

Museu Monográfico de Conímbriga
ALA internship report
Tracing Forma Urbis Conimbrigae_Synthesis Mapping

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Objective

General goal of this project is to represent the urban fabric of Conimbriga, through synthesis mapping by the assembly of the existing archaeological excavation data and data from remote sensing. This synthesis cartography makes it possible to integrate existing elements and to identify the articulation of the urban fabric. In order to succeed this, the first steps were to consult the available literature at the library, archive and data center of the Museu Nacional de Conimbriga and combine all the given data in a comprehensive map. Moreover, we worked on the extension of the existing digital archaeological grid in order to identify precise location of each structure. In the end, the final product is a map representing the urban form of the city (Forma Urbis Conimbrigae) together with the database on the identified urban elements. This project is an intelligible interpretation according to our architectural and archaeological knowledge, not based only on tangible information, but rather on the synthesis and comparison of existing data with our general knowledge about the roman world.

Introduction

Conimbriga is the most excavated and studied roman site in Portugal. It is located in the central part of the country, in municipality of Condeixa-a-Nova, which formerly belonged to the Roman province of Lusitania. Nowadays it's a walled archaeological site, representing the rich history of the territory in its correlation with the natural environment, illustrating how the archaeological heritage has been used on the urban, social, cultural, and economic levels.

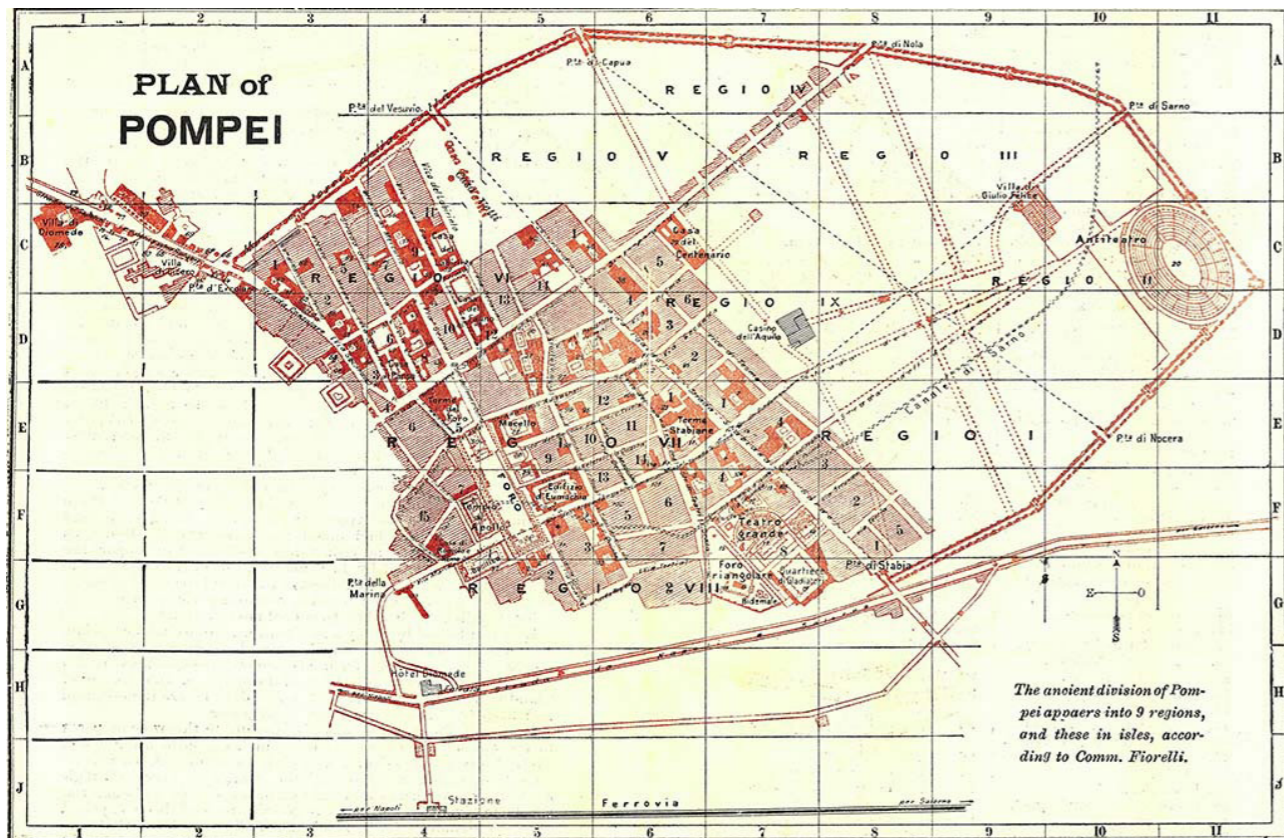
Conimbriga was already a developed settlement when the Romans arrived there in 139 BC as a result of Junius Brutus' military expedition. At the time when Romans arrived in the area of Conimbriga, due to the military campaign of Junius Brutus in 139BC, the area was already a developed settlement. This territory was populated since the Late Bronze Age 12th to 9th Century BC. During the reign of Augustus, area of circa 20 ha is being enclosed by the wall. Later in the 3rd century urban perimeter is being reduced with the new wall, that was namely built for the protection from the Barbarians (Comunidade Intermunicipal de Região de Coimbra, 2021). Based on the data it's believed that population of Conimbriga was between 5000 and 6000 in Augustan period. Interest for the excavation in the area of Conimbriga dates back to 1873. The first big excavation was carried out in 1899. Most important excavations were carried out in the period between 1930-1944 and 1964-1971. 1930s excavations were carried out by Virgílio Correia, when the area outside the wall was excavated. In the excavation between 1964-1971 forum and insulas next to it were discovered, together with the baths dating to the period of Trajan. This excavation was carried out by the local museum and French archaeologists from University of Bordeaux (Alarcão J. , 1987). Currently there are ongoing small excavations, being carried out by Museu Monografico de Conimbriga. Despite the existence of an earlier Iron Age fortification, an oppidum, and later medieval city, the archaeological excavations focused mainly on the Roman period. Currently only around 17% of the area is excavated (Correia V. H, 2018), which gives us insight on the urban fabric of the city, mainly during the Flavian period. The discovery of monumental structures gives a better insight on the layout of the city, where forum, baths and amphitheatre stand out. Excavations uncovered several important Domus located in the vicinity of the late imperial wall, which partially destroyed them.

URBAN FABRIC

“Conimbriga is, hence, a prime site to understand how various types of domestic buildings play a specific role in an urban fabric, and how these types represent (or not) specific moments in time, in the evolution of a town which appears to be an atypical example in the province and in the western Empire as a whole.”
(Correia V. H, 2018)

Rome became a model for the cities around the Empire. The civitas capitals and provincial towns follow a basic guideline which makes them similar, even if architectural and urban fabric varies based on their own status. The common structure for all cities is the main axis with principal streets Cardo (north-south oriented) and Decumanus (east-west oriented), which create the base grid of the whole city. These streets are predominantly rectilinear, and forum is positioned in their intersection point, which is the main space of the public and social life in any roman city. These streets usually extended outside the town. Unlike the other roman cities, Conimbriga follows partially the layout of the previous settlements.

Aqueduct was important structure in the roman city, abundance of running water is important to supply baths, public fountains and domuses. In Conimbriga, structure for the collection of the spring water is located in Alcabideque, from which a 3.2-kilometer-long aqueduct extends to Conimbriga. The structure is primarily low, it only rises on the arches



Plan of Pompeii. Source: <https://pompeiiinpictures.com/pompeiiinpictures/Maps/maps%20pompeii.html>

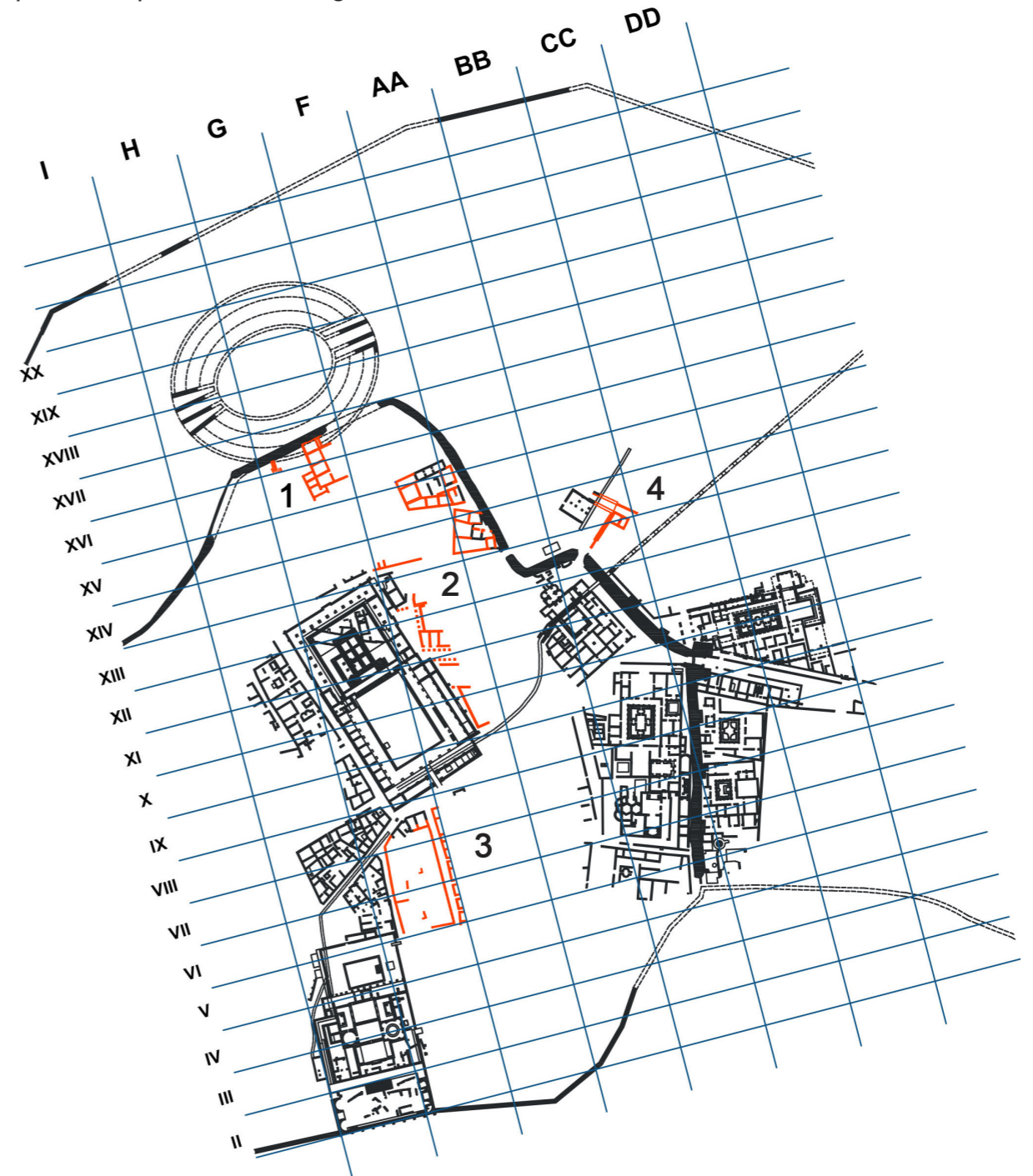
above the valley just before reaching the city of Conimbriga (Comunidade Intermunicipal de Região de Coimbra, 2021).

The Roman city's social life centred significantly on entertainment, which is why amphitheatres, theatres, and public baths were indispensable part of the city planning. Beside public structures, residential architecture represented through domus and insula is the important part of the urban fabric.

The urbanism of roman Conimbriga recognizes 4 different periods: Augustan, Claudio-Neronian, Flavian and Constantinian period. The first recognized urban structures date to the period of Augustus, where parts of the earlier era's houses could still be seen to the north of the forum, confirming the existence of the city's regular layout. Augustus's Forum featured a basilica, curia, and temple. In the same period baths and aqueduct were constructed, beside the forum. As the importance of Conimbriga increased in Flavian period, the city required a larger forum. The new forum was constructed on the remains of the old forum, which had been destroyed. The same thing happened with the baths, which were demolished to make room for a larger, newly constructed, which were erected later, during the reign of Trajan (Alarcão J. , 1987). These changes affected the shift in the basic grid of the city's urban layout.

**Synthesis of excavated data
and update of the existing map**

Simultaneously through the process of the work, in the consultation with the documents at the museum and through the site visits, we realized that existing archaeological map of the site lacks information. One of the important steps for the development of our map was to update the existing base.



1 Building in the sector G, XVI-XVII, excavation by Virgílio Hipólito Correia, 2018, source: Correia, V. H. (2019). Desenvolvimento das escavações arqueológicas em Conímbriga (DEARCON, 2012–2018): apreciação sumária dos trabalhos e resultados. Revista Portuguesa de Arqueologia – volume 22 , 167-178.

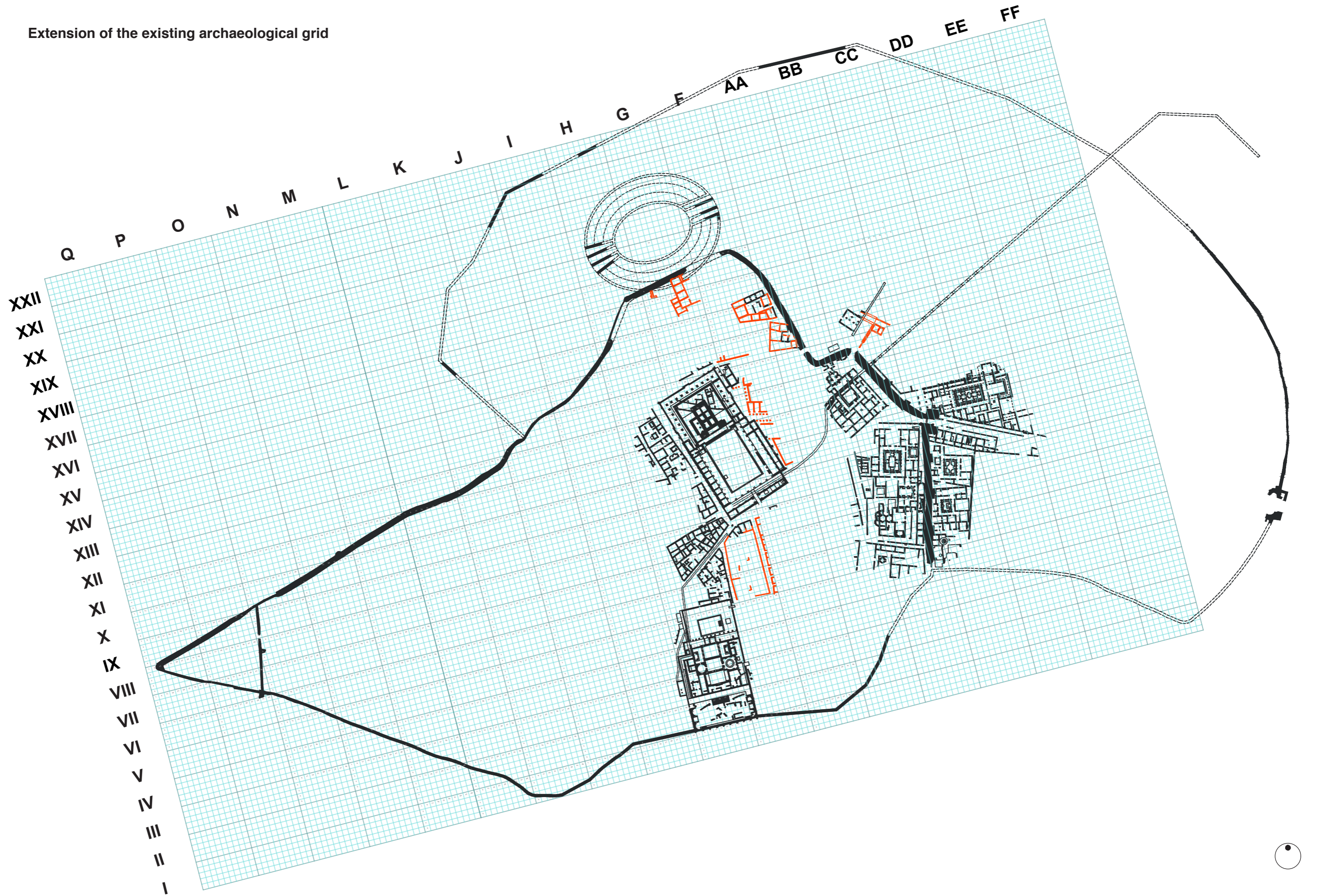
2 Buildings in the sector F-AA, X-XVI, source: Virgílio Hipólito Correia e Pedro Alarcão (2006)

3 Casa de Andercus and linear tabernae in the sector G, VI-VIII, source: Robert, E., & Alarcão, J. (1977). Fouilles de Conímbriga, L'architecture. Paris., PLANCHE LIX

4 Building next to the viaduct in the sector BB, XIII-XIV, source: archaeological drawing survey on site, as part of the internship programme, done by ALA students

2

Extension of the existing archaeological grid



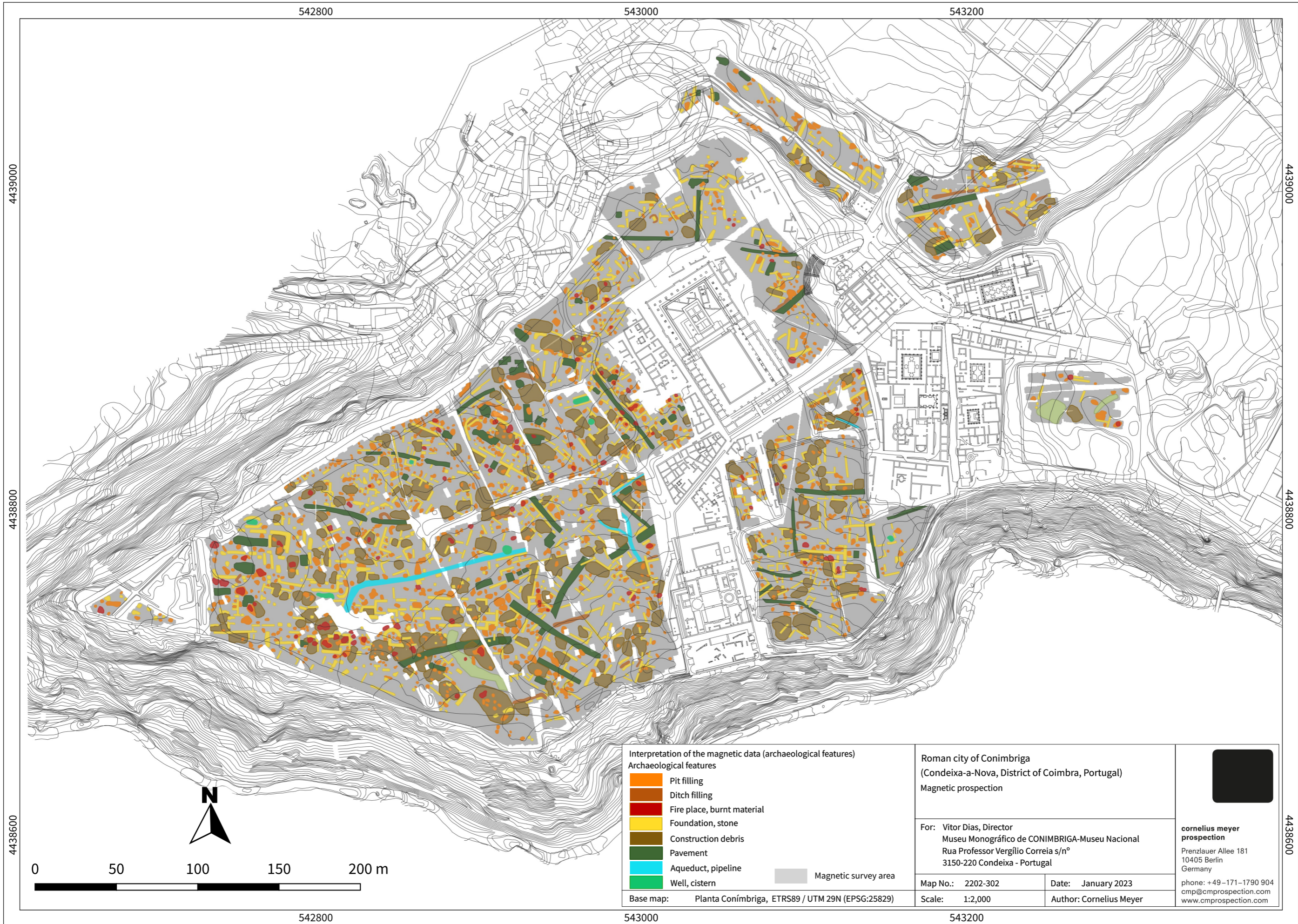
Methology of the representation of Forma Urbis Conimbrigae

Assembling cartographic instruments representing excavated monuments and data from remote sensing enabled the creation of a comprehensive representation of the urban form of the town (Forma Urbis Conimbrigae). An essential step before the assembly of these data was the comprehension of the evolution of the grid system of the different roman periods of Conimbriga, which is concluded by the already excavated areas. Then the geophysical campaign data were processed and, hence, a synthesis map was formed. This cartography makes it possible to integrate existing elements and to identify the structure of the Roman city; the interpretation of the roman structure of the city allows the understanding of the processes of urban morphology.

Conimbriga seems to have two different grid systems. The initial grid system has its origin in the pre-roman occupation. Intensified vestiges confirm a settlement with an irregular trace and following a dominant northwest-southwest direction. The urban programme that is applied during Augustan Era (1st century BC) implies the construction of new buildings and urban equipment according to the conqueror's taste, but at the same time, it respects in a great part the indigenous pre-existing structures keeping the pre-existing grid as well. During Claudio-Neronian era there was no significant alteration of the grid. However, during Flavian period the urban fabric is alternated, hence, along with the demolition of the pre-roman structures a new grid system is introduced. This is mainly an orthogonal network around the forum area. Due to the existence of the two different grids the city was continuously solving the transition between the two of them. (Alarcão, 2011)

In summer of 2022, the Berlin-based company cmp in cooperation with SOT Prospecció Arqueològica, Barcelona (Spain), realized the first large-scale geophysical prospection campaign in Conimbriga. The maps in which this survey resulted, are an initial translation of the diffused geophysical data into a comprehensive archaeological map, which was further developed during the present project.

When studying the geophysical survey, one can point out different groups of elements, each one belonging to the two different grid systems. Apart from them, there are group of elements which seem to have unruly directions. Combining research data of the archaeological remains and the geophysical data, we can interpret the two different grid systems: the grid following northwest-southwest direction, which corresponds to Augustan and Claudio-Neronian period and the grid following northeast-southeast direction, which corresponds to Flavian and Constantinian period. Moreover, there are irregular oriented group of elements, which, however, seem to follow a radial turning that could correspond to a transition between the two urban fabrics. Elements not corresponding to any of these grid systems can possibly belong to pre or post roman eras (indigenous structures, medieval/Moorish era, agricultural and water lines). For a better comprehension of the methodology of the identification of the different grid systems, the area north of the forum is more explicitly analyzed in the diagrams below.



Interpretation of the magnetic data (archaeological features)
Archaeological features

- Pit filling
- Ditch filling
- Fire place, burnt material
- Foundation, stone
- Construction debris
- Pavement
- Aqueduct, pipeline
- Well, cistern

Magnetic survey area

Base map: Planta Conímbriga, ETRS89 / UTM 29N (EPSG:25829)

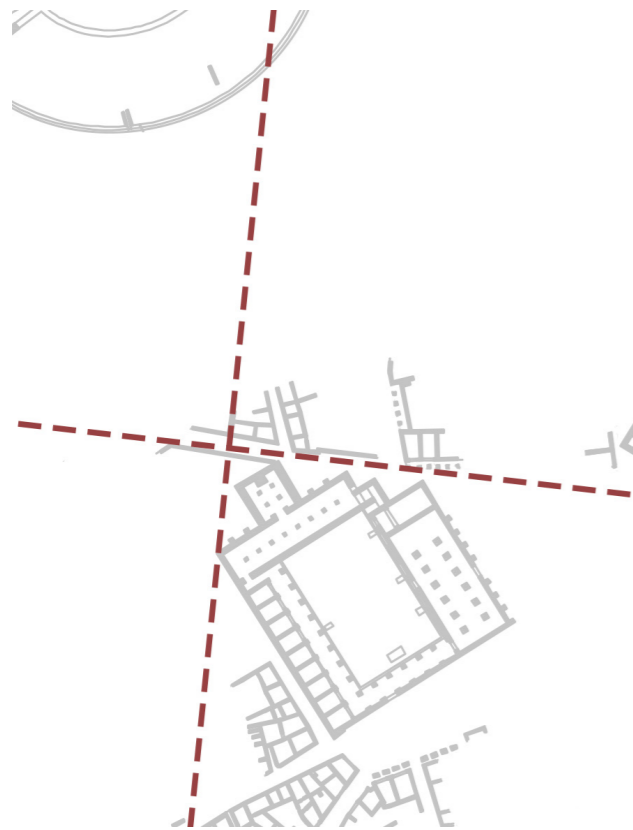
Roman city of Conimbriga
 (Condeixa-a-Nova, District of Coimbra, Portugal)
 Magnetic prospecting

For: Vitor Dias, Director
 Museu Monográfico de CONIMBRIGA-Museu Nacional
 Rua Professor Vergílio Correia s/nº
 3150-220 Condeixa - Portugal

Map No.: 2202-302 Date: January 2023
 Scale: 1:2,000 Author: Cornelius Meyer

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Methodology diagrams_area north of the forum



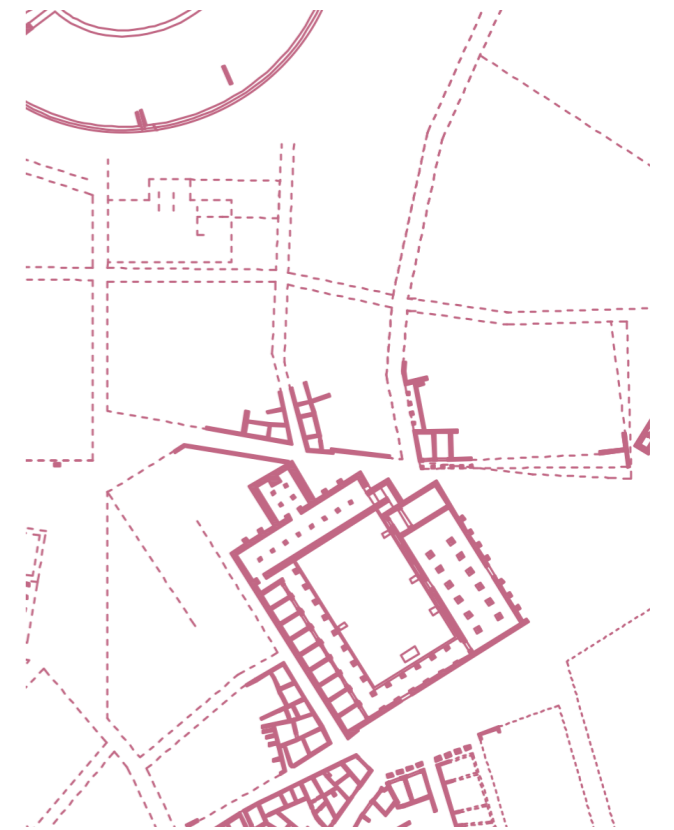
Grid 1
Augustan and Claudio-Neronian Period



Grid 1
Elements from the geophysical survey in yellow and green



Grid 1
Synthesis of the data



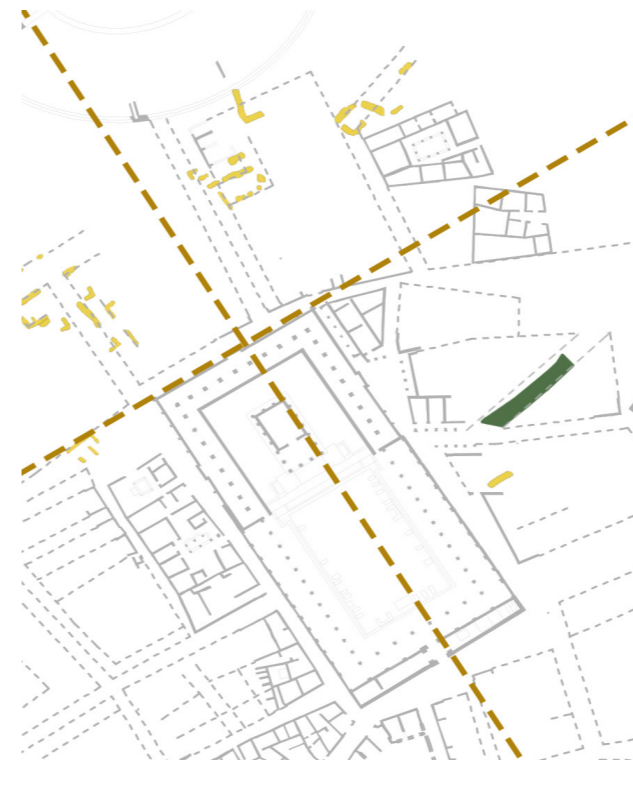
Grid 1
Final map



Grid 2
Flavian and Constantinian Period



Grid 2
Elements from the geophysical survey in yellow and green

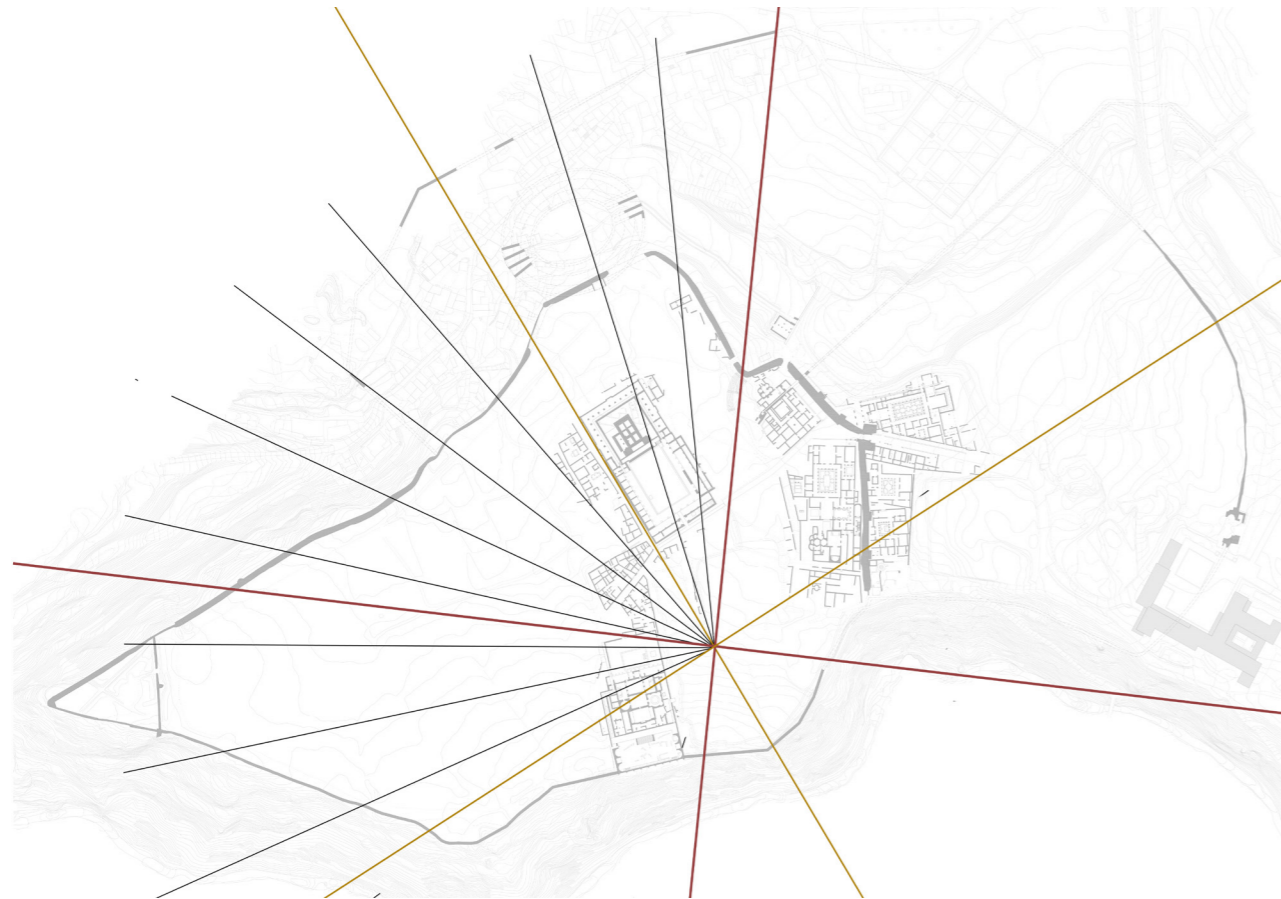


Grid 2
Synthesis of the data

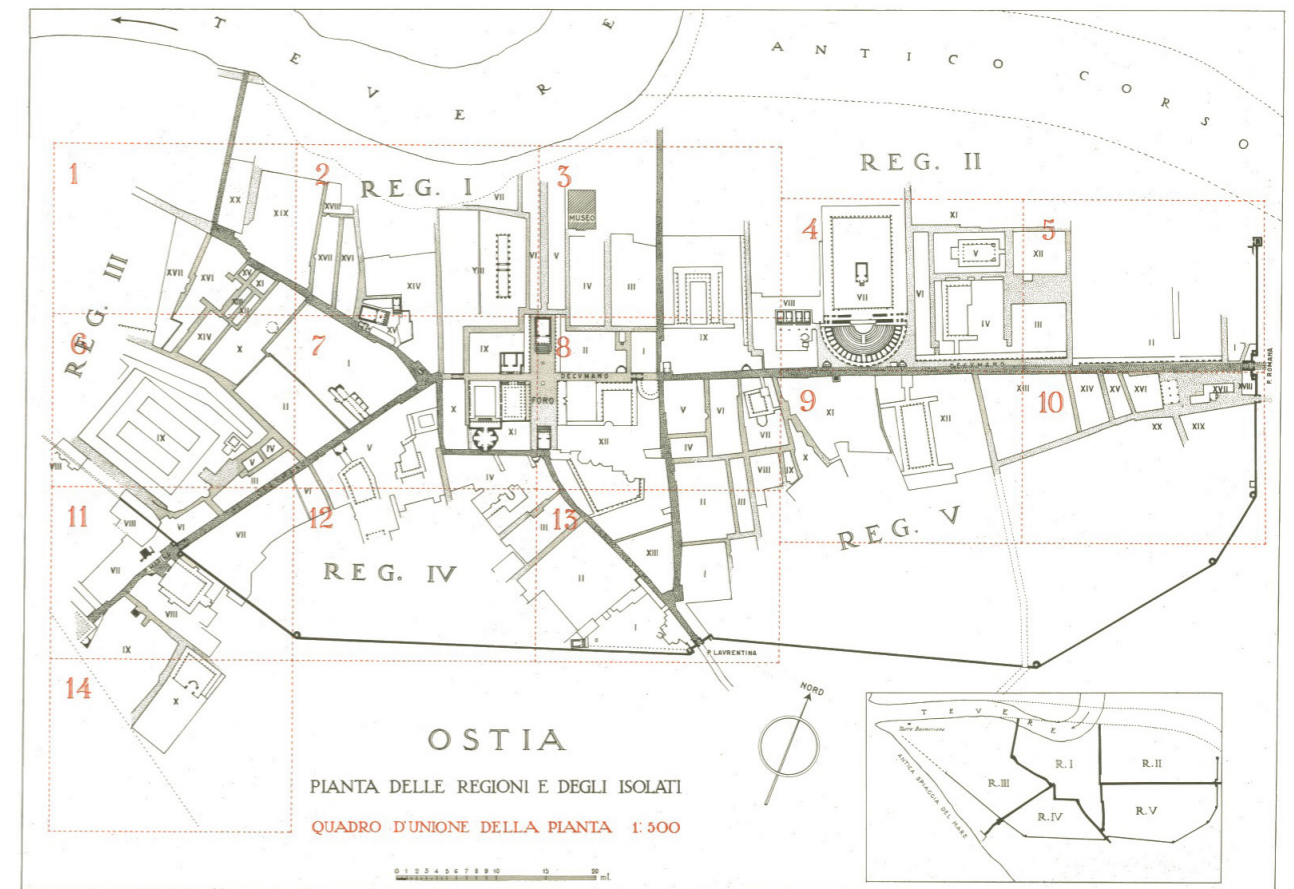


Grid 2
Final map

Diagram of transition from grid 1 to grid 2



Plan of Ostia Antica. Turning of the urban fabric
Source <https://www.ostia-antica.org/map/plans-so.html>



Synthesis mapping

sketches of
work process



As far as the process of work is concerned, firstly, we started to understand the city structure through the street organization, where we realized that the continuous street NS orientation, located west from the baths could have been the border of iron age settlement, since, most of the archaeological findings from that period were found close to the tip.

Then we started understanding the structures inside the city blocks, based on the assumed walls and their orientation, according to the two grids that are referred to in the methodology and representing the city structure for the four different roman periods.

The amphitheatre, based on the excavation of 2018 seems to have slightly different shape, as the radius of its ellipse is different, than it was drawn in the maps of previous scholars. In the following maps, the amphitheatre is drawn with the new outline based on the compilation of the data.

The monumental rectangular structure close to the tip of the wall that we traced could correspond to the important temple of the city, since it is located in a crucial point (the tip) and its size and shape also indicate that. Moreover, other hypothesis is that it was one big public building with the central courtyard and possible shops around.

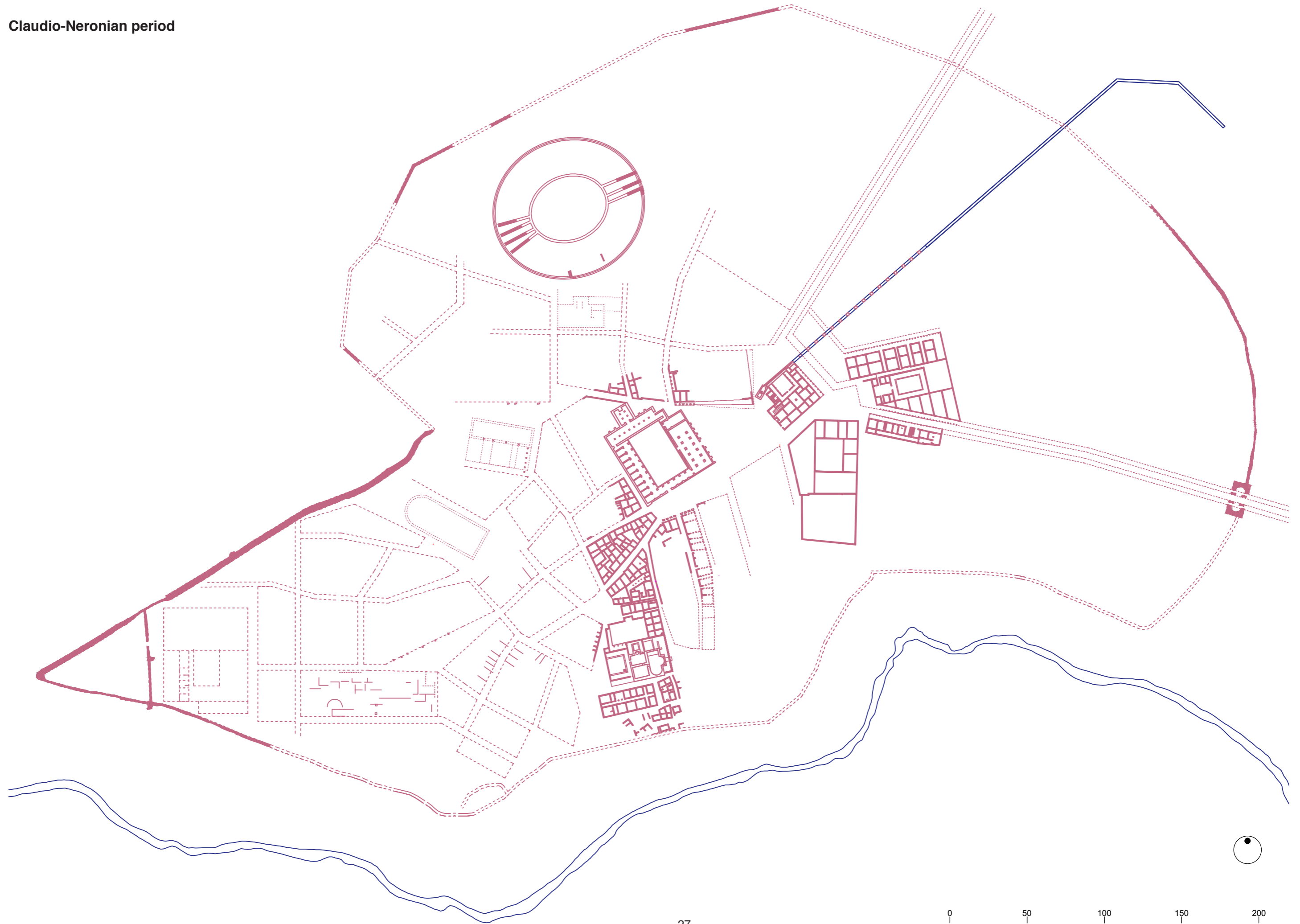
Moreover, it is pointed out that the transition from the grid 1 to the grid 2 is rather obvious in the urban fabric of the east part of the city, from the forum up to the tip of the wall, a fact that validates our initial hypothesis.

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Augustan period



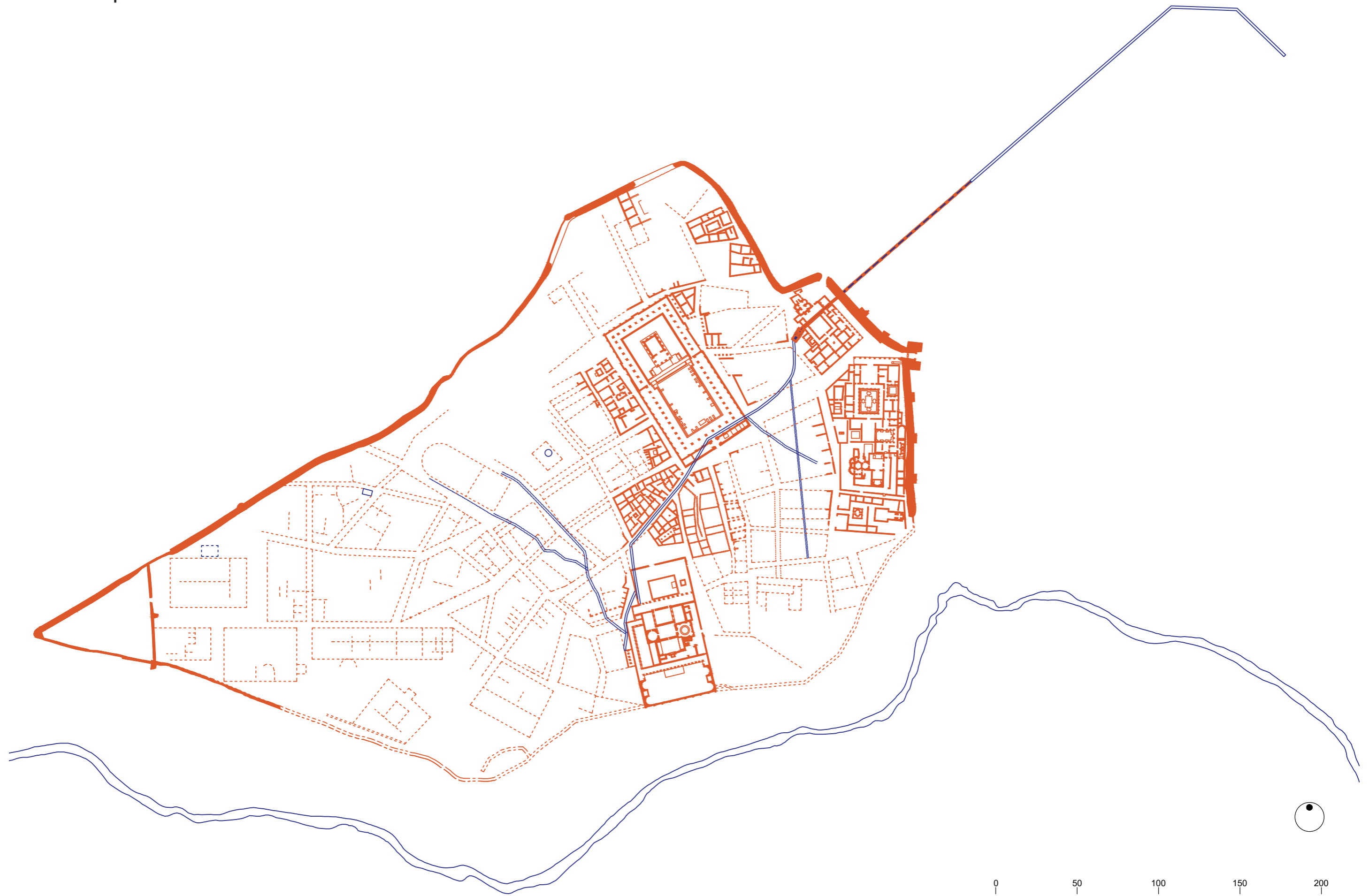
Claudio-Neronian period



Flavian period

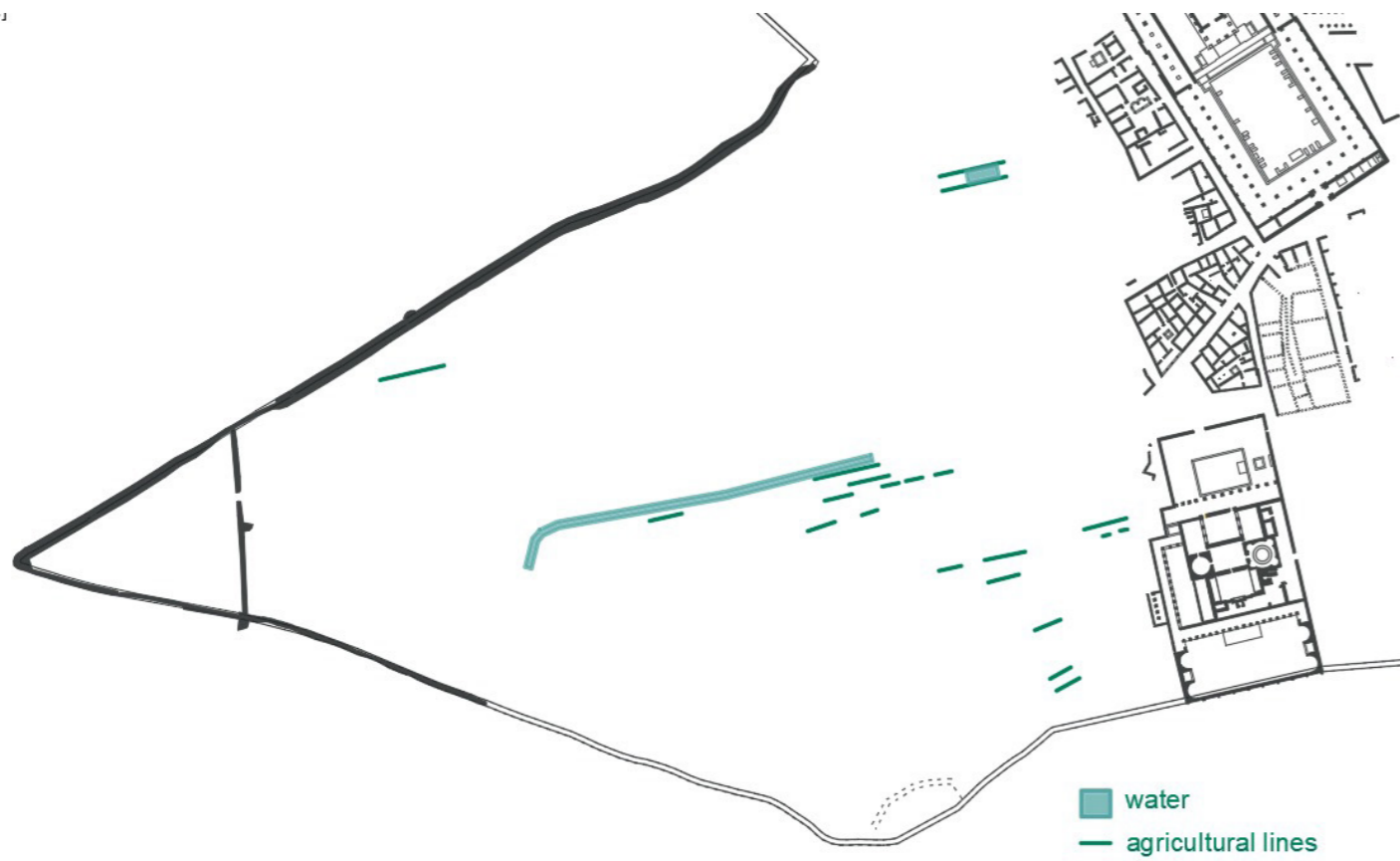


Constantinian period



Water-agricultural lines of post-Roman period

Some of the identified assumed walls that coincide with direction of the assumed water lines can correspond to post-Roman agricultural elements.



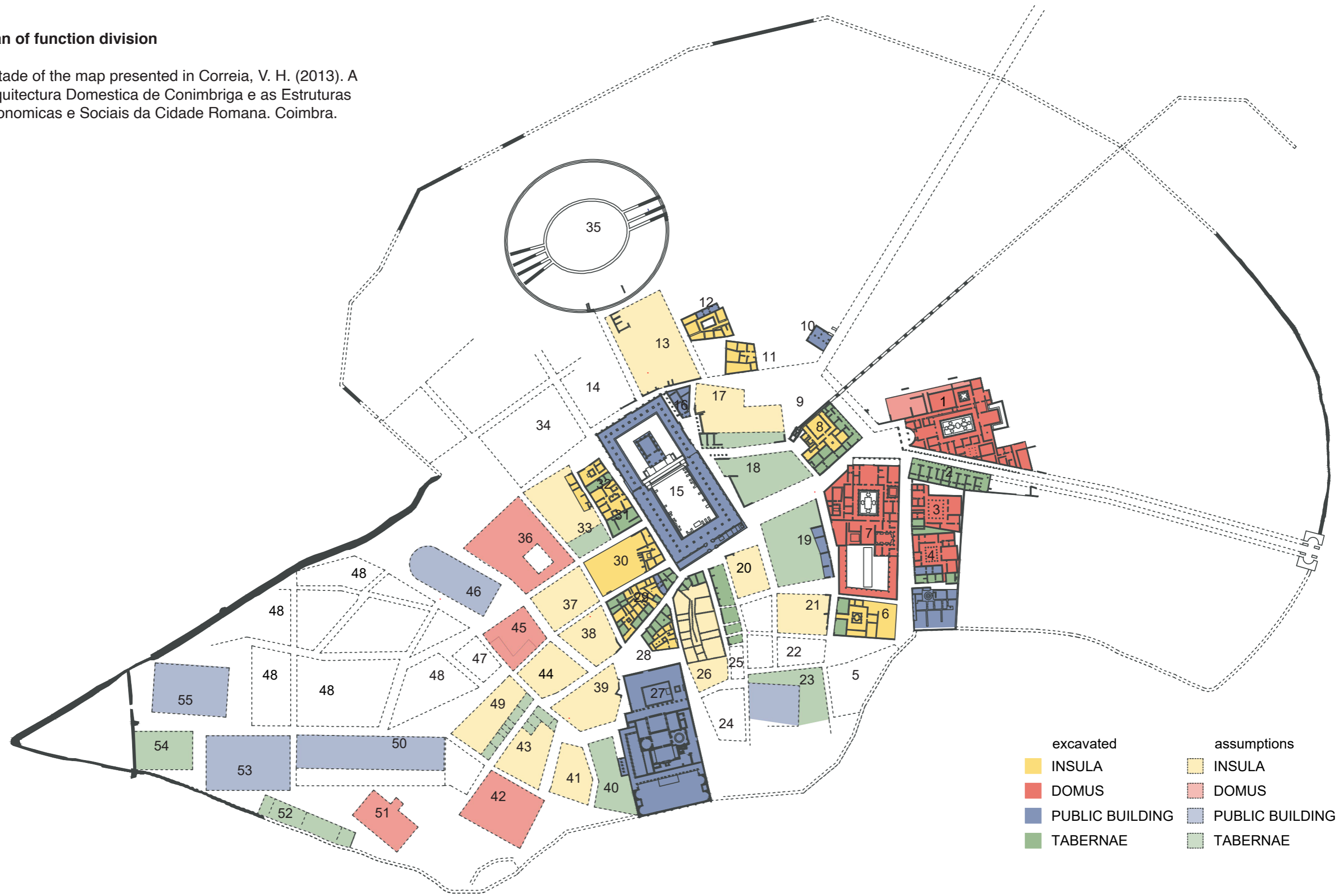
Function division and localisation of the structures

As far as the categorization of the structures is concerned, we divided in three categories: insulae, domus and monumental buildings. This division was made according to the size and the shape of the assumed walls. Structures rectangular type shaped with an obvious courtyard in the middle are characterized as domus, structures covering substantial surface and consisting of thick assumed walls are characterized as monumental buildings. Structures with repetitive parallel assumed wall division are characterized as tabernae/shops. Every other structure is characterized as insula. In the following map monumental buildings are characterized as public as they could be temples, basilicas or workshops (like macellum).

Since the present map represents the assembly of all the previous maps and the available data on the site, the numbering system that we used is newly created. The old one does not constitute a unified numbering system and it only includes residential excavated or partially excavated areas. The present numbering system represents a logical numbering order of excavated, partially excavated and traced/ assumed structures.

Plan of function division

Uptade of the map presented in Correia, V. H. (2013). *A Arquitectura Domestica de Conimbriga e as Estruturas Economicas e Sociais da Cidade Romana. Coimbra.*



excavated	assumptions
■ INSULA	■ INSULA
■ DOMUS	■ DOMUS
■ PUBLIC BUILDING	■ PUBLIC BUILDING
■ TABERNAE	■ TABERNAE



Database of the structures

Serial Number	Name	Location	Identification Method	Cross reference number
1	Domus of the fountains	zone A	Excavated	24
2	Shops along the street	zone B	Excavated	25
3	Domus of Cruz Svastiga	zone B	Excavated	26
4	House of the skeletons	zone B	Excavated	27
5	Domus AA, IV	AA, IV	Geophysics	
6	Domus of Tancinus	zone C	Excavated	23
7	Domus of Cantaber	zone C	Excavated	22
8	Baths of the aqueduct	zone D	Excavated	
9	Insula of the aqueduct	AA, XII	Excavated	21
10	Building with pillars at the viaduct	AA, XIV	Excavated	9
11	Building of the Sun Gate	F-AA, XV-XVI	Excavated	7
12	Domus of the trident and the sword	zone E	Excavated	6
13	Insula G-F, XIV-XVI	G-F, XIV-XVI	Partially excavated/geophysics	4
14	Insula H-G, XIV-XVI	H-G, XIV-XVI	Partially excavated/geophysics	4
15	Forum	H-F, IX=XII	Excavated	
16	Toilets of the forum	G-F, XIII- XIV	Excavated	18
17	Building with a portico F-AA, XIII	F-AA, XIII	Geophysics	8
18	Building with a portico F-AA, X-XI	F-AA, X-XI	Geophysics	8
19	Building west of Casa de Cantaber	AA, VII-IX	Incomplete excavation	20
20	Building of Pater Emmanouel	F, VI-VIII	Incomplete excavation	19
21	Insula G-F, XIII- XIV	G-F, XIII- XIV	Geophysics	20
22	Insula F-AA, V-VI	F-AA, V-VI	Geophysics	20
23	Monumental building F-AA, III-V	F-AA, III-V	Geophysics	
24	Insula G, III-V	G, III-V	Geophysics	
25	Linear shops	G-F, V-VIII	Geophysics	20
26	Domus of Andercus	G, V-IX	Excavated	17
27	Baths	H, II-V	Excavated	
28	Insula north of the baths	G - H, VI - VII	Excavated	16
29	Phallic vessel insula	G - H, VIII - IX	Excavated	15
30	Insula west of the forum	G - H, IX-X	Partially excavated	14
31	Domus of Medianum Absidado	H, X-XI	Excavated	13
32	Domus of Valerius Daphinus	H, XI-XII	Incomplete Excavation	12
33	Domus of the Solidi	H, XI-XII	Excavation, Stratigraphy Survey	11
34	Monumental building I-H, XII-XV	I-H, XII-XV	Geophysics	
35	Amphiteater	F-H, XVII-XXI	Partially excavated	
36	Domus J-I, IX-XI	J-I, IX-XI	Geophysics	
37	Insula I-H, VII-IX	I-H, VII-IX	Geophysics	
38	Insula I-H, VI-VIII	I-H, VI-VIII	Geophysics	
39	Insula west of the baths	I-H, V-VI	Partially excavated, Geophysics	3
40	Insula I, II-IV	I, II-IV	Geophysics	
41	Insula G-I, II-IV	G-I, II-IV	Geophysics	
42	Domus G-K, II-IV	G-K, II-IV	Geophysics	
43	Insula I-J, III-V	I-J, III-V	Geophysics	
44	Insula I-J, VI-VII	I-J, VI-VII	Geophysics	
45	Domus I-J, VII-VIII	I-J, VII-VIII	Geophysics	
46	Monumental building K-J, IX-XI	K-J, IX-XI	Geophysics	
47	Domus K-J, VII-VIII	K-J, VII-VIII	Geophysics	
48	Insulas I-N, VI-XI	I-N, VI-XI	Geophysics	
49	Insula with shops K-J, IV-VII	K-J, IV-VII	Geophysics	
50	Monumental building K-M, IV-VI	K-M, IV-VI	Geophysics	
51	Domus K-M, IV-VI	L-M, III-IV	Geophysics	
52	Shops with portico M-N, III-V	M-N, III-V	Geophysics	
53	Monumental building M-O, V-VII	M-O, V-VII	Geophysics	
54	Insula O-P, VI-VIII	O-P, VI-VIII	Geophysics	
55	Monumental building M-O, VIII-X	M-O, VIII-X	Geophysics	

The cross reference number refers to numbering according to Correia, V. H. (2004). O Futuro dos Estudos Arqueológicos em Conimbriga. In Perspectivas sobre Conimbriga (pp. 49-79).

Conclusion

Finally, based on the assembly of the geophysical map with the excavated zones, we concluded that inside the whole walled area there are two different grids. One grid belongs to Augustan and Claudio-Neronian period, while the other dates to Flavian and Constantinian era. Because of the existence of two completely differently oriented grids, there is a constant transition between the two of them in the urban fabric. Another important point is that the NS oriented street west from the baths seems to possibly coincide with the limit of the initial late bronze period site occupation. Monumental buildings, which probably were intended for public use, were identified close to the east side of the forum and in proximity to the tip of the wall. In case of future excavation campaigns, this project could work as a base for the selection of the optimum location.

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