

**DESK BASED ASSESSMENT FOR THE CATACOMB SITE OF
KOM EL-SHUQAF A, ALEXANDRIA GOVERNORATE
(Annex to Final Report)**

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**ARCHAEOLOGICAL ASSISTANCE TO THE GROUNDWATER
LOWERING PROJECTS AT KOM EL-SHUQAF A
AND KOM OMBO**

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1 NON-TECHNICAL SUMMARY

This program is made possible through a grant awarded to the American Research Center in Egypt (ARCE), on September 30, 2014 by USAID/Cairo. The objective of the program is to provide expert archaeological advice throughout the design of groundwater lowering (GWL) systems for two archaeological sites in Egypt, namely Kom Ombo, in Aswan Governorate and the Catacombs of Kom al-Shuqafa in Alexandria Governorate.

To accomplish this objective, ARCE provided an archaeological support team to work closely with CDM Smith, the engineering firm designated by USAID to implement the GWL project, in coordination with the Ministry of Antiquities (MoA), and USAID to ensure that archaeological elements are seriously considered during the early phase of designing GWL systems at both sites.

The aim of the GWL project within Kom el-Shuqafa is to lower the ground water level within two Roman catacombs (the main Kom el-Shuqafa catacomb and the 'Hall of Caracalla'), both of which are currently open to visitors. These two, separate but physically connected sites, lie within a MoA protected boundary wall/fence. Within this area visitors are also able to visit and view an Open Air Museum, which houses a number of objects and re-located tombs.

CDM Smith outlined five engineering options for the Kom el-Shuqafa Ground Water Lowering Project (options A1, A2, B1, B2 and C). These designs (including CDM Smith's preferred option is Option A1), involve the creation of a below ground level Discharge Pipes (both within and outside of the Kom el-Shuqafa site boundary), the drilling of new wells, and the construction of a control room. All options have the potential to impact on archaeological remains.

In order to assess the potential of the archaeological remains, or heritage assets, within the Kom el-Shuqafa site and the area surrounding it a Historic Environment Record (also known as a Sites and Monuments Record) was created for the local area. A Historic Environment Record locates and provides information on all known heritage assets (archaeological sites, historic sites and buildings, historic and

palaeo-environmental sites) within a given area. A Historic Environment Record enables all parties to view the location and types of sites within an area, which can then be purposefully avoided during the creation of development/engineering schemes. Also, a Historic Environment Record enables one to predict and extrapolate the likely archaeological conditions within a given area, from finds made nearby. This latter analysis is important, as KNOWN archaeological sites and finds are often at best, a small and unrepresentative sample of the total buried heritage.

The Historic Environment Record was created through research of archaeological, documentary and cartographic sources, as well through interviews, site observations, geophysical survey and monitoring, recording and interpretation of geotechnical investigations (boreholes and test pits) commissioned and carried out in 2014/2015. During the course of this research thirty-eight heritage assets were identified within and surrounding the site of Kom el-Shuqafa (see section 7).

Research demonstrated that the main Kom el-Shuqafa catacomb and 'Hall of Caracalla' are only two of a number of catacombs that are known to exist or to have existed previously in the vicinity of the Kom el-Shuqafa site. The area was used as an extensive and varied necropolis (catacombs and other burial types) within the Roman Period (first century BC – fifth century AD). The majority of these catacombs were excavated between the middle of the nineteenth century and the turn of the twentieth century, prior to urban expansion. However, these known catacombs are likely to represent only a sample of the necropolis. Indeed two further catacombs were found recently, in 2001 and 2014, and two addition cavernous features have recently been indicated by geophysical survey in 2015. Research has also shown that the western end of a Roman stadium also falls within the limits of the Kom el-Shuqafa site.

Sections 4 and 9 itemize the various elements of the proposed engineering design and list the potential archaeological remains (heritage assets) that are likely to be impacted, as well as outlining the level of significance of each asset (whether local, regional or national significance). CDM Smith's preferred option (A1), depending on the depth of the Discharge Pipe, is likely to encounter a known catacomb (Scavo B)

and possibly others that are unknown, an upper level cemetery (as indicated by the identification of a human skeleton in Test Pit 10) and features relating to the stadium.

ARCE recommends that at least two experienced archaeologists (with firm backgrounds in commercial archaeology environments) are present at ALL times during the engineering works. Where archaeological remains are encountered, they should be excavated by hand and recorded using best practice methods. The data collected from this work should be published in a timely fashion in an appropriate form.

2 INTRODUCTION

2.1 Outline

This program is made possible through a grant awarded to the American Research Center in Egypt (ARCE), on September 30, 2014 by USAID/Cairo. The objective of the program is to provide expert archaeological advice throughout the design of groundwater lowering (GWL) systems for two archaeological sites in Egypt, namely Kom Ombo, in Aswan Governorate and the Catacombs of Kom al-Shuqafa in Alexandria Governorate.

To accomplish this objective, ARCE provided an archaeological support team to work closely with CDM Smith, the engineering firm designated by USAID to implement the GWL project, in coordination with the Ministry of Antiquities (MoA) and USAID, to ensure that archaeological elements are seriously considered during the early phase of designing GWL systems at both sites.

An Archaeological Desk-Based Assessment is an important first stage in the planning process, assessing the presence and potential for archaeological remains. Ideally an assessment should be researched and produced in parallel with the creation of specific engineering and development plans. In doing so, potential impacts to archaeological remains can be minimized as well as strategies developed early on, to mitigate damage to the historic environment. The report has been carried out following the standards specified by the Chartered Institute of Field Archaeologists (2014).

As part of CDM Smith's geotechnical data collection a series of boreholes were drilled between 16th November and 31st December 2014, and a test pit was excavated between 29th and 31st August 2015 . ARCE archaeologists Essam Shehab and Ahmed Shoukri Omar recorded these investigations alongside the CDM Smith engineers. The data from these are integrated within this report (see below), and are also presented as a separate report in Appendix 2. A geophysical survey was also conducted by the Helal Group for Geotechnical, Geological, and Geophysical Services, contracted by CDM Smith. The site was also surveyed by a

CDM Smith surveyor. These survey data were shared with ARCE and form the basis of some of the maps produced within this report.

2.2 Report Objectives

A detailed Scope of Works was prepared prior to the start of the Assessment Period, stating specifically that ARCE would 'provide expert archaeological advice throughout the design of groundwater lowering (GWL) systems' at Kom el-Shuqafa (see Appendix 1).

This report aims to identify and assess such archaeological remains as may be threatened by the scheme of works associated with the Ground Water Lowering Project.

During the assessment period interpretation of the researched archaeological baseline data was provided to CDM Smith, to aid in their design of efficient groundwater lowering engineering works. With known locations of potential heritage assets, ARCE and CDM Smith have worked together to reduce negative impacts to heritage assets in their next stage of implementation of engineering works.

A Desktop Assessment should form the first stage in the process of archaeological assessment and may, if the quality of the archaeology and the perceived threat warrants it, be followed by further mitigation measures.

2.3 Data Collection

Research for this report has included the following:

Data Collection (Research):

The research element of the data collection has included library and archives research, obtaining official archaeological documents, interviews, locating relevant maps and photographs, obtaining previous geotechnical reports, locating previous archaeological archives.

- Library and Archives Research

This part of the data collection was completed early on in the project. As was expected, locating relevant published articles, books, drawings and photographs was not a straightforward task. The team searched for materials at the Archaeological Society of Alexandria, the Bibliotheca Alexandrina, Centre d'études Alexandrines, the Alexandrian Graeco-Roman Museum, the GIS Centre (Zamalek), the Zamalek MoA Archives, the ARCE library, and on the internet. Through this research we compiled a bibliography and took copies of all relevant material. All this material has been read and will be referenced in the final report. Digital copies of these materials are held by ARCE.

- Official archaeological reports

Similarly, as was expected, locating and accessing official archaeological reports was also not a straightforward task. Completing this task required Permanent Committee approval of the project and security clearances. Once these were obtained we were able to access the reports held with the Alexandria MoA inspectorate, including reports on the excavation of sites nearby. We are still trying to access the reports relating to previous groundwater lowering projects on the site.

- Interviews

The team met frequently with inspectors at the MoA inspectorate, with past directors of the Graeco-Roman Museum, academics and other concession holders within Alexandria. These meetings and interviews provided us with various types of data.

- Maps and photographs

The team were able to locate a selection of maps at the Survey of Egypt offices in Alexandria and were also able to access a large selection of published maps. The team were able to locate a large number of historical photographs online, in publications and in other archives.

- Previous Geotechnical reports

CDM Smith provided the archaeological team with the data from boreholes bored on the site in 2004. We went through these with an archaeological eye and will integrate the data with those collected in January 2015 during this project's geotechnical work (see below).

- Locating previous archaeological archives

Early on we identified Giuseppe Botti's, Alan Rowe's and Zieglin's physical archives as potentially containing important archaeological data for the project. Although we have contacted various collections worldwide, to date we have not been able to gain access to the Botti archives and nor locate the Rowe archives.

Data Collection (geotechnical).

The team has been working directly with the CDM Smith team during their collection of geotechnical data. We have been present at, and monitored and recorded all geotechnical works.

- Boreholes. CDM Smith bored 9 boreholes in on-site and off-site locations. The DBA team were present at all times, recording the data (from an archaeological viewpoint) on pro-forma sheets, photographing all the material from the borehole, and collecting and logging any archaeological material that the boreholes produced (Figure 1). A report on the boreholes is submitted as Appendix 2. Ceramicist Mohammed Naguib studied ceramic material from the boreholes and has prepared a report, included here as Appendix 3.
- Test Pit. CDM Smith excavated a test pit off site (TP 10). The DBA team were present at all times, recording the archaeological data on pro-forma sheets, and photographing the archaeological features. A report on the test pit is submitted here as Appendix 4.
- Geophysical Survey. CDM Smith contracted the Helal Group to conduct two on site geophysical surveys. One was within the main catacombs, and the other across the whole Kom el-Shuqafa site. A summary of the results is submitted here as Appendix 5.

On Site Data Collection

Full photographic survey of the site and nearby sites and the recording and survey of the existing archaeological remains and landscape.

- Survey. The archaeological team worked with the CDM Smith Surveyors to survey above ground archaeological and topographical features, and known sites within the vicinity. They also worked with the engineers within the catacombs although realistically only baseline points could be surveyed (a full catacomb survey would have required a timeframe and level of effort beyond the scope of this project).
- Full photographic survey. Since there is no full and accessible photographic record of the catacombs or the rest of the site, the archaeological team has created one (Figure 2). They have photographed every side of every chamber within the catacombs and are trying to match them with the historical burial numbering systems assigned by Botti, Sieglin and Rowe.
- Recording of Archaeological Features. The DBA team have prepared copious records on the surviving archaeological remains as well as the existing landscape and indications of the historical landscape of the area.

Sites and Monuments Record (SMR)/Historic Environment Record (HER)

Using the data collected from the research data collection, the team has created an SMR/HER for the Kom el-Shuqafa site and the vicinity. Having started with only two known sites we have now been able to plot 33 sites. All sites have been digitized into AutoCAD, both as the full extent of the sites, overlaid onto modern maps of the area, and as dots coded with their SMR/HER number (Figures 36-37). This number corresponds to a number on an SMR spreadsheet that contains data about the individual sites. We have also digitized the catacombs themselves into AutoCAD and split the various chambers and levels into separate layers so that elements can easily be switched on and off.

2.4 Consultations with CDM Smith

CDM Smith and ARCE have collaborated together during the course of the project, with ARCE providing archaeological advice to inform on the creation of the ground

water lowering engineering design. This has taken the form of various meetings (in person, by telephone, and via Skype). After CDM Smith's initial engineering design, ARCE produced an Impact Mitigation Assessment, which assessed the individual impacts to archaeological remains. Based on this, and subsequent meetings, the design was slightly altered, and a second engineering design was developed by CDM Smith. During the course of the project ARCE team members produced weekly reports which were circulated with CDM Smith detailing progress and results of their research.

Meetings

- The first introductory meeting was on 17 September 2014 at ARCE's office in Cairo. In attendance were Tomas Nichols and Mostafa El-Tayeb (CDM Smith), Michael Jones, Essam Shehap, Ahmed Omar (Kom Al-Shuqafa team), Mohammed Abd El-Rahman and Hussain Rekabi (Kom Ombo Team) and Freya Sadarangai by Skype from the UK (ARCE).

The objectives of the meeting were to introduce and connect ARCE and CDM Smith team members, discuss the aims, objectives, deliverables and timetable of the project.

- A meeting was held at the site of Kom El-Shuqafa on 13 October 2014. In attendance were Thomas Nichols, Mostafa El-Tayeb and Ashraf Mohammed (CDM Smith), Essam Shehap and Ahmed Omar (ARCE), Abd Al-Aal (Kom El-Shuqafa Director), Hala El-Fawall (Executive Director of the Alexandria Archaeology Department MoA) and engineer Nessrin El-Hennawi (Alexandria Engineering Department). After presenting the project and the timetable to the MoA members, all attendees (except Abd Al-Aal) convened to the main Alexandria Inspectorate offices (MoA) to sign a document approving the start of the project.
- A meeting was held on 11 February 2015 to discuss the details of CDM Smith's proposed pumping test. In attendance were:
 - 1- Thomas Nichos- CDM Smith
 - 2- and Mostafa El-Tayeb- CDM Smith
 - 3- Dr. Mohamed Qanswa - CDM Smith

- 4- Essam Shehab- ARCE
- 5- Ahmed Omar- ARCE
- 6- Eng. Waad Allah, the General Director of the Project Sector MoA.
- 7- Eng. Mohamed Reda, the Director of West Delta Engineering Dep. MoA
- 8- Eng. Ahmed Reda, Alexandria Engineering Department. MoA
- 9- Eng. Nesreen El-Hennawi, Alexandria Engineering Department. MoA.
- 10-Dr. Mohamed Abd El-Hamid, Director of Alexandria Archaeological Sites
- 11-Hala El- Fawall, Alexandria Executive Director.

Thomas Nichols explained the process of the pumping test. A debate between the MoA representatives followed, revolving around conservation concerns and concerns that the existing pumps may be damaged. The head of the MoA Projects Sector decided that a consultant committee of experts from Cairo University should be asked to submit recommendations on the matter.

- A meeting was held on the 14 April 2015 at CDM Smith's offices in Cairo. In attendance was Thomas Nichols, Ahmed Safoh, Moustafa Eltayeb, Mohamed Kansoh (CDM Smith), Michael Jones (ARCE) and Freya Sadarangani by Skype from the UK (ARCE). Attendees discussed the details of proposed ground water lowering designs, considering the archaeological baseline data, in order to minimize the impact on known and potential archaeological remains.
- A meeting was held on the 20 April 2015. In attendance was the head of the Conservation Department of the Centre d'études Alexandrines, Miss Hanaa Mohamed Tawfiq (asked by Michael Jones to represent ARCE), two experts from Cairo University and:
 - 1- Tomas Nichols- CDM Smith
 - 2- Mostafa El-Tayeb- CDM Smith
 - 3- Dr. Mohamed Qanswa - CDM Smith
 - 4- Essam Shehap- ARCE
 - 5- Ahmed Omar- ARCE
 - 6- Engineer Waad Allah, the head of the Project Sector MoA.
 - 7- Dr. Mahmoud Afify, the Head of the Egyptology Sector MoA.
 - 8- Eng. Mohamed Reda, the Director of west Delta Engineering Department. MoA

- 9- Eng. Ahmed Reda, Alexandria Engineering Department. MoA
- 10-Eng. Nesreen El-Hennawi, Alexandria Engineering Department. MoA.
- 11-Dr. Mohamed Abd El-Hamid, Director of Alexandria Archaeological Sites
- 12-Hala El-Fawoual, Alexandria Executive Director (MoA).

The attendees visited the site and the Catacombs, and discussed the process of the pumping test. The experts agreed on some points, but disagreed on others.

- A meeting was held on the 23 June 2015 at CDM Smith's offices in Cairo. In attendance was Thomas Nichols, Ahmed Safoh, Moustafa Eltayeb, Mohamed Kansoh (CDM Smith), Michael Jones (ARCE) and Freya Sadarangani (ARCE, by Skype from the UK). Attendees discussed revised proposed groundwater lowering designs.

3 THE SITE

The site of Kom el-Shuqafa is c. 180m (N-S) by c. 140m, and is located in the western region of the city of Alexandria, c. 400m to the north-east of El-Mahmudiya Canal, at E775734/ N3452977 UTM (Figures 1a and 1b). The boundaries of the site are at present bordered to the north by El-Nasereya Street, to the west by Kom El-Shuqafa Street and to the south and southeast by El-Shuhada Square and Street. A fence, c. 3.00m high, encloses the site, constructed using masonry and steel, allowing some visibility from the streets (Figures 2 and 3). The eastern limit of the site is bounded by Kom el-Shuqafa Preparatory School, and here the site is bordered by a large wall, constructed using masonry. Tall buildings occupy all sides of the site. This is the urban sprawl of Wabour El-Gase district.¹

Access to the site is from El Nasereya Street through a gate located in the northeast corner (Figure 2). Once inside, to the east of the gate there is a toilet block, and to the west of the gate, there is a car parking area, with a small platform (traffic island) in the centre. This area is between c. 16.80m and 18.00m asl (Figure 4) Along the perimeter of the road here, and on the central small platform a number of artefacts are displayed, including columns, columns with capitals, and large basins that may have originally been used as sarcophagi (Figure 5).

Along the eastern border of the site there is a garden, with a number of paths leading through at c. 17.50m asl (Figure 6). Alongside the eastern and western borders of the garden two rows of archaeological objects are displayed. To the west of the garden the remains of older site boundary walls, orientated NW-SE, are still visible, dating from when the eastern boundary of the site was further west than its present location. To the south of the parking area there are the remains of another older boundary wall, orientated NE-SW, from the time when the northern site boundary was further to the south than its present location.

The ticket kiosk and a security gate are located at the northwest corner of the garden and the south-eastern edge of the parking area. This leads into the open-air museum. This is a paved, open area with objects from the site and from the Graeco-

¹ Also referred to as El-Shuhada; El- Sadria; Ban El-Sedra.

Museum displayed. At the northern end of the site there is the Antiquities Inspectorate Office, in front of which a large red granite fountain is displayed, and to the north and south sides, columns, columns with capitals and capitals in various sizes and materials are displayed. Directly to the west of the Inspectorate Office there are three Roman tombs that were taken from their original locations and brought here for display; the tomb of Tigran; to the south of it, the Silvago tomb; and next to this, the el-Wardian tomb.

To the south of the Tomb of Tigran and the inspectorate office there is a large rectangular area of paving c. 50m (NW-SE) by c. 38m (NE-SW) lined on either side with objects, including large sarcophagi of various types and materials (Figure 7). The level of the paving here is c. 16.00m asl. At the southern end of this area there is the circular, covered staircase (Shaft A) that leads down to the main catacomb. A little to the north of this is a small circular, covered area, which is the top of a shaft that leads down to the catacombs. And to the east there is a large covered shaft that is cut down to the 'Hall of Caracalla'. The eastern limits of the paved area are bordered by a low wall, and at the northern end, behind the Inspectorate office there is a control room for the water pumping (Figure 8). East of the low wall, there is a high limestone outcrop, at c. 24.40m ASL, with two Roman passageways cut into the side (Figure 9). The outcrop slopes downward to the north and east and has an almost vertical slope on its southern side, down to 18.60m asl (Figure 10). On this southeastern side of the site, the ground level is considerably higher than the level outside the site on El-Shuhada Square and Street (compare 18.60m asl and 13.90m asl) (Figure 11). On the outcrop there is an old site enclosure wall built using masonry running NW-SE. To the east of this are the remains of a cement/concrete pavement. To the east, there are 4 irregular modern pits between shallow and deep (Figure 12).

To the west of the central paved area, there is an unpaved space, at c. 15.20m asl, which extends to the south and west fences (Figure 13). This area is inaccessible to the public. In the southwest corner there is the covered stepped passageway leading to Scavo D, a Roman catacomb (Figure 14). To the west and northwest of this, the edge of the limestone plateau can just be made out. On this plateau there are 2 covered shafts that lead down into Scavo D. In the very southwest corner of

the site, the ground level is considerably lower than elsewhere at 5.89m asl (Figure 15). Here, it is almost the ground level of some of the Scavo D chambers, and from here one can see into other chambers of Scavo D cut within the limestone plateau.

There are currently six visible pumping wells within the site used to maintain the level of the ground water at a certain level. These wells are cut to depths between 25m and 30m deep (Figure 16).

The main catacomb complex is beneath ground level and measures c. 55m (E-W) by c. 45m (N-S) (Figure 17). As already noted, the entrance to the catacombs is via a staircase shaft known as Shaft A. The top of this shaft is at c. 16.00m asl. It leads down to three levels below ground. The first, upper, level is at an average elevation 4.60/4.33m asl; the second, middle, level is at an average level of 1.11/0.87m asl; the third, lowest, level is below 0.78m asl. The main catacomb complex accesses a second catacomb (the 'Hall of Caracalla'). This is at an average elevation of between 4.72m and 3.86m asl.

The Kom el-Shuqafa site was comprehensively surveyed by CDM Smith surveyors using a Total Station. The survey data collected have been used in the production of a number of figures within this report.

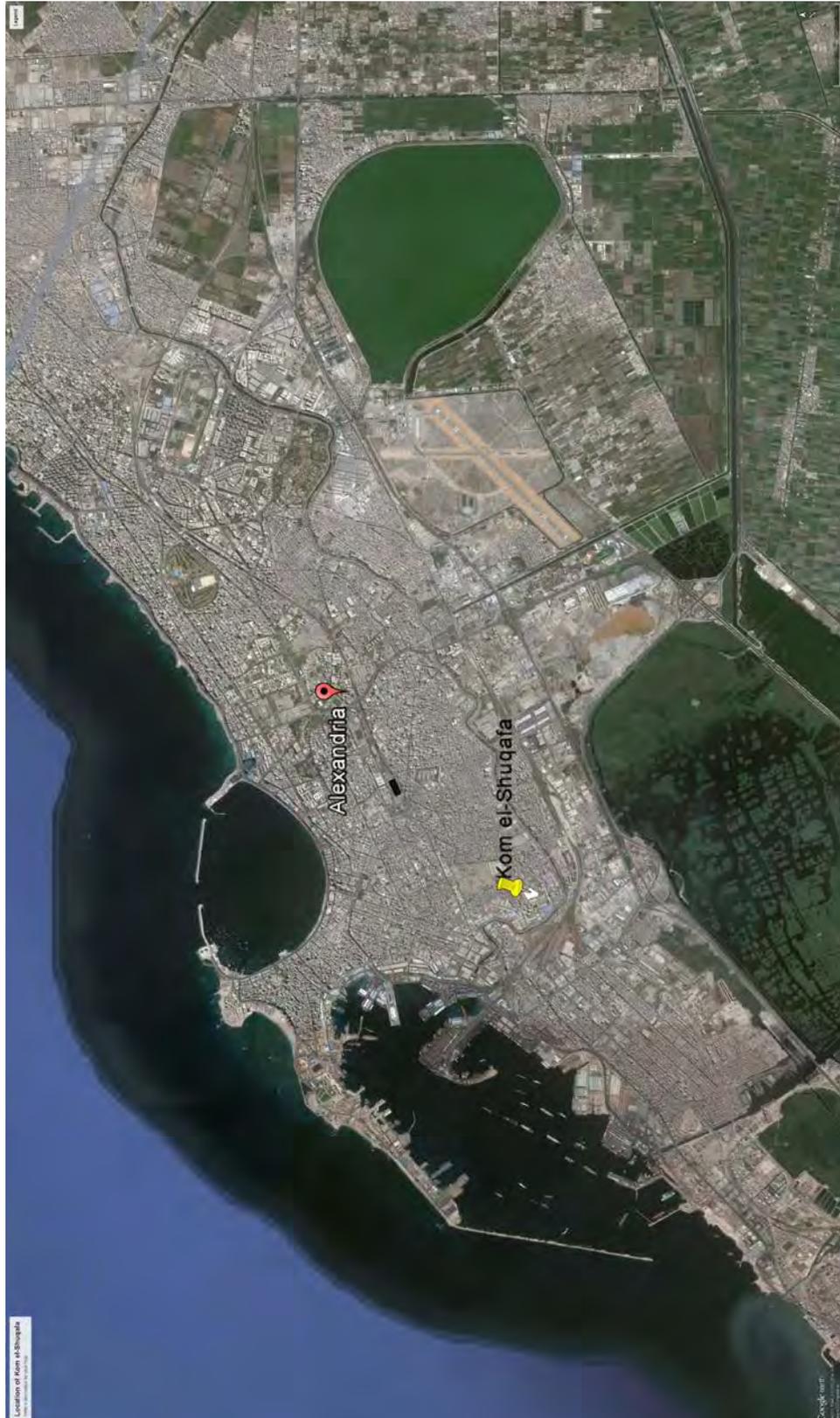


Figure 1a. Location of Kom el-Shuqafa in the city of Alexandria. Google Earth (24 November 2015). North is to the left.

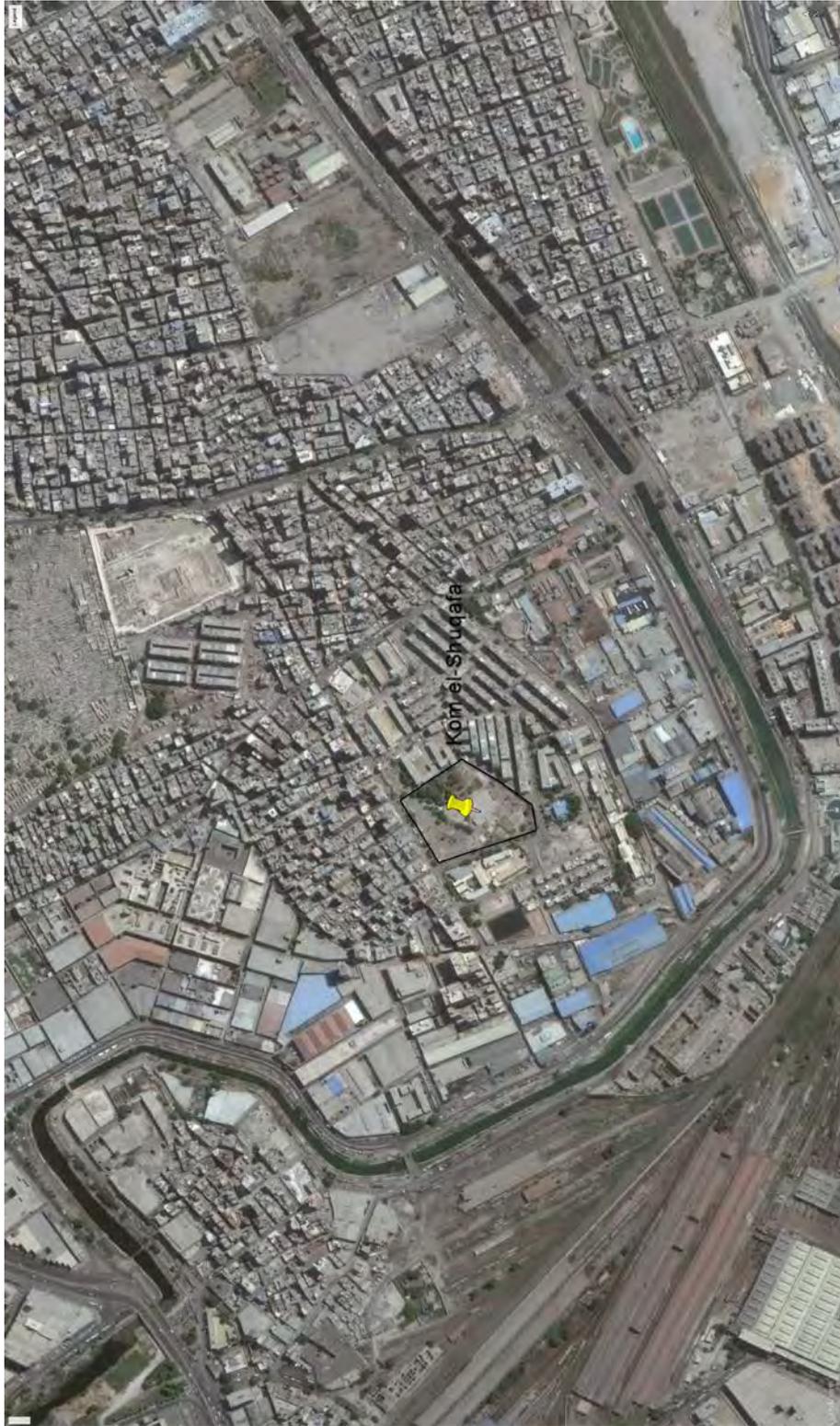


Figure 1b. Location of Kom el-Shuqafa. Google Earth (24 November 2015). North is to the left.

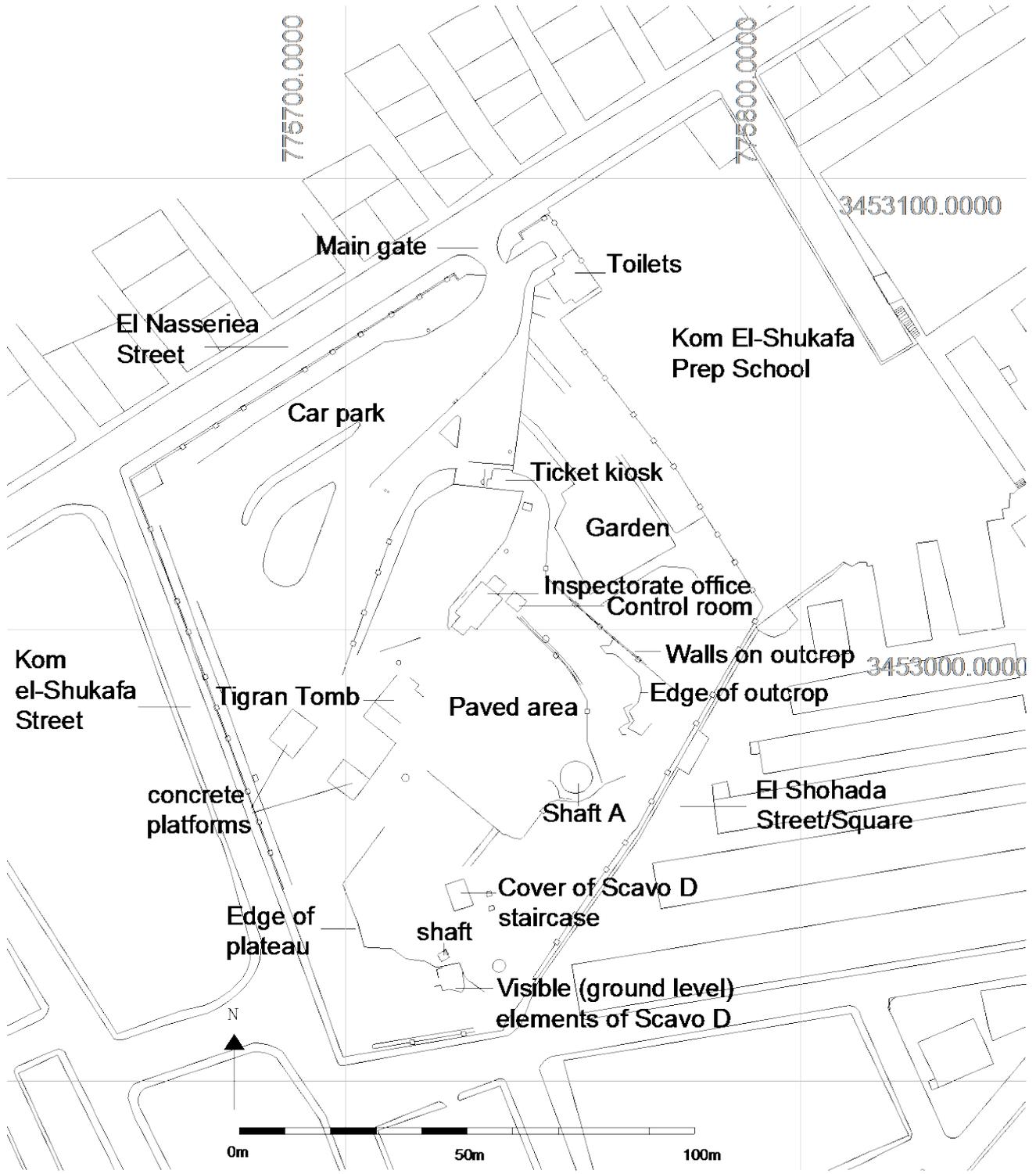


Figure 2. Plan of the Kom el-Shuqafa site using 2015 survey data

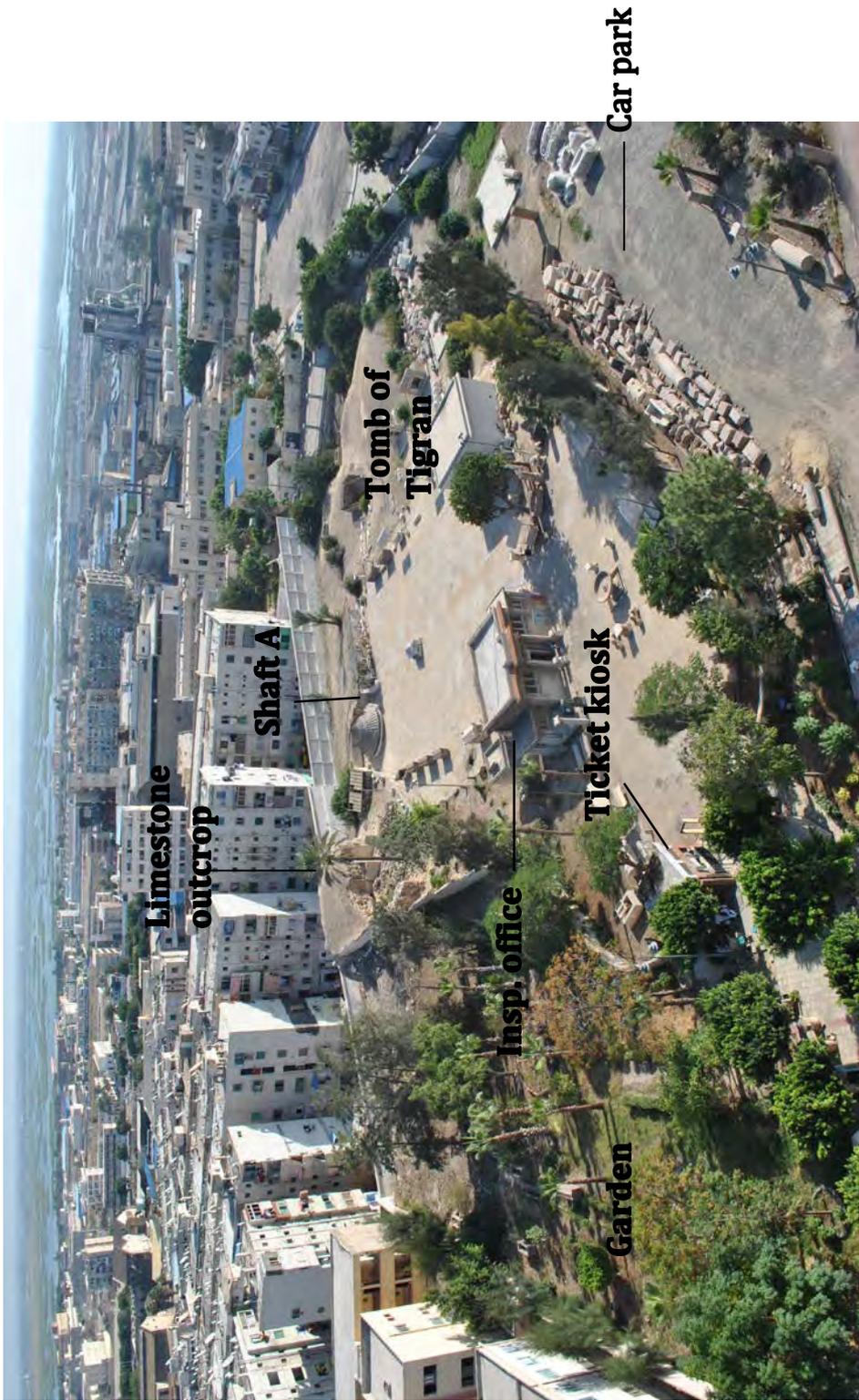


Figure 3. The site of Kom el-Shuqafa. SW facing.

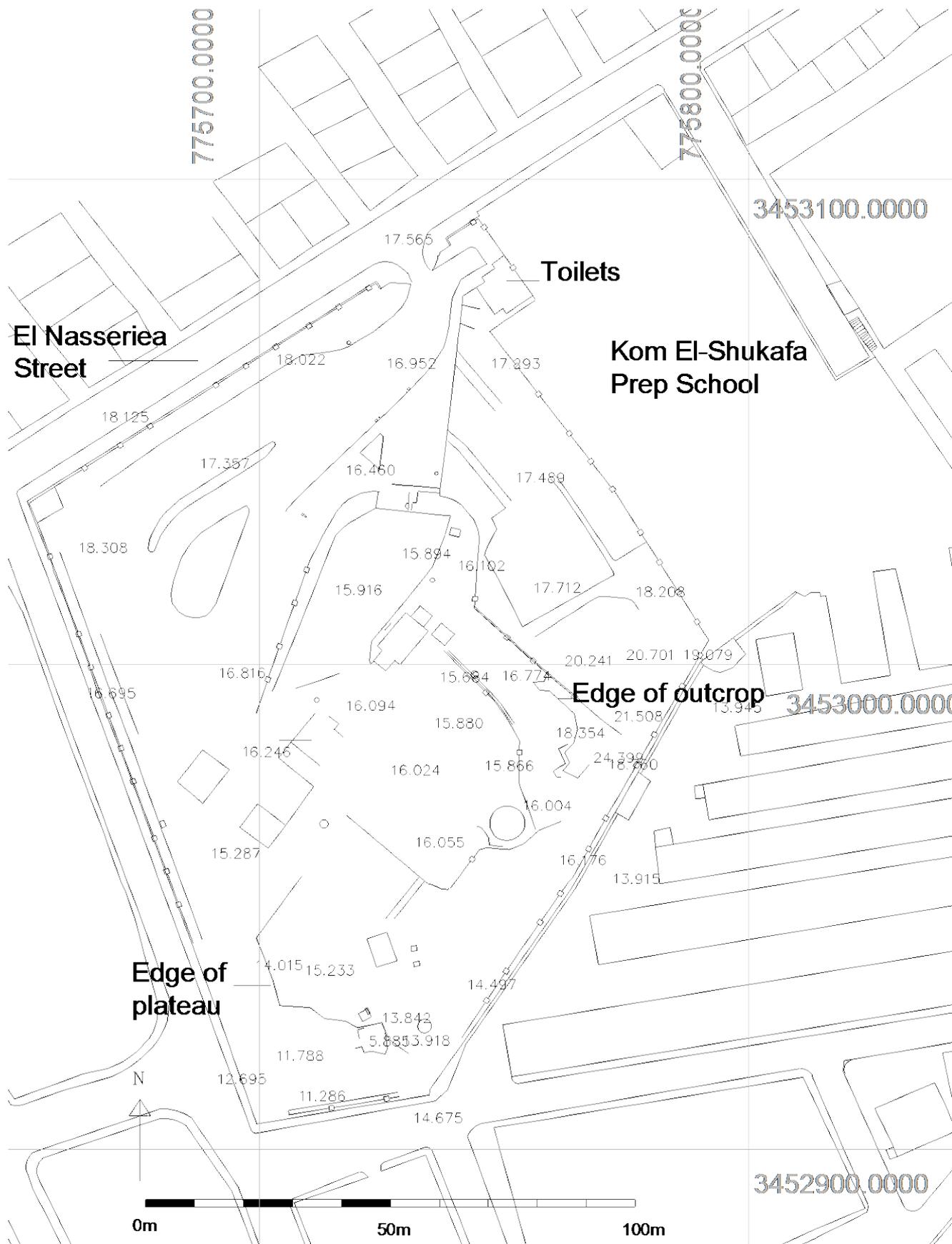


Figure 4. Plan of the Kom el-Shukafa site with levels (m asl) using 2015 survey data.

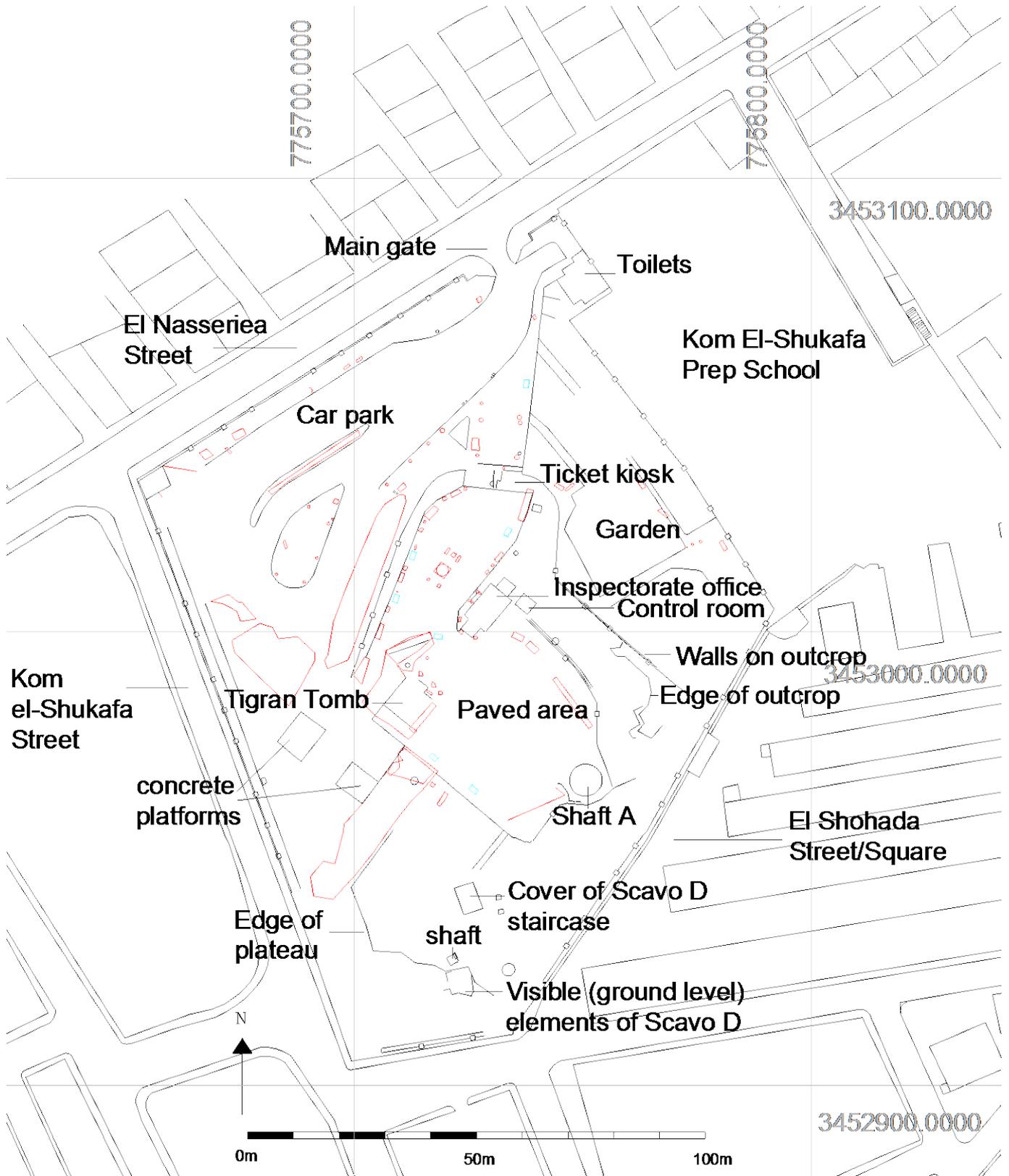


Figure 5. Plan of Kom el-Shuqafa site showing objects displayed in red and seating benches in blue using 2015 survey data.



Figure 6. The garden in the northeast area of the site. NW facing.



Figure 7. The paved area showing the limestone outcrop, the covered Shaft A (center) and the covered smaller shaft to the north (left of center). SE facing.



Figure 8. The paved central area, the Inspectorate office (center) and the pumping control room. NE facing.



Figure 9. Passageway through the limestone outcrop. E facing.



Figure 10. The limestone outcrop seen from the southeast corner of the site. Note the modern wall and concrete on top of the outcrop. SW facing.



Figure 11. Photograph taken in the southeast corner of the site showing that the ground level of the site, inside the wall, is considerably higher than the level of el-Shohada Street. NE facing.



Figure 12. Pits dug behind the walls on top of the limestone outcrop. W facing.



Figure 13. Showing paved area, with the covered Shaft A and the covered shaft that cuts down to the 'Hall of Caracalla'. The area to the south and west is unpaved, with the staircase down to Scavo D visible in the background. SW facing



Figure 14. Photograph taken from the SW corner of the site on the unpaved area with the covered staircase down to Scavo D in the foreground at right.

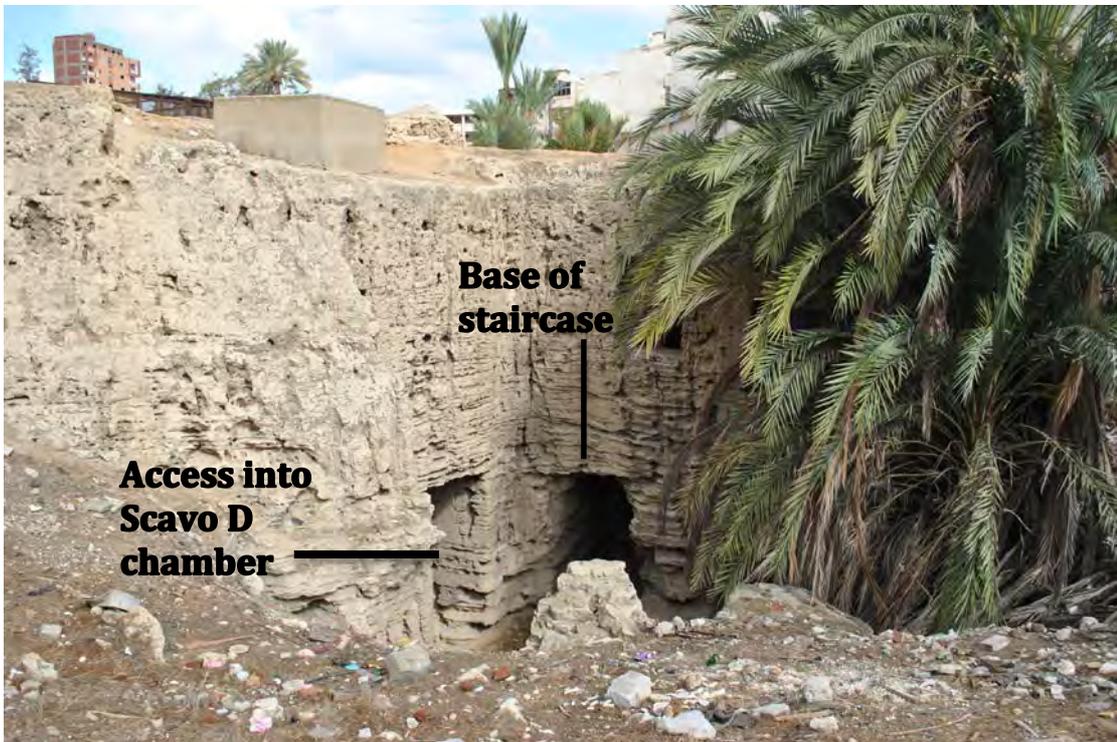


Figure 15. Taken from the very SW corner of the site; the covered shaft cuts into Scavo D on top of the limestone, the base of the staircase (center) and an access into one of Scavo D's chambers (left of center). E facing.

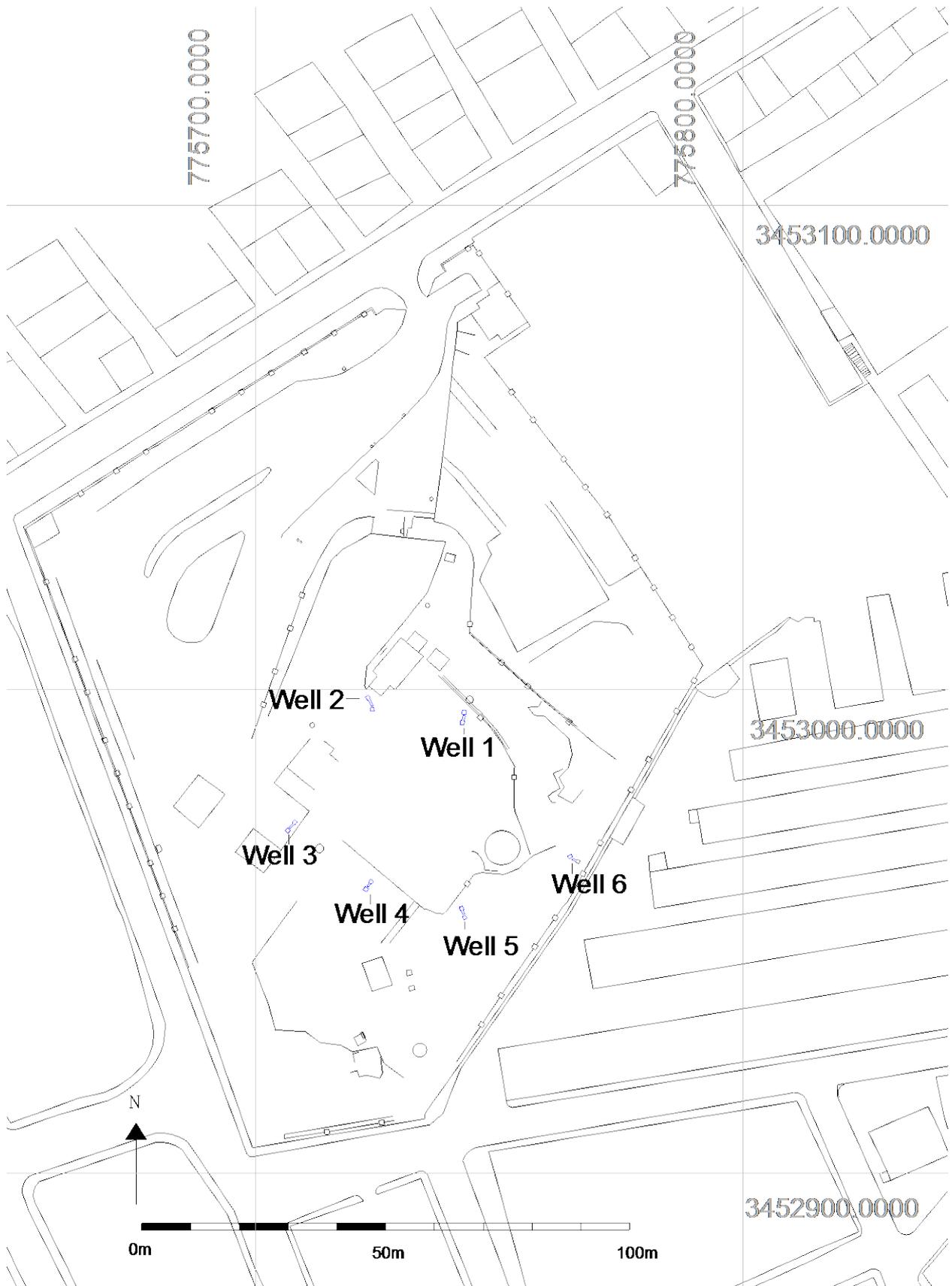


Figure 16. Plan showing location of existing wells in blue using 2015 survey data.



Figure 17. Plan showing the below-ground main catacombs and 'Hall of Caracalla' using 2015 survey data.

4 THE GROUNDWATER LOWERING PROJECT: PROPOSED SCHEME OF WORKS

CDM Smith outlined five engineering options for the Kom el-Shuqafa Ground Water Lowering Project. These are options A1, A2, B1, B2 and C illustrated in Figures 18, 19 and 20. During the course of the Desk-Based Assessment Period, ARCE prepared Impact Mitigation Assessment reports on all five options. Presently, CDM Smith's preferred option is Option A1 (Figure 18). Below, the details of all options, as of 9 September 2015, are outlined. All options have the potential to have impacts archaeological remains.

PREFERRED OPTION – A1

Discharge Pipe: A shallow cut pipeline (50cm in diameter and laid 1.5m to 2.00m deep) is proposed to surround the Catacombs and 'Hall of Caracalla', leading from 6 new wells within the site and leading to the el-Mahmoudia Canal via Kom el-Shuqafa street and el-Nasseriea Street. There will be vaults at each well, one valve chamber on site, one deceleration chamber just outside the site in el-Nasseriea Street and several manholes down to the canal. The approximate excavation depth for all of these structures will be about 3 to 4 meters below the present ground surface and the largest area is about 2.5 by 6 meters. An outfall structure is also proposed constructed in the embankment of the Mahmoudia Canal. This will have similar maximum excavation dimensions as those stated above.

Drilling of new wells: there are six proposed new wells which be cut down to c. 40 m to 45 m below ground level with a c. 50cm hole diameter.

Control Room: an above ground control room is proposed near the western boundary of the site. This will rest on a mat foundation. The excavation for the foundation will extend to about 3 m below ground level to replace some of the uncontrolled fill present at this location.

Options A2, B1, B2, C

- Option A2 is similar to Option A1 but the Discharge Pipe kinks north at the intersection of Al-Nasseriea Street and Azbet Jourdy Street.
- Option B1 has the Discharge Pipe leading out of the Kom el-Shuqafa site boundary, south down Kom el-Shuqafa Street, west down El-Shuhada Street, then south onto Abou Akr El-Sedeeq street, and west to El Mahmoudia Canal.
- Option B2 is similar to Option B1 but the Discharge Pipe kinks to the west off Kom el-Shuqafa Street around the 'Empty Yard'.
- Option C has the Discharge Pipe leading northh out of the Kom el-Shuqafa site boundary, traveling northeast along El-Nasseriea Street and then south down Al-Tawfikeya Street, meeting El Mahmoudia Canal to the south.

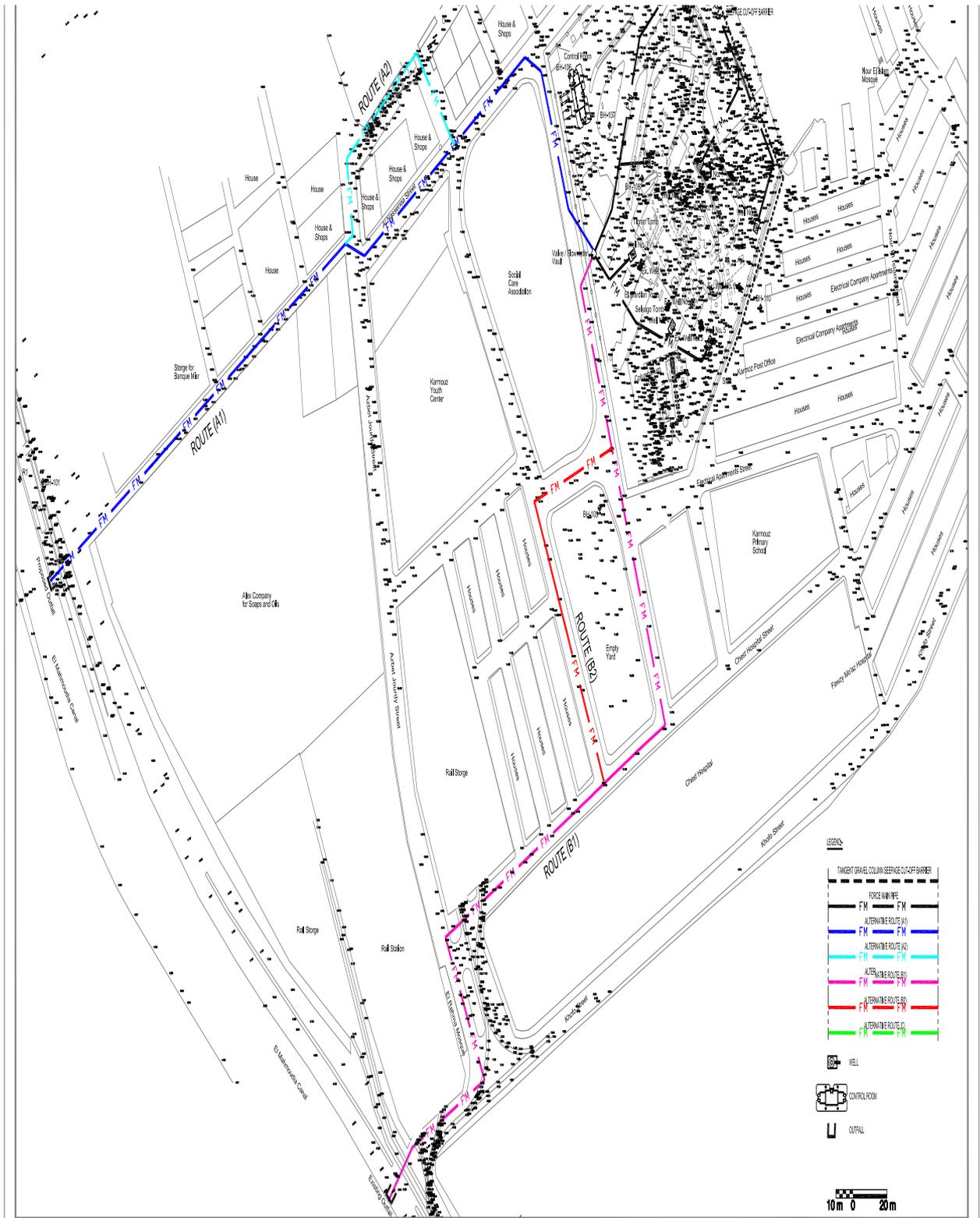


Groundwater Lowering Activity
For Pharaonic Monuments Areas
Kom El Shuqafa

Kom El Shuqafa Preferred Alternative



Figure 18. Preferred Alternative (Option A1) for groundwater lowering; draft developed by CDM Smith, 1 September 2015.



**CDM
Smith**

with
A&W
CONSULTING ENGINEERS

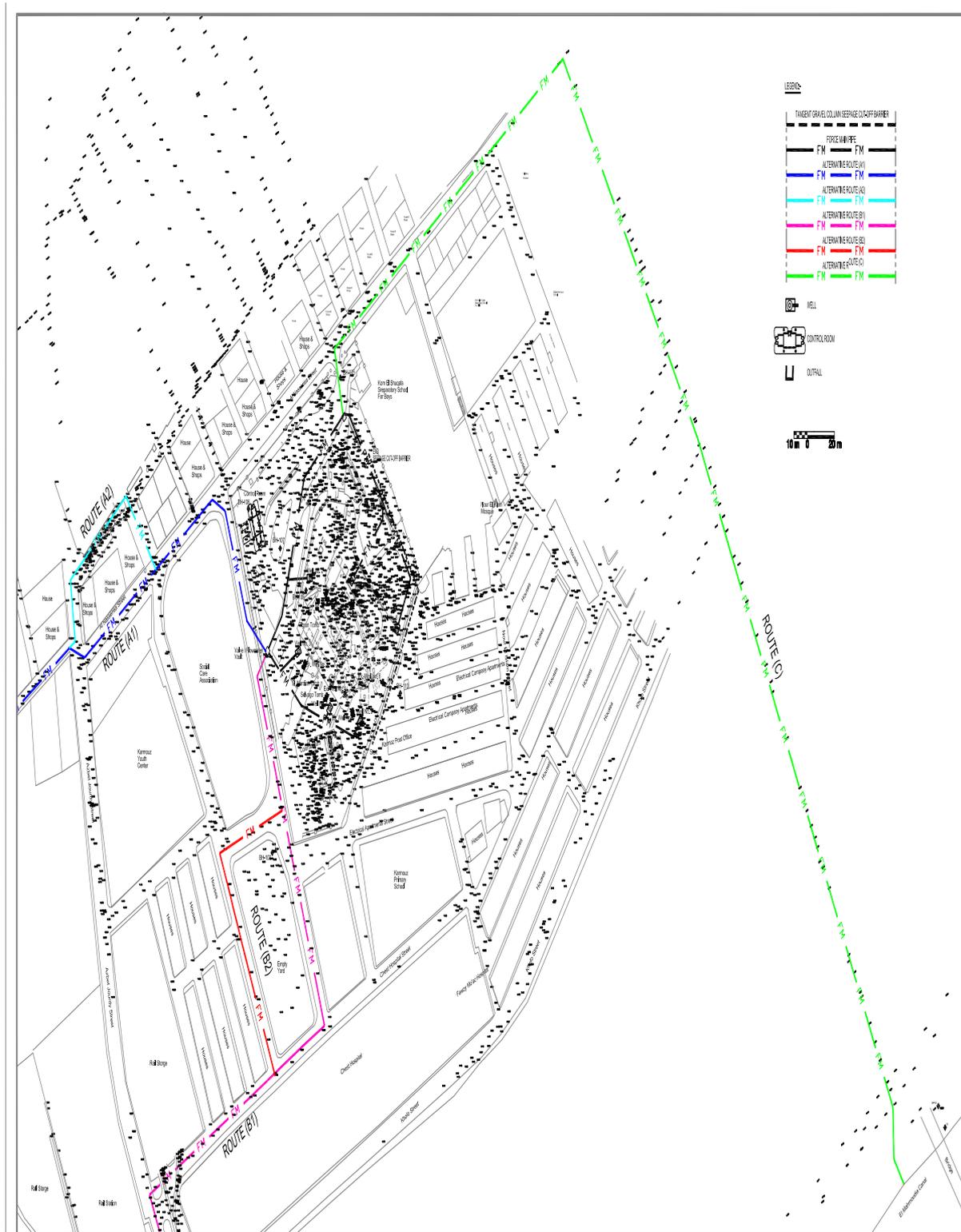
Groundwater Lowering Activity
For Pharaonic Monuments Areas
Kom El Shuqafa

Proposed Five Alternatives Force Main
Ver 28 July 2015



Secondary Cities Project
USAID Grant No. 263-0236
Contract No. EDH-1-00-08-00023-10
Tneib Sirhan No. 2

Figure 19. Proposed five alternatives for Kom el-Shuqafa ground water lowering; draft developed by CDM Smith, 28 July 2016 (see also Figure 20).



**CDM
Smith**

with
AW
CONSULTING ENGINEERS

Groundwater Lowering Activity
For Pharaonic Monuments Areas
Kom El Shuqafa

Proposed Five Alternatives Force Main
Ver 28 July 2015



Secondary Cities Project
USAID Grant No. 263-0236
Contract No. EDH-I-00-08-00023-10

Figure 20. Proposed five alternatives for Kom el-Shuqafa groundwater lowering; draft developed by CDM Smith, 28 July 2016 (see also Figure 19).

5 STATE LEGISLATION AND INTERNATIONAL GUIDELINES RELATING TO PROTECTION OF HERITAGE SITES

The site of Kom el-Shuqafa is a registered antiquities site. Its protection is enshrined in Law No.117 of 1983 (As Amended by Law No.3 of 2010 Promulgating the Antiquities Protection Law) (Ministry of Culture, Supreme Council of Antiquities: 2010)².

Any development, conservation, excavation within a registered antiquities site is subject to the Law's heritage policies:

Article 29

'The Council is charged with taking care of antiquities, museums, stores, and archaeological sites and areas and historical buildings besides the guarding of such through the competent police, and special watchmen and guards commissioned by the stated Council in accordance with the rules regulating such. The Council shall put a maximum limit for the extension of every inspection of antiquities in a way guaranteeing the ease of movement of such inspection in their area and enabling it to supervise its antiquities. By a decree from the Board of Directors. The border of every archaeological site guarded by the Council shall be defined'.

Article 30

'The Council and no other shall be concerned with the execution of maintenance and restoration work necessary for all registered antiquities and archaeological sites and areas and historical buildings.

Article 31

After the approval of the Competent Permanent Committee, Chairman of Council's Board of Directors may license competent authorities and scientific missions to undertake operations of restoration and conservation under the Council's supervision. Also specialized individuals may be given the license in writing to undertake such operations'.

The Council shall arrange priorities of permission for missions and authorities to excavate antiquities starting with places that are more subject to the environmental

² These references are to the English translation. The Arabic original takes precedence in law.

dangers and more affected by the State's projects of urban extension in accordance with an objective timetable that is decided by the Board of Directors.

Article 27

The Council undertakes preparing the registered archaeological places and sites and historical buildings for visit or study in a way that is not incompatible with their security and preservation. The Council also aims at revealing the aesthetic and historic characteristics and distinguishing features of the same. The Council thereto employs the capabilities of archaeological sites and museums in developing archaeological awareness by all means'.

Article 20

In accordance with special conditions set by Supreme Council for Planning and Urban Development upon recommendation from the Minister.

Granting buildings licenses at archaeological sites or lands shall not be permitted.

Other parties shall be prohibited from establishing foundations or cemeteries or digging canals or constructing roads or cultivating in the same or in the public-service facilities set for antiquities or lands lying within the approved beautifying lines. Implanting trees or the cutting of such or carrying rubble or taking soil or fertilizers or sand or the execution of any other work which result in changing the characteristics of said sites and lands shall be prohibited except with a license from the Council and under its supervision.

Provision of the previous paragraph shall be applicable on adjacent lands lying outside the scope of the sites referred to in the previous paragraph which extend to 3 (three) kilometers distance in uninhabited places or to the distance the Council determines in a way that realizes protecting the environment of the antiquity at other sites.

By a resolution of the competent Minister in culture affairs, provisions of present article may be applicable on lands of which the Council becomes evident, on the basis of studies it undertakes, of the possibility of the presence of antiquities in such. Provisions of this article shall thereto be applicable on the desert areas and places where operation of store quarries is licensed.

Kom el-Shuqafa is not a World Heritage Site.

Although there are no existing heritage or archaeological site management plans operating in the area, this desk-based assessment endorses site management best practice as outlined in *Managing Cultural World Heritage* (UNESCO: 2013).

This assessment also recommends the use of the 'good practice' heritage investigation principles outlined by the Chartered Institute for Archaeologists (<http://www.archaeologists.net/codes/ifa>).

6 GEOLOGY AND TOPOGRAPHY

The Kom el-Shuqafa site is located on the northern edge of the 'Nile Delta geomorphic province' (Mokhtar 2015:7), c. 1.30 km north of the Lake Maryout and 1.42km south of the Mediterranean Sea shoreline. 'Since Pleistocene time, within the last 1 million years, lake Maryout has intermittently been connected to fresh Nile river flows and sea water sources, and been both at and below mean sea level. The lake Maryout and Delta had varied depositional environment' (Mokhtar 2015:8), including 'silt and clay deposits with some organics (lagoonal deposit)'; 'sand and silt deposits (Nile River deposits); 'sand deposits (beach and littoral deposits)' (Mokhtar 2015:8).

'The basement rock unit is Miocene (6 to 25 million years old) and older carbonate formations that comprise the Egyptian plateau. Above the Miocene sedimentary rocks are plio-pleistocene age (less than 6 million years old) sediments consisting of alternating beds of shale, limestone, sandstone, silt and calcareous sand. The plio-pleistocene sediments form a series of ridge and trough that are approximately parallel to the Mediterranean coastline in the vicinity of the project site. Most of the city of Alexandria rests on one of these topographic ridges while behind the ridge, lake Maryout is in a trough.' (Mokhtar 2015: 8). 'The near surface limestone deposits, which are commonly encountered in the Alexandrian ridge, are cemented marine sand' (Mokhtar 2015:8).

As part of the 2015 geotechnical data collection, eleven boreholes were drilled between the 16 November and the 31 December, both within the site and surrounding the site (see appendix 2). Prior to this, in 2004, six boreholes were drilled within the Kom el-Shuqafa site by Dr. Mahmoud Abdel Fatah (Consulting Engineer) and Dr. Mohammed Abu Hashem (Consulting Engineer) (see appendix 2). Together, these data have both demonstrated the geological depositional sequence on the site and provided information on the geological and historical topography of the area. Other sources have also produced data regarding the historical topography including the 2015 geophysical survey, the map regression, and documentary research (see below).

As already noted in Section 4, the ground level topography of the site is varied. The paved area in the central portion of the site, over the main catacombs and 'Hall of Caracalla', is c. 16.00m asl. In the southeast corner of the site there is a limestone outcrop, at 24.40m asl, which has been quarried, with an almost sheer vertical quarry cut on its southern side. At the southern fence of the site the limestone has been quarried down to 13.92m asl. In the southwest corner of the site, the ground level is low, at 11.29m asl. Figures 21 and 22 show the contour map that was produced by CDM Smith with their 2014 survey data.

The central portion of the site is a plateau. In the southwestern corner of the site, there is a sheer vertical cut, which has presumably been created by quarrying given that at the base of the cut there are chambers of catacombs, Scavo D, which would have originally been beneath the ground level. To the northwest of this an edge to the plateau can be made out. Whether this is a natural edge or a quarried edge is unclear.

Historical maps depicting the area of the catacombs show that they were located on the southern side of a U-shaped limestone outcrop that had been heavily quarried during the nineteenth and twentieth centuries leaving only the protected site of Kom el Shuqafa upstanding. A detailed map regression is presented in Section 8.2 of this report. A map dated to 1902 shows a contoured mound in the area of the Kom el-Shuqafa site with development to the north, east, south and west (Figure 148). The street pattern can be made out, showing that at this stage the mounds were bordered to the east by the mosque and school and further east by Al-Tawfiqia Street. To the south there is Abou Bakr Sedeek Street and to the west Al-Ashwani Street. Only the very eastern part of Al-Nasseriea Street had been created at this stage, together with the western limits of the same street beside the canal. The maps of the *Description de l'Égypte* of 1798 are the first to explicitly show the topography of the area at and around the Kom el-Shuqafa site prior to the modern quarrying of the area which changed the local topography considerably (see Section 8.2).

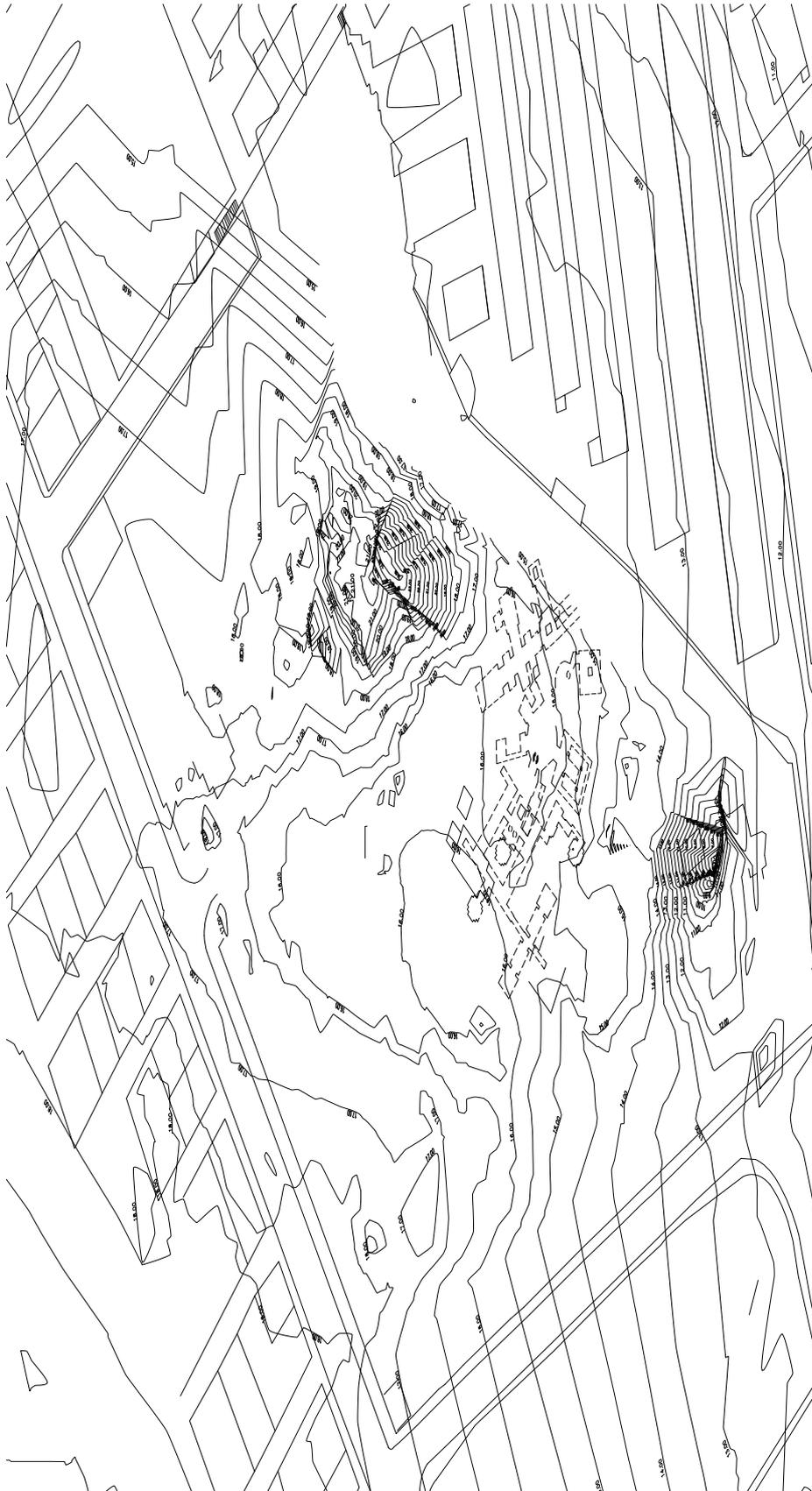


Figure 21. Contour map of the Kom el-Shuqafa site with data provided by CDM Smith.

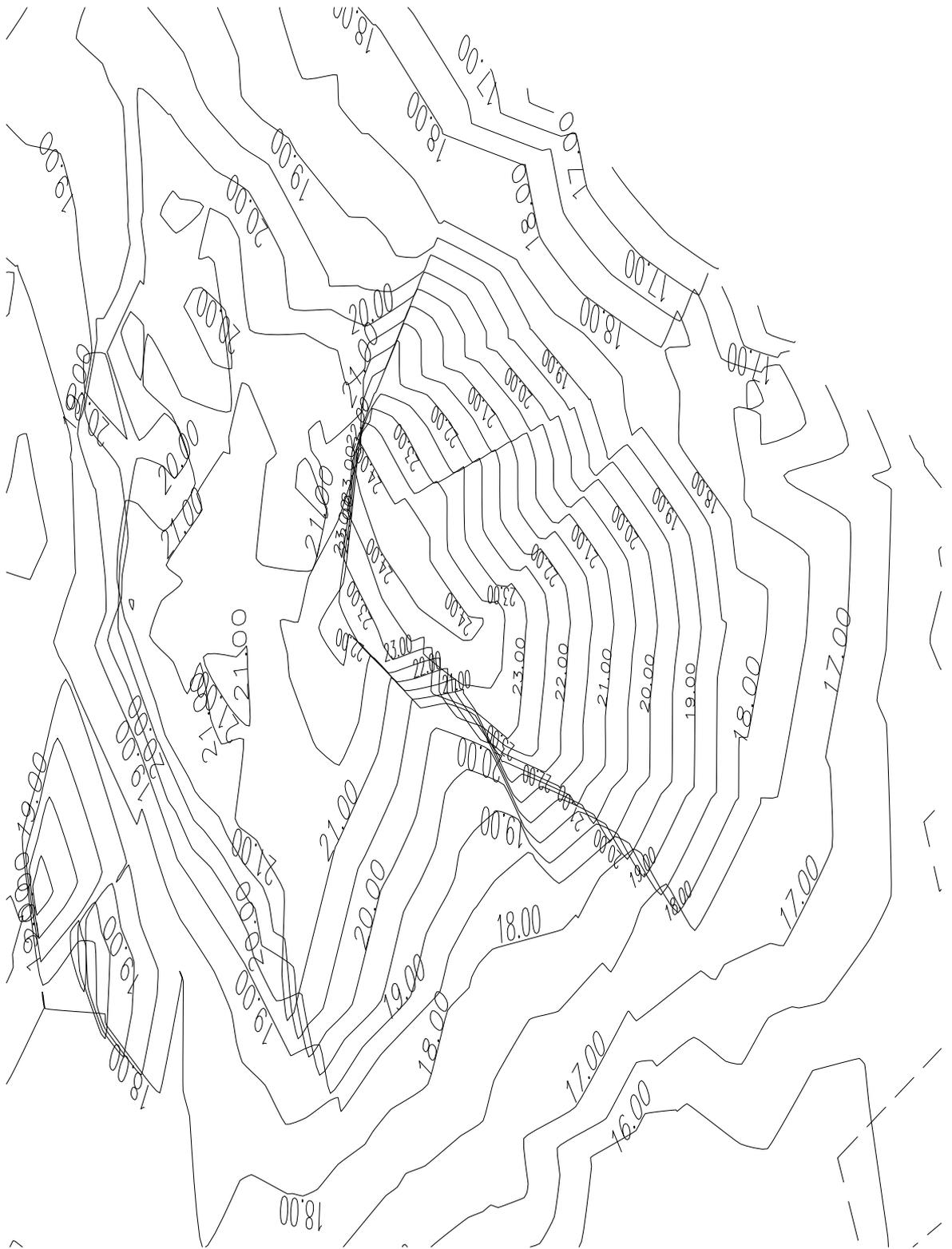


Figure 22. Close up of contour map showing the limestone outcrop in the eastern side of the Kom el-Shuqafa site with data provided by CDM Smith.

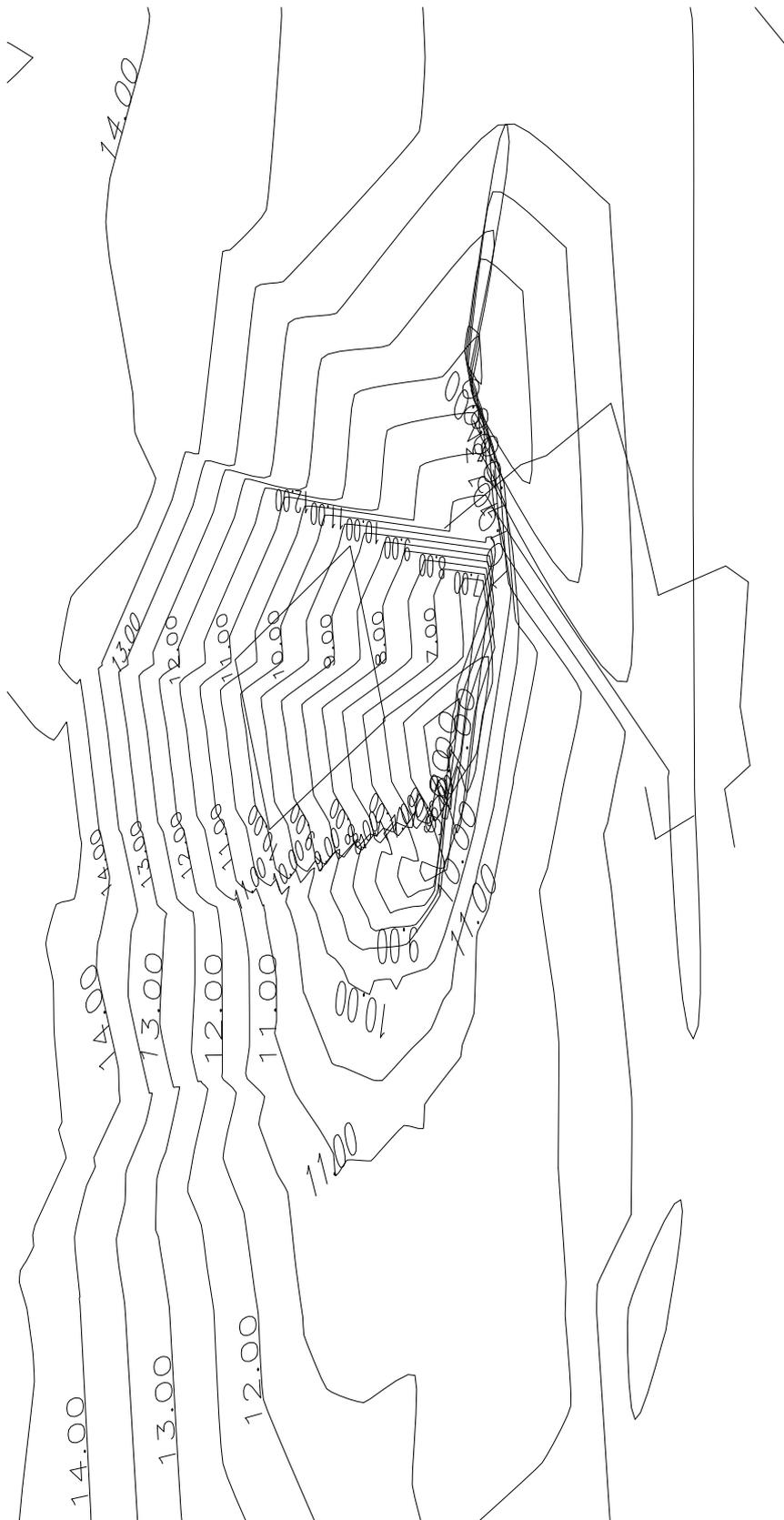


Figure 23. Close-up of contour map of the southwest corner of the Kom el-Shuqafa site using data provided by CDM Smith.

6.1.1 Excavation and Conservation History

As already noted, during the nineteenth century the area was used as a quarry. Extensive quarrying at this time resulted in tombs within the area being uncovered and described in the late nineteenth century by archaeologists. The Graeco-Roman Museum was established in 1892 and Giuseppe Botti became its first director. Between 1892-1893 Botti set about investigating and recording the area and then returned between 1900 and 1901. During this latter period the Kom el-Shuqafa catacombs were discovered (Tkaczow et al. 1993:65).

There is a famous anecdotal account of the discovery of the catacombs recording that a donkey carrying stone in the quarry fell through into a cavity and thereby revealed the entrance to the catacomb. However, the entrance was actually discovered on 28 September 1900 by an Alexandrian, Es-Sayed Aly Gibarah, who apparently immediately reported it to Botti saying 'While quarrying for stone, I broke open the vault of a subterranean tomb; come see it, take the antiquities if there are any, and authorize me to get on with my work without delay'.

On seeing the Main Tomb for the first time Botti reportedly exclaimed '*ma joie, cette fois-ci ne connût pas de borne*' ("my joy this time knows no end"). Between 1900 and 1901 Botti cleared the catacombs with members of the Von Sieglin Expedition. They went on to continue excavations between 1902 and 1908 without Botti, and published details, plans, and profiles of the main catacomb, 'Hall of Caracalla' and Scavo D (Schreiber 1908) (Figures 24-6). These plans are usually used as the definitive plans of the catacombs although subsequent excavations in the 1940s by Alan Rowe (see below) produced more up to date plans of the area (Figures 27-29).

The Botti/Von Sieglin excavations revealed three vertical levels of the main catacombs. The lowest level was already flooded at this time and was inaccessible. During this time Engineer M. Ehrlich, Inspector of the Western State Buildings, Ministry of Public Works, attempted to pump the water through a hole made in the ceiling of small chamber (chamber I behind the main tomb). These attempts were unsuccessful. Ehrlich published an account of his work in 1903 (Schreiber 1908:

379-381). As part of his dewatering attempts Ehrlich cut a square pit in the floor of the small chamber (I) and cut a canal that connected the pit with an ancient drainage trench that partly surrounds the central tomb (Chamber G). He also extended the near end of the right drainage trench into the end of the Northern Passage of the first level, cutting away the center of the small flight of steps within the passage.' (Rowe 1942:14-15).

Ehrlich had also restored the entrance, partly removed the mound of material covering the tomb, laid down asphalt over the site and introduced electricity into the tomb.

Photographs published by the Sieglin Expedition show that the topography of the area prior to and during their excavations was markedly different to how the site appears today (Figures 30-33). The Sieglin Expedition also published a section profile (part hypothetical) through the Kom el-Shuqafa site and beyond, to the northwest, showing the main Catacomb, 'Hall of Caracalla', Scavo A, Scavo B, hypothetical above ground structures, including the stadium, and existing above ground structures (Figure 34).

After the Catacombs were first discovered, the area was immediately protected from further urban development and a red brick fence wall was constructed around the site and the site building (currently the Antiquities Inspectorate office) was constructed. Alan Rowe recorded this wall and it still exists today

In 1941 and 1942 Alan Rowe, General Director of the Graeco-Roman Museum, resumed excavations of the catacombs, as well as excavations of other archaeological features within the site boundaries, including the third catacomb on the site (Scavo D). He published a plan of the catacombs, 'Hall of Caracalla', Scavo D, and various profiles of the catacombs (figures 27-29). Rowe was the first to succeed in clearing the water from the first/lowest level in 1941. To achieve this, the Technical Service of the Municipality of Alexandria installed a 35 H.P. electric pump at the bottom of the central shaft. The water was forced up the central shaft and conducted to a field at the south of the site. Consequently Rowe was the first to fully

expose the lower level of the catacombs. Rowe recorded the level of the water prior to pumping in his drawn cross-section through the catacombs.

Rowe records the Graeco-Roman Museum's physical interventions to aid the ground water lowering in 1941; 'for the benefit of future explorers in the catacomb it is necessary to mention the fact that in order to drain out all the water from the first storey the Graeco-Roman Museum was forced, in 1941, to cut a small canal in the floors of the two long passages and the rotunda shaft, the lower part or end of the canal opening out into a deepening specially made by the Museum in the floor of the central shaft (A); its commencement adjoins the cutting previously made by Ehrlich in the steps in the end of the north passage. Two small subsidiary canals running into the above-mentioned canal were also made, one connecting with the two tombs running off the northern passage and one at the east part of the base of the central shaft (A), the latter canal connecting with the small passage leading into the unfinished tomb and pit, the mouth of which is in the floor above in the large open square shaft (K), in the "Hall of Caracalla". (Rowe 1942:15, footnote 1).

The pumping may have entirely stopped in 1942. This is not clear at present.

In 1985 the Engineering Department of the SCA began a dewatering program. Alexandria University Faculty of Engineering was also involved. Wells were constructed. Pumping began and the water levels were monitored twice daily. These wells continue in use up till now. The authors attempted numerous times to access information and records related to this dewatering program (both from the Ministry of Antiquities, the Faculty of Engineering, and the individual engineers that were involved in the program, however no information was provided or located.

During a 1996 development project of the area a new fence wall was erected and the buffer zone of the area was enlarged to the northeast and the northwest.

The water levels in the catacombs were recorded as being unusually high in 1992. Photographs taken on 27 January 1992, after a period of intense winter rainfall, show the water in the second level, reaching to knee height of the statues in the antechamber (Figure 35). At the same time, the increase in humidity led to the

unexpected revealing of previously invisible artwork which has subsequently been photographed and studied using ultraviolet light; see also section 7.1.1 and figures 78 and 79 (Sorbets, Pelle and Seif el-Din 2015).

In 2004 six boreholes were drilled within the site (see Appendix 2).

Between 16 November and 31 December 2014 CDM Smith drilled eleven boreholes as part of their geotechnical data collection. Six of these were drilled within the boundaries of the Kom el-Shuqafa site (BHs 5, 6, 7, 8, 9 and 11) and 5 boreholes were drilled outside the site (BHs 1, 2, 3, 4 and 10). The results of these are presented in Appendix 2.

From September 2014 to August 2015 CDM Smith conducted a survey both on site and in the area surrounding the site. The data from this survey has been used in the production of many of the plans included within this report.

From 29 December 2014 to 17 January 2015 CDM Smith commissioned geophysical surveys within the catacombs and above ground within the Kom el-Shuqafa site. The data from this survey is discussed in Appendix 4.

At the beginning of 2015 the authors conducted a full photographic survey of the site including every accessible chamber (incorporating details such as individual loculi and other features) within the main catacombs, 'Hall of Caracalla' and Scavo D. Photographic documentation was done of all above ground features including every object within the open-air Kom el-Shuqafa museum. A detailed photographic log was also prepared. The photographs and logs are submitted with this report.

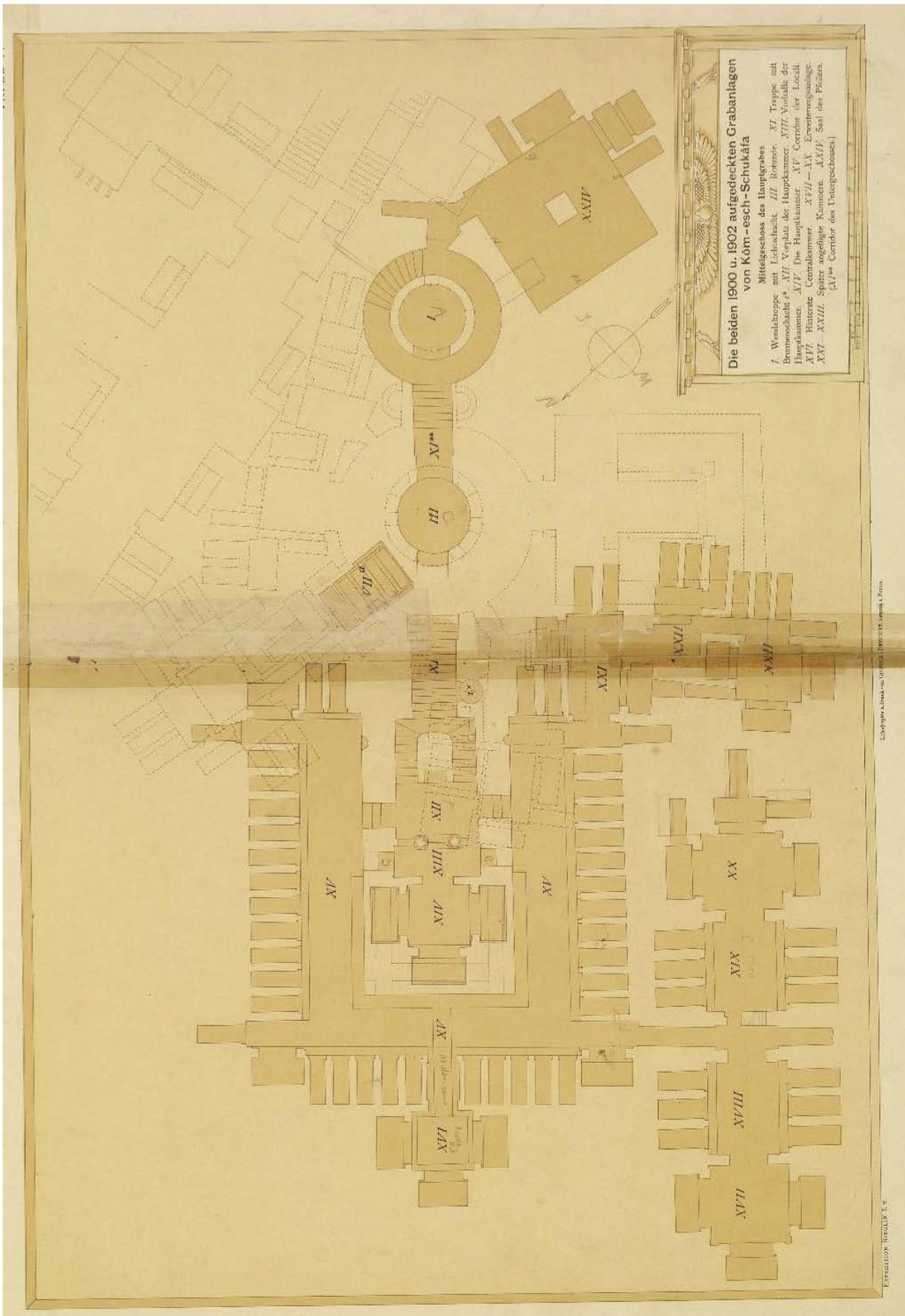


Figure 25. Plan of the second level of the main catacombs (Shreiber 1908 Plates: tafel V).

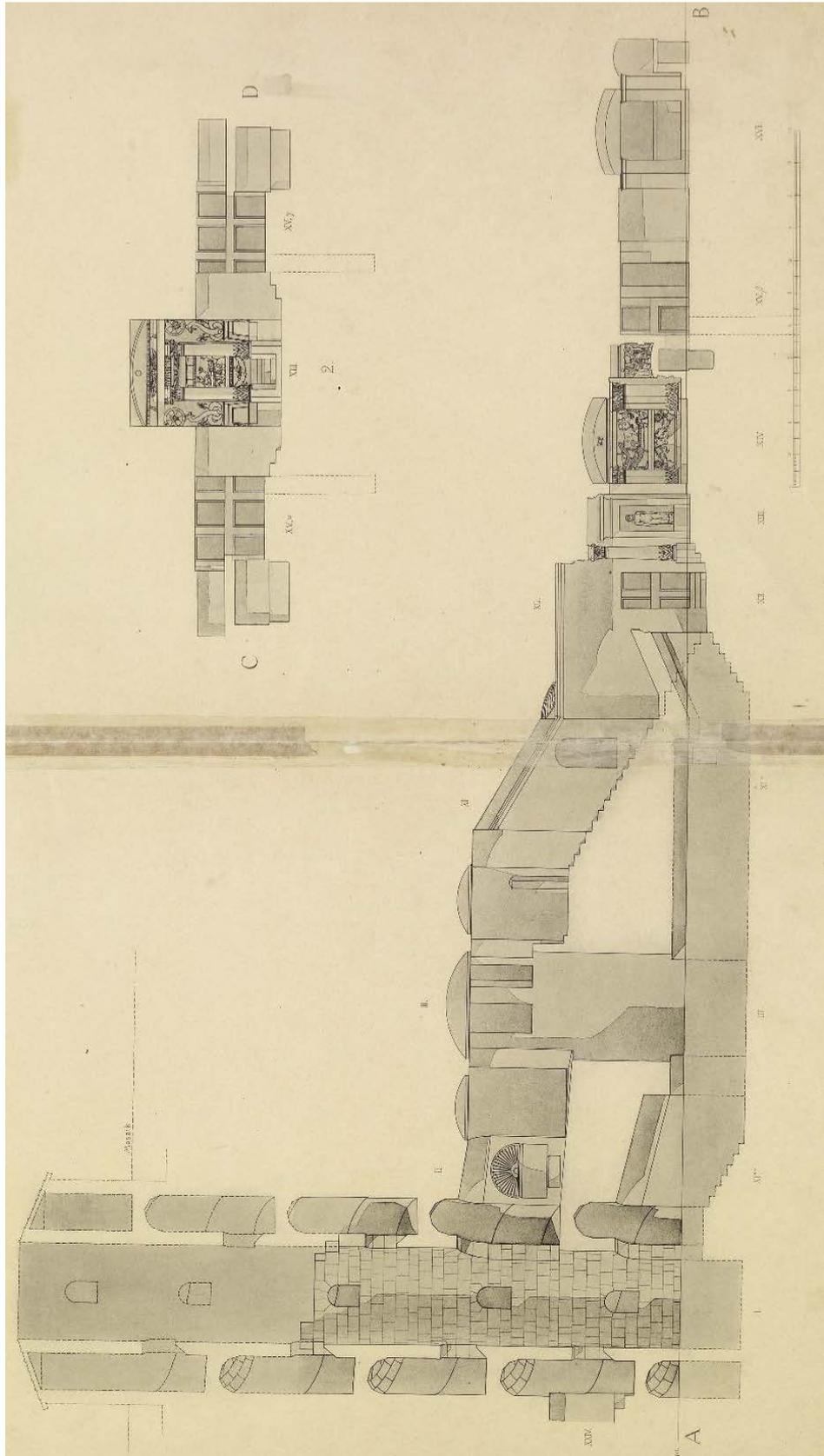


Figure 26. Profile through the main catacombs (Schreiber 1908 Plates: tafel VI).

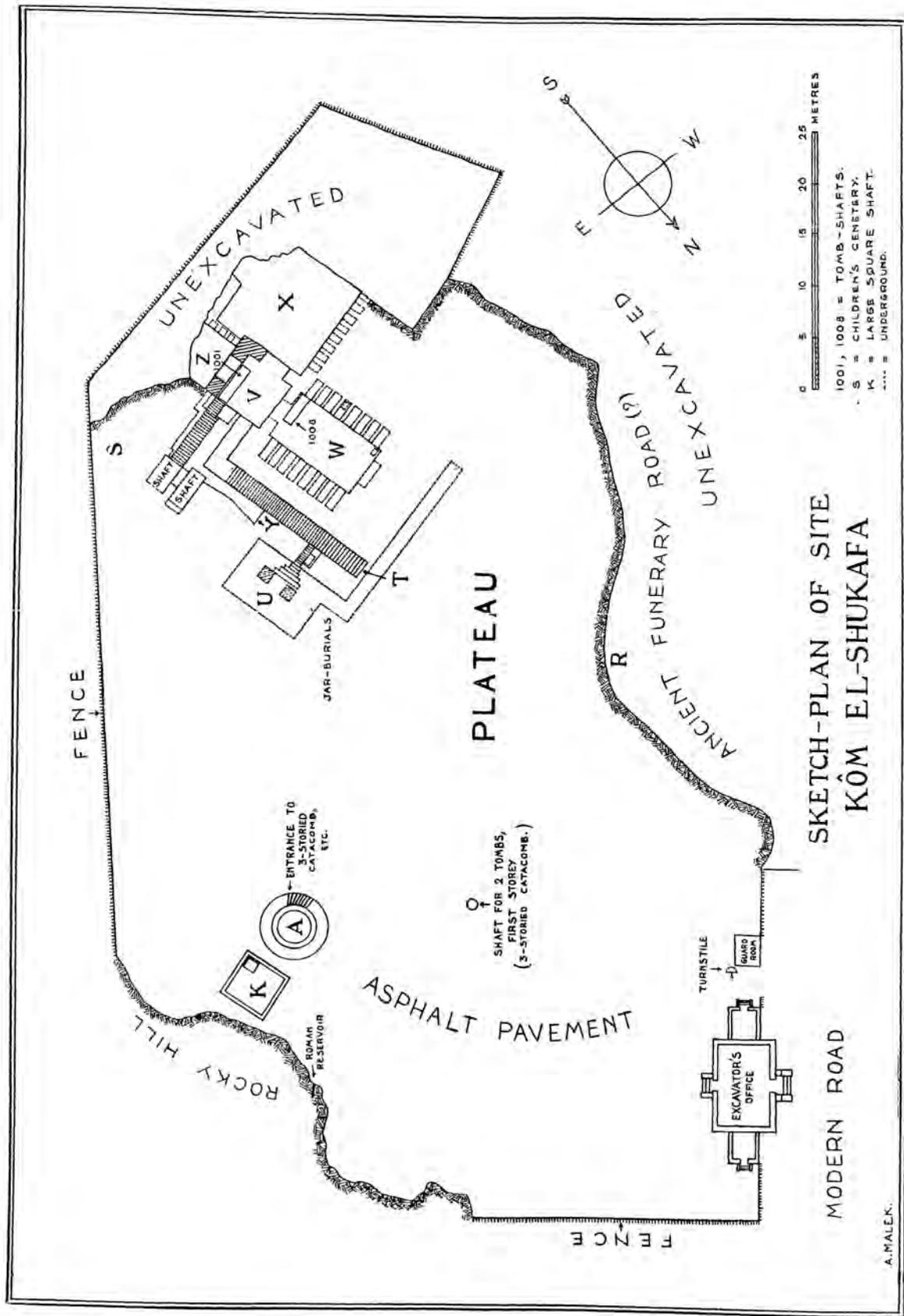


Figure 27. Plan of the features on the Kom el-Shuqafa plateau (Rowe 1942: pl. II).

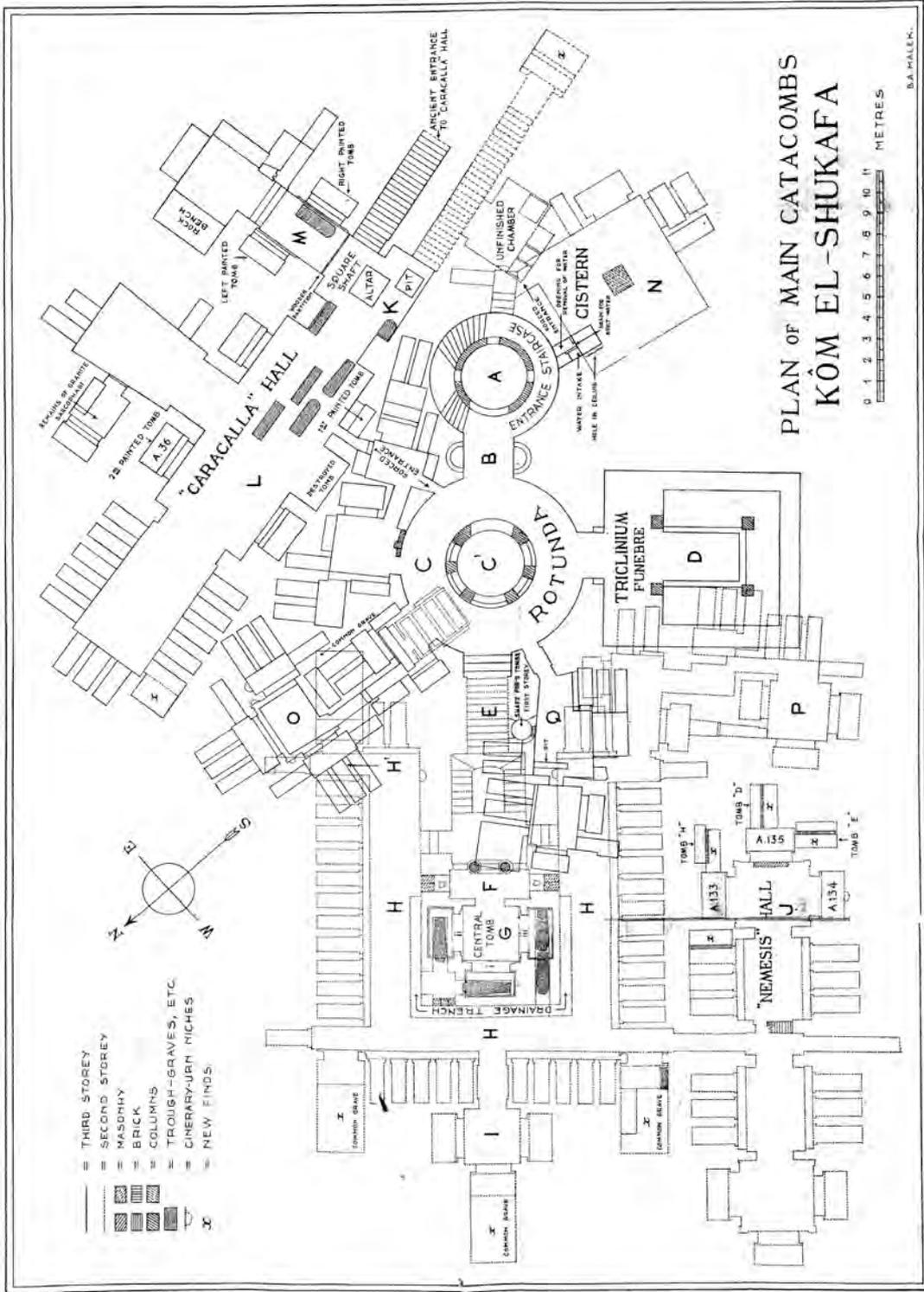


Figure 28. Plan of the main catacombs (three levels) and the 'Hall of Caracalla' (Rowe 1942: pl. IV).

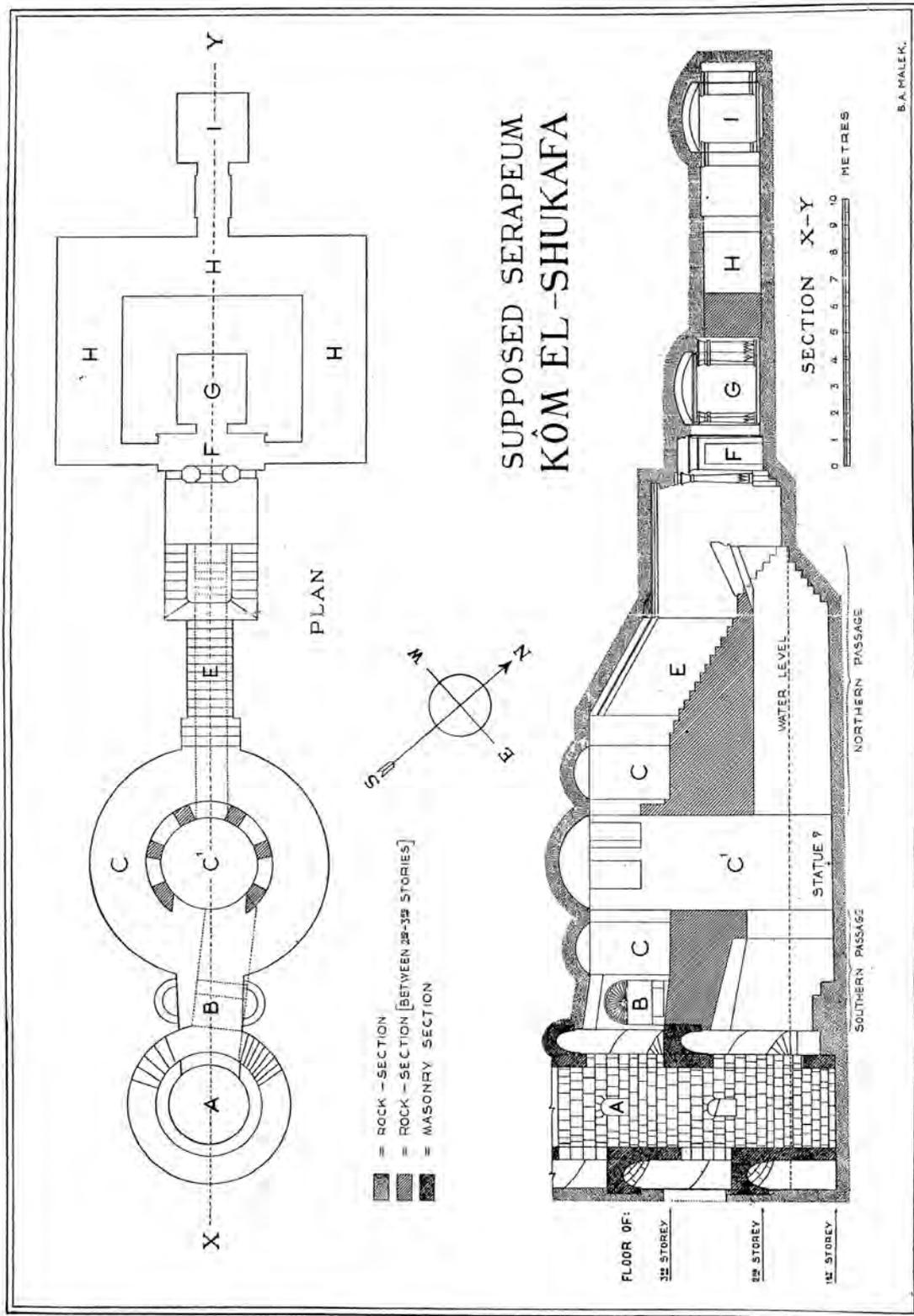


Figure 29. Plan of the lowest level (third) beneath part of the second level (upper); and profile through the main catacombs (lower) (Rowe 1942: pl. III).



Figure 30. Photograph of the site of Kom el-Shuqafa. The structure in the top left corner is presumably the Fort (Borg el-Hashem) (Schreiber 1908: figure 16).



Figure 31 - The Kom el-Shuqafa site from the main Catacomb staircase; W facing. Shaft K? shown to the west (Schreiber 1908: figure 74).



Figure 32. Taken from the Kom el-Shuqafa site looking east? (Schreiber 1908 Plates: tafel X).



Figure 33. The Kom el-Shuqafa site. SW facing. (Schreiber 1908 Plate Volume: tafel XVII).



Figure 34. Section profile (hypothetical in part) through the main Catacomb, 'Hall of Caracalla', Scavo A, Scavo B, hypothetical above ground structures including the stadium (Schreiber 1908 Plates Volume: tafel II).



Figure 35. Chamber G in the Main Catacombs showing the high water level in 1995 (ARCE 1995-02-29).

7 DESCRIPTION OF HERITAGE ASSETS (ARCHAEOLOGICAL AND HISTORICAL BASELINE DATA)

In order to assess the potential of the heritage assets within the Kom el-Shuqafa site and its surrounding areas, a Historic Environment Record (also known as a Sites and Monuments Record) was created for the local area. A Historic Environment Record locates and provides information on all known heritage assets (archaeological sites, historic sites and buildings, historic and palaeo-environmental sites) within a given area. A Historic Environment Record enables all parties to view the location and types of sites within an area, which can then be purposefully avoided during the creation of development/engineering schemes. Also, a Historic Environment Record enables one to predict and extrapolate the likely archaeological conditions within a given area, from finds made nearby. This latter analysis is important, as KNOWN archaeological sites and finds are often at best, a small and unrepresentative sample of the total buried heritage.

The Historic Environment Record was created through research of archaeological, documentary and cartographic sources, as well through interviews, site observations, geophysical survey and geotechnical investigations (boreholes), commissioned and carried out in 2014/2015. Each heritage asset was allocated an HER number and plotted on the 2015 survey data (see Table 1; Figure 36 for HER plots and Figure 37 for extents of individual heritage asset). The locations and extents of known catacombs within the area are shown in Figure 38. The individual heritage assets are described below by HER number (Table 1).

TABLE 1

HER Number	Type of Asset	Description	Coordinates (central point)	Present Y/N
HER 1	Catacomb	Main Kom el-Shuqafa catacomb complex, also known as Hypogeum 1. Roman (1 st /2 nd Century to 4 th Century AD). Limits mapped.	E7757 34/ N3452 977	Y
HER 2	Catacomb	'Hall of Caracalla', adjacent to HER 1. Also known as Hypogeum 2. Roman. Limits mapped.	E7757 55/ N3452 977	Y
HE	Catacomb	Catacomb complex in SW corner of Kom el-Shuqafa site boundary. Also known as Scavo D. Limits mapped.	E 77572	Y

R 3			1/ N3429 32	
H E R 4	Cem etry	Children's Cemetery. Seven rectangular troughs cut into the rock. The burials had largely been robbed (Rowe 1942:6). Roman. Limits not mapped but location shown.	E 77573 3/ N3452 922	?
H E R 5	Unde termi ned	Passages cut into Rocky Hill (HER 6). Includes 2 passages which are currently accessible. According to Rowe the passages are associated with a small round shaft, part of a Roman reservoir beneath HER 9 (Rowe 1942:3). Roman. Limits not mapped and exact location not surveyed.	E7757 60/ N3452 972	Y
H E R 6	Topo. Featu re	Surviving limestone outcrop within the Kom el-Shuqafa site boundary. Also known as the 'Rocky Hill'. This 'hill' has been quarried away to the south. Limits of the outcrop have been generally mapped in historical maps (18 th to 20 th century) of the area.	E7757 60/ N3452 975	Y

HER 7	Topo. Feature	<p>Visible and previously recorded line of what may be the edge of a limestone plateau, within the limits of the Kom el-Shuqafa site boundary. Also known as 'plateau edge'. The plateau edge is shown in historical maps (18th to 20th century) of the area, was mapped by Rowe (Rowe 1942), has been indicated in the on-site boreholes and the geophysical survey (commissioned by CDM Smith, work conducted in 2014/2015). The ground level to the north has been artificially raised (by up to 10m). Excavations by Rowe in 1942 of this leveling material recorded stratigraphically deposited Roman to Byzantine Period leveling debris. Leveling material was also recorded in excavations HER 25, within the 2015 boreholes (commissioned by CDM Smith), and are indicated within the geophysical survey (commissioned by CDM Smith). See figure 6</p>		Y
HER	Hist. Building	<p>The current Ministry of Antiquities site office, built in the early 20th century as the Kom el-Shuqafa excavators' office. The building houses part of a mosaic, thought</p>	E7757 29/ N3453	Y

8		to be part of HER 11. HER 8 was surveyed in 2015 (commissioned by CDM Smith)	005	
H E R 9	Fort	Borg El-Hashem. The fort appears on maps dated 1855 on a high peak and disappears from maps dated 1917 (Jondet 1922). The fort here may have been incorrectly identified as Borg El-Hashem, its correct name may have been Borg el-Hadid. Limits mapped.	E7758 27/ N3452 992	N
H E R 1 0	Road	A road recorded at base of plateau (recorded by Rowe, and described as a 'funerary road; Rowe 1942:5). It is unclear what evidence there is for this feature. Limits not mapped. Location indicated by Rowe (1942) Possibly Roman.	E7757 01/ N3452 960	?
H E R 1 1	Floor	Mosaic. Recorded and excavated during the Sieglin excavations (Schreiber 1908). The limits of this feature were not mapped. Its location is indicated in photographs, as partly above the 'Hall of Caracalla'. Roman	E7757 57/ N3452 968	N
H E	Stadium	Stadium. The ruins of this feature were apparently still visible at the end of the 18 th century and were first	E7758 69/	Y?

R 1 2		described in 1778 by Sonnini (1799) and then by the Description de l'Égypte in 1798 and were mapped (Saint Genis 1829); the full area was described as measuring 555m by 50m. The feature was described as being partly cut into rock and partly built, with an inaccessible underground complex at one end, fallen columns, channels and reservoirs, and a 'spina' cut into the bedrock. The stadium appears to have been located within a U-Shaped dip, created by a natural limestone outcrop. This dip has subsequently been artificially raised up (see HER 7). Any surviving remains relating to this feature is therefore expected to be considerably lower than the current ground level. Roman	N3453 151	
H E R 1 3	Tomb (not in situ)	Tomb of Tigran, displayed within the Kom el-Shuqafa site. Re-located from central Alexandria. Roman	E7757 12/ N3452 985	Y, not in situ

HER14	Tomb (not in situ)	Tomb of Selvago, displayed within the Kom el-Shuqafa site. Re-located from ElBehayra Gov. Roman	E7757 16/ N3452 980	Y, not insitu
HER15	Object	Non in situ objects including architectural elements and statues displayed within the Kom el-Shuqafa site. HER 15 represents objects excavated from within the Kom el-Shuqafa site.		Y, not insitu
HER16	Object	Non in situ objects including architectural elements and statues displayed within the Kom el-Shuqafa site. HER 16 represents objects relocated from the Graeco-Roman Museum.		Y, not insitu
HER1	Catacomb	Catacomb complex to the west of the Kom el-Shuqafa site, located by Sieglin Expedition (Schreiber 1908). Also known as Scavo A. Roman (1st BC/ 1st cen. AD). Limits mapped.	E7756 12/ N3452 943	Y?

7				
HER 18	Catacomb	Catacomb complex to the west of the Kom el-Shuqafa site, located on a 1941 Survey Map. Marked as Scavo A on survey drawing, no information about this part of the tomb located. Limits mapped.	E7756 39/ N3452 987	Y?
HER 19	Catacomb	Catacomb complex to the northwest of the Kom el-Shuqafa site. Located by Sieglin Expedition (Schreiber 1908). Also known as Scavo B. Roman (1 st -2 nd cent AD). Limits mapped	E7755 69/ N3452 992	Y?
HER 20	Catacomb	Catacomb complex to the southwest of the Kom el-Shuqafa site. Located by Sieglin Expedition (Schreiber 1908). Also known as Scavo C. Roman (1 st -2 nd cent. AD). Limits mapped	E7756 48/ N3452 859	N?
HER	Tomb / Catac	Wescher Tomb. Located by Tkaczow as being between Scavos C and D (HER 20 and HER 3; Tkaczow et al 1993). Roman (3rd- 4th Cent. AD).	E7756 81/ N3452	N?

2 1	omb	Limits not mapped, exact location unclear	887	
H E R 2 2	Tomb / Catac omb	Rufini Chapel. Located by Tkaczow as being next to Wescher Tomb (HER 21; Tkaczow et al 1993). Roman (2nd Cent. AD)	E7756 81/ N3452 887	N?
H E R 2 3	Tomb / Catac omb	Puglio Tomb. Located by Tkaczow as being near to Scavo B (HER 19; Tkaczow et al 1993). Roman		N?
H E R 2 4	Bath Hous e	Two Bath complexes. Located by Tkaczow as being a few hundred meters south of Scavo D (HER 3; Tkaczow et al 1993). Roman (early 2nd Cen. AD). Limits not mapped.		?
H E	Leveli ng	MoA excavation of 5 trenches that revealed the accumulation of leveling deposits. Probably Roman –	E7757 62/	Y

R 2 5		Modern. Limits of trenches mapped by MoA.	N3453 097	
H E R 2 6	Tomb / Catac omb	Illicit excavations in 2014 beneath modern houses revealed an underground burial complex. Location of site surveyed as door of modern property. Probably Roman	E7756 42/ N3453 126	Y
H E R 2 7	Hist. Buildi ng	Elmiry Mosque	E 77589 8/ N3453 166	Y
H E R 2 8	Objec t	Two red granite columns with limestone capitals (Roman), used in the corners of a modern building. Location added to survey plan.	E7755 39/ N3450 54	y
H	Canal	El- Mahmudiyah Canal. The canal was opened in 1819		?

E R 2 9		but then closed in 1829 due to a mud slide that made it un-navigable. Repairs were completed in 1838 and re-opened. The canal follows the route of an earlier canal, clearly shown in historic maps from 1738. Earlier maps (from 1548), seem to show an even earlier, wider channel in the same location (Jondet 1922).		
H E R 3 0	Hist. Buildi ng	Daghash Mosque	E7755 26/ N3452 966	Y
H E R 3 1	Catac omb	11 subterranean stairs found in 2001 leading to an entrance/ passage leading to the north, under the road. Probably Roman. Limits not mapped. Existence/location revealed through interviews.	E7757 07/ N3452 818	N?
H E R	Exca vatio n	Archaeological trenches excavated by the Ministry of Antiquities in 2014/2015 looking for the continuation of SMR 31. As of the preparation of this report, no	E7756 95/ N3452	Y

3 2		catcombs have been revealed.	844	
HER 33	Excavation	Archaeological trenches excavated by the Ministry of Antiquities. Information not currently available.	E7759 80/ N3453 241	
HER 34	Cemetery	Jar Burials excavated in the Kom el-Shuqafa site. These were located 'in the sand', and comprised large amphora or jars (with the necks removed) used as containers for the bones of children or adults, sometimes with two jars placed mouth to mouth to form one 'coffin' (Rowe 1942: 38). All of these features are likely to have been completely excavated. Roman	E7757 32/ N3452 947	
HER 35	Catcomb?	Geophysical survey conducted in 2015 (commissioned by CDM Smith) identified a subterranean 'anomaly' at c. 1m ASL. This feature may be a continuation of HER 3 (Scavo D) or may be HER 21 or HER 22 (Rufini Chapel or Wescher Tomb).	E7757 05/ N3452 901	Y

HER36	Catacomb?	Geophysical survey conducted in 2015 identified a subterranean 'anomaly' at c. 1m ASL. This feature may be a continuation of HER 2 (the 'Hall of Caracalla')	E7757 63/ N3452 947	Y
HER37	Lake	Lake Mareotis		Y
HER38	Burial	A disturbed, but articulated skeleton was excavated during the excavation of TP 10 (see Appendix 4)		N



Figure 36. Location of known heritage assets plotted as HER (Historic Environment Record) numbers. The numbers correspond to those listed in Table 1. The plot overlies the CDM Smith survey plan.

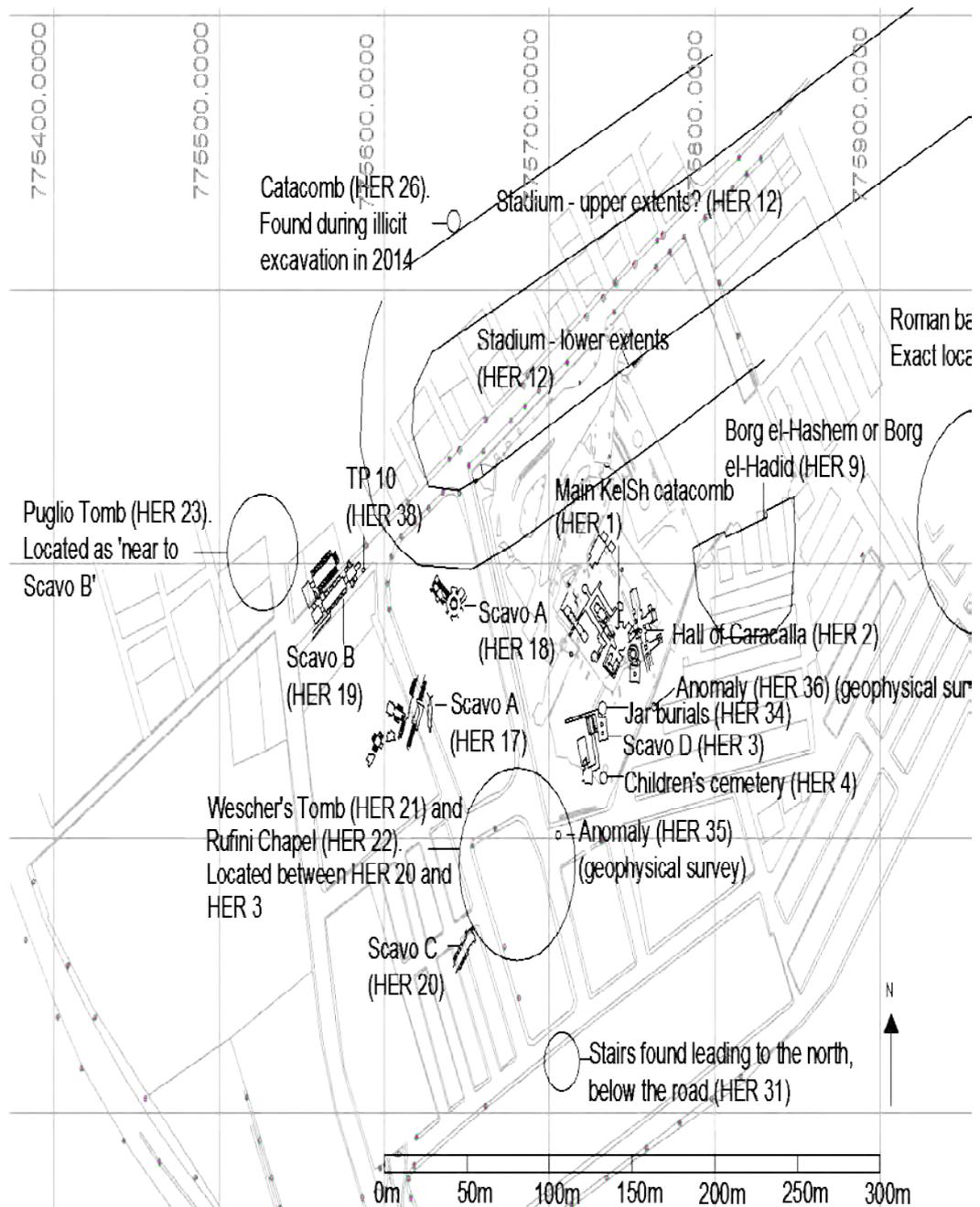


Figure 37. Location and extent of known heritage assets. The plot overlays the CDM Smith survey plan. The limits of HER 1-3 as shown here are also the extents as surveyed by CDM Smith (2015).

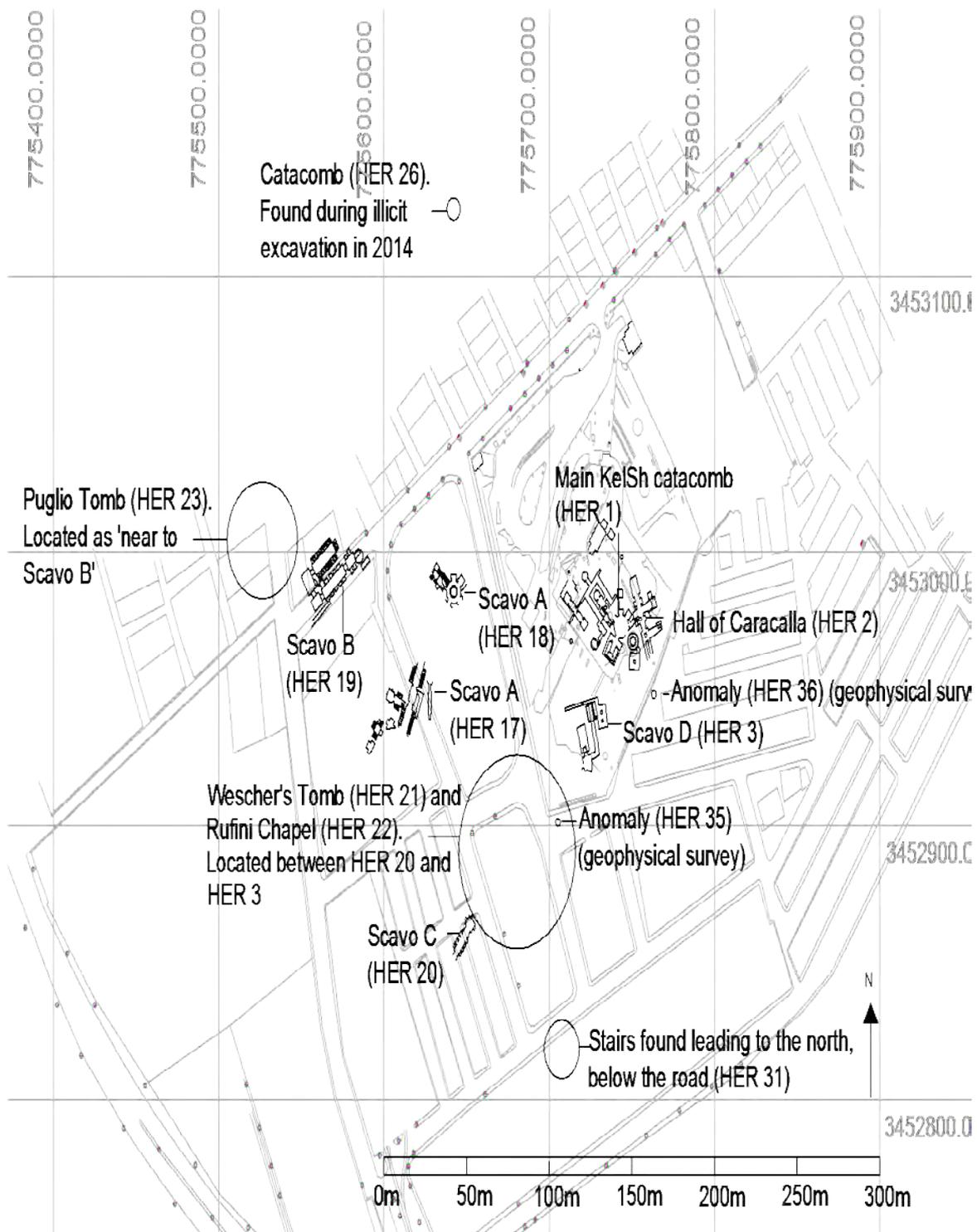


Figure 38. Location and extent of known catacombs within the Kom el-Shuqafa site and in the vicinity of the site. The plot overlays the CDM Smith survey plan. The limits of HER 1-3 as shown here are also the extents as surveyed by CDM Smith (2015).

7.1.1 Heritage Assets within the Kom el-Shuqafa Site Boundary

Three catacombs exist within the boundary of the Kom el-Shuqafa site: the main Kom el-Shuqafa catacomb (HER 1); the 'Hall of Caracalla' (HER 2); and Scavo D (HER 3) (see Figure 38 for the location and planned extents of these). These three catacombs were planned by Schreiber in 1908 and then by Alan Rowe in 1942. Rowe also planned additional chambers that he had excavated. The plans published by Rowe therefore show the complete horizontal and vertical limits of these catacombs (Figures 28 and 29). Since a number of lower lying, and in the case of Scavo D, higher lying chambers, were backfilled in 1942 and are not presently accessible, the 2015 on-site survey conducted by CDM Smith does not show the full horizontal and vertical extents. Below, maps are included that show the limits and elevations produced during the 2015 survey, as well as digitized maps of features planned by Rowe in 1942 annotated with onsite observations by the authors of this report.

HER 1 The Kom el-Shuqafa Catacomb ('Hypogeum 1')

The three-storey hypogeum, also referred to as 'the main catacomb' and 'hypogeum 1', was constructed in the first or second century AD. It subsequently underwent rebuilding and enlargement up to the beginning of the fourth century AD when it was abandoned. Contextual coins suggest a period between Trajan (ruled AD 98–117) to Licinius (ruled AD 308–324AD). However, statues in an antechamber suggest an early Flavian period date (AD 69 – 79) if the statues relate to the period when the main tomb was constructed and used.

Loosely, the development seems to follow this sequence: the construction and use of the spiral stairway (A), the rotunda (C), the second storey (including the stairs to the main chamber, the antechamber (F) and the main chamber (G) and the lower level (interchangeably termed the first storey and the third level). One hypothesis is that these features functioned as a *Serapeum*, a temple or religious institution dedicated to the God Serapis, and that later the main chamber of the second storey was converted into a burial place for an elite Alexandrian family (Rowe 1942:10).

Later, the catacombs were enlarged and side chambers with loculi added. The 'Hall of Caracalla' appears to have been a separate entity. There is a forced entry linking chambers of the upper level (third storey/first level) of the main catacombs to the Hall. This forced entry breaks through a painted tomb in the Hall. Based on the artwork in the Hall, a date of late first to early second century has been suggested (Seif el-Din 1997:405).

The catacomb consists of three storeys, one above the other. In ancient times, a fourth storey may have terminated in some construction above ground, open to the air, closing the entrance into the catacomb (Breccia, 317). This superstructure might have included some chambers for providing the ritual spaces. According to Sieglin, the discovery of an upper mosaic floor (HER 11) may indicate the presence of such a ground level structure (Figure 34).

The circular staircase (A)

Access into HER 1 is via a spiral staircase round a circular shaft (A) (Figure 39, Figure 40 and Figure 41). The staircase is supported by an arch comprising five long rows of narrow stone slabs. The shaft would have enabled bodies to be lowered into the hypogeum but would also have served to admit light and ventilation as well as a route for the extraction of excavated stone (Empereur 1995:2). The top of the staircase is at c. 16.00m asl and descends to below 4.50m asl. Here, at the base, the staircase is flooded nowadays.

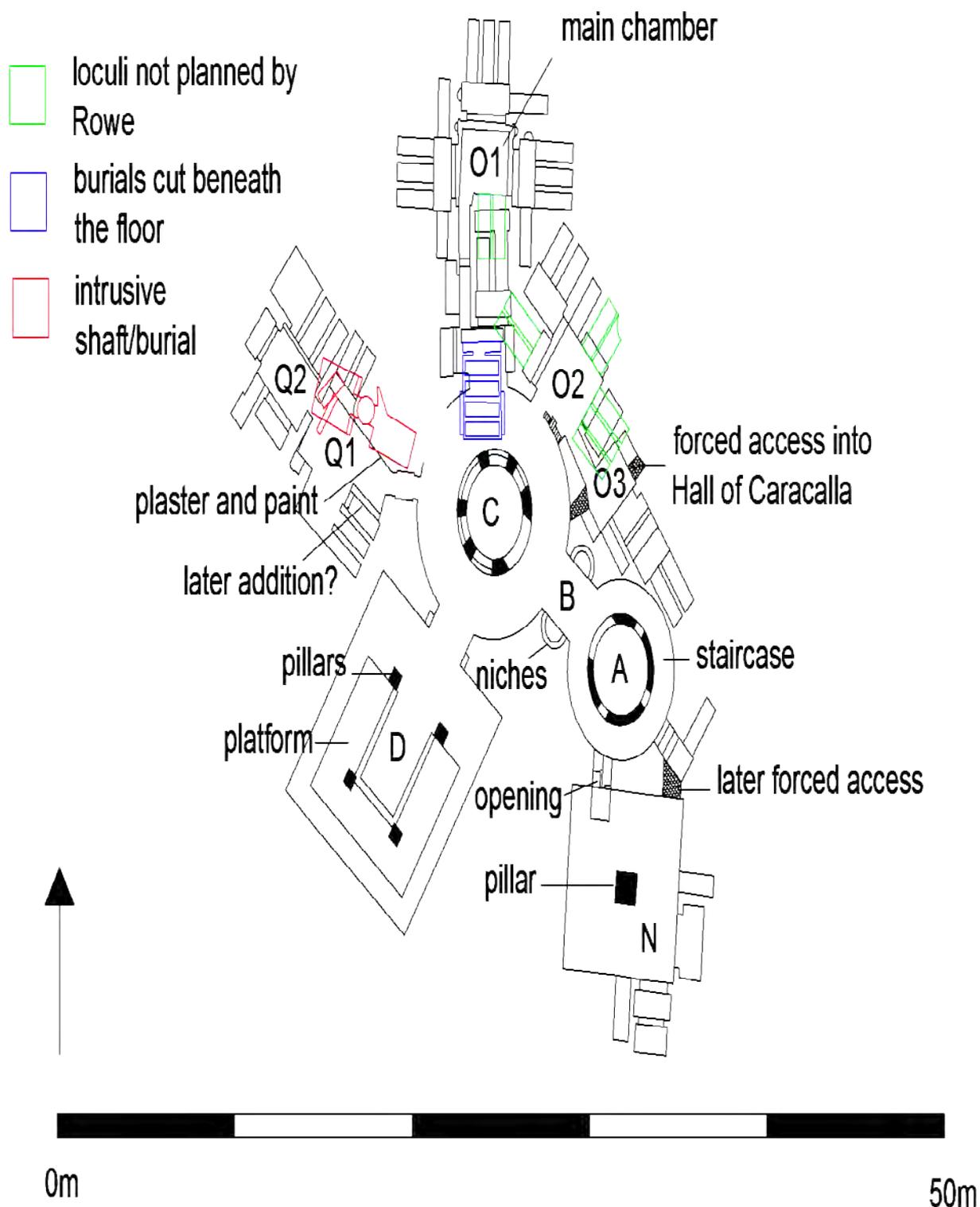


Figure 39. Upper level of the Main Catacombs. Apart from the loculi (coloured green) the plan has been digitized from Rowe (1942: fig IV). For plan and levels using 2015 survey data see Figure 5.



Figure 40. Entrance of the Spiral staircase (A) round the circular shaft. NW facing.

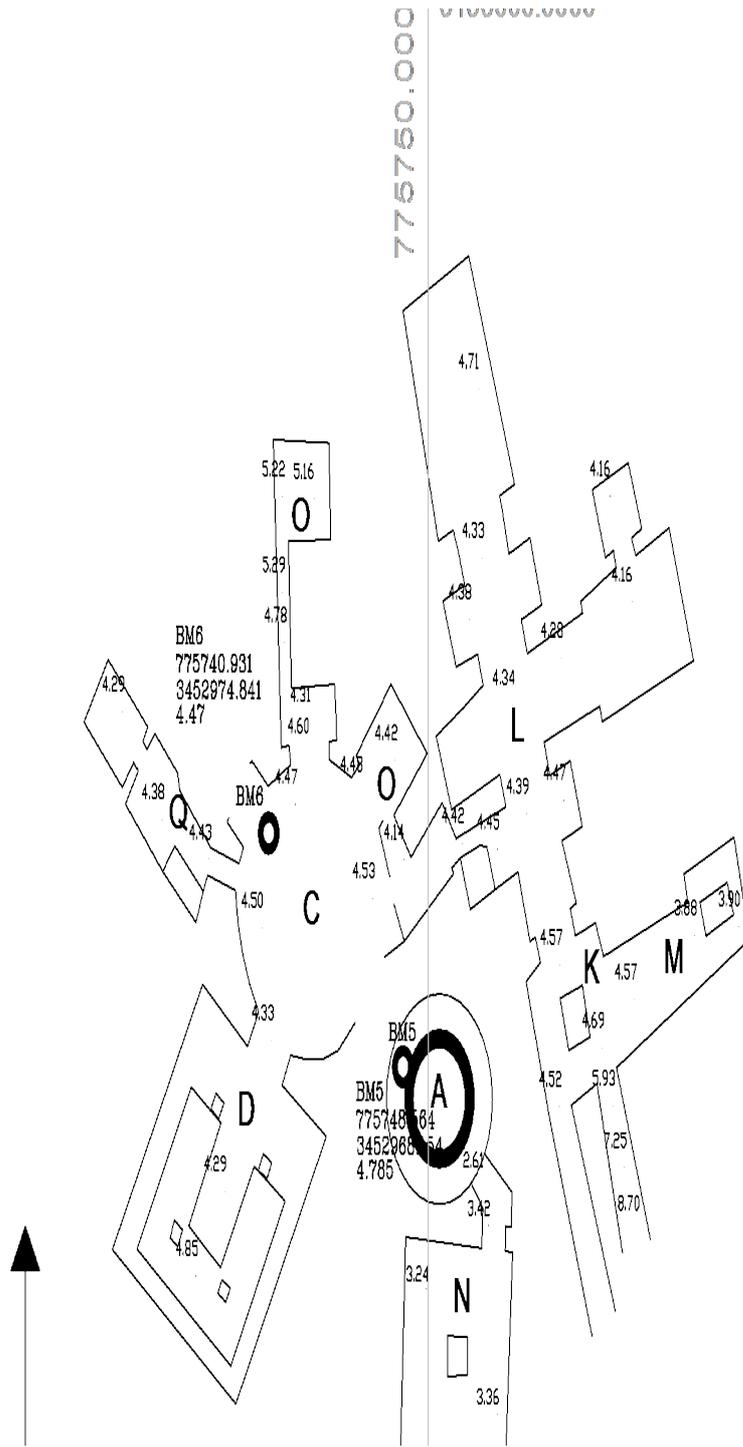


Figure 41. Plan of the upper level of the main catacomb and the 'Hall of Caracalla' using the 2015 survey data.

The Cistern (N)

From the spiral staircase (A), there is small square opening in the outer wall from which one can see a large cistern used to collect water draining from the surface and to channel it away from the tombs (Figures 39 and 41). Above, there is a small settling tank for water and from here, through a vertical drain of small ceramic pipes, the water was channeled to the cistern. There is an opening five feet-eight inches high from where the water could be removed using buckets (Rowe 1942:12).

The cistern has a square supporting pillar in the center. The floor, ceiling and walls of the cistern are all cemented; the floor of the cistern is at c.3.30m asl. At a time when the cistern was no longer in use an entrance was cut from staircase A from where access was forced through into the Cistern (N). Within the Cistern (N) two loculi, one above the other, were cut into the east wall, and a rock cut sarcophagus placed within a recess. In the south wall there are two rock-cut sarcophagi one behind the other and a further loculus cut to the west. Of the sarcophagi in the recess, the outer is adorned with a double festoon of vine leaves and the head of Medusa. In the inner sarcophagus Rowe found the mummified body of woman with some fragments of gold jewelry (Rowe 1942:12).

The Vestibule (B)

The spiral staircase (A) leads down to the first storey to the first storey landing or vestibule (B) (Figure 39). There are slight traces of alabaster flooring here (Figure 42). On the northeastern and southwestern sides there are two semi-circular niches (exedrae) with outer diameters of 1.02m and 1.76m. They have semi-dome heads decorated with a large cockle-shell carved in the rock. Each niche contains a rock-cut bench 43 cm high. 'The shells [decorating the semi domes were] originally coated with stucco. Its hinge carved in high relief, is represented at the spring of the semi-dome' (Fakharani 1965:57). The shell on the dome of the NE niche is slightly more damaged (showing signs of erosion/decay) than the SW shell (Figures 43 and 44).



Figure 42. Vestibule B with the remains of the alabaster floor beneath the modern planking; SE facing.



Figure 43. NE niche and bench in space B; NE facing.



Figure 44. SW niche and bench in space B; SW facing.

The Rotunda (C)

Landing B leads to the Rotunda (C), a circular chamber that has a shaft in the middle covered by a domed kiosk supported by a parapet and six pillars (Figures 39, 41 and 45). The diameter of the rotunda measures 8.76m. The outer diameter of the parapet is 4.0m, while its inner diameter is 3.27m. The floor of the rotunda is at c. 4.50m asl.



Figure 45. The rotunda (C); NW facing.

The shaft reaches down to the third level. Plaster casts of five marble heads were formerly displayed in the chamber although these are no longer displayed here. The original marble heads were discovered at the bottom of the Rotunda (C) and were moved to the Graeco-Roman Museum. One is of a man thought to be a priest of Serapis (Empereur 1995: 4). Another is a portrait of Empress Julia Longina, wife of the Emperor Domitian (ruled AD 81–98). His rule was so unpopular that it is unlikely that his wife would have been exhibited after his death (Empereur 1995:4), suggesting that the portrait may have been in the Rotunda prior to Domitian's death. The others are a bust of a man, a youth and a child. From the Rotunda there are three accesses (four if the forced access on the eastern side of the Rotunda is included) that lead to various chambers (O1, O2 and Q) with sarcophagi and loculi or niches for cinerary urns, and the 'triclinium funebre' (D).

According to Empereur (1995:3) the Rotunda originally only led to the Triclinium and to the main staircase E and then into the main tomb (G), the other sets of tombs being cut later when more space was needed.

The Triclinium Funebre (D)

On the SW of the Rotunda an access 2.19m wide leads into a square chamber 8.5m wide and 9.00m long known as the Triclinium, used for meals in honour of the dead, where the relatives of the deceased met for a funeral repast on the days sacred to the memory of the dead (Breccia 1922:319; Figures 39 and 41). The room is supported by four pillars cut out of the rock. In the front two there are small niches in which torches could have been fixed (Figure 46). The floor here is at 4.30m asl. There is a large U-shaped platform 55 cm high that takes up a large portion of the chamber with a slightly lower inner sill. Here the diners would have reclined around a central table (Empereur 1995:6).



Figure 46. The Triclinium (D) showing the U-shaped bench and the pillars; SW facing.

Botti found tableware and amphorae in this chamber. Only a relatively small number of people could have been accommodated in this room, probably only the immediate family of the deceased would have gathered here for commemorative feasts (Empereur 1995: 6).

Chambers Q and O

The chambers in the upper level follow a different orientation to those in the underlying levels (see below). The upper level chambers fan off from the Rotunda (C), following no particular orientation (Figures 39, 41). To the west of the Rotunda (C), an entrance leads to two small rooms, one connecting with the other (Q1 and Q2). Here there are loculi and sarcophagi. On the northeast wall of chamber Q1 from southeast to northwest there are clear traces of two layers of plaster on the wall, one red and one white; the circular shaft of an intrusive burial (Figure 47); and two loculi cut high up in the wall. On the southwest wall of Chamber Q1, from southwest to northwest, there is a sarcophagus in the corner, the walls of which appear to be constructed rather than carved from the rock indicating that this was perhaps a later addition to Q1 (Figure 48). The wall was plastered and painted red. Next to this the bedrock has been carved to a higher level (higher than the floor level in the chamber). The top of this higher level is the same level as the floors of two loculi cut into the SE corner. In the NW corner there is a sarcophagus cut down to 1.60m -1.96m long by 1.5m wide with a half-engraved lid. In the northwest corner of Chamber Q1 there is a pit that leads from ground level, through level 1 and down to the left to a level commensurate with level 3. This pit is now covered with a wooden plank. The pit leads down to two tombs which are also connected to the surface of the plateau via a small circular shaft (Figure 39 and Figure 49). The tombs are currently inaccessible and may have been backfilled by Rowe. Rowe suggests that this is 'a tomb that probably predates the main body of this complex in that it has its own small shaft giving direct access to the outside world, something that would have been unnecessary had it been built later' (Empereur 1995, 17).



Figure 47. The red and white painted plaster on the NE wall of Chamber Q1 and the intrusive shaft cut from ground level; NE facing.



Figure 48. The SE Corner of the SW wall of Chamber Q1; SW Facing.

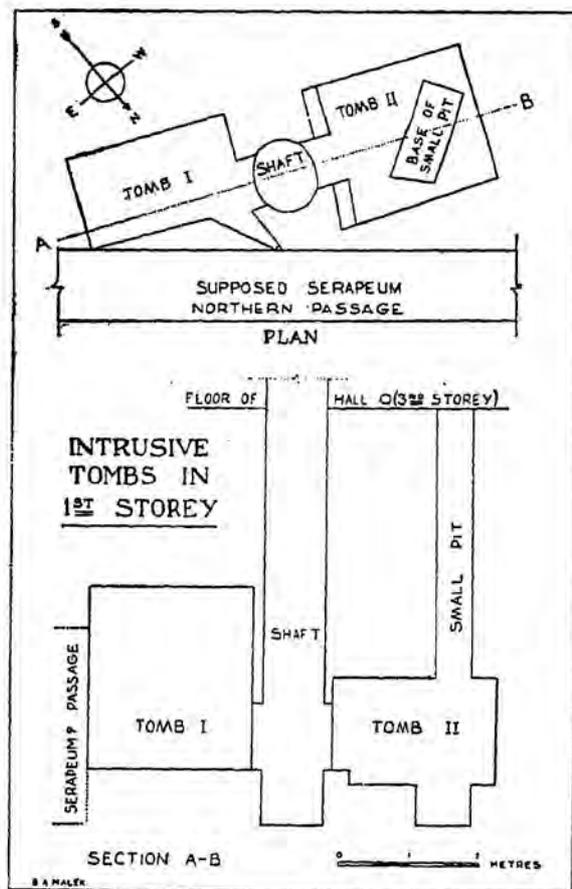


Figure 49. Plan and profile of the intrusive tombs, shafts and pits. The pit is cut in the floor of Chamber Q1. The shaft is cut from the top of the plateau. Digitized plan after Rowe 1942: fig 3; see Figure 39.

In the northeastern wall of Chamber Q2 there are three loculi cut high up in the wall, the northwestern of which is a larger chamber. In the northwestern wall of the same chamber there is a sarcophagus with two burial levels and in the southwestern wall a loculus cut high up in the wall and a sarcophagus burial with single burial levels (Figure 50).

To the north of the Rotunda there is a series of chambers (O1-3). Loculi have been cut throughout and on several levels (Figure 51). Within the access to Chamber O1 there is a trough burial. At the base of the trough a large chamber containing four trough burials extends to the south beneath the floor of the Rotunda (C). To the east there is another trough burial, 0.73m deep, and to the north a sarcophagus

orientated east-west with two burial levels. There are also north-south loculi on three burial levels and north-south loculi connected to an east west trough with four burial levels.



Figure 50. The sarcophagi in the W and N walls of Chamber Q2; NW facing.



Figure 51. The entrance to Chamber O1 from the Rotunda; N facing.

On the western side of the entrance, from the Rotunda to Chamber O1, there is a sarcophagus with two burial levels. Above this, there are three niches which may have held portrait busts or funerary urns. From here, a north-south passage leads to the main room of Chamber O1. On the wall of the passage there is a sarcophagus burial that goes down 3.30m. At the base there appears to be another chamber or passage extending to the northwest. Within the main chamber of O2, all the north, west and east walls contain loculi. There are two levels of niches in the northwest corner and northeast corner of the chamber and adjacent to many of the loculi and sarcophagi there are small niches for lamps cut into the walls (Figure 52). On the ceiling of the main chamber of O1 there is a geometric design of petals in a circle painted in red (Figure 53). The motif has led to a hypothesis that this room was for Jewish burials (Rowe 1942:30-31).

The main chamber of O contains 19 units with 35 burial emplacements. On the southern side of the chamber there are two loculi cut high up in the wall. On the eastern side of the chamber there is a north-south sarcophagus with four burial levels with a niche at its northern end. Beyond the sarcophagus there are four loculi cut into the wall, each with two burial levels. The plan is repeated on the northern side of the main chamber, with an east-west sarcophagus with three burial levels and a niche at its western end. Beyond the sarcophagus, four loculi are cut into the wall. The same pattern is repeated on the west wall except here there are five loculi.

To the northeast of the Rotunda (C) there is another chamber (O2). On the northwest wall of this chamber from southwest to northeast there is a sarcophagus with an arched cover (Figure 54). Beyond this there are two loculi cut high up in the wall. Next to this there is chamber that leads to two further loculi. In the northeast side of the chamber there is an east-west sarcophagus with an arch and a single burial level. Above this there are three loculi cut high up in the wall. The northeastern end of the southeastern loculus is curved, probably in order to avoid cutting into the Hall of Caracalla. On the southeast side there is a large sarcophagus and a narrow passage leading into chamber O3. Above these, there are three loculi cut high up in the wall.



Figure 52. The northwestern corner of the main chamber in O1 with niches probably used for lamps; NW facing.



Figure 53. The geometrical design on the ceiling of O1.

Chamber O3 contains two forced accesses, one into the Rotunda and one into the 'Hall of Caracalla'. Both of these forced accesses cut through sarcophagi in Chamber O2, one on the northeastern side and one on the southwestern side. The forced access through to the 'Hall of Caracalla' also cuts through Painted Tomb 1 (Figure 55). These forced accesses were probably made by robbers. In the southeastern side of Chamber O3 there are three sarcophagi in a row. Beyond these there are two loculi and to the southwest of these the start of a cutting of new loculi can just be made out, presumably stopped when it was realized that this would cut into stairway A. In the southwest corner of the southeastern side there are further loculi.



Figure 54. The sarcophagi and loculi of Chamber O2; SE Facing.

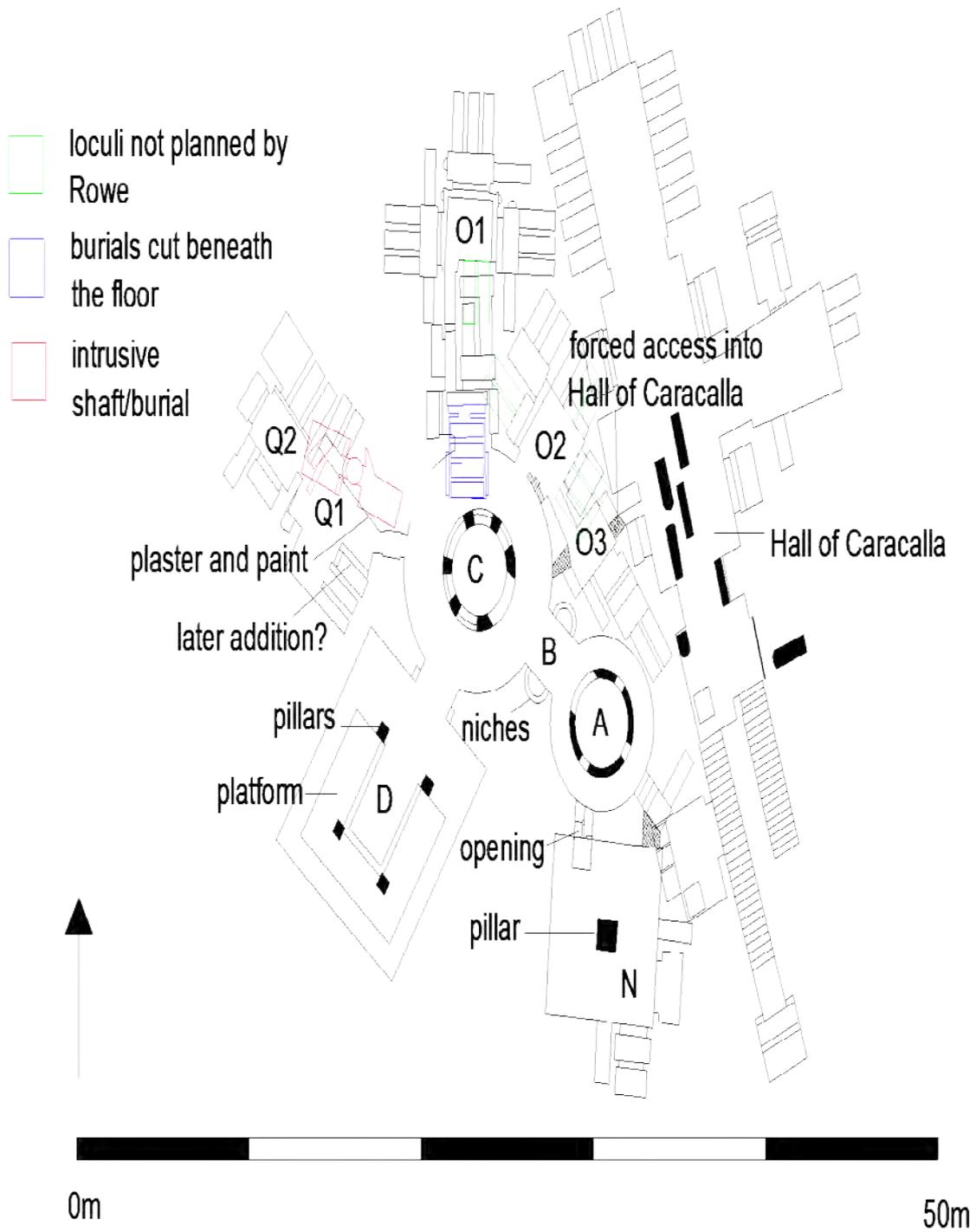


Figure 55. Plan showing the proximity of the Main Catacomb and the 'Hall of Caracalla' and the forced entry between them.

Staircase (E)

From the Rotunda (C) a staircase (E) leads down to the second storey (Figure 56). After 15 steps, the stairway divides into two parts descending to the NE and SW of the so-called 'Prompter's Box' – a large niche in the shape of a shell which provides another entry to the third level. Botti found the skeletons of five horses here (Rowe 1942). The vault of the stairway is in the form of a semi-dome, decorated with a scallop shell carved in the rock (Fakharani 1965, 57). At the bottom of the stairs, in front of vestibule F, the façade is supported by two columns in the form of sheaves of papyrus with floral capitals (Figure 57). These support a cornice decorated with a winged solar disc with *uraei* between two falcons. Above this there is a low arched pediment decorated with a small solar disc.

Vestibule (F)

On the side-walls of the Vestibule (F on Rowe's plan) there are two niches shaped like Pharaonic doorways. According to Rowe these were doorways into gallery H which were later blocked with stones to form niches (Rowe 1942:18). In these are the limestone statue of a woman (SW) with a height of 1.43m (Figure 58) and a limestone statue of a man (NE) with a height of 1.44m (Figure 59). The forms of the heads of both statues are not Egyptian although the statues themselves 'have been executed according to the principles and models of Egyptian art' (Breccia 1922:332). It has been argued that these figures are husband and wife, possibly the occupants of the main tomb, or children of the occupants. Based on style they have been dated to between the reigns of emperors Domitian and Hadrian (AD 81 to 131). The Vestibule (F) leads into the main chamber (G on Rowe's plan). This access is surmounted by a cornice decorated with a winged solar disc and a frieze of *uraei*. Both sides of the access are decorated with a serpent, carved in bas-relief, sitting on bases in the form of an Egyptian *naos* (Breccia 1922:322). Both wear the Pharaonic double crown (*pshent*) and have *caduceus* (the symbol of Hermes) and the *thyrsus* (the symbol of Dionysus) beside them. Above each serpent is a shield bearing a Gorgon's head. The Gorgon's head is an emblem often used on Alexandrian sarcophagi; its purpose was to act as a deterrent against grave robbers.

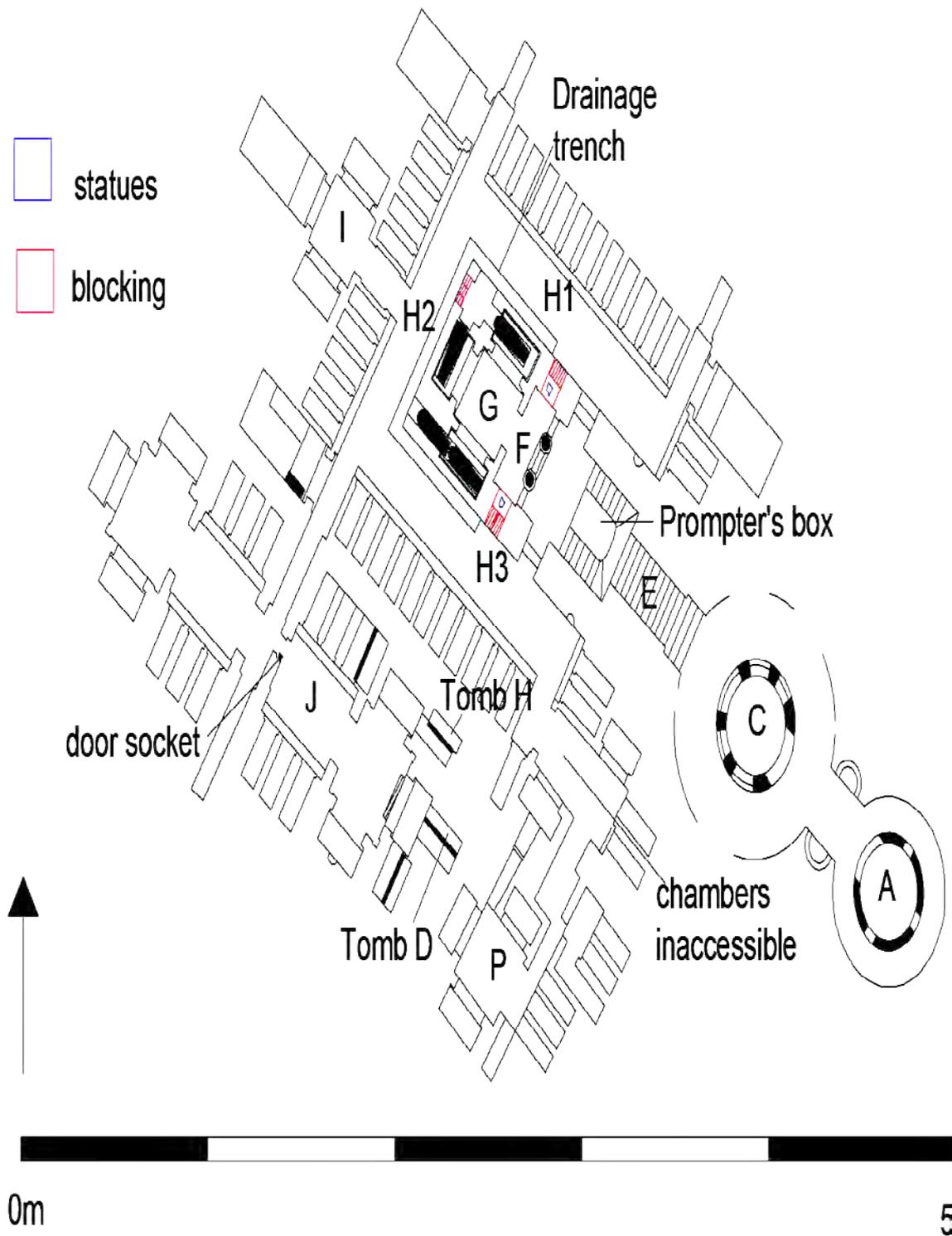


Figure 56. Second level of the Main Catacombs. Digitized plan after Rowe 1942: fig IV. For the plan and levels using 2015 survey data see Figure 15.



Figure 57. Staircase (E) leading to the vestibule (F) and the façade of the main tomb; NW facing.

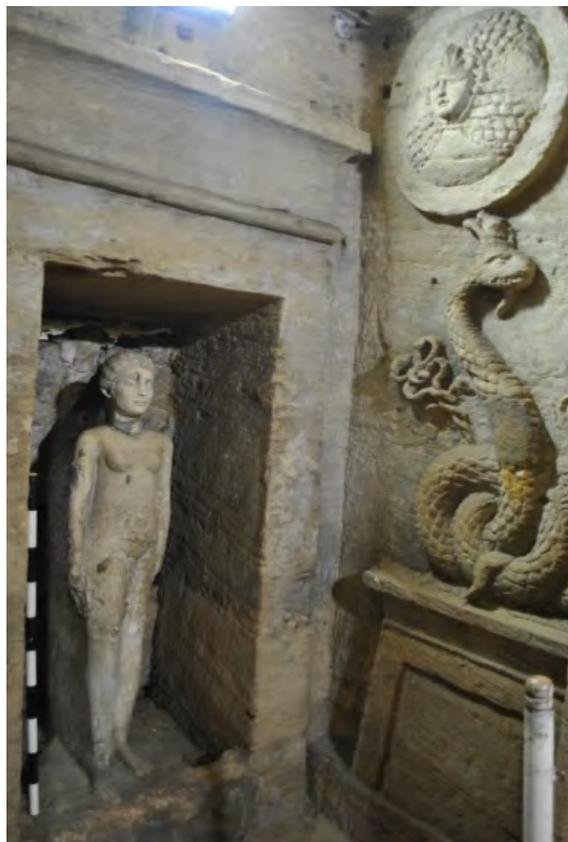


Figure 58. The southwestern door jamb of the main tomb and female figure in Vestibule F; SW facing.



Figure 59. The male figure in the niche in the NE wall of Vestibule F; NE facing.

The Funeral Chamber (G)

The main funeral chamber (G) contains three niches on pedestals carved from the rock on the three sides of the room (Figures 56 and 60). In each there is a hewn sarcophagus with lid.

In the NW niche there is a festoon of flowers carved into the sarcophagus and above this there is a figure of a supine woman. There are two masks (Silenus and Medusa) suspended from the rings holding the wreath. The front of the lid is decorated with a horizontal festoon of leaves and berries of ivy and olive in relief. The two sarcophagi in the NE and SW niches are identical (Figures 61 and 62). The fronts are decorated with a festoon of grapes with ribbons. In the center there is the skull of an ox suspended by a ring. Above the wreath are two Medusa heads. The lids of the sarcophagi are imitation lids and are not separate from the sarcophagus. Instead there are openings in the gallery (H) behind from which the architect would have been able to hollow out the sarcophagi. The bodies too would have been brought in through these same openings (Breccia 1922:323). No bodies were found in these sarcophagi. After the interments were made the holes were blocked with

large stones (Figure 56). The burial troughs are shaped like a mummy, an unusual feature in the complex (Rowe 1942:20).

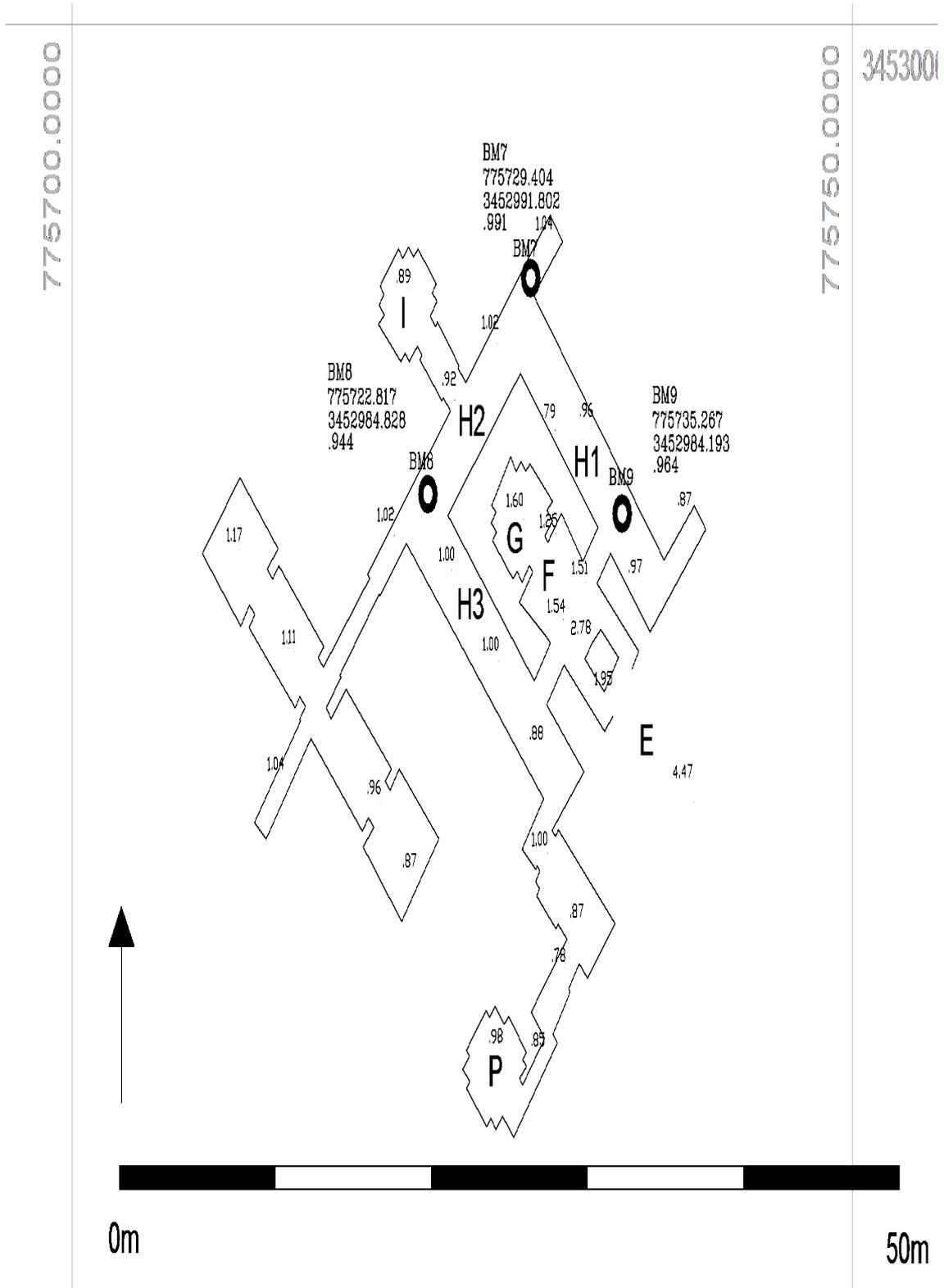


Figure 60. Plan of the second level of the main catacomb using the 2015 survey data.



Figure 61. The southwest niche and sarcophagus in Chamber G; SW facing.



Figure 62. The northeast niche and sarcophagus in Chamber G; NE facing.



Figure 63. The scene within the NW niche above the sarcophagus in Chamber G; NW facing.

In the three niches, above each sarcophagus there are central reliefs with two smaller side reliefs 'worked with a rounded chisel' (Breccia 1922:324). In the NW niche the central relief is a mummified Osiris lying on a funerary bier in the shape of a lion (Figure 63). The lion wears the Osirian crown surmounted by the solar disc and holds the feather of Maat. Beneath the table are three canopic jars. Anubis stands behind the table. Thoth stands at the head and Horus at the foot of the lion bier. On the northeast wall of the niche a priest is depicted wearing feathers and a panther skin offering a lotus bud and a cup to a woman. An altar in the shape of a sheaf of papyrus separates them.

On the small wall to the left there is a priest reading prayers from his scroll standing in front of a figure (possibly the deceased?). Between the two is a vase with plants or flames. On the main wall of the niche there is a figure wearing the double royal crown standing in front of an altar offering a ceremonial collar to the god Apis who is represented as a bull standing on a pedestal. Isis stands behind Apis holding out her

winged arms and holding the feather symbolizing Maat. On the small wall at the right there is dog-headed god and a human headed god, wrapped in mummy bands. On the small wall to the left there is a figure making an offering to a god.

On the SW side of the entrance wall Anubis is represented with the body of a man and the head of a dog (Figure 61). He wears a Roman cuirass and the short sword of a legionary. He holds a shield and a Roman lance. On the NE side of the entrance is (according to Breccia) Seth-Typhon or Makedon with the head of a wolf and the tail of a dragon dressed as a Roman soldier (Figure 62). According to Rowe, this is another representation of Anubis (Rowe 1942:25, 26).

Rowe suggests that the funerary tomb in its present configuration is not original and that it had originally been a smaller chamber or sanctuary that was later enlarged by cutting the recesses (Rowe 1942:19) He also suggests that at the same time as the room was converted, a drainage trench was cut around it (in gallery H). He felt that since the ceiling of chamber G is domed, creating an echo, it may have had some cultic use (Rowe 1942:19).

Galleries and Chambers H, I and P

In general, the galleries, chambers and loculi of H and I follow the same orientation as the earlier elements of the hypogeum, B, D, E, F, G.

There are two doorways with steps leading from the antechamber (F) into what may have originally been a passageway (H) encircling the main tomb. Over time, numerous loculi and chambers were cut (H, I and J). The northeastern passage H1 has two tiers of 11 loculi cut into the northeastern wall (Figure 64). The lowest tier contains two burial levels. In the floor a trough was cut which was then roofed over with flat stone after the interment. A second interment was then laid on top of the stones and the loculus entrance closed (Rowe 1942:27). The floor of H is wet and the lower tier loculi are filled with foul water.

At the southeastern end of this passage there is a niche in the southwest wall and two tiers of loculi the lowest of which contains two burial levels. To the northeast of this there is a sarcophagus and at the base of this there is a large cut chamber that

according to Rowe's plan functioned as a 'common grave'. To the north, two tiers of loculi were added; again, the lower tier contains two burial levels. At the northwestern end of passage H1 there is a northeast-southwest passage (H2). The northwest side of passage H2 contains two tiers of ten loculi, the bottom tier containing two burial levels. At the northeastern end of H2 there is an additional two tier loculus with three burial levels. To the west of this there is a sarcophagus leading into a 'common grave' chamber. Chamber I is also cut into the northwest side of passage H2 which Rowe believed was part of the original design of the complex. Rowe suggested that the chamber was later altered with rock-cut sarcophagi cut into its three sides and that the northwestern-most sarcophagus was later turned into a common grave by opening up a lower chamber. In the ceiling of chamber I there are modern bricks blocking a hole. It was through this hole that in 1900 entry was made into the complex.



Figure 64. Gallery H1; NW facing.

To the southwest of chamber I, on the northwestern side of Gallery H2, another sarcophagus was cut, also turned into a common grave. At the southwestern end of passage H2 the passage stops dead indicating that plans to enlarge the complex in this direction halted here. To the northwest and southeast there are two sets of chambers. The northwestern consists of two chambers; the first contains three sets

of two tier loculi, one on the northeastern side and one on the southwestern. The lower tier of these contains two burial levels. The chamber to the northwest of this contains rock-cut sarcophagi on three sides. There is a similar layout on the southeastern side of H2 (J, also known as 'Nemesis Hall'). The original doorway into this hall is still visible consisting of a small wall of Roman tile bricks, a stone lintel and a stone pivot socket for a door. The hall is divided into two chambers, the outer chamber consisting of two tiers of loculi on either side of the hall and the inner chamber containing three rock cut sarcophagi giving access to three other tombs. Tomb H contained a woman buried with three gold rings set with onyx intaglios depicting Leda and the Swan, Hypocrates and either Ares or Mars. Based on this and the position of the body (her right hand over her breast) Rowe hypothesized that the woman was a priestess of Nemesis since this is the position in which the goddess Nemesis is depicted (Rowe 1942: 28). The body was originally encased in an outer cartonnage.

Two other tombs lead off from the southeastern sarcophagi. Tomb D had been blocked with bricks and stone, and hard clay plaster had been applied to conceal the tomb. Inside there was an inhumation of a woman, also positioned in the traditional pose of Nemesis and encased in cartonnage (Rowe 1942: 29). She was wearing a gold necklace with a clasp in the form of the eight-spoked wheel of Nemesis, a gold leaf on her chest, gold amulet, gold disks over her navel and each breast, and every finger and toe protected with gold caps (Rowe 1942:29). Today the water level is high in this chamber with water pooling on the floor.

The passage H2 also leads into the northwest-southeast passage H3. Similar to H1, H3 contains 11 sets of two-tier loculi, the lower loculi having two burial levels. At the southeast end of H3 the water level is high, so that area P was inaccessible for study.

In 2014, as part of CDM Smith's data collection, a geophysical survey was conducted within the second level of the Main Catacombs (HER 1), with the aim of identifying lower chambers (see Appendix 4). Anomalies were picked up at the southeastern ends of H1 and H3. However, these correspond to areas where there

is a downward slope of the floor level, where water has pooled, and are unlikely to represent the presence of underlying, undiscovered, subterranean features.

The Third Level:

The third (lowest) level is currently flooded with water. As already noted, Rowe was the first to successfully reduce the water in this level and enter it. Although CDM Smith attempted to pump the water completely from this level in 2015 (see below) the water could not be completely removed. Consequently the floor of the third level was not seen, nor was a geophysical survey possible, to check whether there are any underlying chambers beneath the floor. Thus the following description of the lower level relies heavily on Rowe (1942). From the 'Prompter's Box' there are six steps leading down to a NW-SE corridor that is currently inaccessible, approximately 1.15m wide (Figure 65). It connects with the shaft of the Rotunda (C) as the 'Northern Passage' and then from the shaft to the main shaft of the entrance (A) as the 'Southern Passage'. No loculi were ever carved in this area. Using Rowe's profile drawing through the main catacombs (Rowe 1942: PLIII) the Northern Passage is c. 2.80m high and the Southern Passage is c. 3.20-4.00m high).

Between 16 May and 2 June 2015 CDM Smith carried out a pumping test in which large amounts of water were pumped out using the existing water pumps. During this period the level of the ground water was taken down to 0.78 m asl, c. 0.10m below the existing water level. During and after this pumping test the lower level had water 0.20m above the ground level, this being the top of the modern deposit that covers the original floor. CDM Smith attempted a manual auguring test on the 2 June 2015 at the base of Shaft A. After drilling to between 0.30m to 0.40m the drilling was halted because the auger was not performing sufficiently. For the first time however, since Rowe's time, the lower level was accessible, albeit dangerously so. The staircase of shaft A spiraled around further to the south than was expected. This area was filled with rubbish (Figure 66). Figure 67 shows the Southern Passage and its off-alignment with the Rotunda C; Figure 68 shows the length of the Northern passage, facing NW. The cut in the SW wall must be the intrusive tomb that was cut down from the top of the plateau (shown in Figures 39 and 47) which, to judge from Rowe's plans, slightly cut the side of the Northern Passage (Figure 69).

Figure 70 shows the view from the Northern Passage looking up at the stairs beneath the 'Prompter's Box' in Chamber E/F.

Rowe suggests that this third level was part of the initial design of the complex along with the Cistern (N), the circular entrance (A), the upper vestibule (B), the rotunda (C), the central staircase (E), the lower vestibule (F), the outer sanctuary (G), passages around it (H), leading to an inner sanctuary (I), and that together these formed a Serapeum, a temple to Serapis (Rowe 1942:16-17). Rowe argues that 'the relation of chamber G with chamber I is very reminiscent of similarly-situated rooms in the Greco-Roman temple of Dendera, where the front room is the Sanctuary of Festivals and the back room the real sanctuary which contained the principal statue of the divinity' (Rowe 1942:16). He also suggests that a statue of the Apis bull may have been stood at the base of the Rotunda (C) shaft. Other theories see this as a ceremonial passage for the dead with the living using the stairs (Empereur 1995, 17). Note that the 2 passages have slightly different orientations.

Rowe suggests that the lower level had been abandoned due to 'subsidence of the ground in Alexandria, or to the rising of the sea, through a seismic disturbance, became partly flooded with water and had finally to be abandoned' (Rowe 1942:17). He does however note that two tombs were later cut into the side of the lower level of the possible Serapeum, meaning that there cannot have had ground water issues then. He also mentions that when the second storey of the Serapeum was later altered to contain the great central tomb (G) the craftsmen had cut a small drainage trench partly around it.

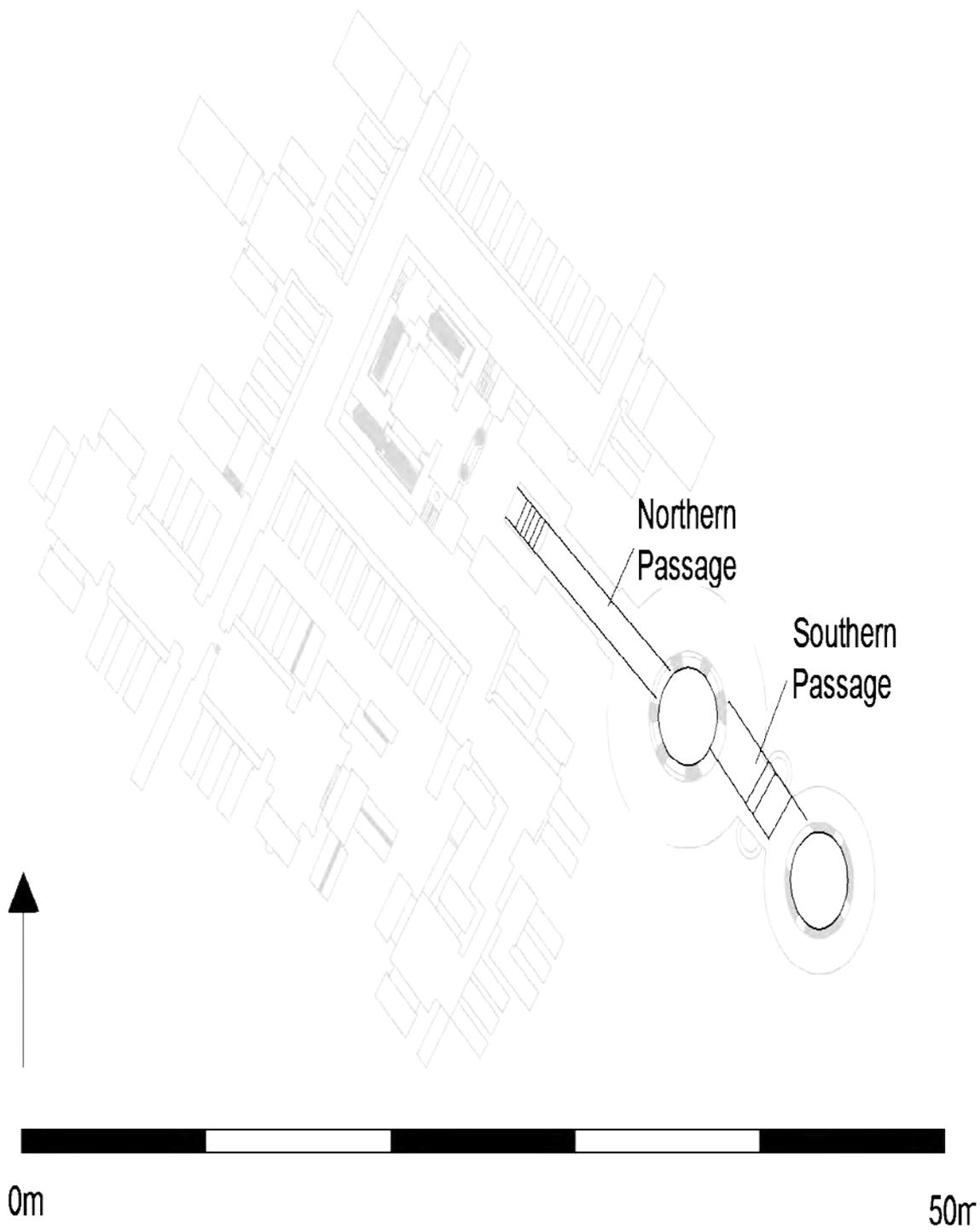


Figure 65. Plan of the lowest level digitized from Rowe 1942:PLIII.



Figure 66. The staircase 'passage' spiraling around shaft A of the main catacomb. Photograph taken after the 2015 pumping test; S facing. Photo: CDM Smith.



Figure 67. NW facing along the southern Passage of the lowest, third level of the main catacomb and the opening of the Rotunda (C). Photograph taken after the 2015 pumping test. Photo: CDM Smith.



Figure 68. The length of the northern passage facing NW. The cut in the SW wall must be the intrusive tomb that was cut down from the top of the plateau. Photograph taken after the 2015 pumping test. Photo: CDM Smith.



Figure 69. View through the hole in the SW wall of the Northern Passage. This is part of the intrusive tomb that was cut down from the top of the plateau; SW facing. Photograph taken after the 2015 pumping test. Photo: CDM Smith.



Figure 70. View from the Northern Passage looking up at the stairs beneath the 'Prompter's Box' in Chamber E/F; SW facing. Photograph taken after the 2015 pumping test. Photo: CDM Smith.

HER 2. "Hall of Caracalla"

The 'Hall of Caracalla' is an entirely separate complex and is smaller than the first. This complex is sometimes referred to as Hypogeum 2. It is connected to Hypogeum 1 by a forced entrance between O3 and L (Figure 71). According to Empereur, this forced entrance was cut by grave robbers (Empereur 1995, 18). However, Rowe suggests that the forced entrance was made during construction of Hypogeum 1 and that 'as this entrance breaks through the first painted tomb in the 'Hall of Caracalla', it is quite obvious that the hall complex is earlier than the 3-storeyed one' (Rowe 1942:34). Empereur also suggests that Hypogeum 2 is an earlier construction than Hypogeum 1, dated to the 1st century AD (Empereur 1995: 19). The 'Hall of Caracalla' consists of a large rectangular funerary shaft which brings in light and ventilation. It was through this shaft that the dead would have been lowered. The

living would have accessed the complex via a stairway at the southern end of the complex. This has since, collapsed.

In Chamber K, below the shaft, there is a concrete altar which is a modern reproduction of the original that Botti found at this spot in pieces. On the southern side of K, there are two stairways, one ascending to ground level (eastern) and one descending (western) into a chamber (Figure 72). The lower part of the staircase is currently backfilled. These steps lead down to a small chamber and opening off from the staircase to the SW there is an unfinished tomb chamber.

In the southwest corner of the hall (L) the Graeco-Roman Museum cleared out a rather deep pit leading down into a small unfinished tomb-chamber, and a narrow passage then connects the chamber with Staircase (A) (Rowe 1942: 33-34) (Figures 73 and 74). This pit was explored in 1941-1942 and was subsequently backfilled. The limits of the pit can just be made out within the floor of K. The floor of K was surveyed as at 4.52m asl and based on Rowe's section, the underlying pit and chamber are c.7m below the floor of K. This would mean that the underlying chambers are at c. -2.50m bsl.

To the east of the altar, in chamber M, there are two sarcophagi cut into the walls, these were originally painted and recorded by the Sieglin Expedition (Figure 75). Some traces of scenes associated with the northwestern sarcophagus survive. At the eastern end of M three steps lead into a chamber containing a cabinet containing horse bones. These were found by Botti at the bottom of the funerary shaft with one human skeleton (Empereur 2003:19).

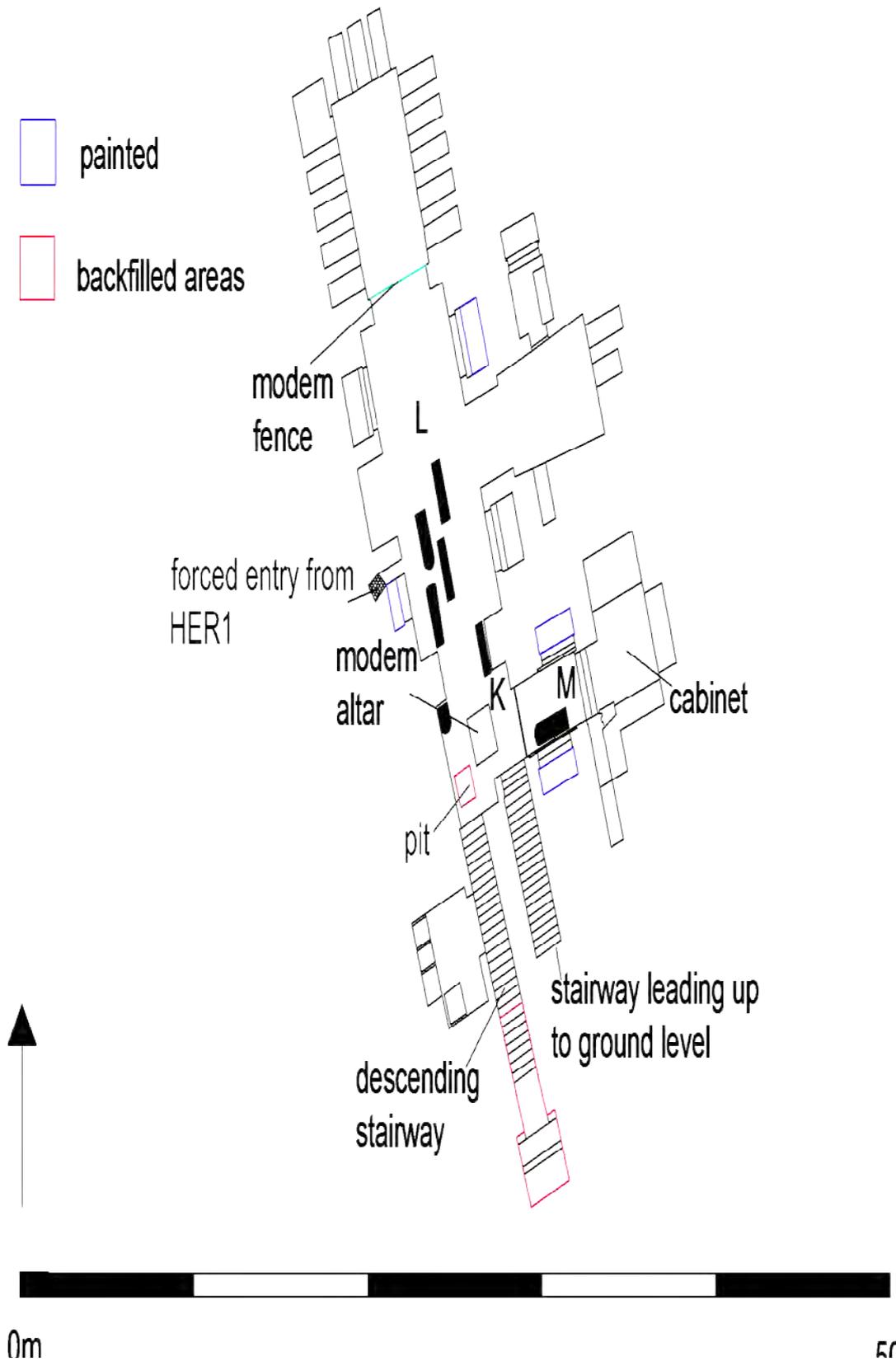


Figure 71. The 'Hall of Caracalla'. Digitized plan after Rowe 1942: fig IV. For plan and levels using 2015 survey data see Figure 41.



Figure 72. Chamber K in the 'Hall of Caracalla' leading up the stairs with the entrance; SE facing.

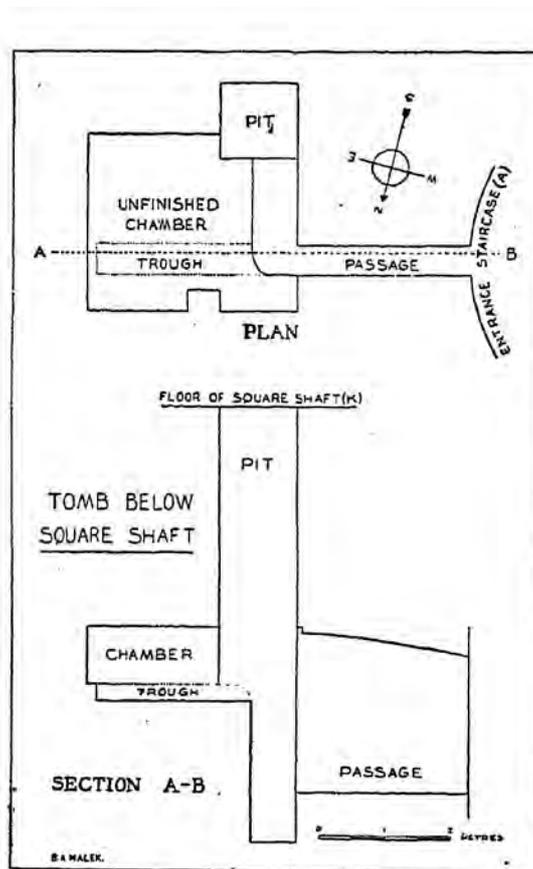


Figure 73. Plan and section of pit, chamber, trough and passage below Chamber K. Plan digitized after Rowe 1942:fig 10. See Figure 74 for the same plan in context.

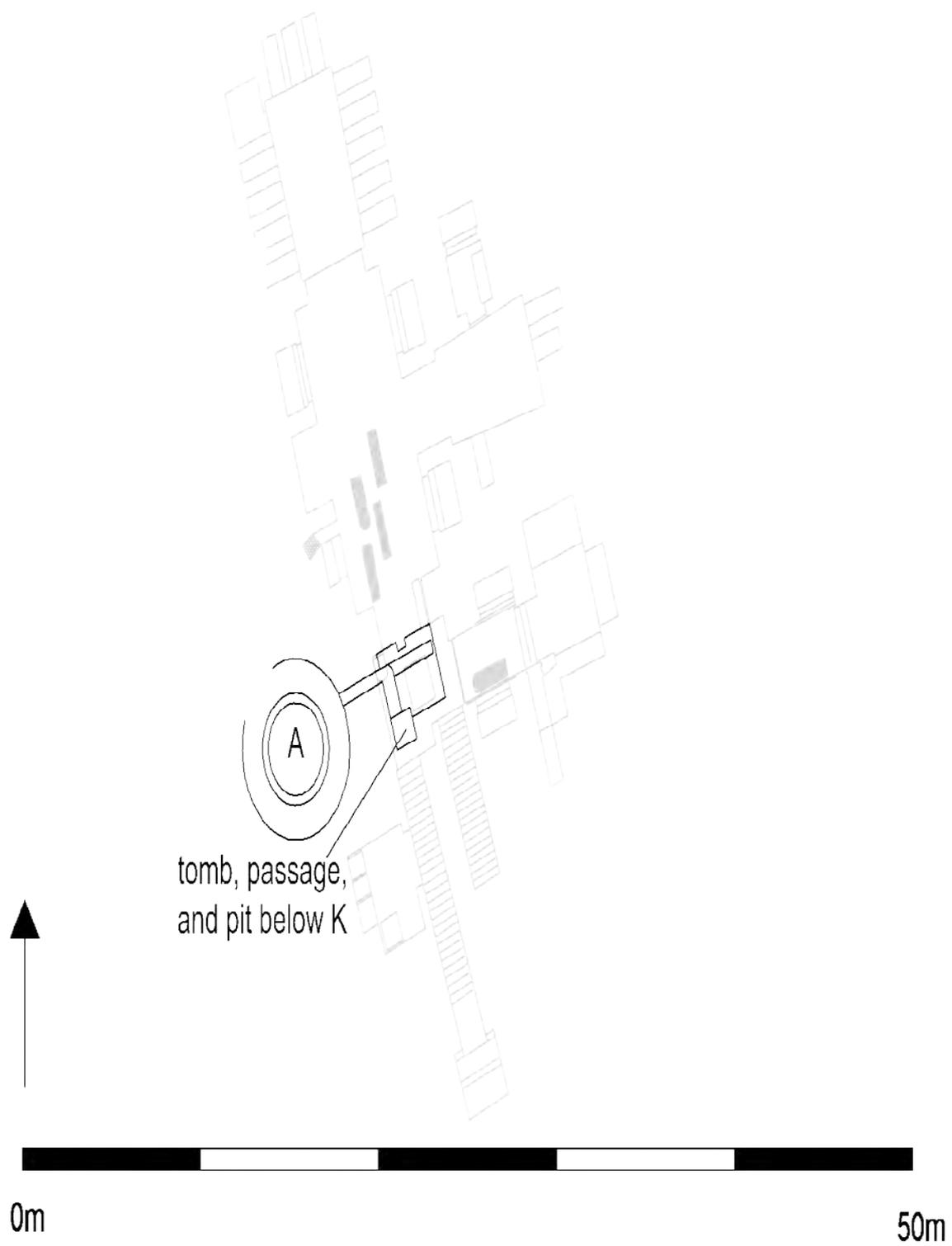


Figure 74. The tomb, passage and pit below the 'Hall of Caracalla'. Digitized plan after Rowe 1942: fig 10.



Figure 75. The two sarcophagi in Hall M and the cabinet with bones, “Hall of Caracalla”; E facing.

Botti suggested that these were the victims of a massacre ordered by Caracalla, that they had fled from the Emperor’s soldiers and hidden in the catacombs and that here they were stoned to death. This theory was the basis for Botti naming the complex ‘Hall of Caracalla’. This theory is now generally not accepted. A physician, Dr. Piot, examined the horses in the early 20th century and claimed they were the skeletons of racehorses. Rowe suggests that they were champions of racing events that were buried here (Rowe 1942:31-32).

In the northern side of this chamber there is a platform and four linear cuts in the northern wall, these may indicate an area where loculi were planned but later abandoned.

Within Hall L modern red brick has been used extensively to support the sides and ceiling (Figure 76). There are four tombs on the western and eastern sides of Hall L, including two painted tombs. Each consists of a recess flanked with pilasters and a sarcophagus below. In two of the tombs the walls within the recesses are painted in double registers.



Figure 76. Modern red brick walls supporting the ceiling of hall L; NW facing.

The first painted tomb, in the northwest wall of L, is the best preserved. The back wall of the recess is covered with a scene of a lion-shaped bed on which the mummified body of the deceased is depicted in the form of Osiris wearing the *atef* crown. Behind the bed is Anubis (Figure 77). Isis with the solar disk, horns and a small plant or tree on her head stands at the head. At the foot stands Nephthys bearing the hieroglyph of her name on her head. Both goddesses have outreached wings with the wings of a vulture and uraeus between them. Below the bed there are two Canopic jars. On either side of this scene is a deity not yet identified. On the right wall of the recess, in the center, is the upright mummiform figure of Osiris-Unnefer wearing a long loose outer garment having to his left a seated goddess holding the *sa* emblem of protection. She is either lioness-headed or cat-headed. If the former, the goddess is Sekhmet while if she is cat-headed she is probably Bastet. Behind the goddess are two outstretched wings of a vulture and a uraeus. To the right of Osiris is an unidentified seated deity. In the arched pediment above is the winged solar disk of the god Horus of Behdet (Rowe 1942:32).



Figure 77. Details of the scene on the back wall of the first painted tomb; SW facing.

Recently, with the aid of new technology, a team from Centre d'Études Alexandrines, headed by Andre Pelle, used ultraviolet light to see the paintings with more clarity and identify traces of ancient color (Sorbetes, Pelle, Seif el-Din 2015) (Figures 78 and 79).

At the very northern end of Hall L there is a large chamber currently closed off by a fence. The eastern and western sides of this chamber contain five sets of three tiers of loculi and three sets on the northern side. The chamber appears to be filled with stone rubble (Figure 80).



Figure 78. Processed image of the back wall of the southwestern painted niche in Hall L taken using ultraviolet light; SW facing.



Figure 79. Processed image of the back wall of the northeastern painted niche in Hall L taken using ultraviolet light; NE facing.



Figure 80. 'Hall of Caracalla' (L); details of chamber with loculi. NW facing.

HER 3. Scavo D:

Scavo D is the third catacomb located within the Kom el-Shuqafa site and is currently inaccessible to visitors. According to the design and contextual finds it has been dated to the first half of the first century AD and was later reused (Tkaczow 1993:65).

The entrance into the catacomb is via a vaulted staircase which descends to 5.30m asl from c. 14.00m asl at the ground level on top of the plateau. A modern shelter has been constructed over the top of the staircase at ground level. The vaulted staircase (T) was partially cleared by Botti and then completed by Rowe (Figures 81, 82 and 83). The staircase contains 52 steps (Figure 84). To the east of the staircase there are ten steps leading into chamber U at c. 7.70m asl. The ceiling is supported by two square, rock-cut pillars. In the northern corner of the chamber there is a passage running north then turning west. Rowe suggests that this particular complex (U) may have functioned as a funerary storehouse or as a place for embalming bodies (Rowe 1942:6). Chamber U is currently filled with rubbish and may be unstable. The authors decided not to enter the chamber to investigate the passage.

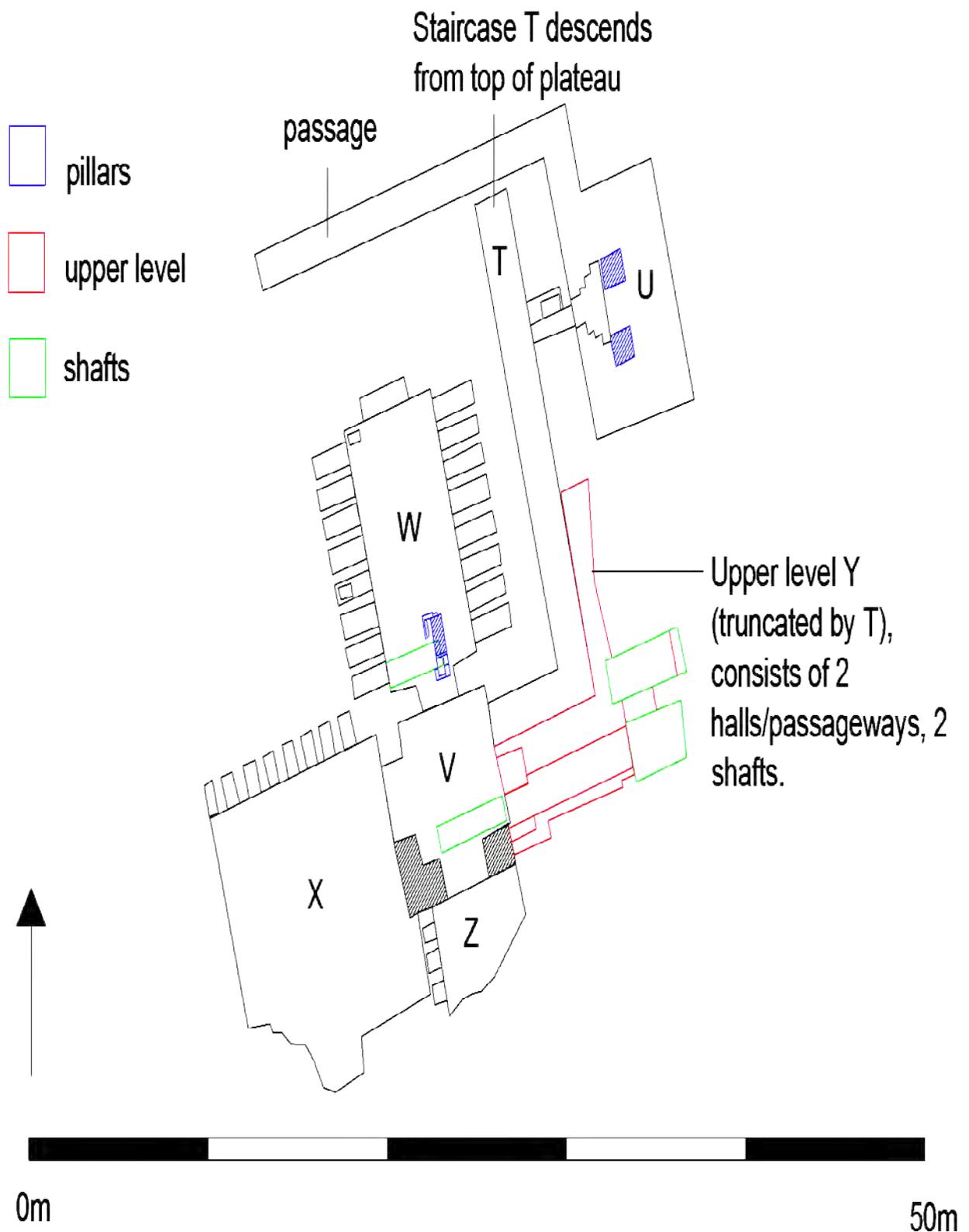


Figure 81. Plan of Scavo D digitized after Rowe 1942:PLII. See Figure 25 for 2015 survey data and levels.

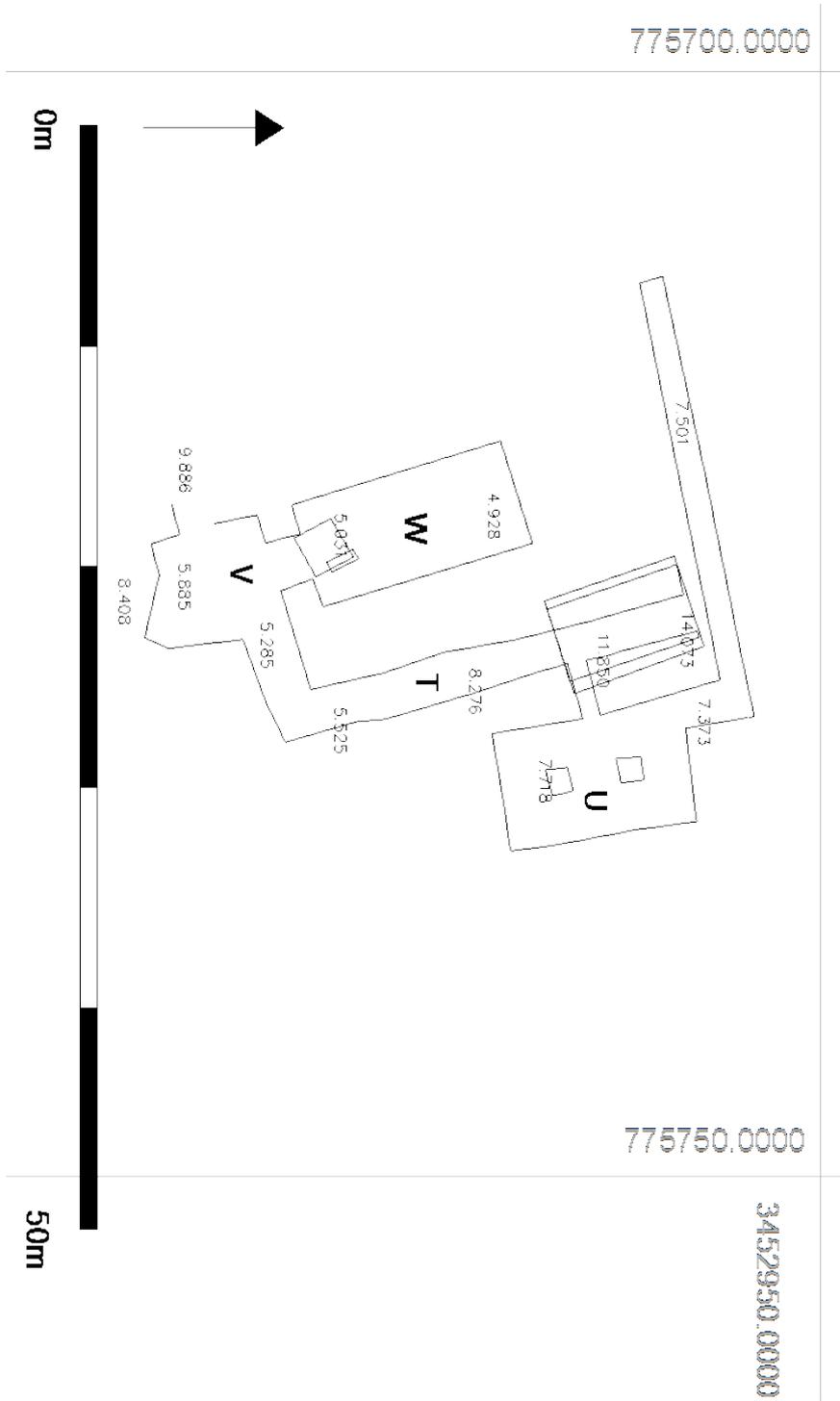


Figure 82. Plan of Scavo D using the 2015 survey data.

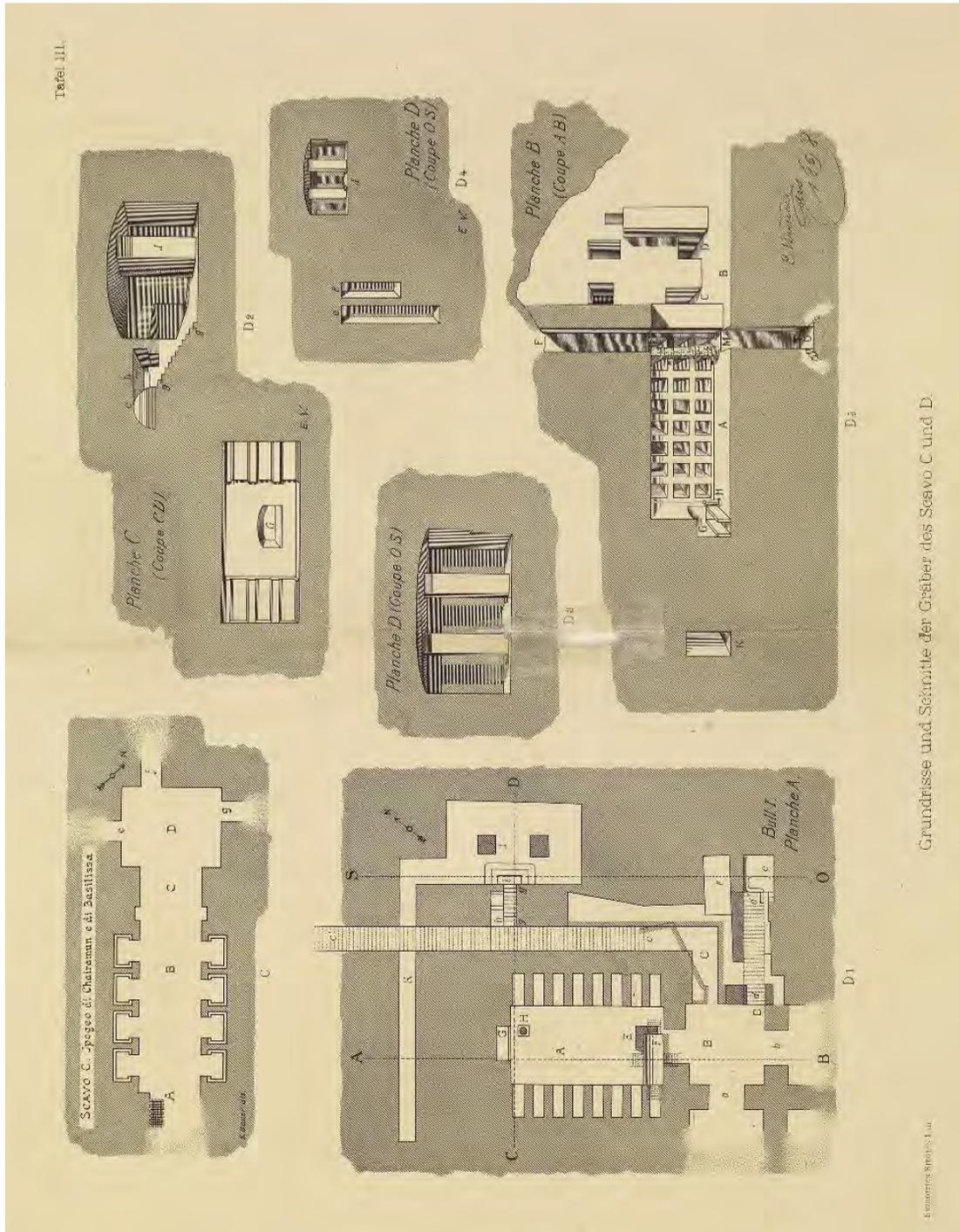


Figure 83. Plan and sections through Scavo D, including part of the plan of Scavo C in the top left hand corner. (Schreiber 1908 Plates Volume: tafel III).

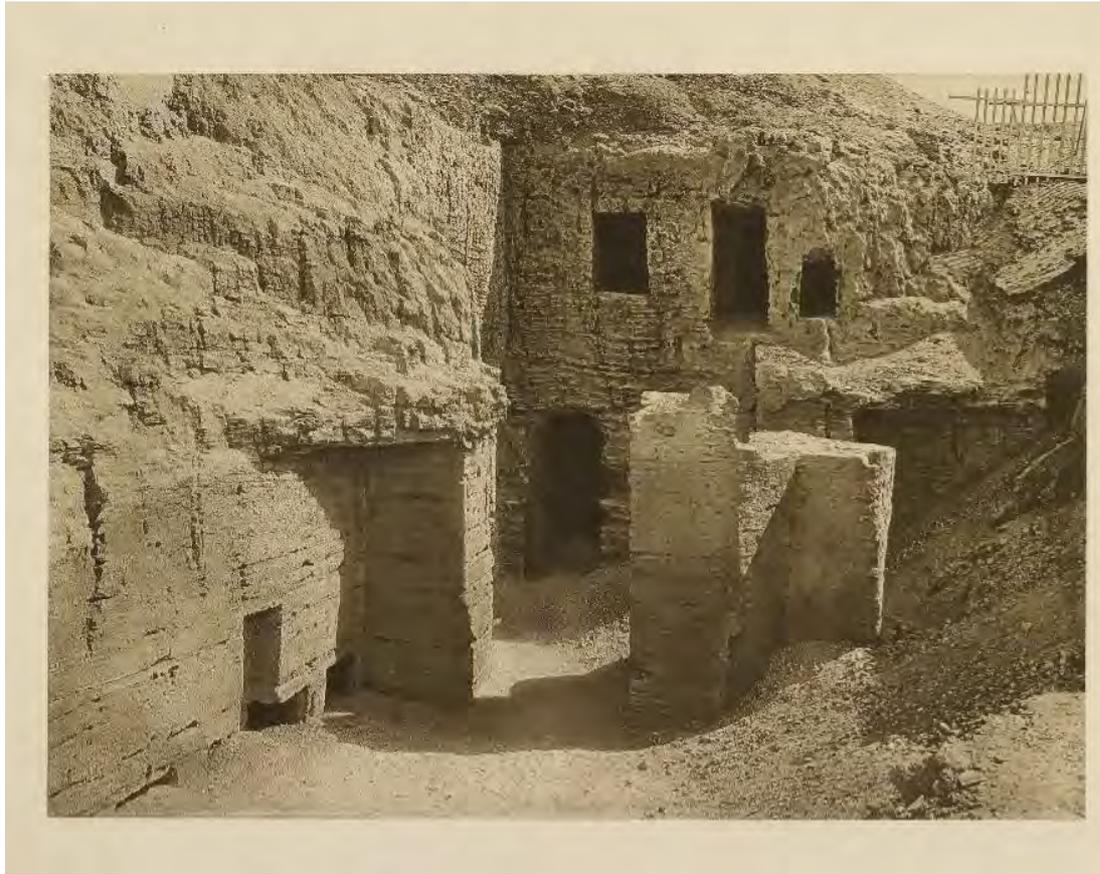


Figure 84. Stairs leading down to the burial chambers; SE facing.

Further down staircase T there is a ramp (Y) which, according to Rowe, is part of an earlier tomb chamber on an upper level truncated by staircase T. The chamber actually forms part of an upper tomb complex, containing two halls or passages and two shafts. The original entrance appears to have been situated in the south-west corner of the complex (Rowe 1942:7). This area is currently inaccessible and could not be visited by the authors.

Staircase T turns southwest and leads to the 'large entrance gate' (V). This chamber is no longer covered, probably due to quarrying, and is accessible from outside at the southwest corner of the site. Where the modern rubbish has been cleared in chamber V the level is c. 5.88m asl. (Figures 86 and 85). To the north is the large Hall (W) with three tiers of loculi to the east, and two tiers to the west with a floor level of c.5.00m asl (Figure 87).

Figure 85 – View from Chamber X into Chamber V with the passages and chambers of the upper level above in early 1900s. (Schreiber 1908 Plates Volume: Tafel LXV)



Figure 86. View into Chamber V with Chamber X now filled with modern rubbish: 2015.

At the northern end of Hall W there is a rock-cut sarcophagus in a recess. A small round hole in the floor in front of the recess (to the east) originally held a pot with the cremated remains of an infant. Another infant burial was in a trough in front of the recess (to the west). Another small trough was found within one of the western loculi, and on the east side of the hall, near to the entrance, a pot containing a cremation. During Botti's excavation of the hall he revealed a short granite column with a cup like hole to the east of the recess, which is thought to be equipment associated with a funereal triclinium (Rowe 1942:8).



Figure 87. Scavo D. Details of the burial chamber in the third level, NW facing. Rowe planned two further chambers, one to the southwest (Chamber X) and one to the south of V (chamber Z). Both are shown with rows of loculi. These areas have since been backfilled and are no longer visible on the surface.

There are two tombs beneath the surface of Scavo D (Tombs 1008 and 1001). Tomb 1008 is located beneath Hall W and is an earlier feature cut from the top of the plateau. The shaft leads to four small burial recesses beneath Hall W (Figures 88 and 89). The lower part of the shaft and the four burial recesses have been backfilled. When Hall W was created it cut through the mid-section of the shaft of Tomb 1008. At this point a pillar of stone was constructed to support and strengthen the ceiling. The top of the shaft (on the top of the plateau) is covered. The shaft and burial recesses below hall W have been backfilled. Based on Rowe's section, the base of tomb 1008 is c. 15m-16m below the top of the plateau which would make it c. 0m asl.

Tomb 1001 is located to the south, beneath gateway (V). There is a shaft in the floor of V that leads into a chamber that contained the remains of 800 pottery vessels of various kinds (Figures 88 and 90). This shaft is backfilled. The entrance into this chamber was originally via a SW-NE staircase. At the base, there is a SW-NE passage that passes directly beneath the staircase. Based on Rowe's section, the

base of the tomb is c.6m below the floor of Chamber V. This would make it at sea level (c.0m asl). According to Rowe the chamber was originally a tomb and was later converted into a storeroom for funerary vessels (Rowe 1942:8).

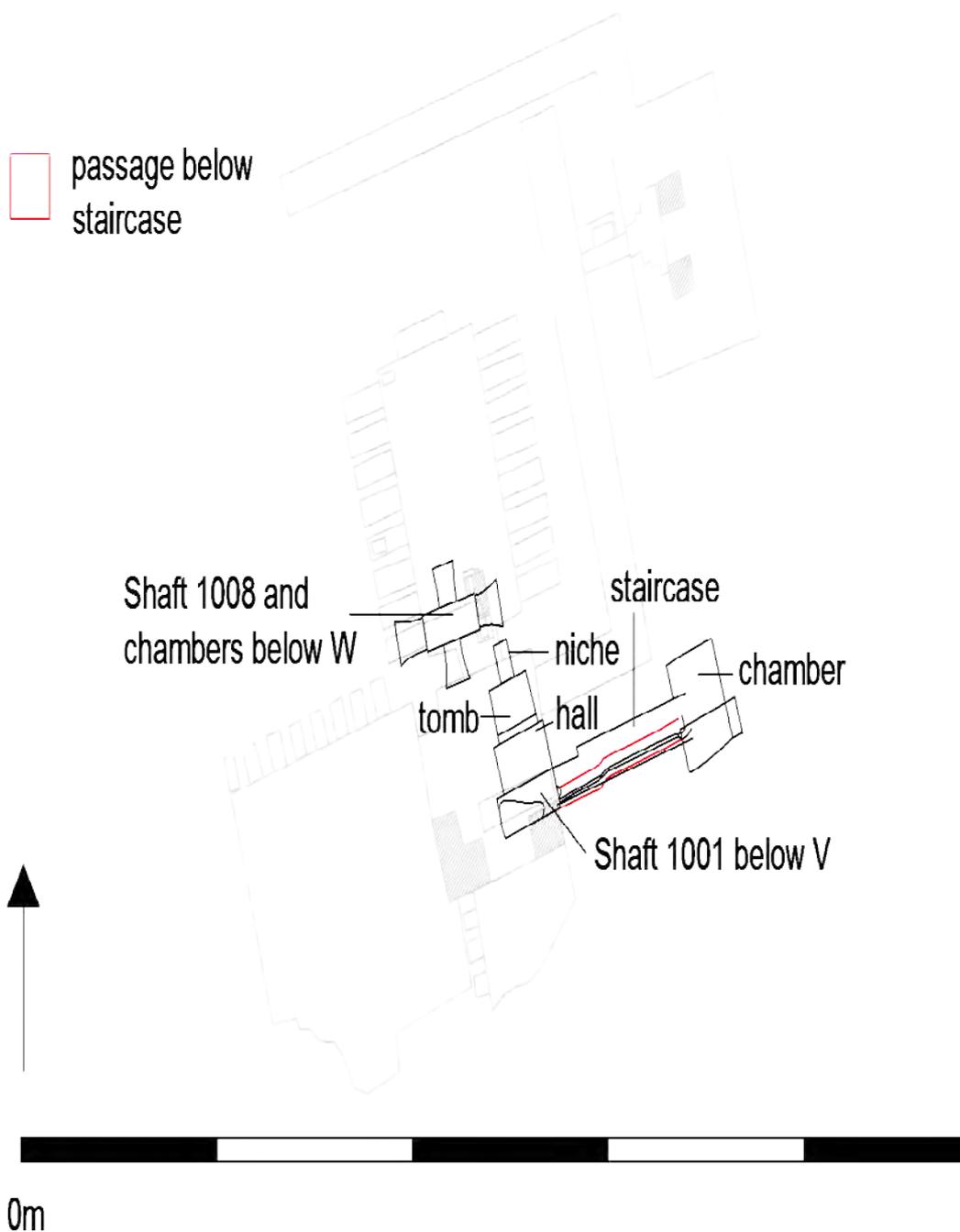


Figure 88. Plan of the chambers beneath Scavo D. Plan digitized after Rowe 1942:PLXII, XIII.

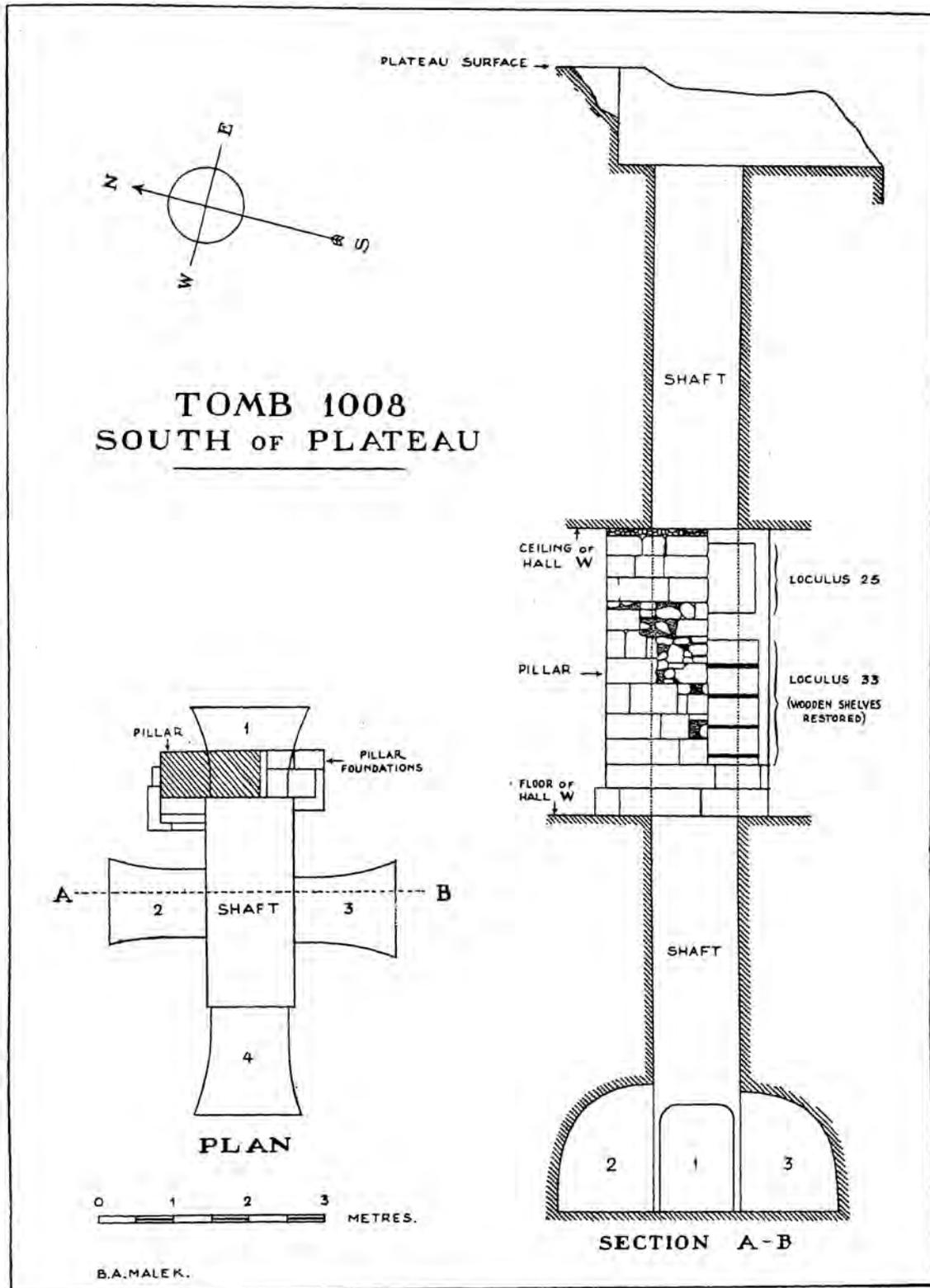


Figure 89. Plan and section of Tomb 1008. Plan digitized after Rowe 1942:PLXII; see Figure 88.

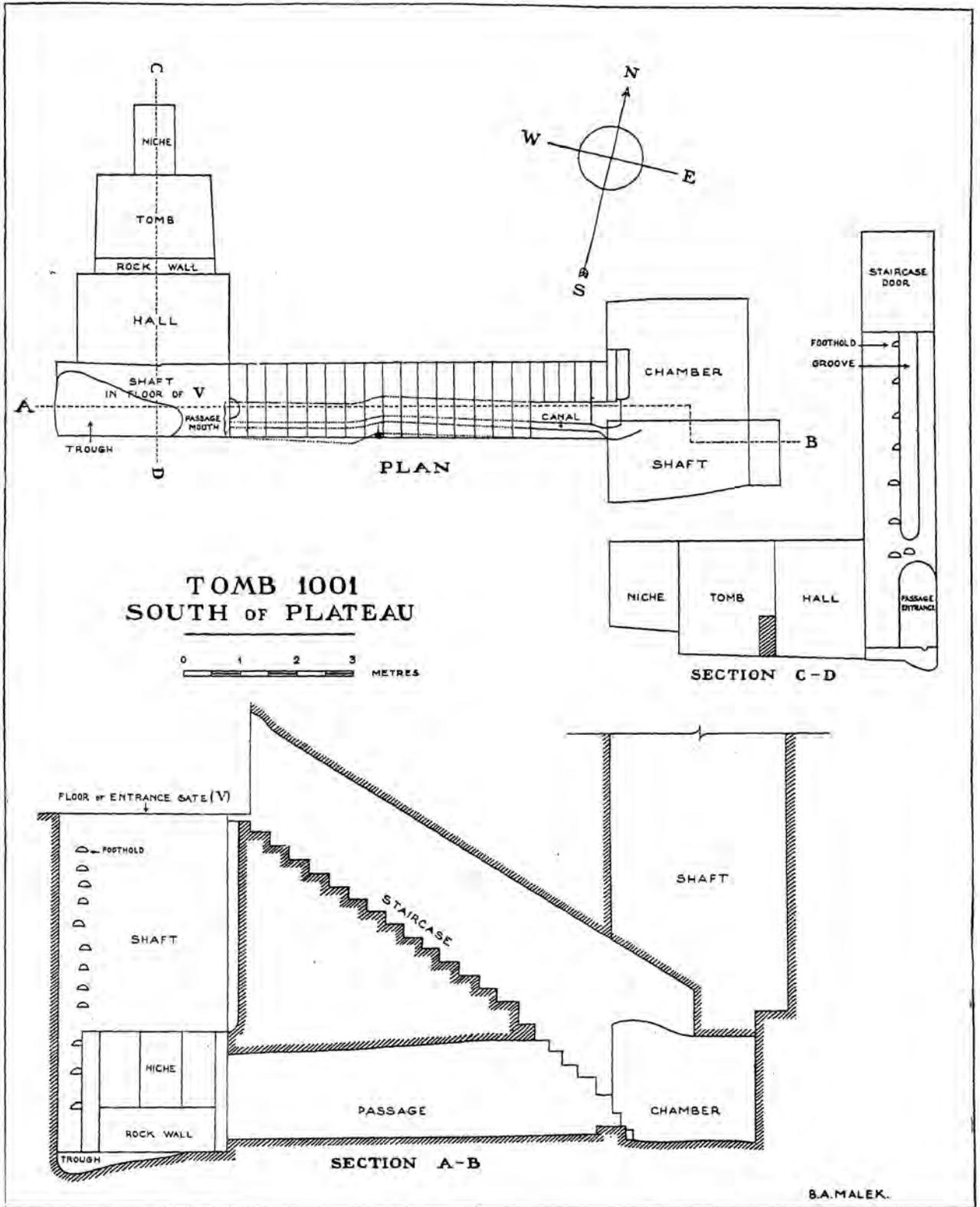


Figure 90. Plan and section of tomb 1001. The plan has been digitized as Figure 88 (Rowe 1942: PLXIII).

HER 4 – Children’s Cemetery

At the southeastern side of the plateau, near the modern boundary fence, remains of children’s cemetery of the Roman period was discovered by Rowe (Rowe 1942:6). This cemetery consisted of a line of shallow rectangular troughs cut in the rock, all of which had been robbed of their contents with the exception of some fragments of pottery, the upper part of a figurine of Bes (the protector of the children), three plain precious stones perhaps from finger-rings or even pupils from model eyes of mummies (Rowe 1942:5). This area is presently covered in shrubs and modern rubbish. On the surface there are no signs of the burial cuts associated with the cemetery.

HER 5 and 6 – the ‘Rocky Hill’ and Passages

The ‘Rocky Hill’ (as termed by Rowe) is located in the southeast corner of the site and is c. 8.40m higher than the paved area in front of the staircase A of HER 1, at 24.40m asl. In the west face of the ‘rocky hill’ there is a passage cut into the rock (Figures 91 and 92). There is a second passage cut into the south face of the rock. These are currently inaccessible to visitors. The two passages connect with each other leading north and then turning east inside the rocky hill and then terminate. We assume that there is a backfilled vertical hole at the end of this passage because it leads nowhere and the floor is filled with modern rubbish. Rowe writes ‘the north-eastern part of the plateau connects with a rocky hill, in the side of which are some cemented passages and a small round shaft, forming part of a Roman reservoir situated below the site of the old Arabic fort of Borg el-Hashem (now destroyed)’ (Rowe 1942: 5). On top of the Rocky Hill there is a modern redbrick wall orientated NW-SE. To the east of this there are the remains of a modern concrete surface. Behind the rocky hill, in the southeast corner of the site, the ground slopes downward to the east and north. The southern edges have been vertically quarried down to 18.60m asl within the site boundary, and then down to 13.90m asl outside of the site boundary on El-Shohada Square and Street. On the eastern side of the ‘rocky hill’ there are four large holes cut in the surface – possibly archaeological investigations. In the sides of these holes we can see that they do not cut through stone, but through ‘fill’ containing Roman pottery. However, in the hole nearest the modern wall, we can just make out some stone in its western section and possibly

an east-west cut through the stone. The 'fill' containing Roman pottery seems to abut



The
'Rocky
Hill'

this stone
feature.

Figure 91. The 'Rocky Hill' and access into the western passage; E facing.



Figure 92. Entrance to the passages in the 'Rocky Hill'; E facing.

HER 7 and 10 – The plateau edge and ‘road’

HER 7 is the visible and previously recorded line of what may be the edge of a limestone plateau located within the limits of the Kom el-Shuqafa site boundary. Also known as the ‘plateau edge’. The plateau edge is shown in historical maps of the area from the 18th to 20th century and was also mapped by Rowe in 1942 (Rowe 1942). Rowe wrote that ‘the catacombs are cut in a great semi-circular rock plateau, which in ancient days, and before the mass of debris had accumulated against its sides, towered some fifty feet above the rest of the neighbourhood’ (Rowe 1942:3). Rowe talks about having found debris up to the top of the plateau and that this debris had been heavily disturbed, but that generally, the lower part is Roman and the upper part Byzantine (Rowe 1942:5). At the Byzantine level Rowe recorded signs of quarrying in the NW face of the plateau edge. Here Rowe discovered part of a lamp bearing the X-P (Chi-Rho) Christian monogram (represents the first two letters of the Greek form of the name of Christ) an iron quarrying chisel in good condition and the skeletons of two horses shod with iron shoes (Rowe 1942:5). Rowe also mentions a ‘supposed ancient funerary road’ that runs around the lower part of the NW, SW and S sides of the plateau.

The line of the plateau edge is clearly visible at the location of Scavo D (HER 3). Moving to the west, it is just possible make out the continuation of this line. The line disappears beneath the modern paving that covers the central area of the site (above HER 1 and 2).

The data from the on-site boreholes and the geophysical survey commissioned by CDM Smith and conducted in 2014-2015 confirmed the presence and location of the plateau edge (Figure 93). These showed that the ground level in the northern portion of the site had been artificially raised by up to 10m (See Appendix 2 for borehole report).

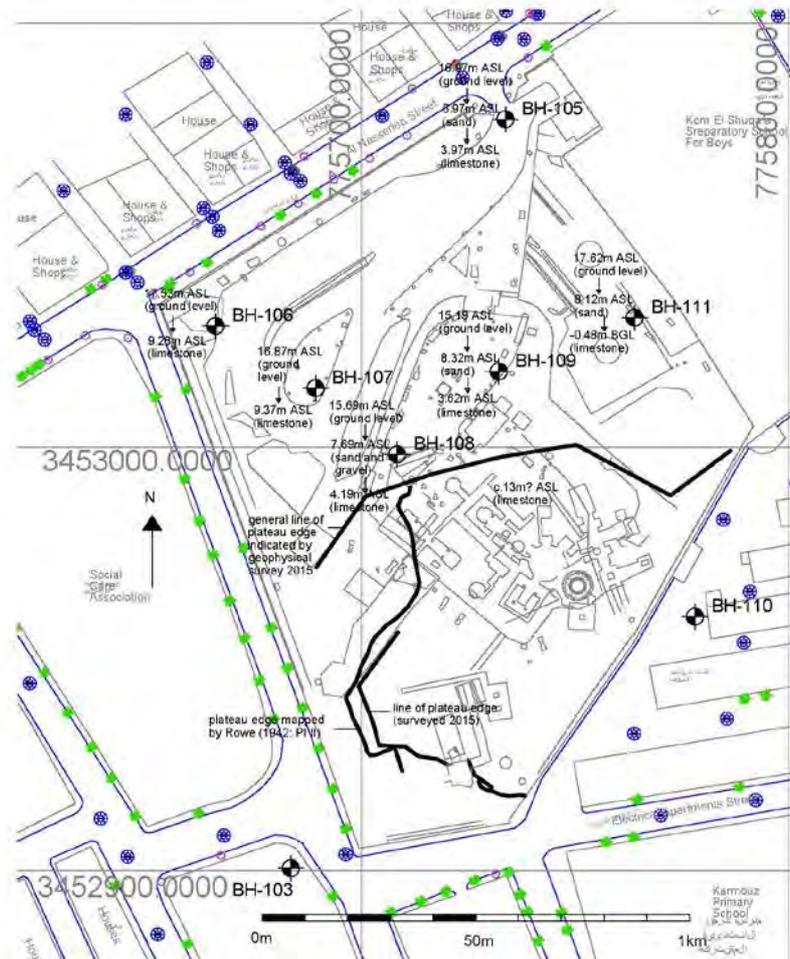


Figure 93. Lines of the plateau edge as indicated by three sources: Rowe (1942); on-site observations 2014-15; the geophysical survey commissioned by CDM Smith 2014-15. The locations of the 2014-2015 boreholes are also plotted showing the recorded elevations of limestone and sand.

HER 8 – The Ministry of Antiquities Site Office (Historic Building)

The current Ministry of Antiquities site office was built in the early 20th century as the Kom el-Shuqafa excavators' office (Figure 94). The building houses part of a mosaic, displayed on the wall, thought to be part of HER 11.



Figure 94. HER 8: formerly ‘the excavators’ office’, now used as the on-site offices of the Ministry of Antiquities inspectors; SE facing.

HER 9 – Borg el-Hashem

Borg el-Hashem was a fort built during the rule of Mohamed Aly. It appears on maps dated 1855 on a high peak and has disappeared from maps dated 1917 (Jondet 1922). The fort here may have been incorrectly identified as Borg El-Hashem. Its correct name may have been Borg el-Hadid. Schreiber mapped the outline of the fort in relation to surrounding features (1908). Using this, the authors have digitized the limits and located the site of the fort in the very southeast corner of the site and over El-Shohada Square and Street. Occupation of the fort was relatively short-lived; Botti wrote in 1898 that the fort was abandoned and slowly collapsing from the inside (Botti 1898:9).

HER 11 – Mosaic

The Sieglin Expedition located and excavated a mosaic on the plateau. It was located a short distance from the main tomb, on the eastern edge of the light shaft (presumably K of the 'Hall of Caracalla') and situated at a higher level (Schreiber 1908:80). Photographs of the mosaic show a geometric design (Figures 95 and 96). According to Botti and Breccia, the mosaic was part of an above-ground building that created a fourth, upper, storey of the catacombs and had originally covered staircase A (Breccia 1922: 328). Schreiber imagined this structure in a section profile through the catacomb field (Figure 34).

The mosaic was transferred to the Graeco-Roman Museum. According to the Kom el-Shuqafa antiquities inspectors, the mosaic displayed on the wall of HER 8 is part of this mosaic (Figure 97).

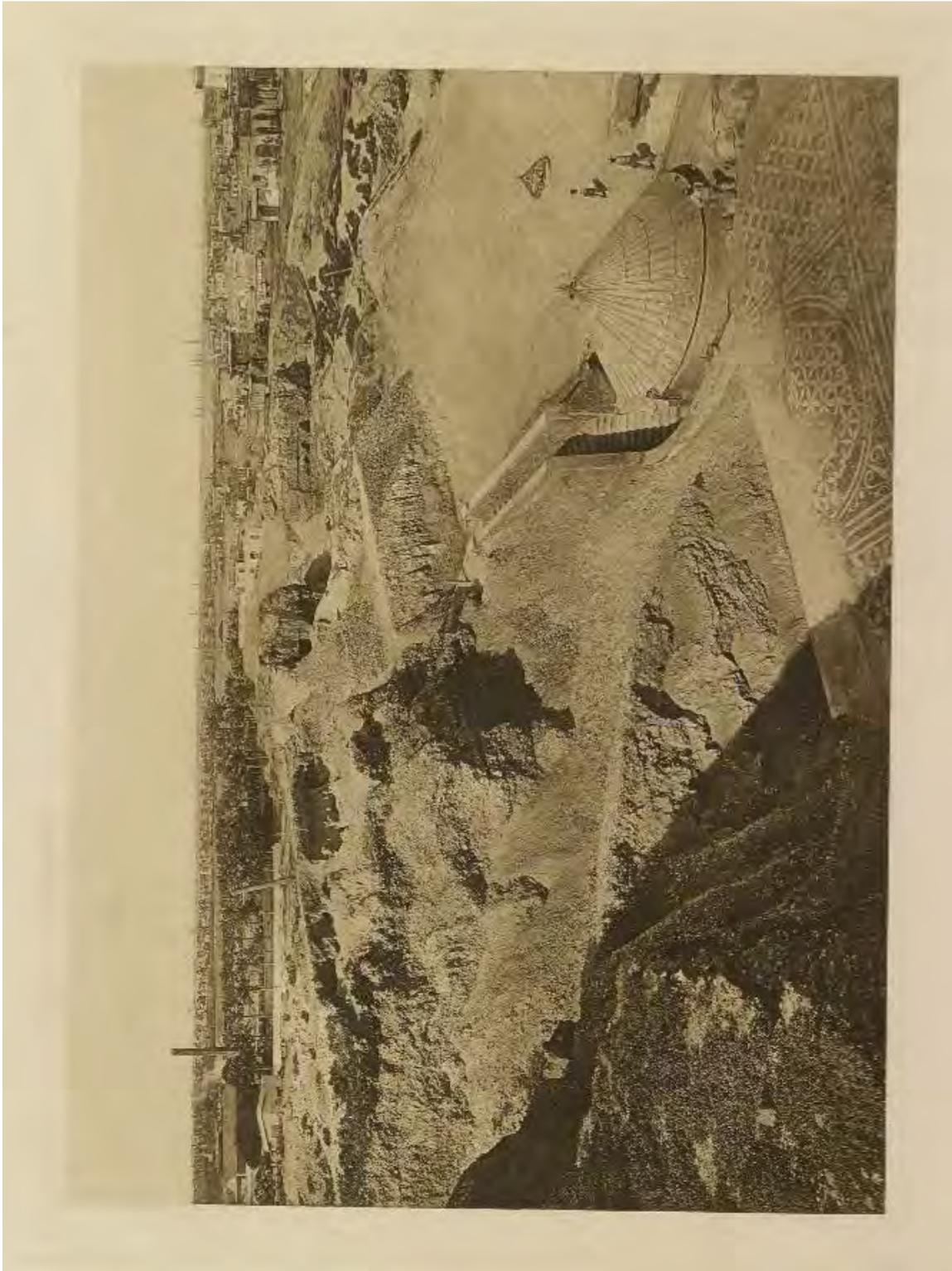


Figure 95. Photograph of Kom el-Shuqafa with the mosaic in the foreground above the staircase of shaft A and possibly next to Shaft K of the 'Hall of Caracalla'; (Schreiber 1908 Plates: tafel XII).



Figure 96. Photograph of the mosaic excavated from the Kom el-Shuqafa site; E facing (Schreiber 1908 Plates: tafel VIII).



Figure 97. The mosaic displayed today on the wall of HER 8, the MoA office.

HER 12 – Stadium

The ruins of this feature were apparently still visible at the end of the 18th century. They were first described in 1778 by Sonnini (1799) and then in the *Description de l'Égypte* in 1798. They were mapped by Saint Genis in 1829 (Figure 98). The full area was defined as measuring 555m by 50m. The feature was described as being partly cut into rock and partly built with an inaccessible underground complex at one end, fallen columns, channels and reservoirs, and a 'spina' cut out of the bedrock (Tkaczow 1993:67). In 1892-93 Botti recorded a long flight of steps, adjoining the north of complex Scavo A and B which he considered to be the southern end of the stadium (Botti 1892). He also recorded a fragmentary mosaic floor, which he considered to belong to one of the rooms of the stadium. Botti dated the stadium to late Antiquity, after the fourth century A.D (Botti 1892).

Botti recorded the stratigraphy of the area from top to bottom as follows: first there was a considerable deposit of sherds and rubble resting on a layer of sand. The stadium was hidden under this deposit of rubble and sand. Further down there was a firmer sandy limestone. The large stairs of the stadium and tombs were cut through this limestone. At a certain depth underground it was filled with water which prevented further exploration (Botti 1898:10).

The stadium appears to have been located within a U-Shaped dip created by a natural limestone outcrop. Botti recorded the location of the stadium as; 'l'ancien Stade d'Alexandrie fut creusé dans la gorge qui sépare la colline Hamoud-el-Saouari du plateau rocailleux d'Abou-el-Hachem, à Karmouz' (1898:5). This dip has subsequently been artificially filled thus raising the ground level (see HER 7). Therefore any surviving remains relating to the stadium can be expected to lie considerably lower than the current ground level.

The limits and positioning of the Stadium on the HER map is based using Schriber's map (Figure 99). The shape and labeling of the stadium was added to subsequent maps of Alexandria following the map in the *Description de l'Égypte* (see Section 8.2).



Area of KelSh site

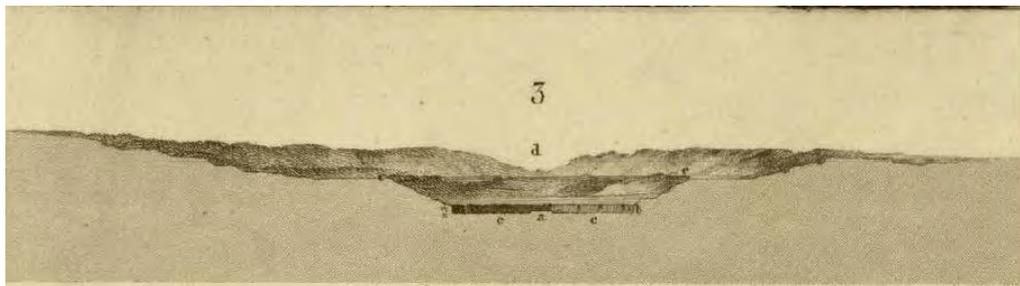
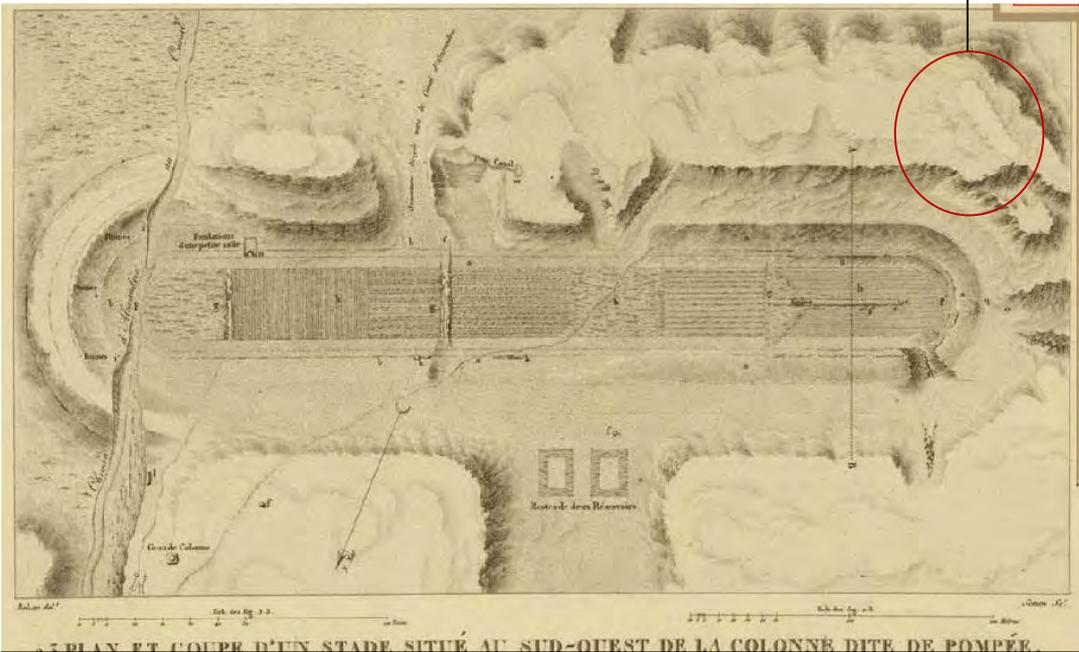


Figure 98. Drawings from the Description de l'Égypte (1798). Upper is an extract from the Les environs d'Alexandrie (map); middle is the stadium; below is a profile through the stadium.

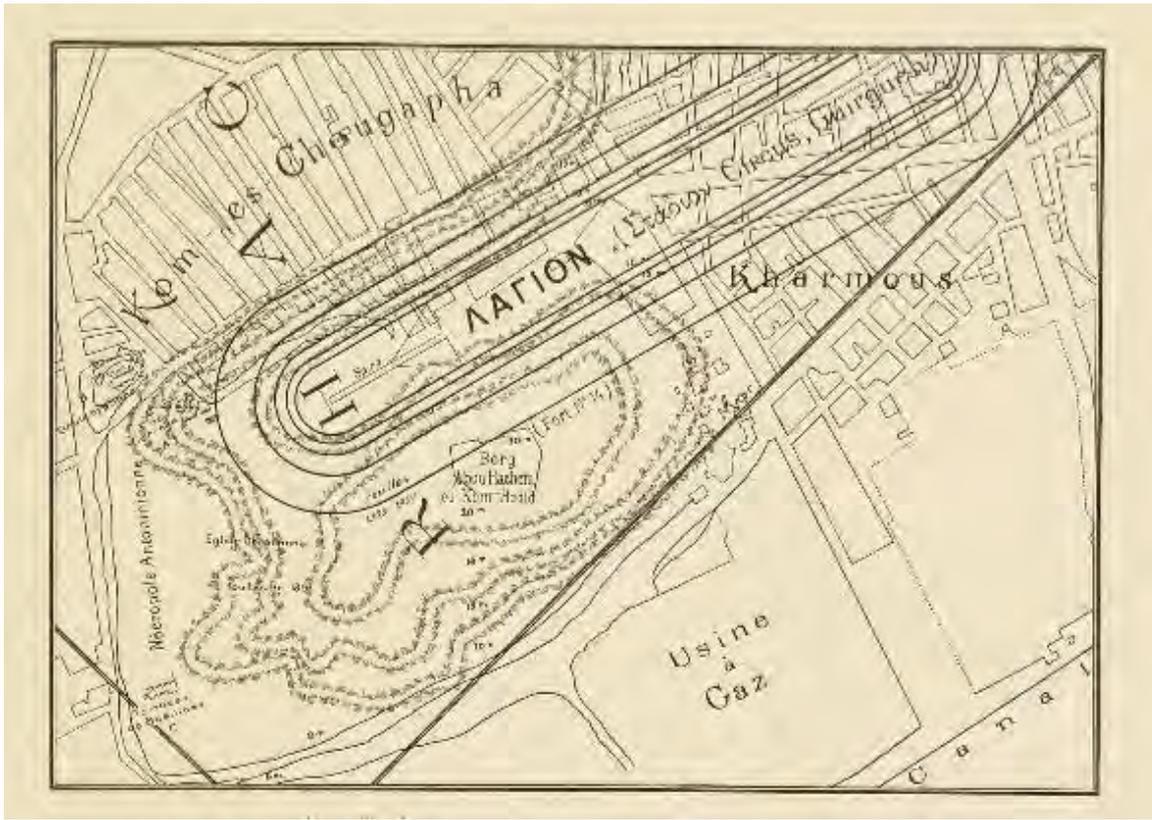


Figure 99. Plan showing Kom el-Shuqafa and the stadium overlaid on a map of the area in the early 1900s (Schreiber 1908: figure 5).

HER 13 – Tomb of Tigran

The Tigran Tomb is displayed within the site of Kom el-Shuqafa. It is a re-located Roman monument originally from the Eastern Necropolis of Alexandria. The tomb was discovered in March 1952 during the construction of a building near the tomb complex of Moustafa Pasha. It was fully excavated by Adriani (Venit 2002:146). The tomb is very small, comprising only two small rooms. One room was equipped with loculi while the other contained three sarcophagi set in triclinium form around the walls and decorated with the paintings that give the tomb its special place in the history of Alexandrian funerary monuments (Venit 2002:146). After the room that has the loculi had been recorded it was left in situ. The painted burial room was carefully removed and installed within a protective shell within the Kom el-Shuqafa site (Figure 100). The authors were unable to find any reference to the date of its relocation or any documents relating to it.

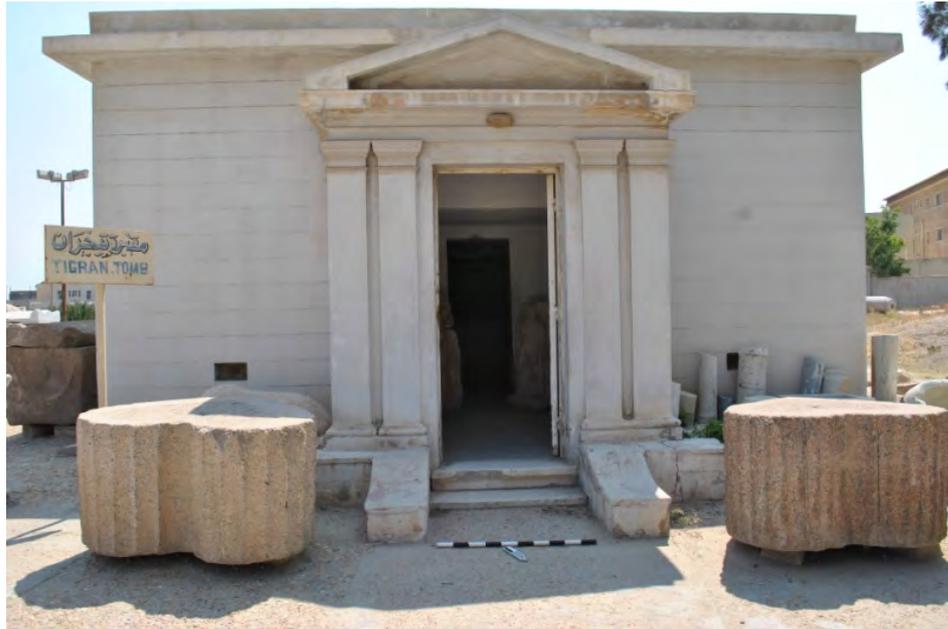


Figure 100. Tigran Tomb. The building forming the outer shell is modern; W facing.

The mural decoration inside the tomb are well preserved and combine Egyptian and the Graeco-Roman style. The back wall of the central chamber that faces the visitor entering is decorated with a wrapped mummy stretching out on a bed. The goddesses Isis and Nephthys stand by the head and the feet of the mummy. The scene is in the Egyptian style and tradition. Behind each deity there is a bird image mounted a pedestal. The top of the scene is decorated with a winged sun disc and a ribbon (Figure 101) (Venit 2002:151).



Figure 101. The back wall of the Tigran Tomb interior.

The lunate wall of the left niche is painted with a standing male depicted frontally while clasping his hands and placing them on his torso. The figure holds two palm fronds. Two seated jackals flank the figure and raise their heads looking towards him. Beside the two jackals, two winged figures stretch out their arms toward the central figure and behind each winged figure there is a column of the same height as the figures. The top of the scene is covered with a winged sun disc (Figure 102).



Figure 102. Back wall of the left niche interior of the Tigran Tomb.

The back wall of the right niche is decorated with a male figure wearing a helmet and a uraeus. He is kneeling in front of a female figure who wears a diadem decorated with a uraeus. The male figure holds two palm fronds toward the female figure while she holds two branches toward the male. Behind the male figure there is another male standing in profile and holding a large censer in his left hand. Unfortunately this scene is partly damaged although the top of the scene, decorated with a winged sun disk, is in good condition (Figure 103).



Figure 103. Back wall of the right niche interior of the Tigran Tomb.

HER 14 – The Silvago Tomb and Wardian Tomb

The Wardian Tomb is also displayed on site. It was re-located to Kom el-Shuqafa in the 1990s (Figure 104). The tomb is from the El-Wardian district located some few kilometers to the west of the ancient walls of Alexandria. It was closest, easternmost of the three districts forming the western suburbs of the city El-Wardian, El-Mafrousa and El-Gabbari. The area was bounded on the north by the Mediterranean Sea, on the south by the El-Mahmudieh canal and Lake Marioutis, and extended to the west as far as El-Mex quarries. Seven tombs were discovered in this area accidentally. The first was during the construction of the road to El-Mex in 1898-1899, then consecutively in 1932, 1936 and 1953 (Tkaczow 58).

The Silvago Tomb, displayed within the Kom el-Shuqafa site (Figure 105) is another relocated tomb brought from the village of Silvago, situated about three kilometers to the southwest of Kom Firin in el-Beheira Governorate. The tomb was discovered in early 1966 while the Agrarian Land Reform agent was conducting projects on a sandy hill in this area. Four limestone canopic jars were found in a mud brick tomb which had been disturbed by bulldozers (Basta 1979:183). The tomb may have been re-located to the Kom el-Shuqafa site in the 1990s.



Figure 104. The Wardian Tomb reconstructed at Kom el-Shuqafa; NW facing.



Figure 105. The Silvago Tomb relocated at Kom El-Shuqafa.

Between 1966 and 1967 excavations were conducted at the site of Silvago by Mounir Basta, the Chief Inspector of Antiquities for the Delta with Inspector Samy Farag. The excavation located a large cemetery, most probably for the capital of the third nome of Lower Egypt. The cemetery covered some hundreds acres of land and contained various types of burials. Many of the graves were intact while some were totally robbed (Basta 1973:183-184). Among the types of burials found in the cemetery were 11 limestone tombs. All except one were rectangular with flat roofs while one had a gable roof. Some of these tombs were intact with limestone blocking slabs although the mummies buried inside were completely decomposed. (Basta 1979:185).

The relocated tomb (Silvago Tomb) was tomb No. 31. It had two chambers one above the other with the lower chamber a little larger than the upper. Its floor was made of limestone slabs. It contained some small finds: four plaques of green faience representing the sons of Horus; a piece shaped in the form of a human face; two eyes of bronze and a beautiful blue chalk scarab fully inscribed on the back with a religious text giving the name and the titles of the owner of the tomb, Bes or Basa, brother of Peftjauneith. Three walls of the lower chamber were decorated with religious texts inscribed of low relief and giving Basa's name written in different ways. The arrangement suggested that the chamber was meant to be the real sarcophagus (Basta 1979:189).

HER 15 - Objects from Kom el-Shuqafa Site

The authors documented photographically all the objects displayed in the Kom el-Shuqafa open-air museum and produced a photographic log (Figure 106). These are appended to this report in CD form. The authors were also able to obtain a copy of the object catalogue that is kept in the Antiquities Inspectors' site office. These records contain information on each piece including a description, dimensions, provenance (where known) and photograph. These records are included here as Appendix 4.



Figure 106. Objects displayed in the Kom el-Shuqafa Open Air Museum.

HER 16 - Objects from the Graeco-Roman Museum

There are many pieces transferred from the Graeco-Roman Museum including parts of statues, sarcophagi, columns and column capitals and now exhibited in the open-air areas of the site. It is intended for these pieces to be returned to the Graeco-Roman museum when it re-opens after renovations. The catalogue, which is kept at the Graeco-Roman Museum, was not made available to the authors. The authors photographed all the objects from the Graeco-Roman Museum now displayed at Kom el-Shuqafa and produced a photographic log. These are appended to this report in CD form

HER 34 - Jar Burials

Just to the east of the vaulted staircase of Scavo D (T) a cemetery consisting of jar burials set within sand has been excavated (Figure 2). Here, large amphorae with the necks removed were used as containers for the bones of both children and adults, sometimes with two jars placed mouth to mouth to form one 'coffin' (Rowe 1942: 38; Schrieber 1908:191) (Figure 107). The practice of burying poorer members of the population in storage containers is known outside Alexandria from examples in Roman North Africa (Schrieber 1908:191). All of these features are likely to have been completely excavated within this specific area of site.

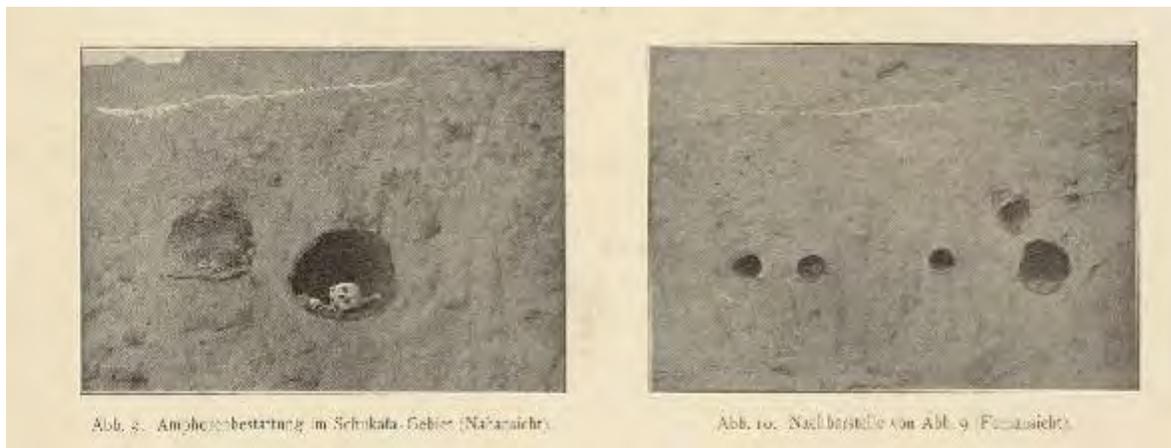


Figure 107. Jar burials HER 34. They appear to be shown in a section, possibly a quarry cutting. According to the report, these lay in sand (Schreiber 1908: figures 9 and 10).

HER 35 and 36 Geophysical anomalies

During the 2015 geophysical survey of the Kom el-Shuqafa site, two below ground anomalies were identified. No additional testing has been done to corroborate the hypothesis that these anomalies may represent subterranean cut chambers, ie tombs. HER 31 is an anomaly located at c.1m ASL and is possibly a continuation of Scavo D (HER 3) or part of previously known tombs, HER 21 or 22 (Rufini Chapel of Wescher Tomb) whose locations have subsequently been lost and remain unlocated. Similarly, another anomaly, HER 36, was recorded at c. 1m ASL. Its location c. 10m to the southeast of the 'Hall of Caracalla' and on the same alignment as the descending staircase from chamber K may indicate that the two are linked.

Test Pits excavated within the Kom el-Shuqafa site boundary

In the 1990s the Ministry of Antiquities excavated a number of test pits, some on the 'Rocky Hill' in the southeast corner of the site, and some along the western boundary fence (M Ismail, Director of Kom el-Shuqafa, 2015). These had been excavated in preparation for the proposed construction of archaeological storehouses on site. We were unable to locate any documentation relating to these excavations.

7.1.2 Heritage Assets OUTSIDE the Kom el-Shuqafa Site Boundary

HER 17 and HER 18 – catacomb ‘Scavo A’

HER 17 and HER 18 are part of a catacomb complex, often referred to as Scavo A, located to the west of the Kom el-Shuqafa site. The limits of HER 17 were located by and planned by the Sieglin Expedition (Schrieber 1908). The positioning of HER 17 on the HER map is based on Schrieber’s location plan (Figure 109). The accuracy of this map is not clear. HER 18 has been given a separate code because the two (HER 17 and 18) are not physically connected. HER 18 was planned and labeled ‘Scavo A’ on a Survey Map dated 1941. Since none of the chambers of HER 18 match those planned as HER 17, we assume that rather than accurately locating the Scavo A that Schrieber planned, the surveyed catacombs are a northeastern extension of Scavo A, or a separate catacomb. The authors conducted a walk-over survey of the area around the Kom el-Shuqafa site in 2015. While walking the road where HER 17 is located according to the HER map, there was found to be a large cavity beneath the road. Here the road had detached from the curb and the road was sinking into what is clearly a below-ground depression. Where the road had come away there was hole within which modern rubbish had accumulated around what appeared to be a limestone column (Figure 108). This appeared to be c.2m below the pavement level. The location suggests that Schrieber’s positioning and the authors’ geo-referencing are, in part, accurate.

HER 17 is a group of tombs excavated by Botti between 1892-93 and continued by A. Thiercsh until 1902. They formed three underground rock-cut burial chambers; two of these comprised two rooms (Adriani 1966:180); (Figures 110 and 112). There were mosaics on the surface. The group was orientated NE-SW and entered by a stairway on the east side leading down with the same orientation as the complex. The stairway then turned west, creating an L shape, surrounding a shaft that accessed chamber B.¹ According to the remaining part of the complex, there were three sets of burial chambers (A,B,C; D, H; E,F,G) . Chambers A, B and C were in a

¹- The numbering of rooms as describe and used in the plans of Adriani, A., *Repertori d'arte dell' egipto greco – romano*, serie C. vol. I-II. p. 180.

line, parallel with the stairway which led to Chamber B; chamber A was to the north and C was to the south. The second group were perpendicular to the northeast corner of Chamber C. Chambers E, F and G extended parallel to the southwest of the main complex from the southwest corner of Chamber C. The three tombs were badly destroyed, presumably from quarrying, but were planned by Botti and Tiersch. Adriani suggests that the chronological sequence, earliest to latest, of the three tombs was: HD, ABC, EFG. He also suggests that complex HD may date to the period around the turn of the 1st century BC and 1st century AD, while the other two would be c. first half of the 1st century AD (Adriani 1966:180).



Figure 108. Cavity caused by the detachment of the road from the curb where the road is built over Scavo A.

At the top of complex HD, above the shaft, the ruins of a mosaic floor were recorded. Complex HD was at a higher level than the ABC complex. The floor of H was 11.40m below the mosaic and seemed to be connected by a corridor 6.40m long and a staircase with a vaulted ceiling (Adriani 1966:181). Each of the walls of Chamber H had accesses into other chambers. Passage K led to the northwest into a funerary chapel and contained three engraved sarcophagi with vaulted roofs. There were also fragments of sculptures and architectural fragments that may have fallen from the ceiling. Thirty-three niches in three rows were recorded in Chamber D. Some of them appeared to be still closed with slabs of limestone bearing the usual funerary epitaphs (Adriani 1966:181). These were dated to the late Hellenistic or early

Roman period (c. first century BC to the beginning of the first century AD) (Adriani 1966).

Complex ABC presents the same pattern as catacombs found at the Shatbi cemetery located in Alexandria's Eastern Cemetery and dated to the 3rd century BC. There was again the light shaft in the centre and two burial chambers on the two opposite sides. Court B measured 5.65 m by 15.15 m by c.6m high. The complex was partly built into the rock, and part built of bricks. Four vertical clay pipes were recorded for ventilation or for the discharge of water. To the south there was a circular shaft with walls covered with blocks (diam. 0.75 m) that contained small lateral grooves for use in descending and ascending. At the base of the NW wall, on the floor, there was an open pit (2.76 m x 0.54 m); which formed a vertical shaft connecting to a lower floor.

Room A had a vaulted roof that was partially preserved. There were three niches for sarcophagi to the west and four to the east. One of the sarcophagi was decorated with garlands, although it was fragmentary. At the entrance of chamber B Greek and Latin inscriptions were found scratched into the stucco.

The walls of Chamber C (SW ends not preserved) were covered with rows of loculi (30 on the east). The loculi along the northwest limits of the chamber were interrupted by the access into Chamber D. At the entrance of Chamber B a fragment of a large male statue was discovered. A staircase (cc) which led to chamber B also continued deeper to a lower T-shaped tank which may have been used to hold water.

The third tomb group (EFG) had rows of three loculi on three levels on the north and south walls and two rows of 15 on the west making a total of 24 niches. Chamber E had one engraved sarcophagus in each of its three walls.

The authors were unable to locate any additional information about the continuation of Scavo A-HER 18.

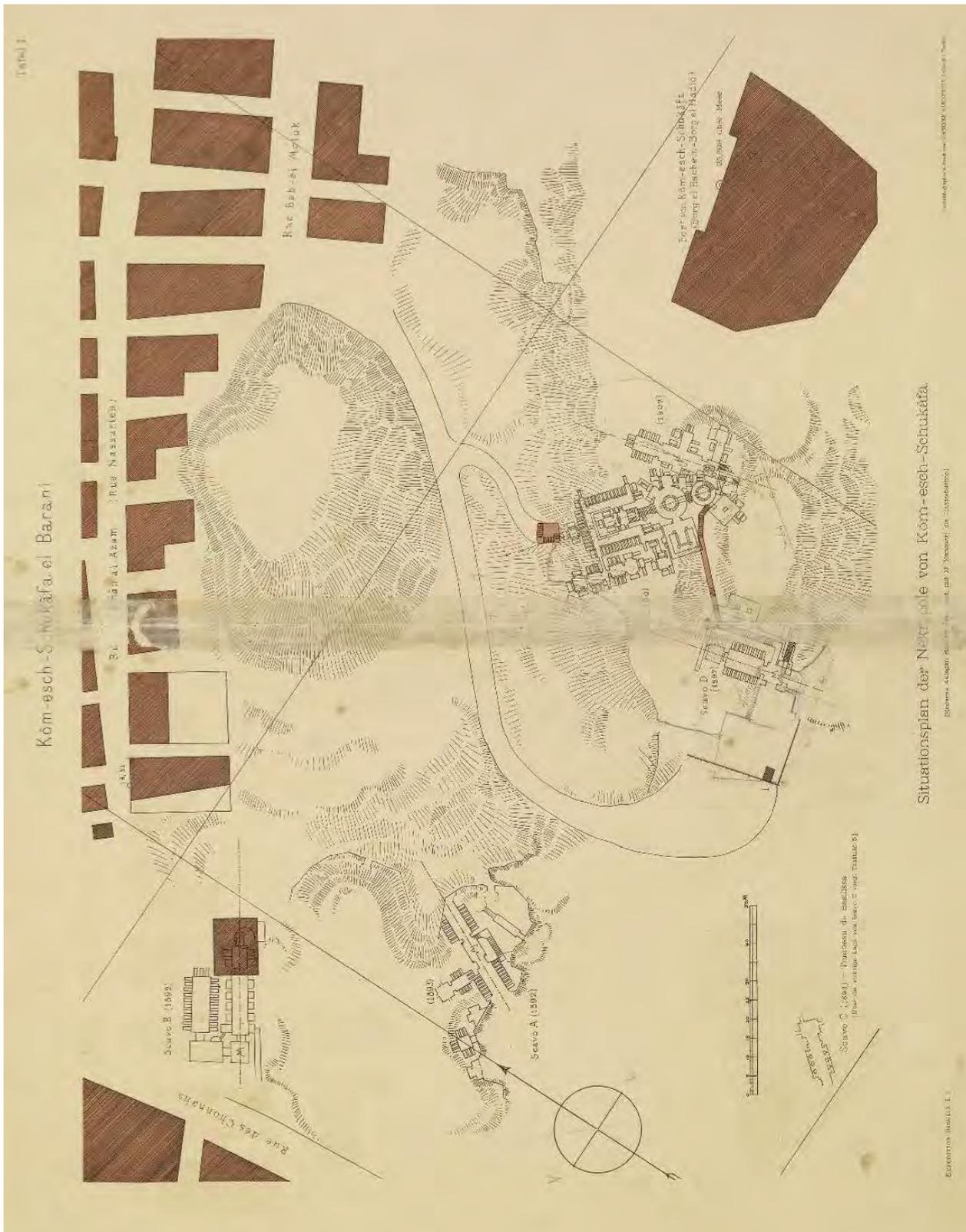


Figure 109. Plan of catacombs within the area and the Borg el-Hashem (Schreiber 1908: tafel 1). This map is the basis for the placements of Scavos A, B and C, and Borg el-Hashem within the HER map.

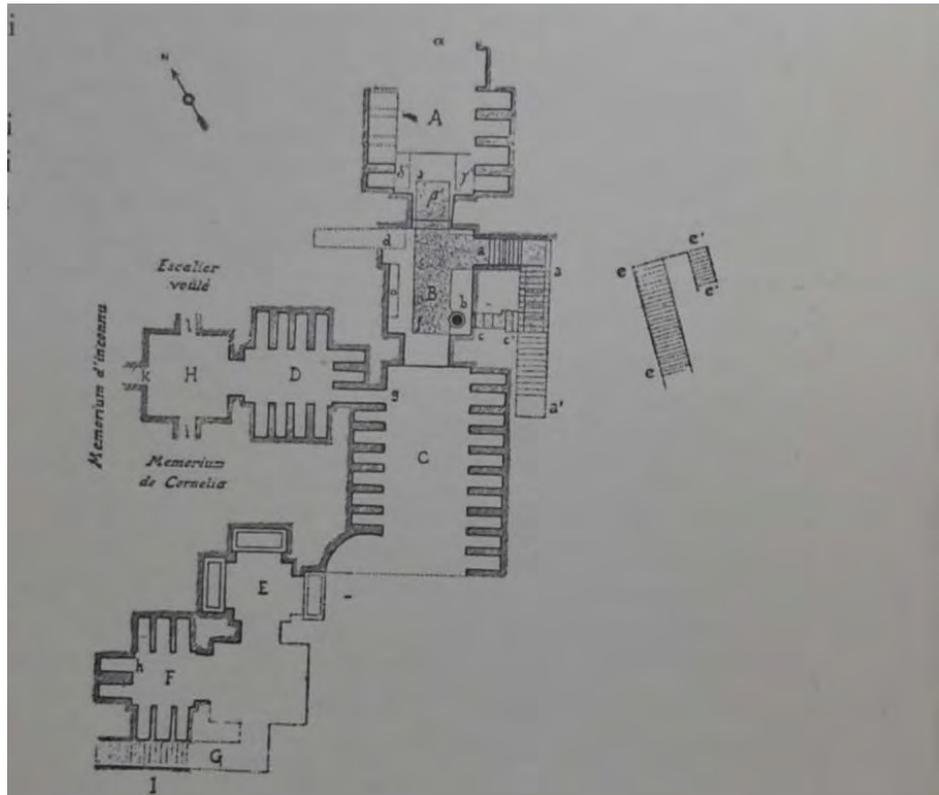


Figure 110. Plan of Scavo A; (Adriani 1966).

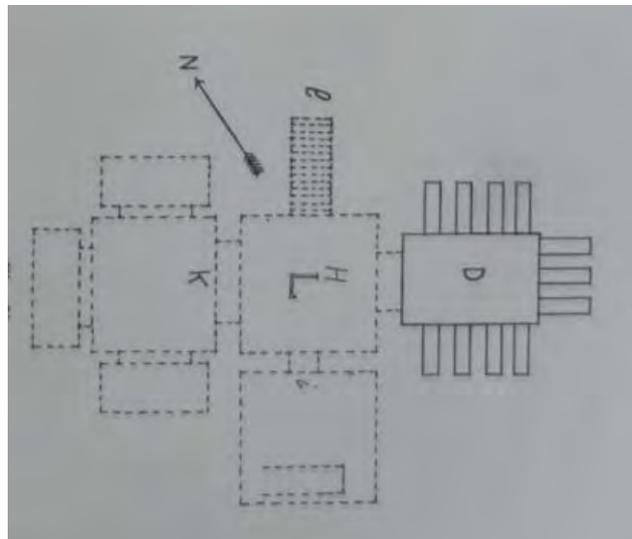


Figure 111. Plan of Group D, H and K and Scavo A; (Adriani 1966).

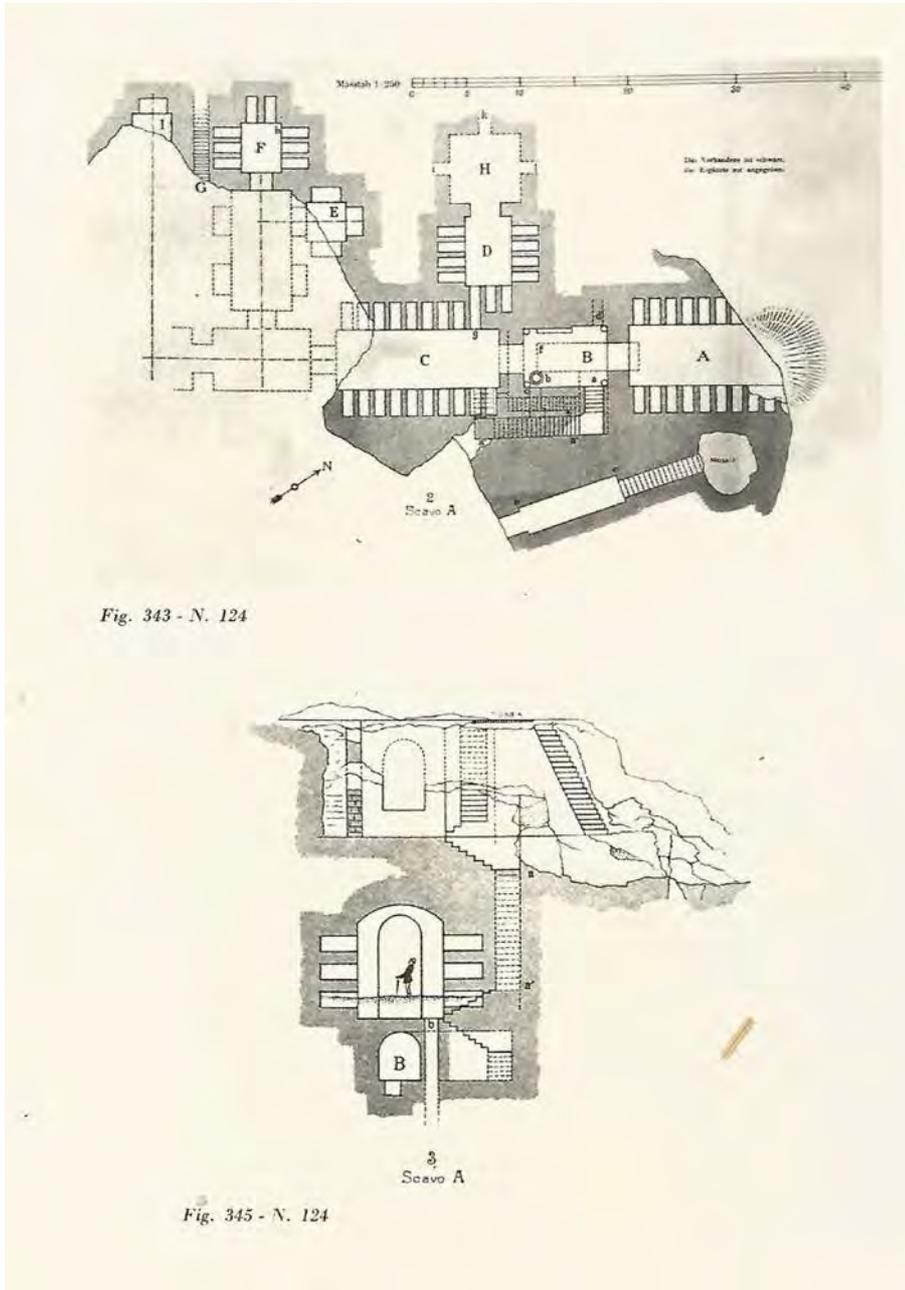


Figure 112. Plan and section through Scavo A; (Adriani 1966).

HER 19 – Catacomb ‘Scavo B’

The limits of HER 19 were located by and planned by the Sieglin Expedition (Schrieber 1908). The positioning of HER 19 on the HER map is based on Schrieber's location plan (Figure 109). The accuracy of this map is not certain although as described above for HER 17, we were able to confirm Schrieber's positioning of HER 17.

HER 19 was known to be on the northern edge of the hill to the north of the HER 1 in the village known as Kom El-Shoqafa El-Barrani. According to Neroutsos and Wescher, the tomb had been excavated in the middle of the 19th century, most probably by Bauer. The tomb had then disappeared. Botti himself spent a long time trying to re-locate it (Botti 1893:18-19).

In 1892 it was rediscovered by Botti. Investigations were then continued by Tiersch in 1902. The site was marked by an old windmill and there was a pit that led to a tunnel which was already submerged in water. A sarcophagus decorated with lion heads was discovered partially underwater. It was rumoured that an endless tunnel led from here to Mariotis and Cairo. It is unclear to what features this refers.

HER 19 consisted of a main chamber with two secondary galleries. According to Adriani its layout and form differed from the other catacombs within the area. It seemed to be made for a single member of a family and then used by the other members of the family and their servants. The main unit consisted of a stairway leading to Chamber G and into an open court (H) which measured (c. 6.00 by 6.00 m), and from here into a long corridor B (c. 21.00 by 5.25m) which contained 5 similar niches in both side walls (Figures 113 and 114). Chambers E and F were probably later additions. To the north there was the main funerary room A. A black granite sarcophagus in the shape of a basin (2.15m by 1.25m) was placed at the centre of chamber A. The cover was carved with decoration on both sides including two pairs of lion heads. According to Botti, on top was a recumbent figure that may have represented the deceased in the guise of Isis; this appeared to be destroyed. This was an unfamiliar type of Alexandrian sarcophagus on which the human figure

appeared reclining on the back but it was probably inspired by earlier Carthaginian examples.

On both sides of Chamber A, in two niches, there were two marble sarcophagi (one of them decorated with garlands). From Chamber A there were three secondary chambers and a corridor leading to the southeast, probably the result of an extension.

Again, the access to the secondary spaces was from the north door of H into a rectangular room (D) that measured c. 6.20 by 10.00 m. From the northeast of D there was an access into a long rectangular gallery (C) c. 21m by 5.50m. This gallery contained 90 loculi in the walls arranged in three levels. At the center of the chamber, according to Schrieber, there was an altar for sacrifices. Chambers C and D contained the remnants of painted decoration with Greek motifs (wreaths and garlands) and Egyptian motifs such as a mummiform Osiris, Horus falcon, Hathor and snakes.

Schrieber recorded traces of a monogram of Christ in the ceiling of one of the niches of HER 19 in the form of a star-shaped rosette. Adrianni refers to Schrieber's interpretation of this as a Jewish symbol as incorrect. In another niche there were the remains of an inscription richly decorated with polychrome marble indicating that it might have belonged to a *epitropos koisoros* (a high status employer).

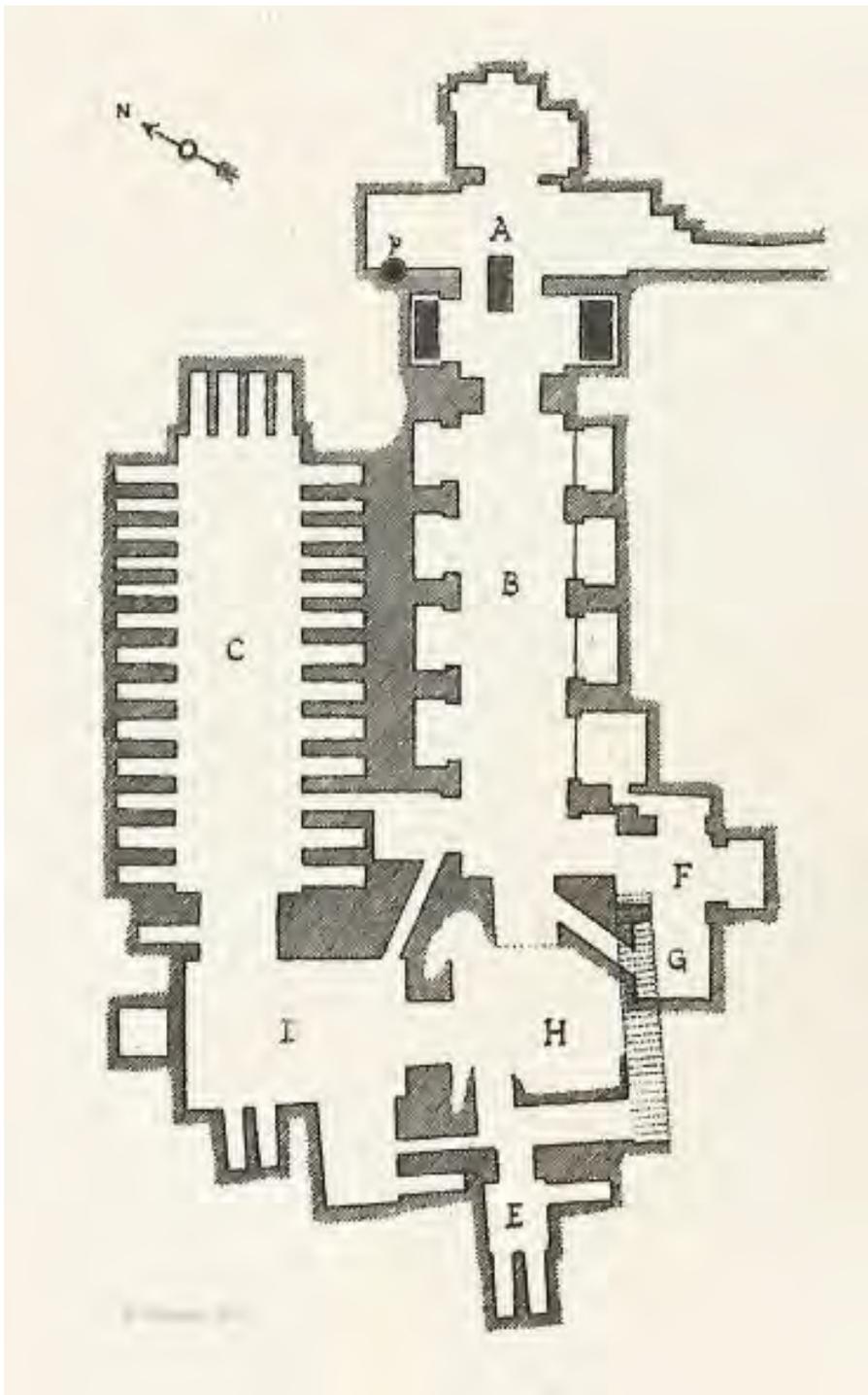


Figure 113. Plan of Scavo B (Schreiber 1908).

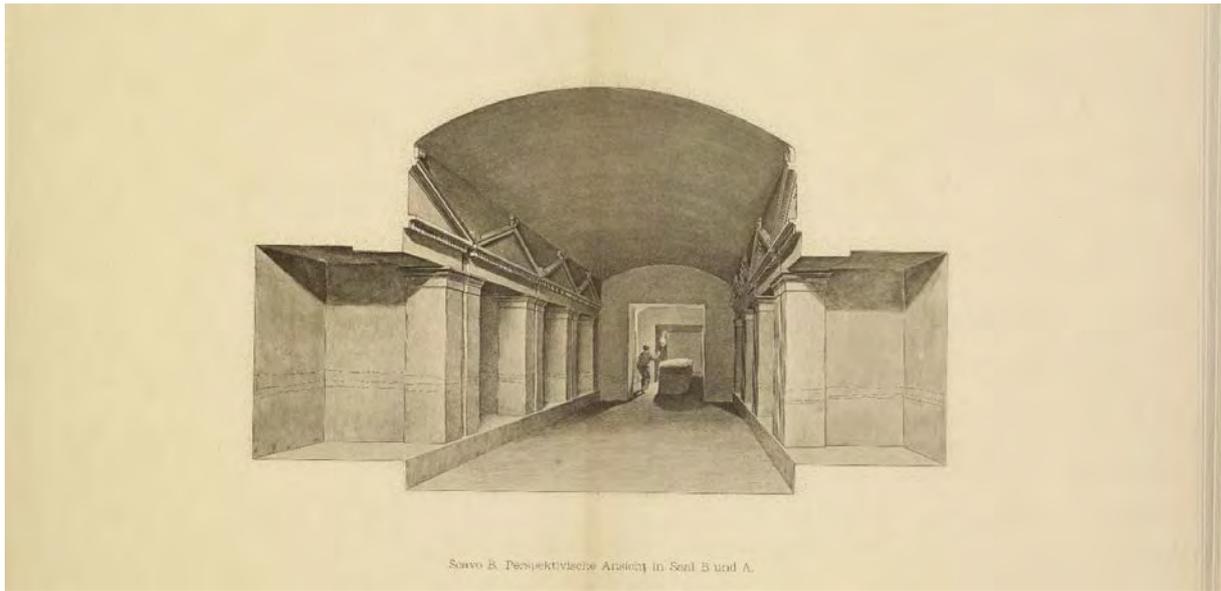


Figure 114. Reconstruction drawing of Chambers A and B in Scavo B (Schrieber plates volume: tafel VIII).

HER 20 – Catacomb ‘Scavo C’

The limits of HER 20 were planned by and located by the Sieglin Expedition (Schrieber 1908). The positioning of HER 20 on the HER map is based on Schrieber’s location plan (Figure 109). The accuracy of this map is not certain but as described above for HER 17, we were able to confirm Shrieber’s positioning of HER 17. According to this positioning, HER 20 lies beneath the so-called ‘Red Houses Compound’ to the southwest of the Kom el-Shuqafa site. As with the previous tombs, Scavo C was dated to the 1st/2nd centuries AD (Botti 1966:183).

HER 20 was excavated by Botti in 1892, and was partly carved from the rock and partly built of masonry. The catacomb comprised the shaft (D), a corridor (C) with two side niches, and a large rectangular chamber (B) with four niches on each side wall (Figure 115). The shaft was extremely deep and covered with limestone blocks. From the shaft there were three narrow passages (e, f, g) that led to side rooms that remain uncovered. Chamber D, styled the ‘tomb of Basilissa’, was reached through g. Here two similar niches on either side were built with large plastered limestone blocks and two loculi were cut in the walls.

The tomb led to gallery B. Here, on both side walls, were four niches. Each niche contained a sarcophagus carved from the rock. There were a further three moveable sarcophagi, of which one, made of limestone, was a very large and decorated with a medusa head, garlands and a bull's head. It was later transported to the Museum (v. Repertoire AI, n. 25, pl.26, 73). A funerary inscription had been painted with black on the plaster of the pillars between the niches. Fragments of a funerary statue was also found within Gallery B.

The excavation of the atrium produced architectural fragments possibly belonging to an above ground structure.

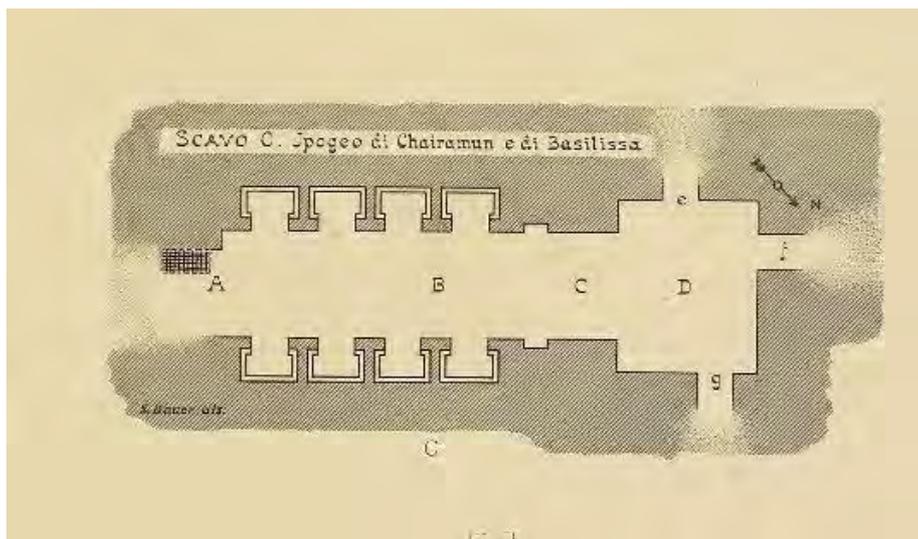


Figure 115. Plan of Scavo C (Schreiber 1908 plates: tafel III).

HER 21 – Wescher's Tomb

The tomb takes this name from Carl Wescher who was the first to publish it (Venit 2002:183). The tomb was discovered in 1858 and was reputedly located somewhere between Scavo C and D (Venit 2002:184; Tkaczow 1993:65). According to Schreiber it was destroyed in the following years. Schreiber writes that at the time of publication (1908) nothing could be found of it and that in 1892 Botti searched for the

tomb but had been able to relocate it. Schreiber mentions that it 'seemed' to have been originally located next to the Fort Kôm Hadid (Schreiber 1908: 44-56).

The tomb was designed in the shape of a Latin cross orientated east to west (Figure 116). Two stairways at the south formed the left bar of the cross and a chamber with thirty-two loculi arranged in two formed the long vertical bar of the cross extending toward the east. At the north a triclinium formed the right upper arm of the cross and at the west, an exedra with a rock-cut bench formed the short upper vertical part. The tomb had iconic and narrative painted figural decoration accompanied by identifying inscriptions and painted architectural detailing (Venit 2002:184).

The vaulted staircase entered the court at its southwest corner and from the southeast corner of the court another stairway led down to a lower level that was inaccessible in the nineteenth century. Each wall of the court had painted figures ranging from nearly life size to slightly over. The exedra had paintings of Christ and the Virgin Mary. There was a scene representing a standing figure of Christ and traces of two other figures. An inscription at the right identified the Virgin Mary. Both the triclinium and the loculus burial room preserved several layers of plaster indicating that the tomb had an extended period of use (Venit 2002:186). The construction and architectural decoration of the complex supported a date in the Roman imperial period, however, the richly painted Christian iconography dated variously to the 3rd and 4th century AD. It is uncertain whether this tomb was actually built as a Christian hypogeum or whether it was an earlier tomb that was then remodelled according to the Christian needs (Tkaczow 1993:66).

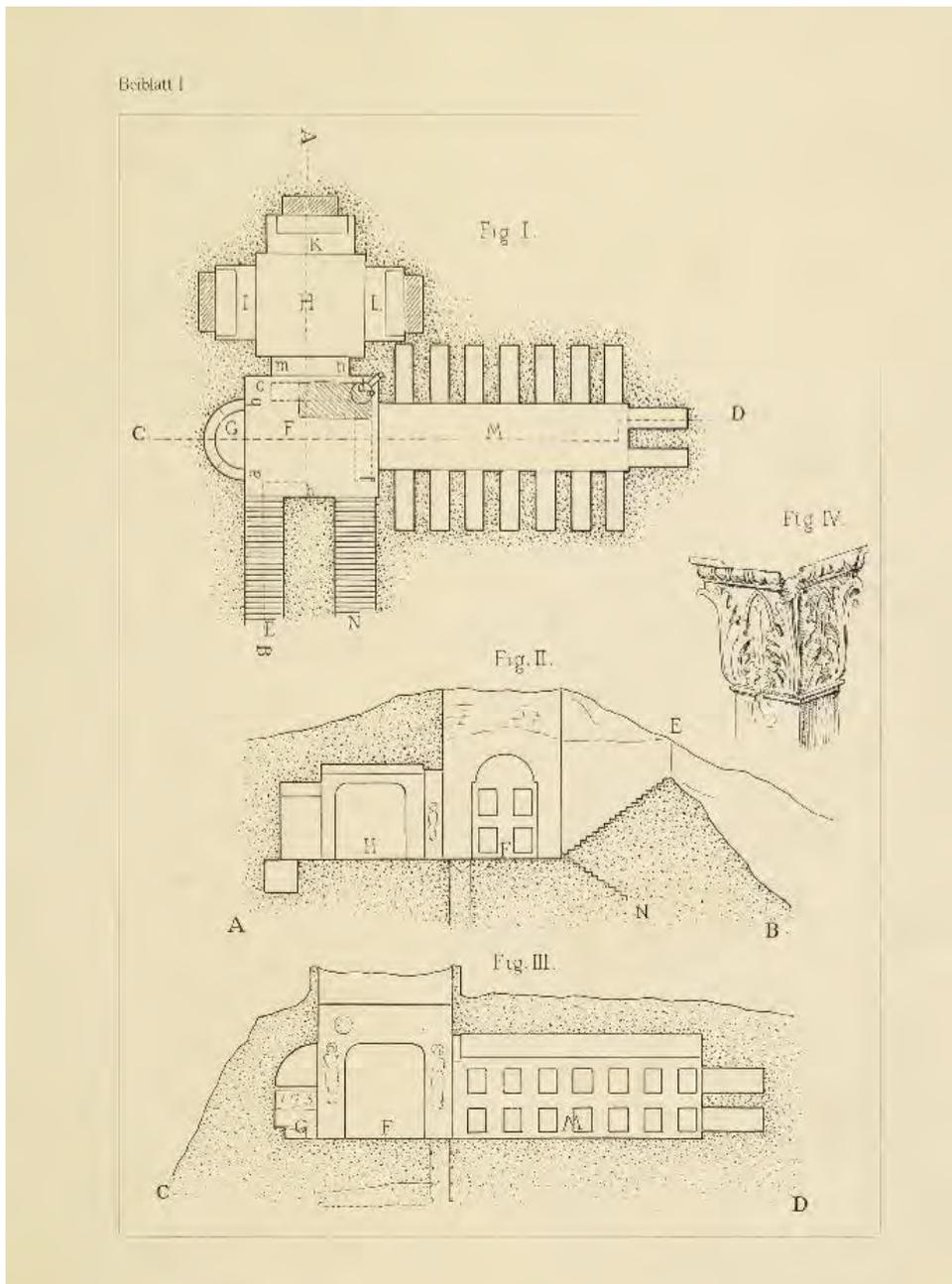


Figure 116. Plan of Wescher's Tomb (Schreiber 1908: Supplement 1).

HER 22 – The Rufini Chapel

In 1876, while quarrymen were working east of Wescher's Tomb near the village of Karmouz, they discovered a funerary chapel in the shape of a shrine in a hybrid style mixing Egyptian with Greek elements (Botti 1898: 7). According to Schreiber the chapel was located in the immediate vicinity of Wescher's Tomb, and that while uncovering the Rufini Chapel parts of Wescher's Tomb were damaged (Schreiber 1908:44-56). According to Schreiber the chapel was completely destroyed.

According to Néroutzos it had Greco-Egyptian decoration and the inscriptions inside belonged to Rufini, a Christian Roman citizen and date to the Antonine period (2nd century AD) (Néroutzos 1888;Tkaczow 1993:66). The chapel consisted of a cubiculum with 50 loculi (Schreiber 1908:44-56).

HER 23 – Puglio Tomb

The Puglio tomb was discovered in 1870 and may have been near Scavo B (Tkaczow 1993:65). According to Schreiber, the tomb had been completely destroyed by his time. Information relating to the tomb was collected orally. The tomb had been tripartite with a longitudinal room that had been found empty, a corridor that connected at the long side of the room and gave access to 34 loculi on two levels. There was also a chamber on the long side of the main room that contained four sarcophagi. According to Schreiber the spatial organization recalls Wescher's Tomb some believe that the Puglio Tomb and Wescher's Tomb are one in the same (Schreiber 1908:44-56).

HER 24 – Bath House

According to Riad a few hundred meters to the south of the main great Catacomb, to the west of El-Tewfikieh street and nearby a primary school, the removal of sand hills, which surrounded the Catacombs uncovered a monumental set of two relatively contemporaneous Roman bath houses (Figure 117). According to Riad the place is now occupied by residential blocks (1975:113-122). Based on this description we have provisionally positioned HER 24 on the HER map. Of these two independent bath houses one was for men and the other for women; they are separated by a distance of 11.60m and are dated to the 2nd/3rd century AD (Riad 1975:113-122).

Building A was the eastern bath house, and measured c 23m by 20 m; (Figure 117), comprising of three chambers, rectangular basins, remains of a fireplace within the basement of the chambers and three semicircular pools, which would have received water from a tank built above a vaulted corridor.

Bath House B was slightly smaller, measuring 20m by 19m and was better preserved (Figure 117). This structure had three levels, with the hypocaust at the

base, and then the ground level structure, which comprised three rooms and a corridor, and stairs leading upwards, to an upper level.

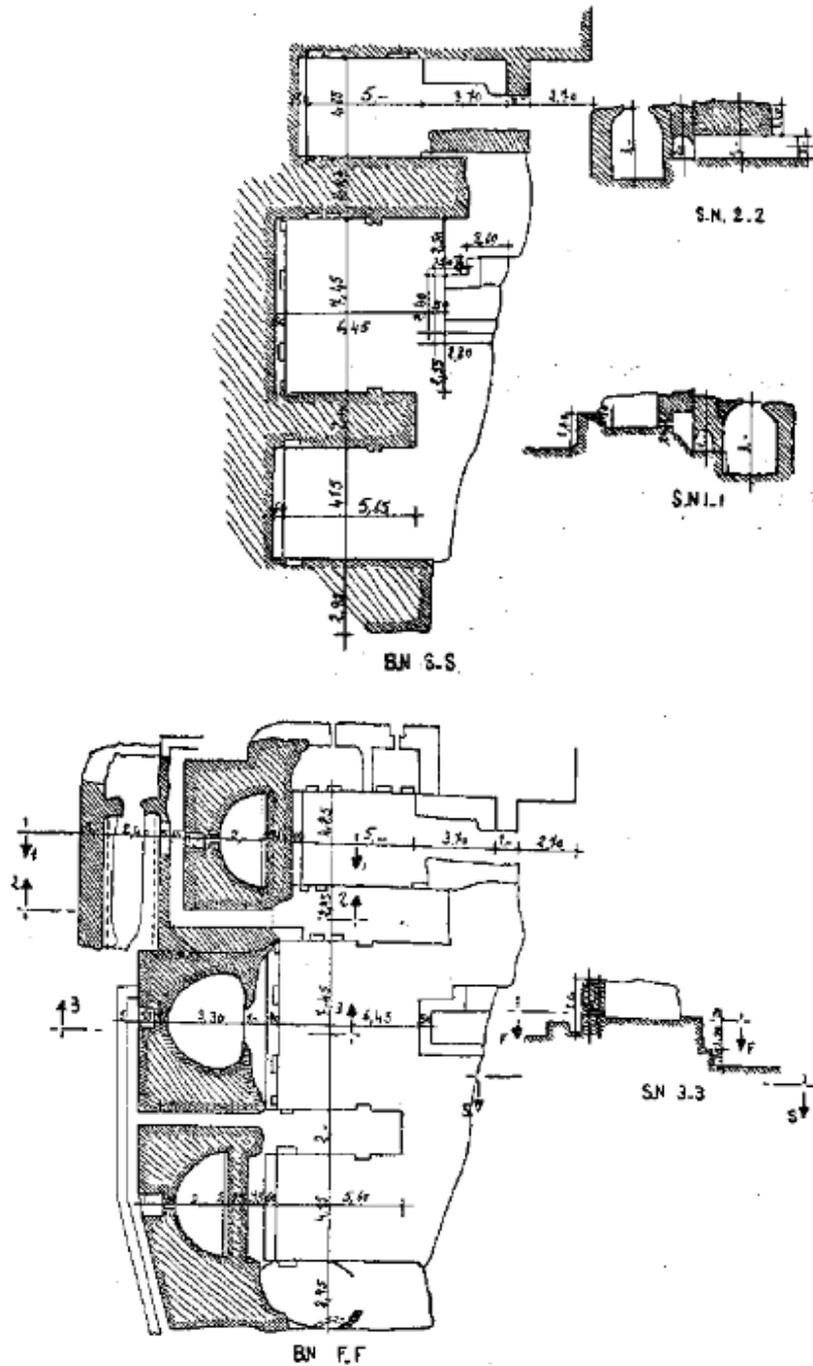


Figure 117. Upper, bathhouse B. Lower, bathhouse A. (Riad 1975:113-122).

HER 25 – MoA Excavations.

In the plot to the east of the main entrance to the Kom el-Shuqafa site the MoA excavated five trenches. These trenches contained a stratigraphic sequence of deposits, probably deposited during Roman to Modern periods. No structures were encountered during these excavations (Alexandria Inspectorate pers comm). These deposits are likely to be leveling/make-up material deposited within the depression caused by the U-Shaped limestone outcrop, and are similar to the material that was recorded in boreholes drilled nearby in 2015.

HER 26 – Tomb/Catacomb

In 2014 illicit excavations beneath modern houses in El-Sheikh Shaheen Lane revealed an underground burial complex. The location of HER 26 on the HER map has been taken from a survey point at the door of the modern property on this spot. The MoA inspectors responded to information notifying them of the tomb. It was documented in photographs and a short report was written. The tomb appears to be a typical example of the Roman catacombs in the area comprising rock-cut burial chambers with rock-cut sarcophagi and loculi (Figures 118 and 119).



Figure 118. Catacomb HER 26 discovered 2010. Photograph courtesy of the MoA, Alexandria Department.



Figure 119. Catacomb HER 26 discovered 2010. Photograph courtesy of the MoA, Alexandria Department.

HER 28 – Red Granite Columns

While the authors were conducting a walk-over survey of the area they identified two ancient red granite columns with limestone capitals re-used in the corners of a modern building on Al-Ashwani Street (Figures 120 and 121). The location of HER 28 was taken from a plan of the building on the survey plan of the area. It is not known where these columns were taken from but it is possible, given Botti's references to a number of columns found associated with the stadium, that these are from the stadium or associated structures.



Figure 120. Red granite column with limestone capital 1 (HER 28) re-used in the corner of a modern building on Al- Ashwani Street.



Figure 121. Red granite column with limestone capital 2 (HER 28) re-used in the corner of a modern building on Al-Ashwani Street.

HER 29 – Mahmudiyah Canal

The canal is 72 km long and was named after Sultan Mahmud II who originally completed its construction in 1819 to connect Alexandria to the Nile. The original canal, built sometime around 1600, had fallen in decay. The canal was then closed in 1829 due to a mudslide that rendered it impossible to navigate. Lack of money in 1830 and again in 1832 temporarily halted repair work. In 1836 work was resumed on strengthening the walls of the canal and widening the channel to accommodate larger boats. These works were completed in August 1838 with Muhammad Ali present in Alexandria to congratulate Moharem Bey who oversaw the project and to take the first ship to sail on the reopened canal from Alexandria to Cairo.

HER 31 – Catacomb

According to local MoA inspectors, 11 subterranean steps were found in 2001 leading to an entrance passage heading towards the north under Chest Hospital Road in front of the Chest Hospital. It is possible that these features relate to structures previously investigated in the area such as the Rufini Chapel and Wescher's Tomb. (Information obtained during interviews with the local MoA inspectors.)

HER 32 – MoA Excavation

In 2014 and 2015 the MoA excavated three trenches on the open plot of land to the west of the Kom el-Shuqafa site. The aim was to locate the northern continuation of HER 31. A series of leveling/make-up deposits were excavated to c. 6m below ground level. Prior to the preparation of this report some rock-cut features had been exposed (Figure 122). However, at present the configuration and interpretation of these features is uncertain. Excavations are ongoing.



Figure 122. Rock-cut features in one of the trenches of HER 32 (September 2015).

HER 33 – MoA Excavation

The local antiquities inspectors informed the authors that the MoA had dug a series of trenches in this location, to the northeast of the Kom el-Shuqafa site on the north side of El-Nasseria Street, prior to the construction of buildings here. The authors were unable to obtain any additional information.

8 IMPACTS ON BURIED ARCHAEOLOGICAL DEPOSITS

8.1 Previous Land Use

During the Roman period the site of Kom el-Shuqafa and the areas surrounding the modern site were used as a necropolis. As can be seen by the plethora of catacomb HER entries, the area was riddled with subterranean burial chambers and complexes, many of them re-used resulting in additions and remodeling of the original designs.

For the same reason that this limestone outcrop created an attractive location for a necropolis, it later became an attractive area to quarry stone during the 18th and 19th centuries. Indeed, it was during such quarrying that many of the known catacombs were first revealed. It is difficult to quantify how much stone was removed during this period and to what extent previously recorded catacombs were removed before records began. Others are almost certainly now buried under the modern houses and streets. As has already been noted during a walk over survey, the authors noted evidence of one catacomb (Scavo A) still surviving beneath the modern road.

8.2 Map Regression

The earliest map showing the area is dated to 1548 (Figure 123). Although it does not show the KelSh area explicitly, it does show the medieval wall encircling the city, Pompey's Pillar outside the walls, a number of hills nearby and Lake Mareotis feeding into the Mediterranean Sea. Near to Pompey's Pillar a large building is shown, labeled 'Mosavee'. Maps dated to 1619 and 1686 show a similar topography. On the 1619 map Pompey's Pillar is shown and a building to the west of it, presumably the Mosavee shown in the 1548 map. Again, Lake Mareotis is shown feeding into the Mediterranean, and navigable by boat (Figure 124). A water channel is shown leading from the lake, east of the Pillar, to the city walls. This may be the same channel shown as a subterranean water feature in later maps. The 1686 map does not specifically show any high ground immediately adjacent to Pompey's Pillar (Figure 125). The structure next to the pillar, also shown in previous

maps, can just be made out. The position of the channel that leads from Lake Mareotis to the Mediterranean is depicted in the same approximate location as the current canal.

A map dated to 1570 again does not specifically show the site but shows a number of channels leading from Maria Lacus (Figure 126).

A map dated 1687 shows no channel connecting Lake Mareotis and the Mediterranean Sea (Figure 127). It shows Pompey's Pillar, a canal running SE-NW and then flowing to the city walls, to the west of the Pompey's Pillar. A map dated 1738 shows what seems to be a dried up Lake Mareotis, filled with trees and a marked slope from the northern bank down into the Lake, and what may be a channel leading from the Lake to the walls (Figure 128). The area to the south of the Pillar is depicted as contoured, with mounds and troughs. Maps dated 1743, 1766 and 1785 shows similar topography, showing the city walls, and a canal running SE-NW, then leading to the walls and beneath them, to the west and to the south of the pillar (figures 129, 130 and 131). The 1766 map names this feature as 'Le Kalis' and the 1785 map marks it as 'Canal lire du Nil à Alexandrie'.

The Maps of the Description de l'Égypte of 1798 are the first to show explicitly the topography of the area of and around the Kom el-Shuqafa site (Figures 132, 133 and 134). Each shows slightly different topographical details. Figure 132 shows the canal to the west of the Kom el-Shuqafa site. It is shown for the first time with a bend curving around the site to the west, a feature not seen in previous maps, linking with Lake Mareotis and the 'Canal d'Alexandrie' and a canal to the east. The Kom el-Shuqafa site is probably the high point just next to the area marked 'Hippodrome'. Here the high points slope down to the north, east and south. The placement of the Roman Hippodrome here may have been due to the topography of the area providing a suitable as a U-Shaped trough. The French map reproduced here as Figure 133 shows two high mounds in the area of the Kom el-Shuqafa site, and text saying 'batteres des bains', and that in Figure 134 shows a curved high point with two smaller mounds on top.

Of two maps dated to 1801, again from the *Description de l’Egypte*, one shows a U-Shaped high mound in the area of the Kom el-Shuqafa site (Figure 135) and the other shows a more detailed view of the topography (Figure 136). Irregular shaped mounds are shown within the area. The Kom el-Shuqafa site probably occupies the southernmost mound and the small area of higher ground but incorporating the U-shaped dip that had previously been interpreted as accommodating the western extent of the Hippodrome.

A map dated 1802 that attempted to overlay ancient features onto a modern map is similar but showing two mounds and marking the area of the “Arene’ between them (Figure 137). A second map of 1802 shows more topographical detail within the area (Figure 138).

Another map of 1806, shows detailed contours of the ‘mounds’, depicting a U-shape depression created by the mounds (Figure 139). A map dated to 1833 shows a similar topography but with the addition of the Mahmoudiya Canal, which had been completed in 1819 (Figure 140). For the most part, according to the historical maps, the new canal follows the same line as the previously existing channel except its northern end now curved around to the west to the meet the Mediterranean Sea. The canal had been un-navigable in 1833 due to a mud-slide in 1829. In 1836 repairs and enlargements to the canal began and were completed in 1839. A map dated 1841 shows the newly repaired canal (Figure 141). It also shows a linear shaped high mound in the area of Kom el-Shuqafa and gardens and cultivation to the south next to the canal. The canal to the east is described as ‘cisterns of a subterraneous Aquad’, possibly an abbreviation for ‘aqueduct’. On the northern edge of the Lake is written ‘Part of the Inundation Formed by the British in 1802’

A map dated to 1843 again shows the high mound in the area of Kom el-Shuqafa again as a U shape. The depression is marked as the stadium. The canal and cisterns are shown to the east (Figure 142).

Fort el-Hashem first appears on a map dated to 1855 showing the fort on the highest ground (Figure 143). The U-shaped depression that appears in previous maps is not

clear here. Instead the mound is shown as linear. And there is now a road between the Kom el-Shuqafa site and the site of Pompey's Pillar.

Maps from 1861 onwards show the gradual urban development of the area around the Kom el-Shuqafa site to the north (1861 in Figure 144) and to the north, west and east (1882 in Figure 145 and 1887 in figure 146). The last map, of 1887, shows a single high circular mound in the area of Kom el-Shuqafa, with what seem to be two curved mounds to the west.

A contour map of Alexandria dating to 1866 shows the hypothesized Roman layout of the city overlain on a modern plan of the city (Figure 147). A clear peak is visible in the area of Kom el-Shuqafa and a U-shaped depression to the east.

A map dating to 1902 shows a contoured mound in the area of the Kom el-Shuqafa site with development to the north, east, south and west and the fort still occupying the highest peak (Figure 148). Railway tracks have now been constructed west of the Mahmudiya Canal. The street pattern can be made out, showing that at this stage the mounds were bordered to the east by the mosque and what may be a school, and to the east of this by al-Tawfiqia Street. To the south there is Abou Bakr Sedeek Street and to the west Al-Ashwani Street. Only the very eastern part of al-Nasseriea Street has been created at this stage and the western limits of the same street next to the canal.

A map dating to 1917 is the first to show the Kom el-Shuqafa catacombs and now the fort appears to have been removed (Figure 149). At this time, the area immediately to the west, south, and much of the east is still undeveloped.

The Survey of Egypt map of 1941 (Figures 150-152) shows the fence lines enclosing and protecting the Kom el-Shuqafa site, the below ground features of HER1, HER2 and HER3, the Inspectorate office HER 8, the plateau edge in the southwest corner, the layout of paths around the site and the bathroom facilities in the northeast corner of the site. Outside the limits of the site, the 1941 map shows the increased urban expansion of the city, with the extension of El Nasseriea Street, and the creation of

street networks to the west and south of the Kom el-Shuqafa site, alongside the construction of the 'labourers' quarters' to the southwest.

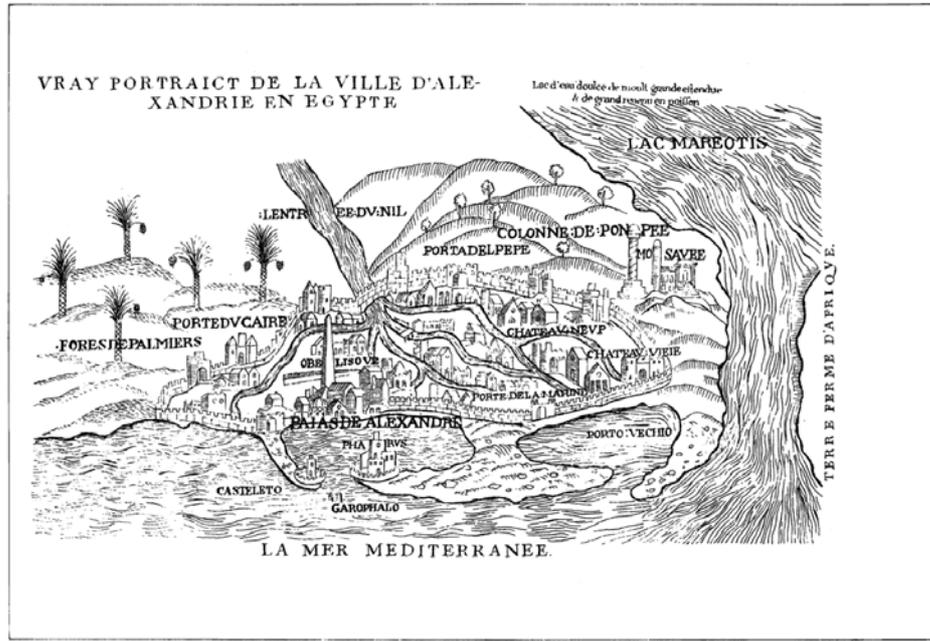


Figure 123. Vray Portraict de la Ville D'Alexandrie en Égypte 1548. (Jondet 1922: Plate II).



Figure 124. Alexandria, Vetustissimum, Ægypti Emporium 1619. (Jondet 1922: Plate 5).



Figure 125. Vue d'Alexandrie 1686. (Jondet 1922: Plate VII).



Figure 126. Ægyptus Antiqua Ex Conatibus Geographicis Ab. Ortely, Alexandria 1570. (Jondet 1922: Plate IV).

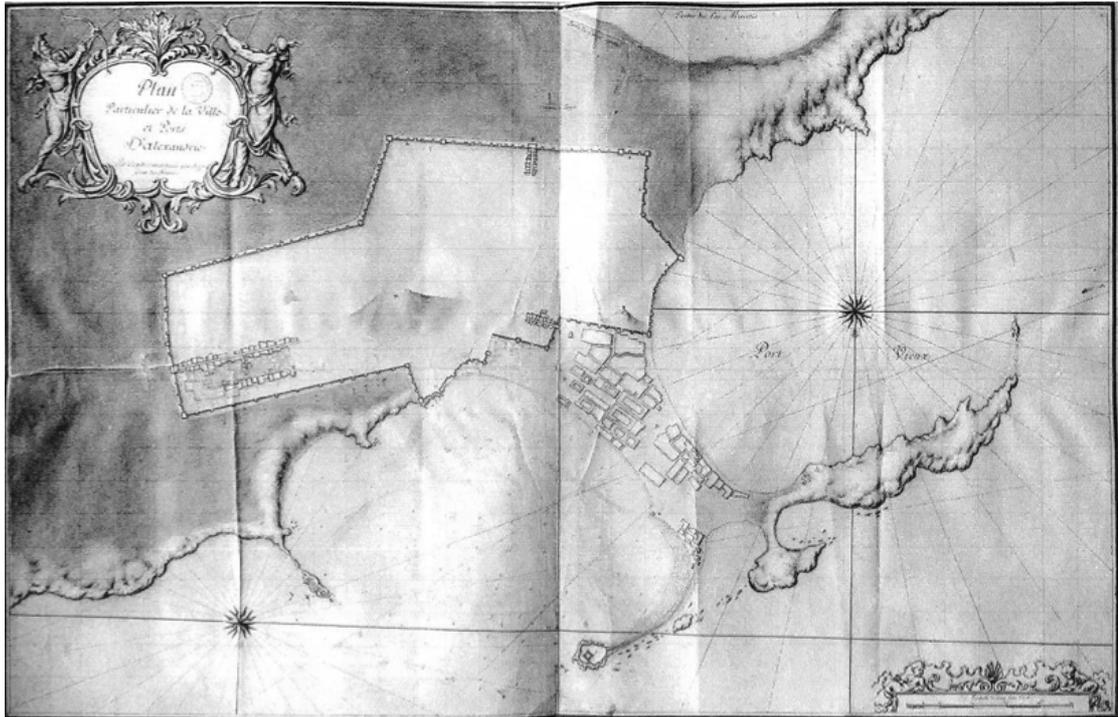
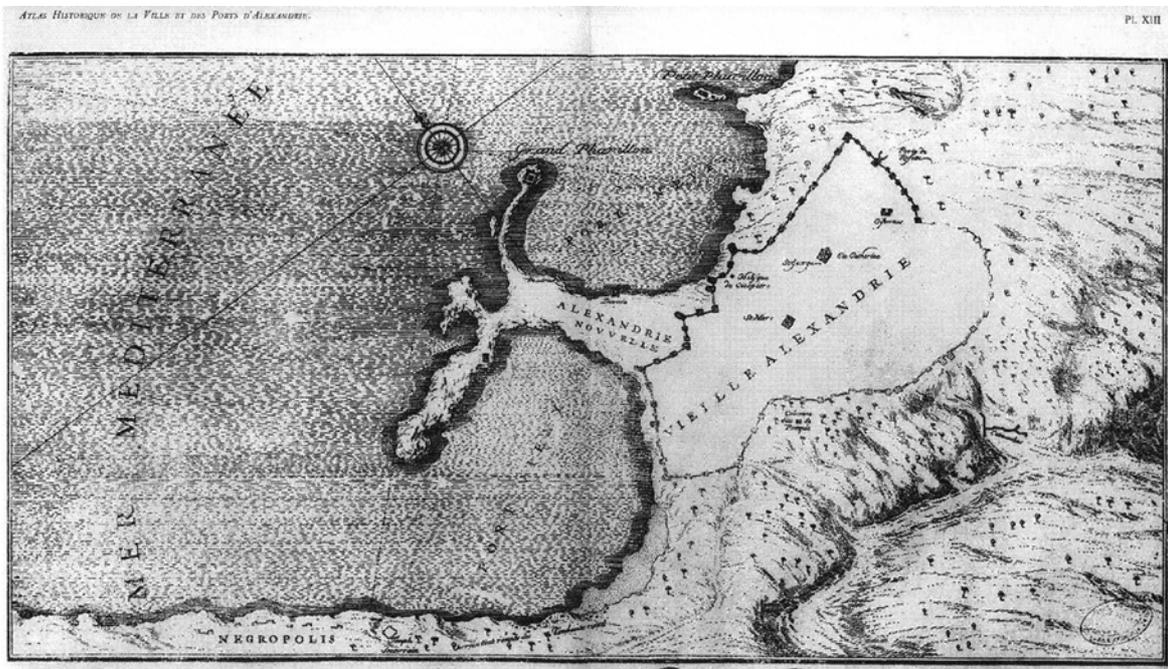


Figure 127. Plan Particulier de la Ville et Ports d'Alexandrie par Razud, Ingénieur du Roy 1687. (Jondet 1922: Plate VIII).

Figure 128. Carte Particulière de la Vieille et de la Nouvelle Alexandrie et des Ports 1738. (Jondet 1922: Plate XIII).



- References to the Plan of Alexandria. Plate II.* (An exact draft) Alexandria. Old Alexandria.
- | | | | | |
|---|--|---|---|---|
| <p>A. The late Pharos.
B. The secondary Pharos.
C. The Pharos, now called the old Pharos.
D. The great Pharos, now called the new Pharos.
E. The Pharos, now a castle.
F. The light of fire.
G. The entrance for small boats.
H. The entrance for ships.
I. Hypostadium.
K. Hippodrome.
M. A. Lion supposed to be the old bounds of the sea.
N. Port Cladius.</p> | <p>1. The old eastward gate.
M. Supposed ancient gate, in the way to Campian.
N. Great Tower to the east, near it is the third plate.
O. Great Tower to the east, near it is the same plate.
P. The Palace of the Kings.
Q. The round Tower.
R. Supposed side of the river Antinopolis.
S. Amphitheatrum.
T. Circusium.
U. The ancient Stadium.
V. Port Cladius.</p> | <p>X. The Pharos.
Y. Gymnasium.
Z. Forum.
A. Castle of Antinopolis.
B. Mosque of our Fathers.
C. Mosque of St. Athanasius.
D. Epist. Council.
E. Greek Council.
F. Jews Synagogue.
G. Captain on three arches.
H. Ptoleus hill.</p> | <p>(An exact draft) Alexandria. Old Alexandria.
I. The Theatre.
K. Shields burial place.
L. Garden.
M. The old burial place of the Kings.
N. The Jews burial place.
O. The Jews palace.
P. Mausoleum.
Q. Christian burial place.
R. Road to Hippodrome.
S. The round House.
T. The Egyptian House.
U. The Castle.</p> | <p>New Alexandria.
V. The Shop and Custom-House.
W. The old gate.
X. The begonia gate.
Y. The Begonia.
Z. The Latin Council.
A. Synagogue.
B. Pompey's Pillar.
C. Colonnade.
D. Mosque of a Sheikh.
E. Wall gate.
F. Column.
G. The old French Fort.
H. The supposed walls to the east of the Palace.</p> |
|---|--|---|---|---|

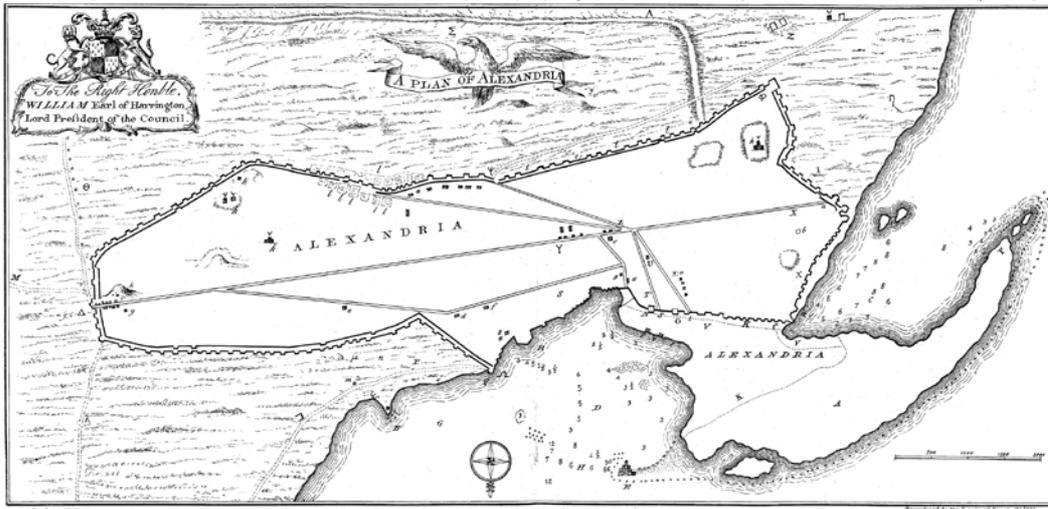


Figure 129. A Plan of Alexandria, 1743. (Jondet 1922: Plate XIV).

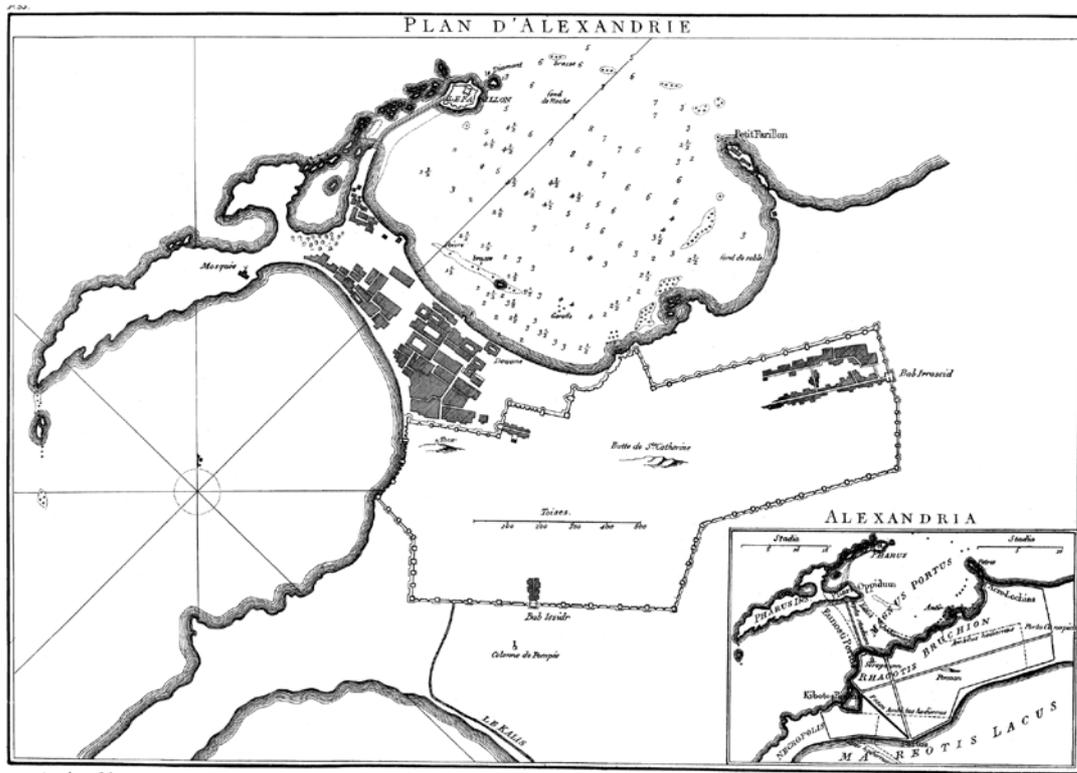


Figure 130 – Plan d’Alexandrie, 1766. (Jondet 1922: Plate XV).

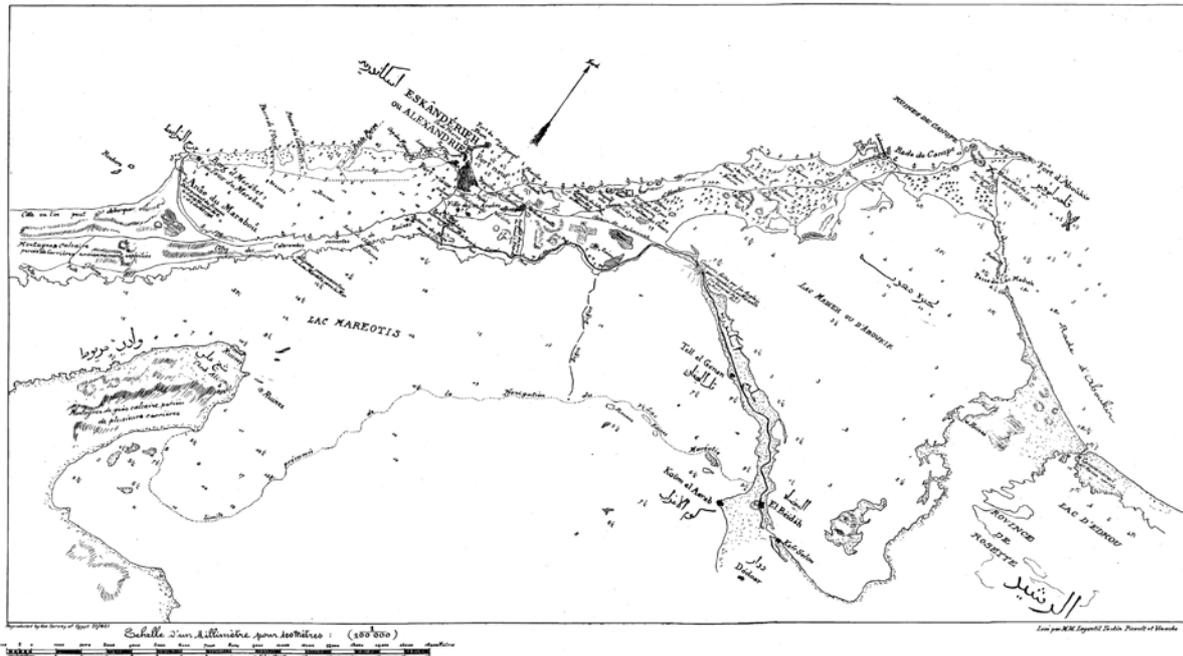


Figure 133. Carte d'Alexandrie et de ses Environs d'Amy à Aboukir, 1798. (Jondet 1922: Plate XXI).

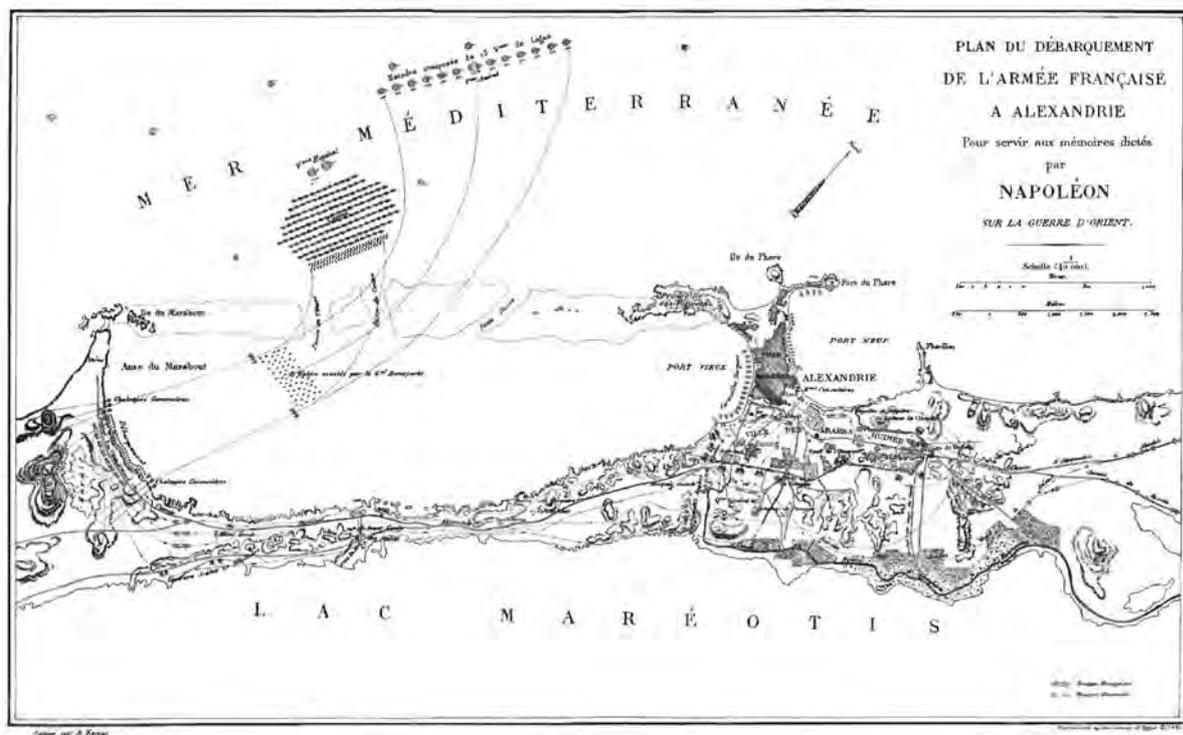


Figure 134. Plan du Débarquement de l'Armée Française à Alexandrie pour Servir aux Mémoires dictés par Napoléon sur la Guerre D'Orient 1798 (Jondet 1922: Plate XXII).

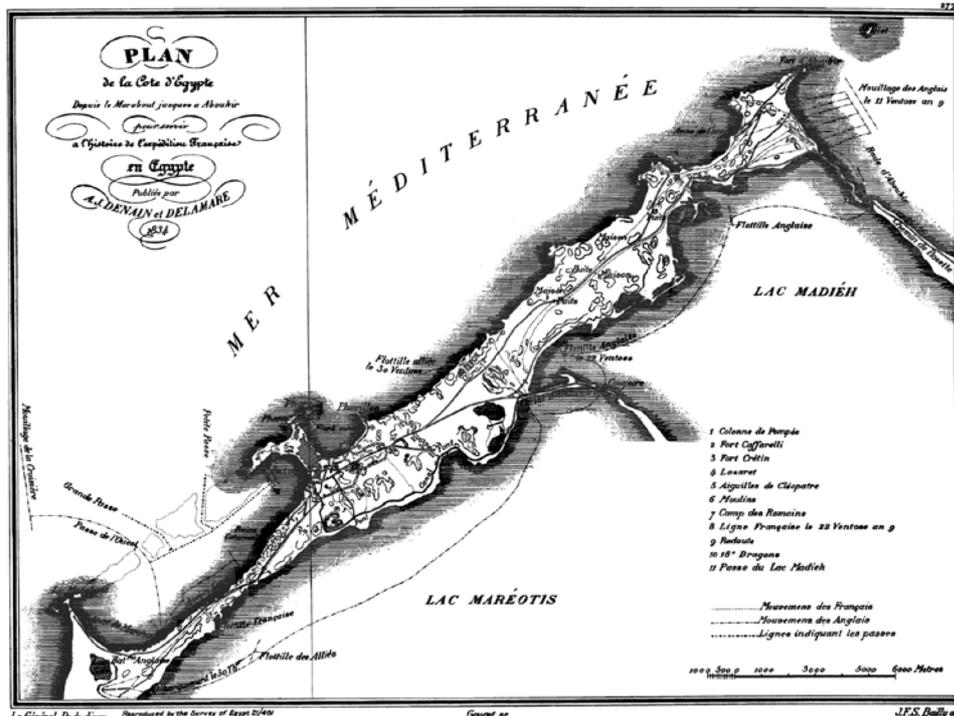


Figure 135. Plan de la Côte d'Égypte. Depuis le Marabout Jusquest à Aboukir pour Servir a l'Histoire de l'Expédition Française en Égypte, 1801. (Jondet 1922: Plate XXIII).

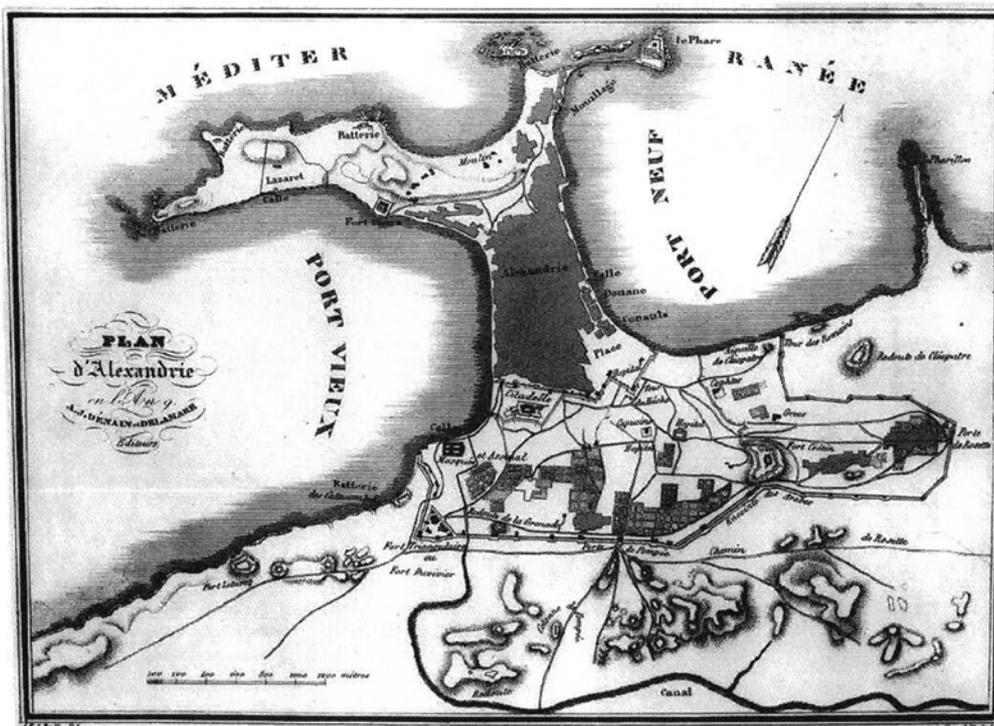


Figure 136. Plan d'Alexandrie en l'An 9, 1801. (Jondet 1922: Plate XXIV).



Figure 139. A Geometrical Survey of the City of Alexandria by Henry Salt 1806 (Jondet 1922: Plate XXVIII).

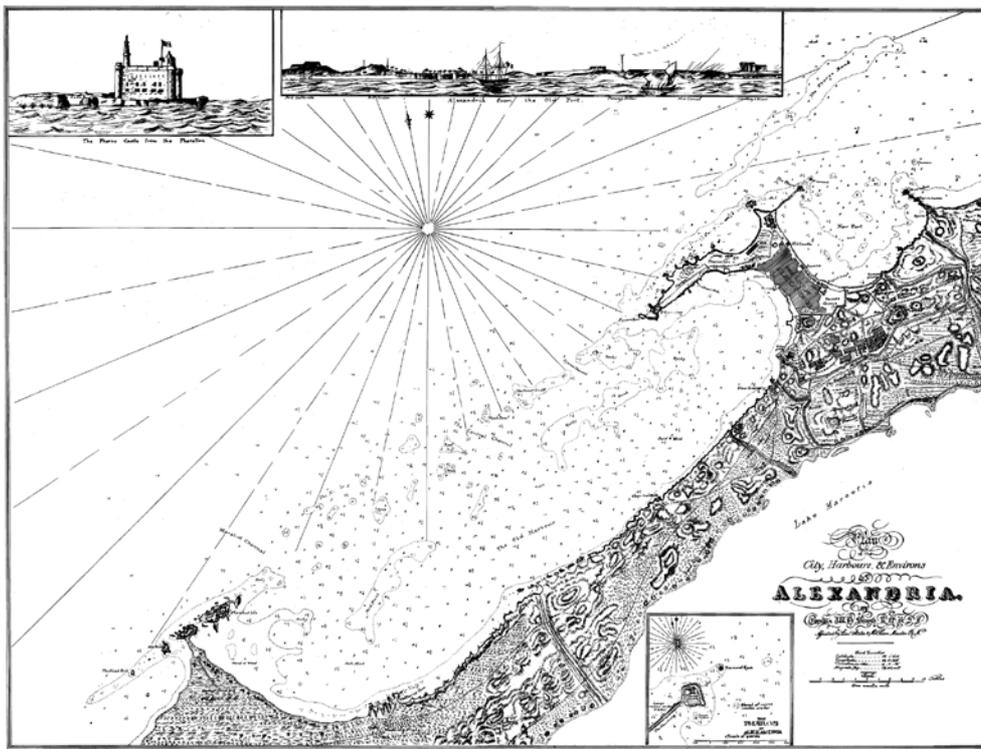


Figure 140. Plan of the City, Harbours and Environs of Alexandria 1833. (Jondet 1922: Plate XXXI).

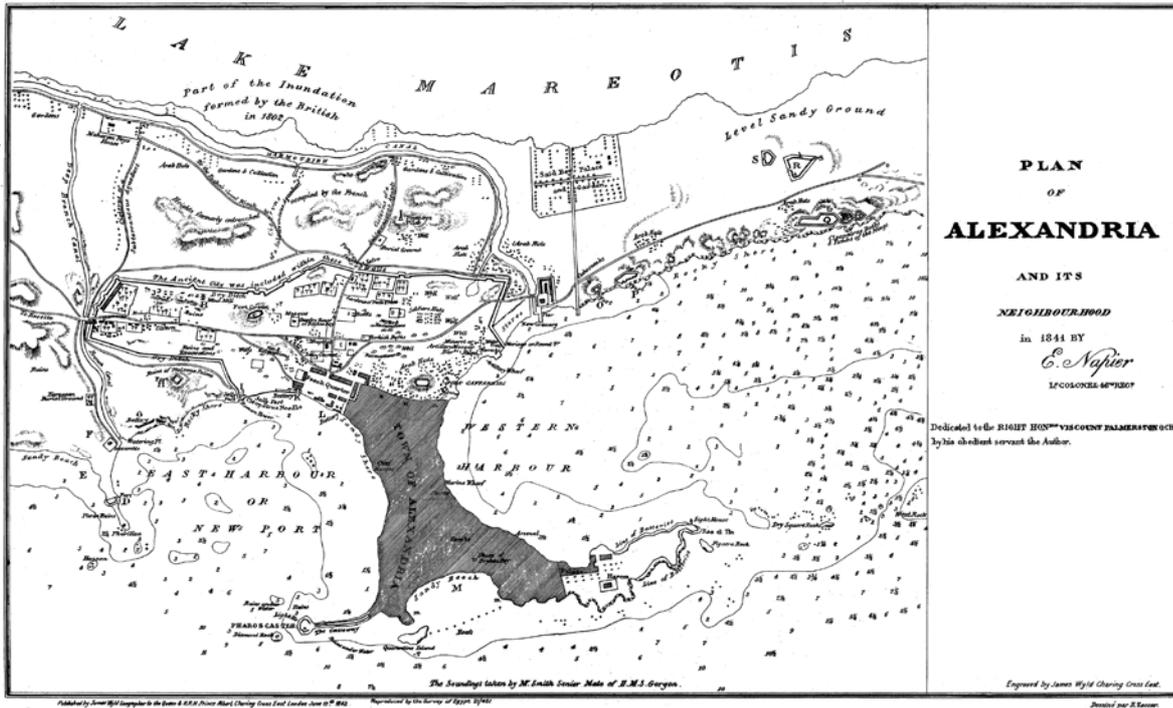


Figure 141. Plan of Alexandria and its Neighbourhood in 1841 by E. Napier, Lt Colonel 46th Reg. (Jondet 1922: Plate XXXIII).

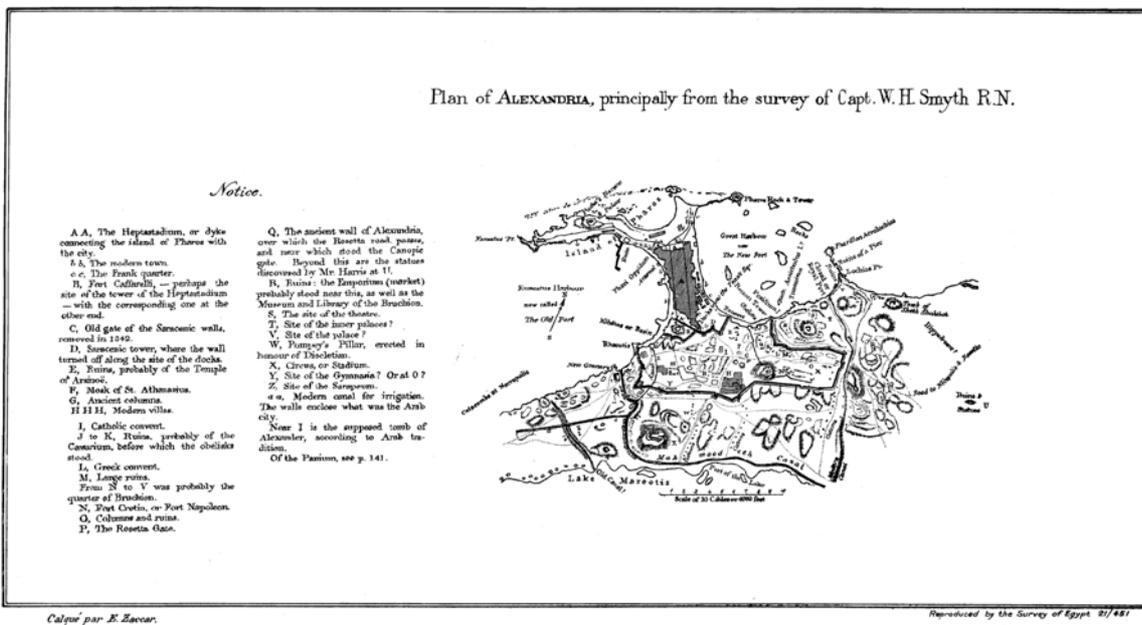


Figure 142. Plan of Alexandria Principally from the Survey of Captain W. H. Smyth R.N., 1843. (Jondet 1922: Plate XXXIV).

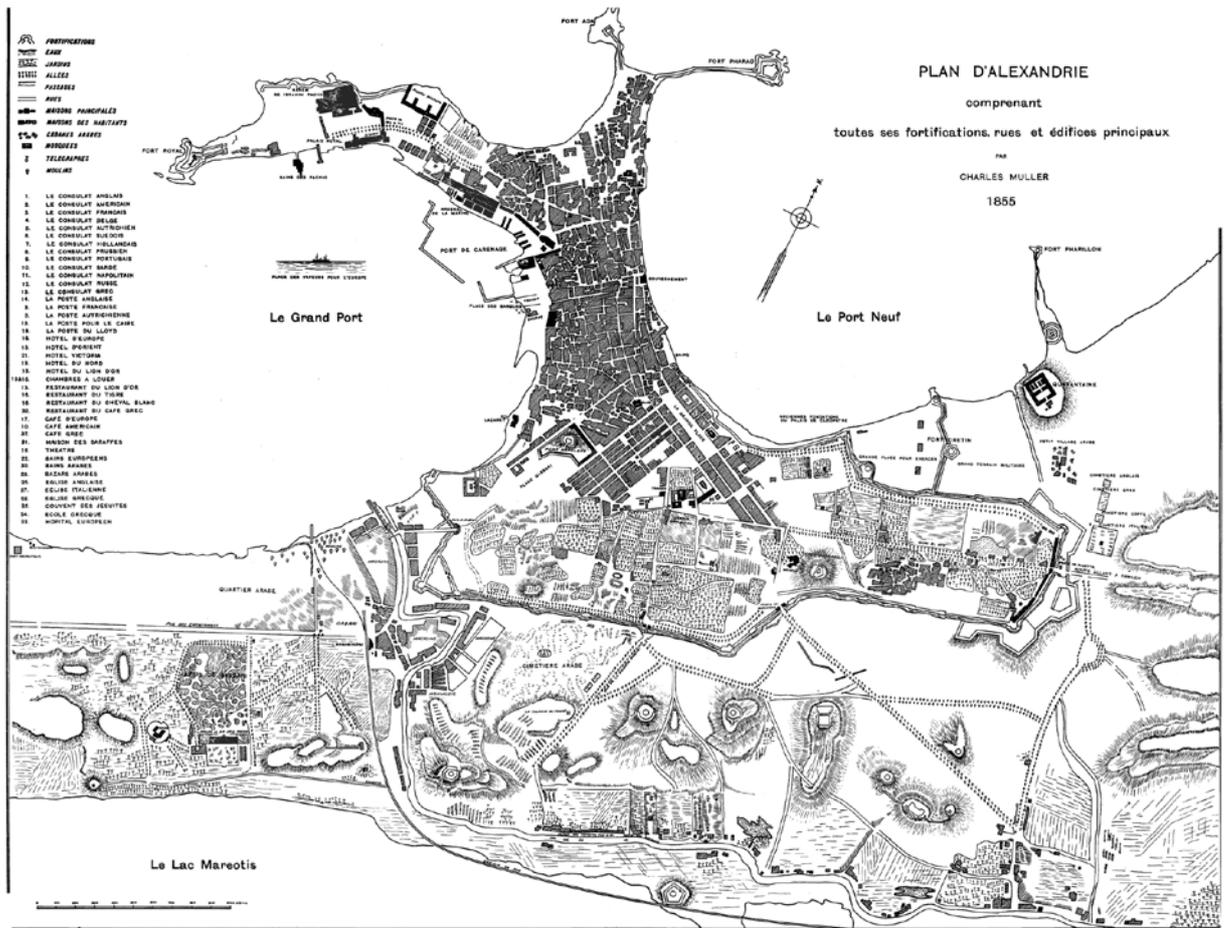


Figure 143. Plan d’Alexandrie Coprenant Toutes ses Fortifications, Rues et Édifices Principaux Par Charles Müller 1855. (Jondet 1922: Plate XXXV).

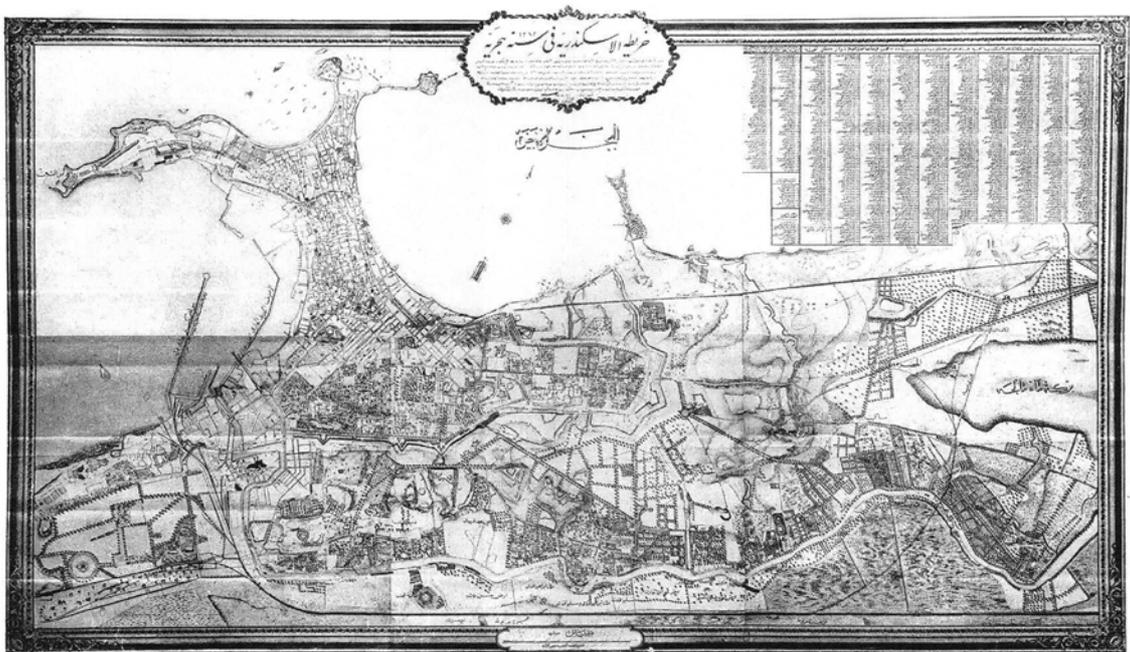


Figure 144. Carte d’Alexandrie 1282 de l’Hégire, 1865. (Jondet 1922: Plate XXXVI).

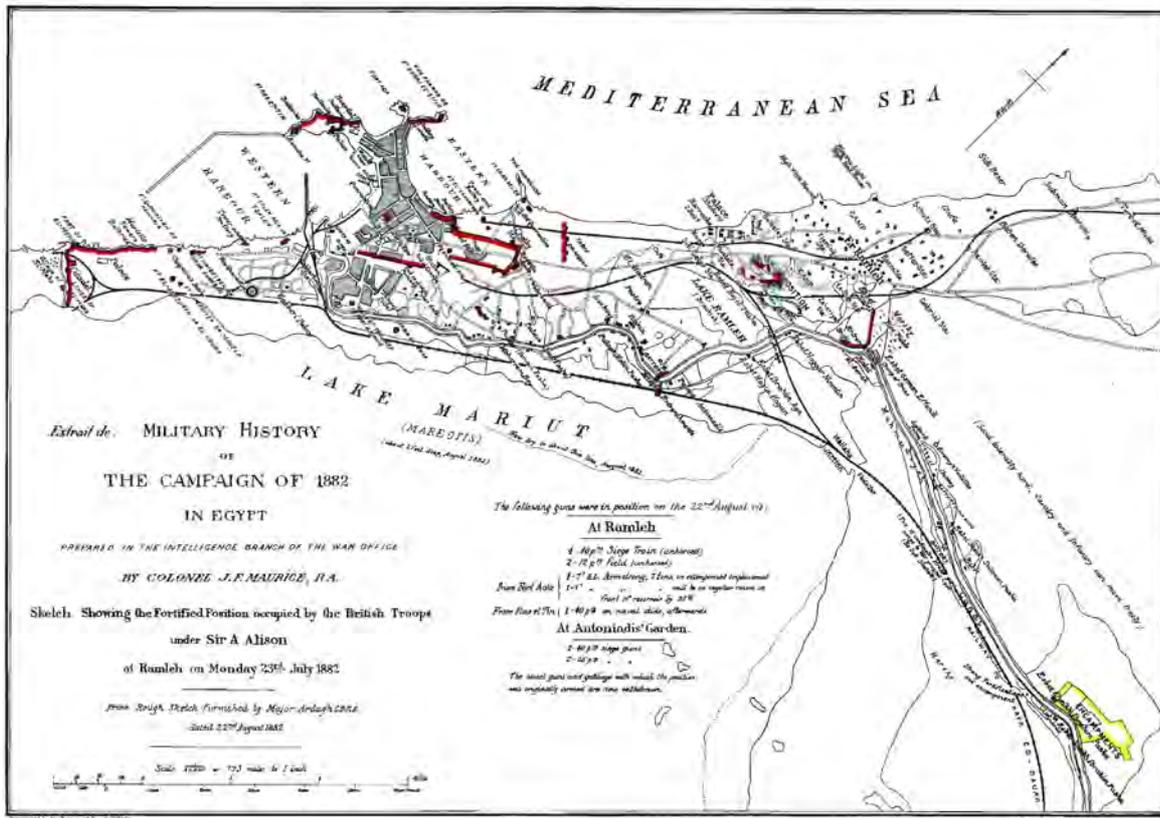


Figure 145. Sketch Showing the Fortified Position Occupied by the British Troops under Sir A. Alison at Ramleh on Monday 23rd July 1882. (Jondet 1922: Plate XLV).

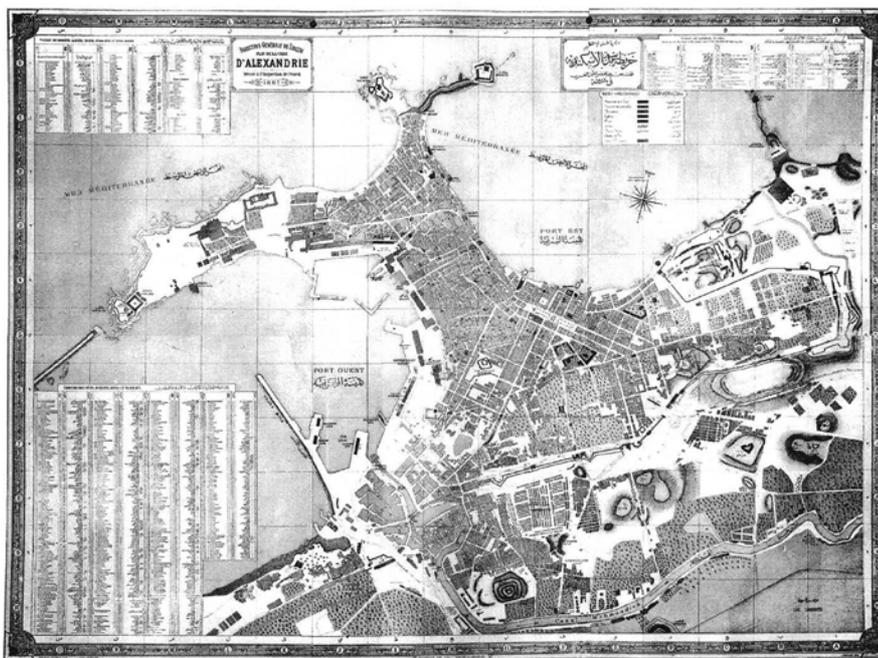


Figure 146. Plan de la Ville d'Alexandrie Dressé a l'Inspection de l'Ouest (1887) Direction Générale du Tanzim. (Jondet 1922: Plate XLVII).

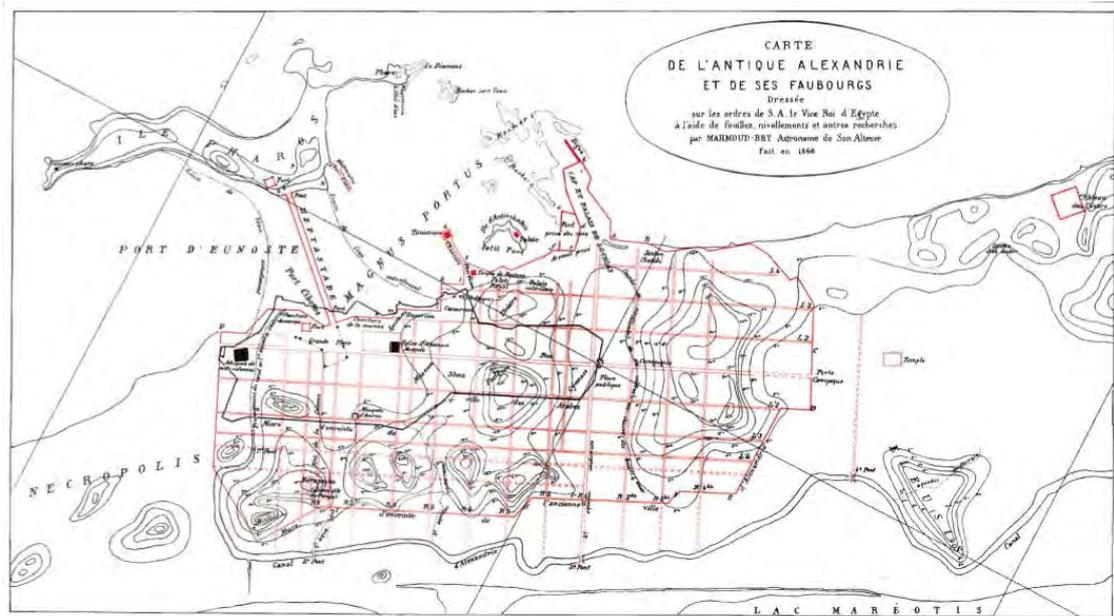


Figure 147. Carte de l'Antique Alexandria et de ses Faubourgs, 1866. (Jondet:Plate XXXVII).

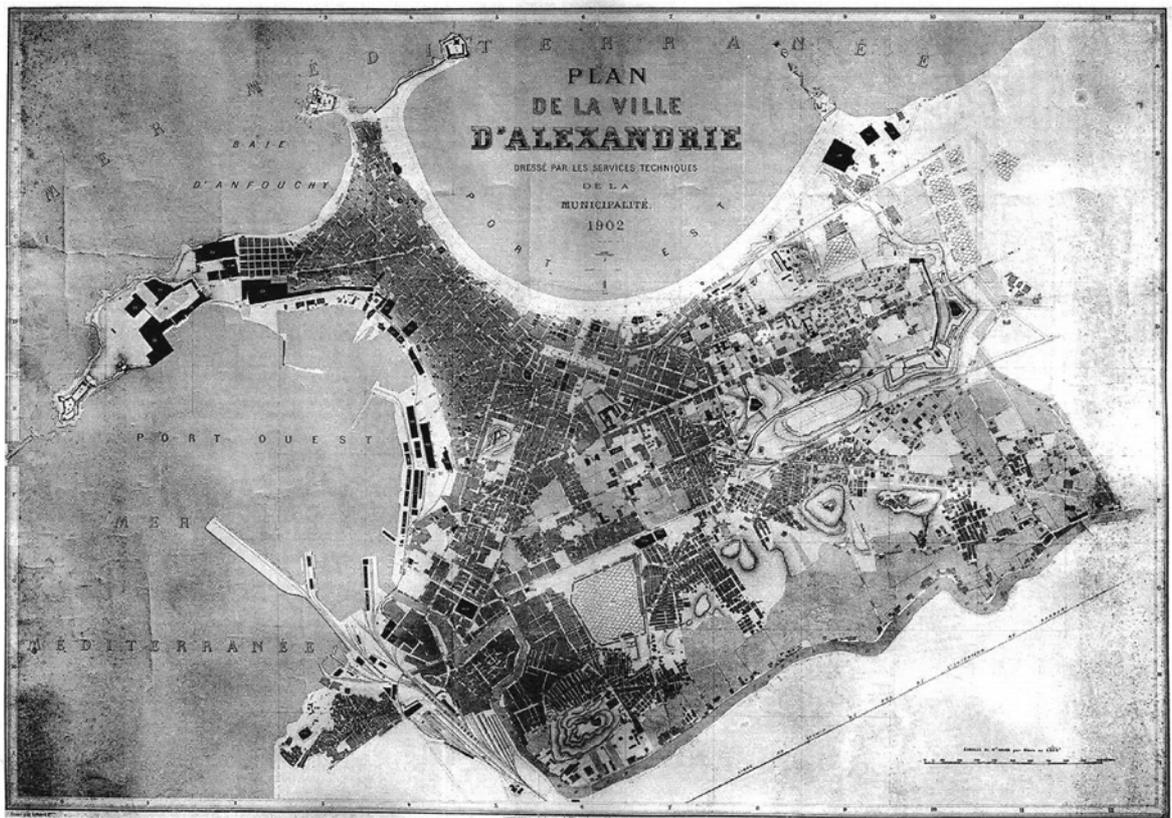


Figure 148. Plan de la Ville D'Alexandrie Dressé par les Services Techniques de la Municipalité 1902. (Jondet 1922: Plate L).

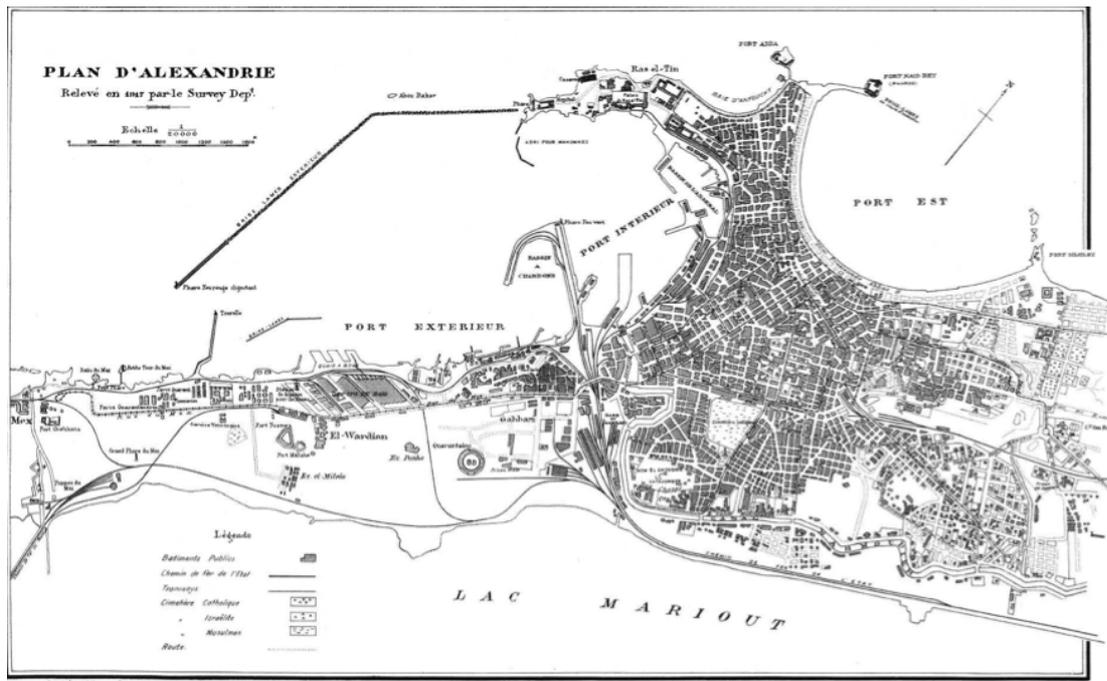


Figure 149 – Plan de la Ville d’Alexandrie 1917. (Jondet 1922: Plate LIII).

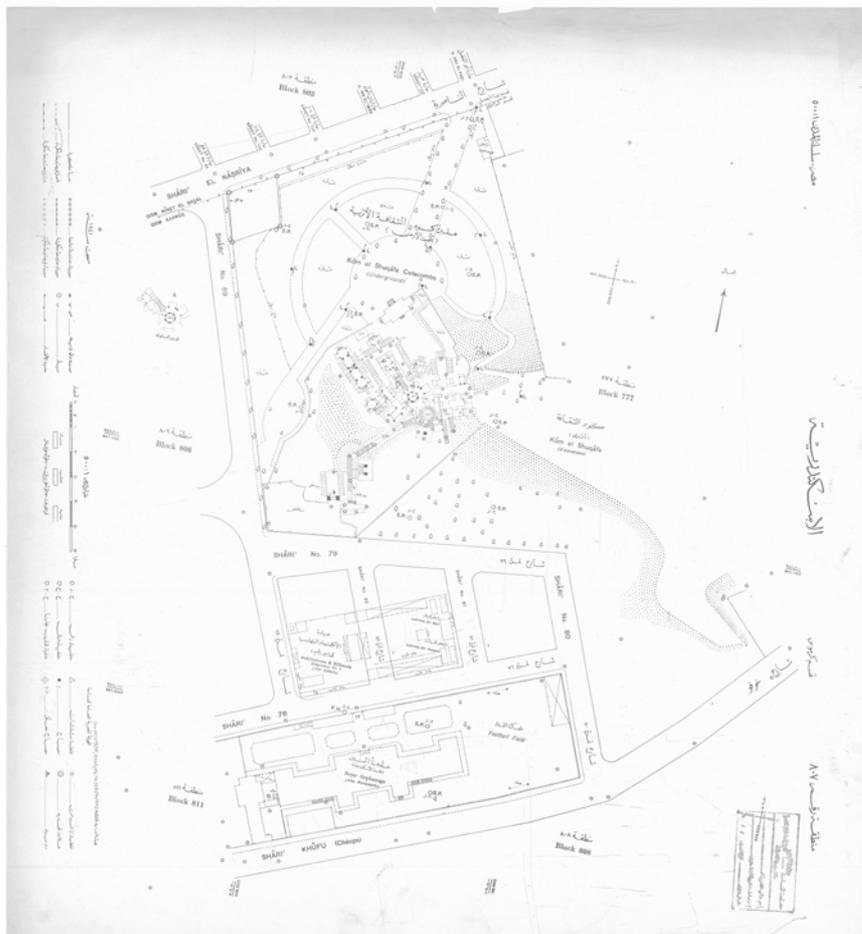


Figure 150. Survey of the Kom el-Shuqafa area, Survey of Egypt series 1941.

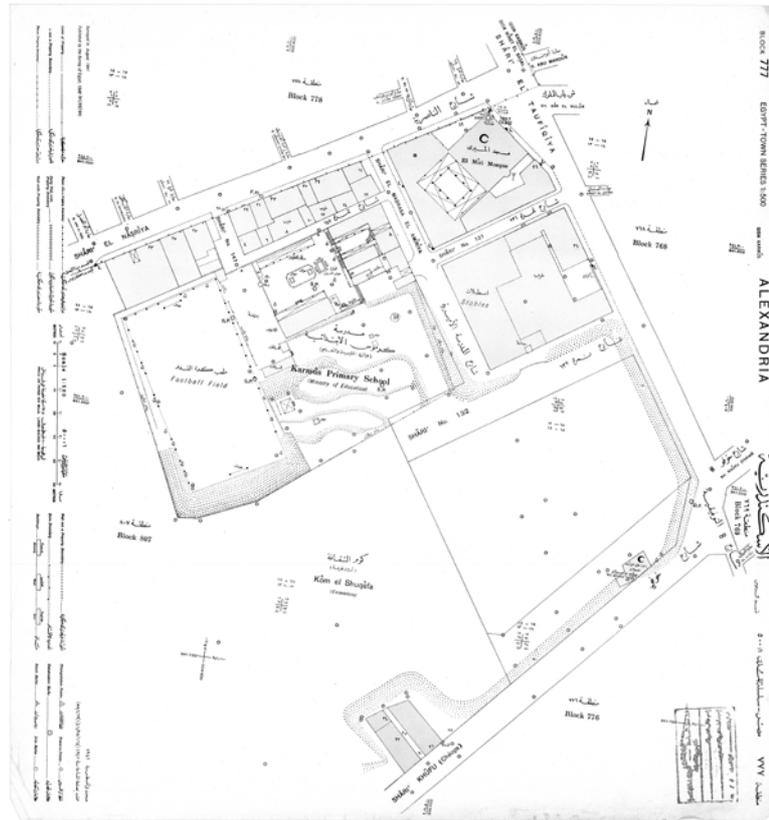


Figure 151. Survey of the Kom el-Shuqafa area, Survey of Egypt series 1941.

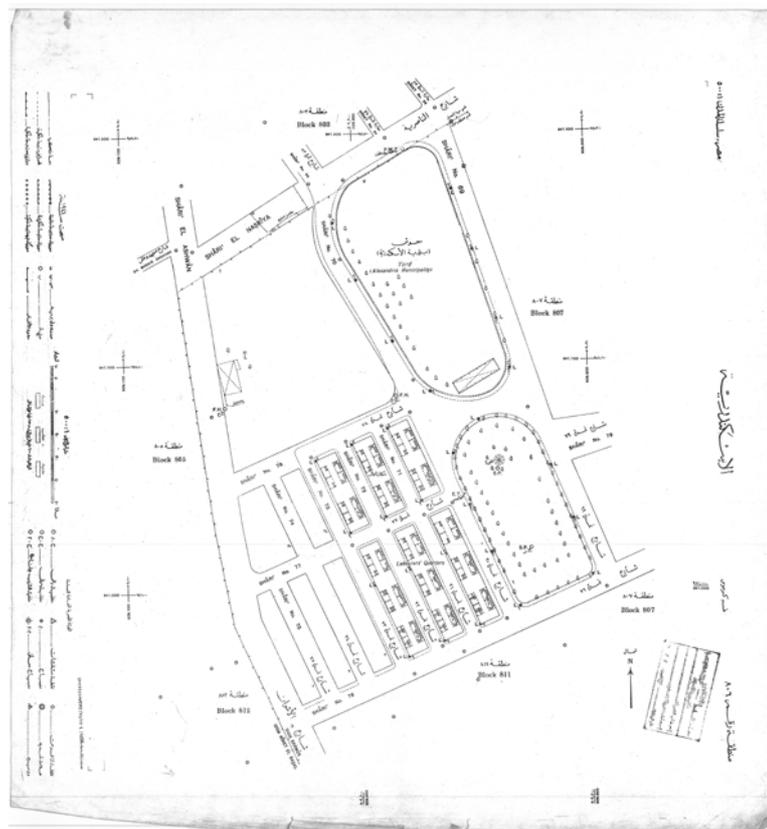


Figure 152. Survey of the Kom el-Shuqafa area, Survey of Egypt series 1941.

9 IMPACT OF PROPOSED GROUNDWATER LOWERING SCHEME

Impact on Archaeological Remains (Alternative A1)

The Groundwater Lowering Scheme has been discussed previously. The locations of known archaeological remains overlying a plan of the proposed scheme is shown in Figures 1, 2 and 4, and the level of potential for archaeological remains and their level of significance is shown in Table 1. The results of the desk-based assessment indicate the following likely impacts to buried archaeological remains.

Discharge Pipe (within site boundary)

The discharge pipe avoids all known subterranean chambers/features: Scavo D, HER 3; the main catacombs, HER 1; and 'Hall of Caracalla', HER 2 (Figure 2). The geophysical survey indicates that there are no cavernous anomalies along the route of the proposed pipe. For ease of reference we have split sections of the Discharge Pipe Line into Lines A through F (Figures 153 and 154).

- Line A

Based on the results of the geophysical survey, boreholes, and DBA research (literature, map regression, etc.) the northwestern line of the pipe (Line A, Figure 154) is likely to encounter 'fill' deposits banking up against the plateau edge (Figure 155). Based on the map regression and literature review, Line A passes through the site of the Roman Stadium (HER 12). The ruins of this feature were apparently still visible at the end of the 18th century and were first described in 1778 by Sonnini and then by the French surveyors of the *Description de l'Égypte* in 1798. They were mapped and the dimensions of the full area are shown as 555m by 50m. The feature was described as being partly cut into rock and partly built, with an inaccessible underground complex at one end, fallen columns, channels and reservoirs, and a 'spina' cut into the bedrock. Given the unexpected recovery of a burial within Test Pit 10 we also cannot rule out the potential for additional burials within the area in the form of individual graves rather than catacomb burials.

Within Line A therefore, there is a high potential for archaeological remains in the form of topographical and geological features and leveling material. There is a high

potential for archaeological remains relating to the stadium and a low to moderate potential for graves within this area.

- Line B

The northeastern line of the pipe (Line B, Figure 154) is likely to encounter similar 'fill' deposits at the northern end and the slope of the limestone outcrop within the middle and southern ends.

There is a high potential for archaeological remains in the form of topographical and geological features and leveling material. There is a high potential for archaeological remains relating to the stadium.

- Line C

The southwestern line of the pipe (Line C, Figure 154) is likely to encounter fill deposits at the northwestern end and the slope of the plateau in the middle, and the limestone of the plateau at the southern end.

There is a high potential for archaeological remains in the form of topographical and geological features and leveling material.

Just to the east of the vaulted staircase of Scavo D (T) a cemetery consisting of jar burials set within sand has been excavated (Figure 154). Here, large amphorae or jars were used as containers for the bones of children and adults, sometime with two jars placed mouth to mouth to form one 'coffin'. All of these features are likely to have been completely excavated so there is low impact here.

There is a moderate to high potential for archaeological remains in the form of already excavated, cut features (trough burials) and low potential for further jar burials as we are unsure whether all were excavated.

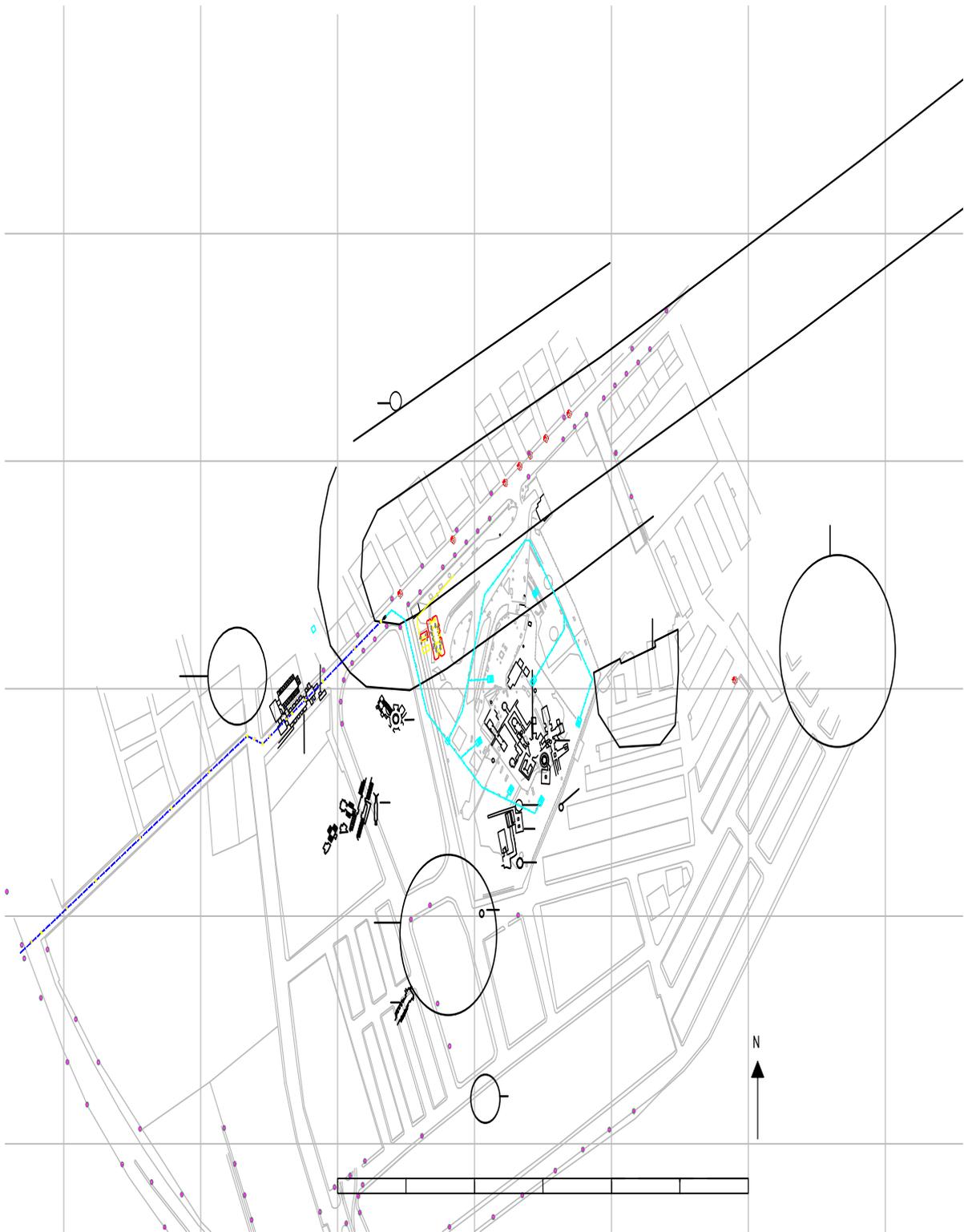


Figure 153. Preferred Alternative A1, overlying relevant limits or points of archaeological features.



Figure 154. Close up of Preferred Alternative (A1) overlying locations, and in some cases known limits of archaeological remains.

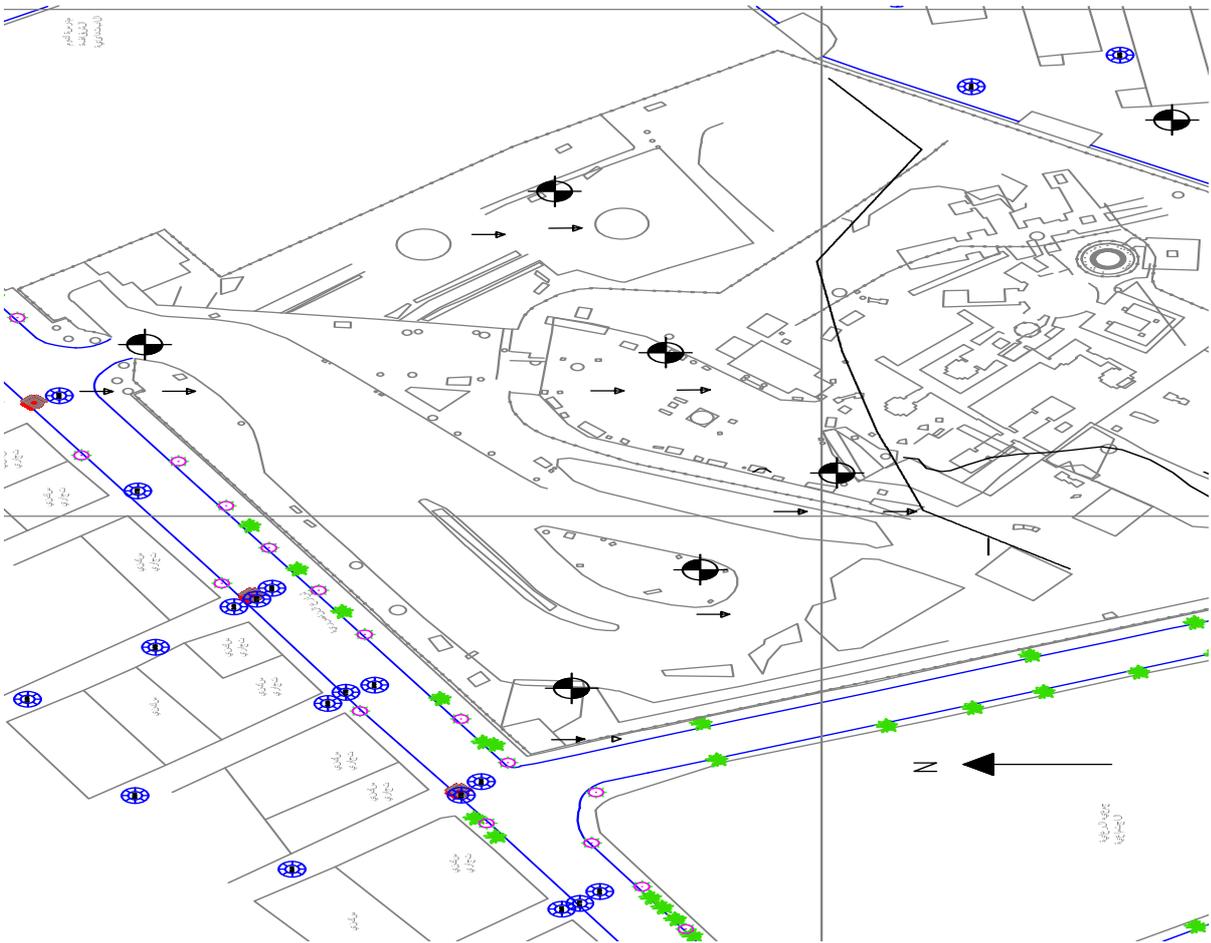


Figure 155. Lines of the plateau edge as indicated by three sources: Rowe (1942); on-site observations; the geophysical survey (commissioned by CDM Smith). The location of the 2014/2015 boreholes (commissioned by CDM Smith) are also plotted showing the elevations at which limestone and sand were encountered.

Discharge Pipe (outside site boundary)

- Line D

The line of the pipe along Kom el-Shuqafa Street (Line D, Figure 156) is close to the mapped northern section of Scavo A. However, the geophysical survey profile along the street does not show any anomalies.

Based on this observation there is a high potential for archaeological remains in the form of topographical and geological features and leveling material but a low potential for encountering subterranean architectural features.

- Line E

Line E (Figure 156) follows al-Nasseriea Street down to meet the canal. The map regression of the area and the distribution of known catacombs to the north, west and southwest of the Kom el-Shuqafa site indicates that the site occupies part of a much larger area of limestone outcrops that were utilized in the Roman Period as a cemetery. Indeed, according to Tkaczow, a catacomb known as the Puglio Tomb is 'near to Scavo B'. It is unclear where exactly this may lie. Previously unknown catacombs have recently been found to the north in the vicinity of the Kom el-Shuqafa site.

Based on the natural topography of the area, there is **a high potential** for Line E to encounter known catacombs (Scavo B) and previously unknown tombs and possibly the un-located Puglio tomb. However, given the shallow cut of the discharge pipe it is possible that the depth will not be sufficient to encounter any subterranean tombs. Given the unexpected recovery of a burial within Test Pit 10, there is also a high potential for encountering additional burials in the form of graves rather than catacomb burials within the area.

- Line F

The western end of Line F may encounter a downward slope of the limestone outcrop and evidence for earlier canal activity pre-dating the 1819 construction works on the Mahmoudia Canal. The map regression shows that a channel had

been operating here from at least the 17th century. Here, there is a high potential for archaeological remains in the form of topographical and geological features

Drilling of new wells

- Wells 1 to 6

None of the wells are located in areas where there are known subterranean chambers. Nor are they located in areas where the geophysical survey has identified anomalies. In all instances, as the entire area is an ancient cemetery adjacent to other ancient features such as the stadium, there is high potential for archaeological remains in the form of topographical and geological and leveling features.

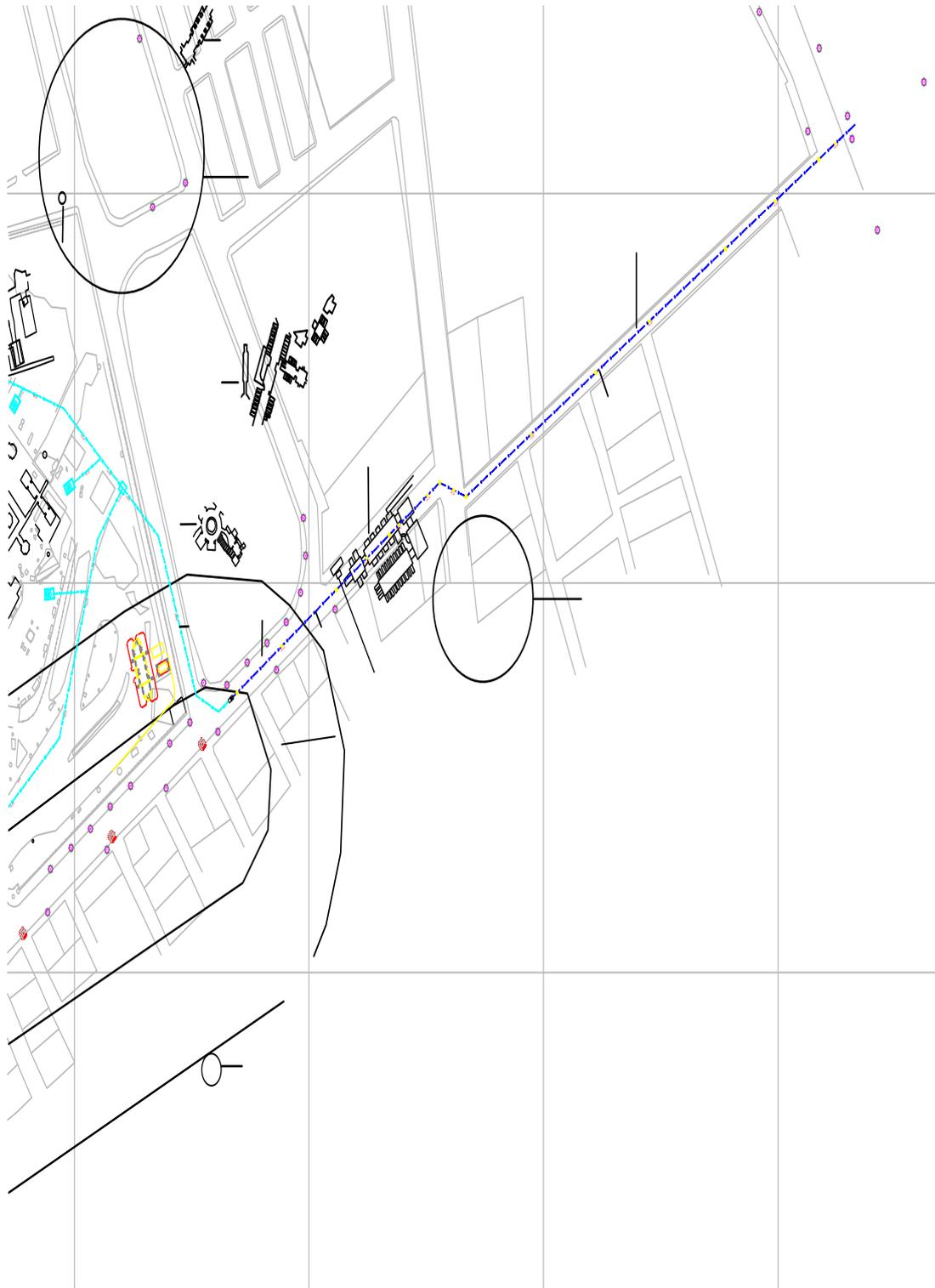


Figure 156. Close up of Preferred Alternative (A1) overlying locations and in some cases known limits of archaeological remains.

Proposed Engineering Item	Potential for Archaeological Remains	Type of Remains	Significance of Remains (graded on scale as site, local, regional, national, international)
Line A	High High Low-Moderate	Topographical/geological features, and leveling material. The Stadium Graves	Site Regional Local
Line B	high High	Topographical/geological features, and leveling material. The Stadium	Site Regional
Line C	high	Topographical/geological features, and leveling material.	Site
Line D	low-moderate	Jar burials	Local
Line E	High High	Catacombs Graves	Regional Local
Line F	High High	Catacombs topographical/geological features	Regional Site
Wells 1-8	High	Topographical/geological features, and leveling material.	Site

Table 1. Potential for archaeological remains and their significance.

10 MITIGATION

Where archaeological features, as identified by the desk-based assessment, are likely to be encountered, strategies should be developed to deal with them. This may include preservation in situ, by removing any impact to a heritage asset, or by 'preservation by record'. 'Preservation by record' requires best-practice excavation and recording of all archaeological remains that are to be impacted. The results of those excavations should be published and this should form part of the overall project design.

ARCE recommends that at least two experienced archaeologists with firm backgrounds in commercial archaeology environments be present at **ALL** times during the engineering works. Where archaeological remains are encountered, they should be excavated by hand and recorded using best practice methods. The data collected from this work should be published in a timely fashion in an appropriate venue and form.

11 OTHER RECOMMENDATIONS

The site of Kom el-Shuqafa would greatly benefit from having a Heritage Management Plan. This should consider how best to present the heritage assets associated with the site and those displayed on site.

For relatively low cost, with simple measures, the visitor experience of Kom el-Shukafa could be positively transformed, and thereby increase visitor footfall. Any program of this nature should be collaborative, working with the Alexandrian Graeco-Roman Museum, Archaeological Society of Alexandria and the Ministry of Antiquities.

Such a program should at least consider:

- The development and installation of on-site signage
- The refurbishment of the on-site toilet facilities
- Visitor flow through the site
- Visitor access to the site
- Visitor access to Scavo D
- The re-organisation of pieces within the Open Air Museum including the rebuilding of tombs which are presently in pieces and scattered around the site
- Protection within a shelter of certain pieces that are vulnerable to weathering from sun, wind and rain
- Removal of the garden in the northeast area of the site since continued watering contributes to the problems of water on site
- Installation of a better lighting system within the catacombs to maximise visitor satisfaction
- Preparation of a Conservation Assessment for treatment and maintenance

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