties of toast

Metal detectors, radars, sonars (echo sonars and sonar scanners - underwater archeology) are also used for geophysical research... Most types of metal detectors register at a shallow depth, archaeologists use them to determine the position of scattered metal objects, e.g. hoards of Roman coins scattered when ploughing.