

**Phase 1 Sub-surface Investigation
Archaeological Project Report**

Old Johannesburg Fort

Central Business District
Johannesburg Municipality
Gauteng
Map reference: 2628 AA (1:50000)

SAHRA PERMIT NUMBER: 80/06/09/007/51

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1. EXECUTIVE SUMMARY

Herbert Prins, heritage advisor to the JDA, requested Dr. Alex Schoeman to assist with locating historical archaeological features at the Old Johannesburg Fort that are no longer visible, but are documented orally and in historic documents. These included a padded-cell block that was demolished in the 1980s to create the Parade Ground, as well as a stairway that led up from inside the complex to the top of the south-western rampart. It was believed that when the Old Fort was converted into a prison, these stairs were covered up, or destroyed.

Test excavations in the area of the Parade Ground (that is currently a parking area) did in fact indicate that the foundations were still in tact. To establish the extent of preservation, the project manager requested that the excavations be extended. This exposed foundation sections of the old cellblock, which corresponds with historical maps and documents. The excavation at the Southwestern ramparts revealed what seemed like stepping stones placed at the bottom of the ramparts. The excavation trench, however, was not extended because of the potential instability of the excavated rampart soil if it were to rain.

This report contains descriptions of the excavation processes and finds.

The excavations were conducted under the field directorship of Mr N. Kruger (Association of Southern African Professional Archaeologists (ASAPA) accredited archaeologist), who acted under the guidance of Dr. M.H. Schoeman (ASAPA accredited archaeologist and Principal Investigator for Colonial Archaeology). The Consulting Engineer to the project is Mr. Willem van Rijn and the Heritage Advisor is Mr. Prins. The project manager is Mr. John Allison from Calibre.

2. BACKGROUND INFORMATION ON THE PROJECT

2.1 Scope and motivation for investigation

A padded-cell block in the northwestern section of old Johannesburg Fort was demolished in the 1980s to create a parade ground for the Scottish Regiment. This archaeological investigation sought to locate the foundations of these structures, not only for their historical value, but also as an indication of the original surface level of the parade ground.

It was desirable to locate this level because the Old Fort building is experiencing damp problems, which in the long term will adversely affect the preservation of the whole building. The project engineer has indicated that the existing surface level, being above the damp coursing layer, might cause the damp problem.

Historic documents show a stairway leading up from inside the Fort to top of the southwestern rampart, where a canon was placed. These stairs were either covered or destroyed when the Old Fort was converted into a prison. Today there is a clear difference in the stone masonry of the corner, where the stairs were, and the original walling. The cement between the stones of the original Fort walls is still clearly visible, whereas the altered walls are dry coursed. There are also differences in the quality of the masonry. The engineer, in consultation with the heritage advisor, recommended that holes be dug in the dry coursed section, to establish whether the original stairs are still in tact.

The archaeologist oversaw and monitored excavations in these two areas in order to see that no features of importance were damaged and in order to identify features in question.

2.2 Legislative requirements

The South African Heritage Resource Agency (SAHRA) and their provincial offices aim to conserve and control the management, research, alteration, and destruction of cultural resources of South Africa. Their actions are governed by the National Heritage Resource Act (Act No.25 of 1999). This Act protects heritage places (both historical and archaeological) and objects. Buildings are amongst the most enduring features of human occupation, and historic remains therefore includes all buildings older than 60 years, modern architecture as well as ruins, fortifications and Iron Age settlements. Archaeological sites are not limited to intact structures, but include material remains resulting from human activity which are older than 100 years as well as features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found. The Act identifies heritage objects as:

- objects recovered from the soil or waters of South Africa including archaeological and palaeontological objects, meteorites and rare geological specimens.
- visual art objects
- military objects
- numismatic objects
- objects of cultural and historical significance
- objects to which oral traditions are attached and which are associated with living heritage.
- objects of scientific or technological interest.
- any other prescribed category.

With regards to activities and work on archaeological and heritage sites this Act states that:

“No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit by the relevant provincial heritage resources authority.” (34. [1] NHRA 1999:58)”

and *“No person may, without a permit issued by the responsible heritage resources authority-*

- (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*
- (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;*
- (c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or*
- (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. (35. [4] NHRA 1999:58).”*

3. BACKGROUND TO THE HISTORY & ARCHAEOLOGY OF THE FORT

3.1 History of the Fort

3.1.1 Before the Fort...

In 1892 Paul Kruger, the then President of the Zuid Afrikaanse Republiek (ZAR), sanctioned the building of the first high-security prison in response to Johannesburg's rapid population growth, after the discovery of gold at Ferreira's camp in 1886, and to control the pro-British residents, who could pose a threat to the independence of the ZAR. The prison was built on Hospital Hill; on the Braamfontein Ridge, which was a strategic rise overlooking central Johannesburg. The prison officially opened in 1893 to white prisoners and in 1894 to African prisoners.

3.1.2 1899 – 1902: The Fort as Fortress

In 1896 a group of British men attempted to overthrow the ZAR government and take over Johannesburg. This incident became known as the Jameson Raid. Although the raid failed, it motivated the government of the ZAR to erect a number of forts to strengthen its military capacity and to protect entrances to large towns of the Republic. One of these, the Old Fort consisting out of large rampart walls and facades, was built around the former Johannesburg Prison. The Fort, facades and ramparts took three years to build and it was finally completed in June 1899 at a cost of around £40 000. When President Kruger decided not to defend Johannesburg after the outbreak of the South African War, the Fort was taken over by the British and used for a variety of purposes, including the incarceration of prisoners of war.

3.1.3 1902 – 1982 The Fort as Prison

When the war ended in 1902, the Old Fort was placed under the control of the Department of Public Works, and was temporarily returned to its prison function. The newly formed Johannesburg City Council was opposed to the site being used as a prison because the area around it was becoming increasingly residential. This "temporary" arrangement was to stay in place for the following 80 years. By 1904, the prison population had doubled and a number of structures were hastily built to house the growing numbers. The "Native Prison", known as Number Four, was situated outside of the ramparts to the north of the main prison and was used to accommodate convicted black male prisoners. Overcrowding, sanitation and disease became serious problems and, due to the poor layout of the Prison Complex, extra warders had to be employed to maintain discipline and control. Construction on the new Women's Jail started in

1910. The Victorian building cost an estimated £262 871 – more than six times the cost of the Old Fort some 15 years previously. An underground tunnel connects the Prison Complex with the old magistrate's court. It is a double tunnel, which was racially segregated, with white prisoners traveling through one side and black prisoners through the other.

In 1964 the Prison Complex was proclaimed a National Monument, which meant that its basic structure could not be altered without National Monuments Council permission, not even to improve facilities for prisoners. On 31 January 1983, nearly 100 years after the Old Fort was built, all prisoners were transferred to the new Diepkloof Prison.

Some well-known struggle figures were jailed at the Old Fort. From 1906 to 1913, Mahatma Gandhi, leader of the Passive Resistance Movement or *Satyagraha* (protesting against the Pass Laws for Asians), was jailed several times at the Prison Complex along with other Indian leaders. During the 1914 rebellion many boers were arrested, fined and held at the Prison Complex, including Boer General Christiaan de Wet. In 1956 many political activists including Nelson Mandela, Albert Luthuli, Joe Slovo, ZK Mathews, Walter Sisulu, Oliver Tambo, Helen Joseph, Moses Kotane, Lilian Ngoyi and Ruth First were held at the Fort after the shocking Treason Trial.

Winston Churchill was also held at the Old Fort briefly during the Anglo-Boer War when he was a young war correspondent. Daisy de Melker, the notorious murderer executed in 1932 for poisoning two husbands and her son, was held at the Women's Jail during her high-profile 30-day trial.

3.1.4 1982 – present

After 1983, the Scottish Regiment used the Fort, but it was neglected and fell into total disrepair. During this time, the Regiment demolished sections of the prison and buildings in the compound (with the permission of SAHRA, but without documenting the structures prior to demolition).

In 1994, the Interim Constitution of 1993 established the Constitutional Court. Having occupied temporary accommodation since 1994, the justices of the Court looked at a number of permanent sites suggested by Johannesburg Metropolitan Council for the new Constitutional Court building. In 1996, they chose the Prison Complex partly because of its accessibility and the space that it provided, but primarily because of its historical and symbolic importance. A group of young South African architects won a major international competition to design and build the new Constitutional Court in 1998. Constitution Hill opened to the public on 22 March 2004.

3.2 Previous research

It is not clear whether any extensive archaeological research has been conducted at the fort but Heritage Consultant and Heritage Architect, Mr. Herbert Prince, has studied the fort for many years. He has also compiled a detailed report on the history of the fort and recommendations for its conservation.

4. IDENTIFICATION AND GEOGRAPHICAL LOCATION OF THE FORT

The Old Fort is located on Constitution Hill, Kotze Street Hillbrow, Johannesburg.

5. DESCRIPTION OF THE WORK DONE

5.1 Site description

The areas under investigation are situated within the rampart walls of the Old Fort in the Johannesburg CBD (Figure 1). The Parade Ground is situated in the north-western corner of the Fort near the northern exit passage. This area is tarred and is used as a parking lot for the adjacent coffee shop and the Old Fort Museum. Excavations in this area required the removal of the tar surface in order to expose deposits and features below.

The excavation into the rampart was located in the southwestern corner of the Fort on the bend of the rampart wall. In this area a clear difference in the stone masonry and the original walling. The cement between the stones of the original Fort walls is still clearly visible, whereas the altered wall in the corner is dry coursed. There are also differences in the quality of the masonry. Excavations in this area required the careful removal of the stones in the wall in order to excavate underlying deposits.

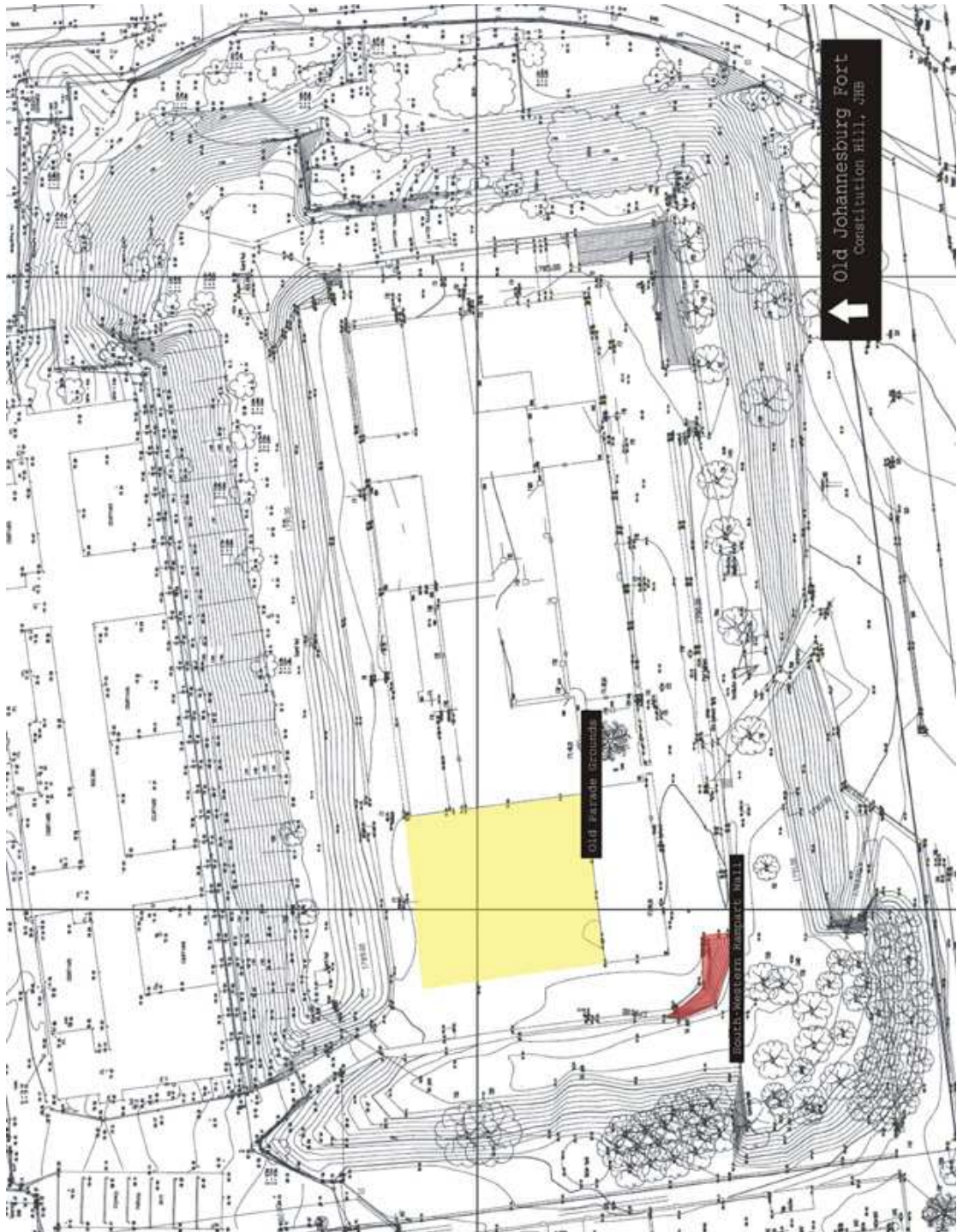


Figure 1. Areas under investigation, Old Johannesburg Fort.

5.2 Methodology

The excavation areas were clearly demarcated in consultation with the heritage advisor and the project engineer. The selection of areas was based on historical information and features, which were visible before excavations commenced. Initially excavations were only carried out within the demarcated areas but once features had been located, the excavations were extended as needed to follow the features. Extensions to the excavations were consulted with the project manager.

On the first day of excavation the archaeology team demonstrated basic excavation techniques to the work team, and they continued excavations applying the following principles:

- The areas to be excavated were photographed before work commenced and as excavations progressed.
- The asphalt layer covering the parade ground was removed in the areas excavated.
- In the upper levels (before any features i.e. the foundations/ original surface/ stair case stones become visible) were excavated with picks and shovels. The soil was loosened with picks, and then shovelled out to reveal the undisturbed soil below. In the event that no clear change in soil colour, texture or feature was observed, the process was repeated until such changes or features were found.
- Picking and shovelling were done in horizontal slices. Initially these slices were about 10cm thick, but this changed when features or stratigraphic layers were identified and exposed.
- The soil from these excavations were placed adjacent, but upslope from the holes in order to assist in keeping runoff rainwater out of the test holes. This was desirable because mud would reduce visibility, which was especially important in order to identify features.
- Once features, such as foundations, were found they were exposed using trowels and brushes in order to remove dirt and deposit without damaging features or altering its *in situ* positions.
- The features were photographed. Where relevant the section profiles were drawn.
- The surface rock layer on the rampart was removed from the area to be excavated. These rocks were placed aside so that they could be replaced after the excavations were completed.
- The archaeologists documented the excavation process as well as features, structures and artefacts found.

- All material culture items, such as old ceramics, porcelains or metal that were discovered were bagged and have been described by the archaeologist.

5.3 The excavations

The archaeologists excavated test trenches in demarcated areas in the Old Parade Ground (now a Parking Area), as per the brief of the client. On completion of these tests the client requested that these trenches be expanded to reveal the extent of the foundations. The archaeologists obtained and used historical documents (Figures 2 & 3) to guide the further excavations, and predict the location of possible foundations. The finds from both the test and extended excavations are discussed here. As mentioned previously, the reason for excavations in these areas was to establish the original ground level of the area in order to address damp problems. Another reason for excavations was to investigate remaining foundations of the padded cells demolished in the 1980's for the purposes of heritage conservation and development.

The second excavation was carried out on the southwestern rampart wall to establish whether the stairway in this quarter, mentioned in historical sources, was still intact. See Figure 4 for more details on the locations of test trenches.

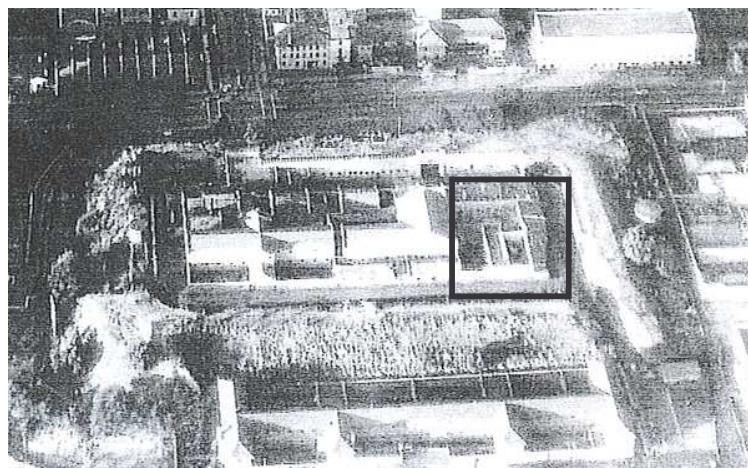


Figure 2. Historical photograph with intact padded cellblock walls.

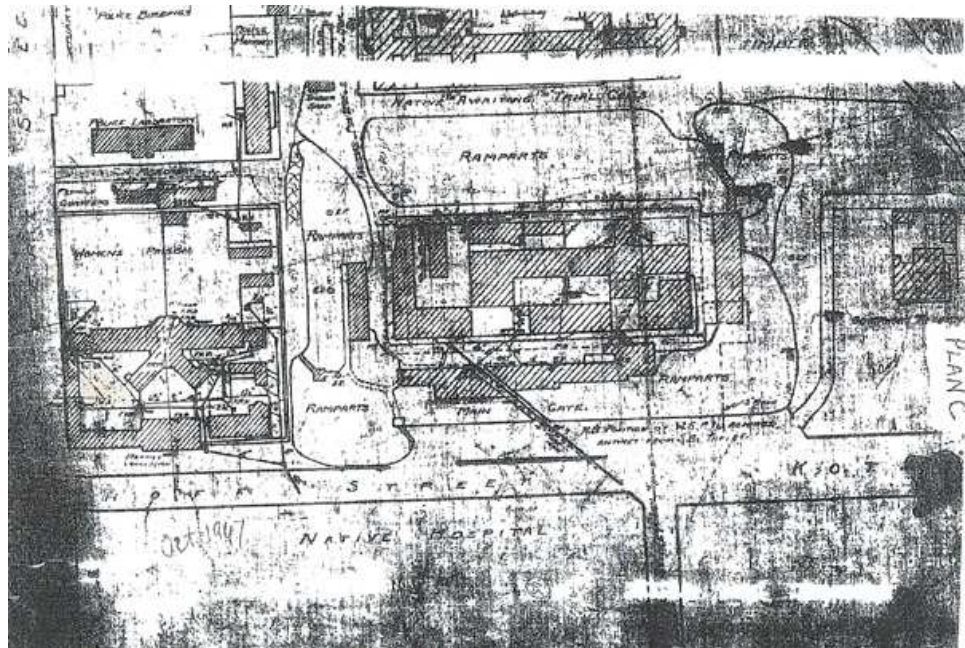
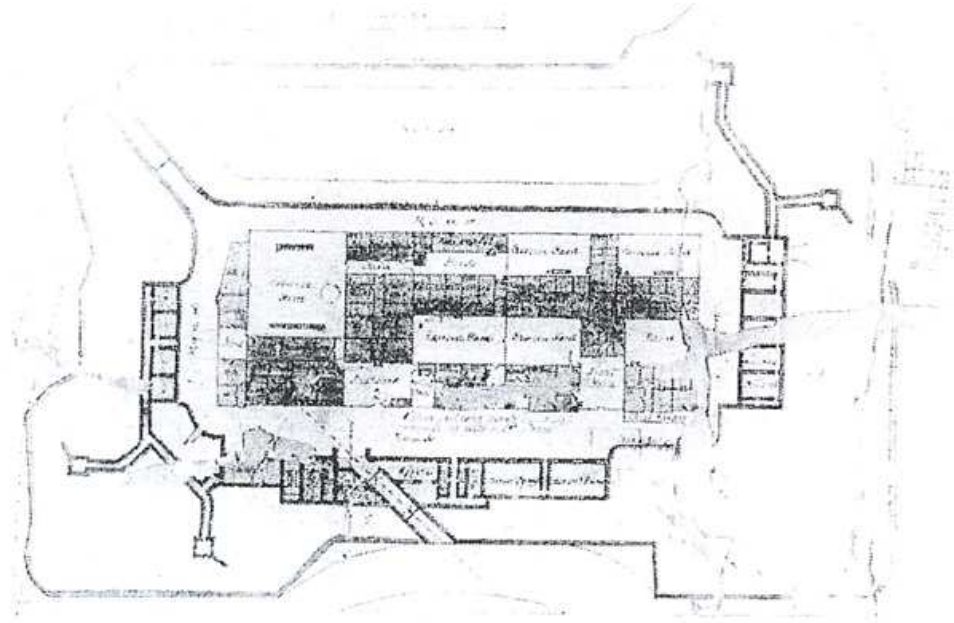


Figure 3. Historical plans of the Old Johannesburg Fort. The top plan dates to the early 1990s, and the bottom one the mid-1990s.

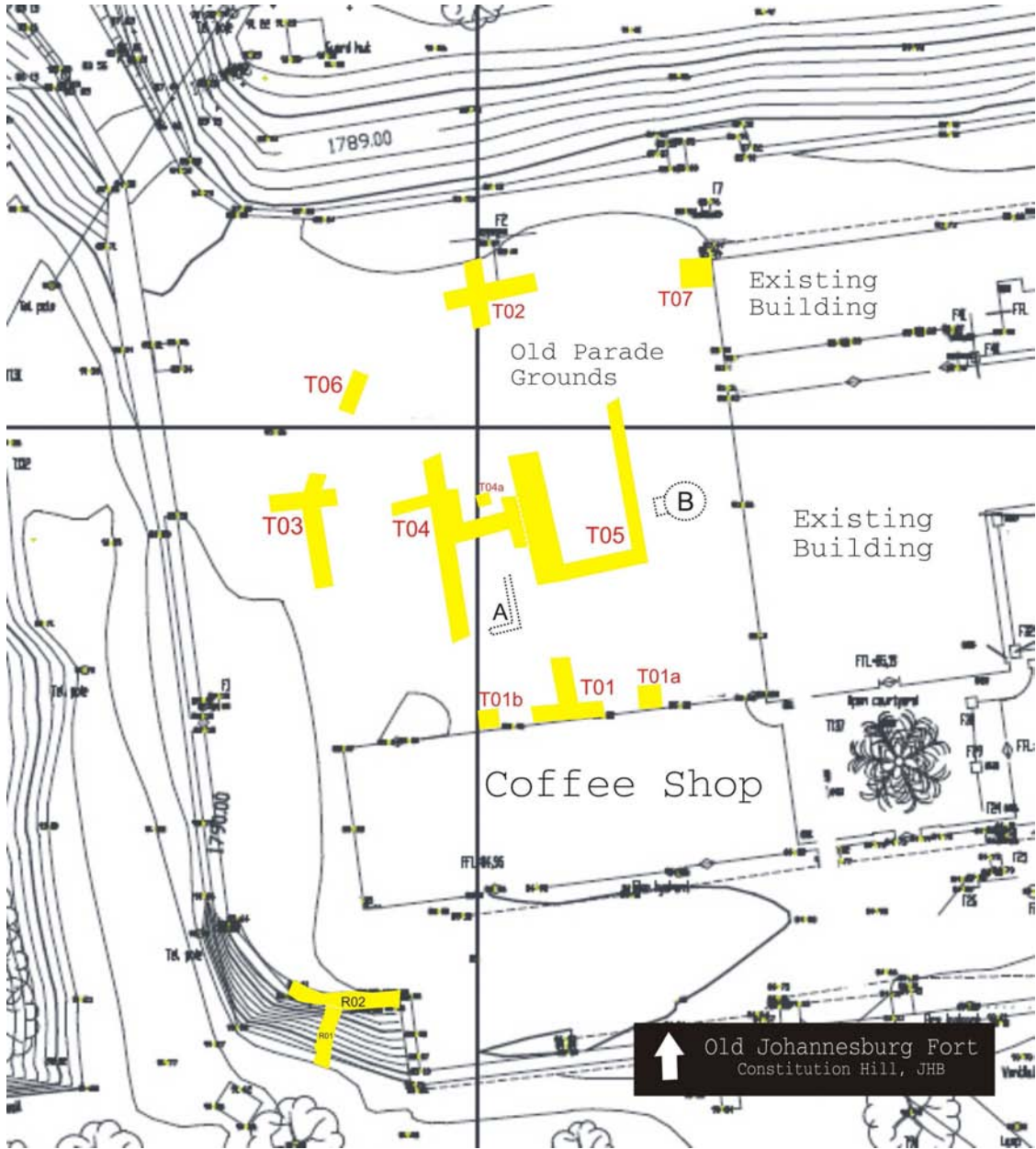


Figure 4. Positions of excavation trenches indicated on the survey plan.

5.3.1 *The Old Parade Grounds (Parking Area)*

5.3.1.1 T01

The first trench was excavated to determine the level of the damp seal (if any) in the existing walls of the fort's buildings. An east-west aligned rectangular trench measuring approximately 120cm x 50 cm was excavated next to the northern wall of the present-day coffee shop. After the tar surface was removed a 10cm spit was excavated. Soil in this spit was red in colour and its texture was coarse because of large gravel inclusions. A foundation structure was exposed at a depth of 20cm (Figure 5). This structure is made up of clay-bricks around a sandstone core. It leads directly north, away from sandstone foundation stones that form part of the foundation structure of the existing northern wall of the coffee shop.



Figure 5. Clay-brick and sandstone structure in T01.

The excavation exposed a section of the foundation of the existing building, but no damp seal was identified leading to the conclusion that damp seals were not included when the building was constructed. The terminal depth of the trench, indicated by slate rocks and red rocky soil, was reached at approximately 30cm below the tar surface. The excavation was recorded, photographed and sections drawn.

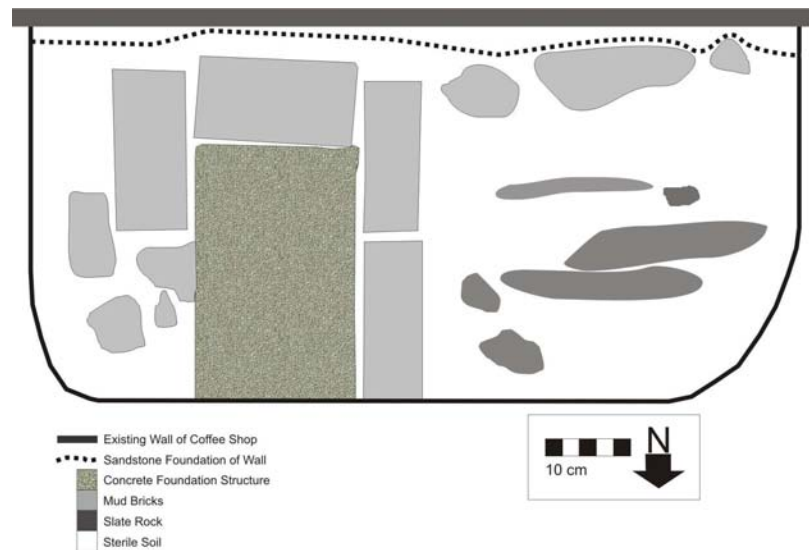


Figure 6: Plan of T01, showing the foundations.

It was later decided to extend the excavation in a northern direction, following the clay-brick foundation structure. The foundation, however, disappeared immediately north of the original trench and the extension revealed only bedrock and building rubble. It was recorded and photographed and the excavation of the extension was suspended. Two smaller 50cm x 50cm trenches (**T01a** & **T01b**) were then excavated, adjacent to the wall directly east and west of T01, in order to examine the foundations in these areas, and to search for indications of damp seals. T01a revealed the sandstone foundation similar to that found in T01. No damp seals were identified and terminal depth (bedrock) was reached at 25cm. The western trench (T01b) yet again exposed the building's sandstone foundation, reinforced with concrete. A large amounts of building rubble was found in the excavation (Figure 7). These two trenches were documented and photographed.



Figure 7. Rubble and building foundation visible in the extension of T01.

5.3.1.2 T02

A 300cm x 50cm trench, orientated north - south, was excavated in the northern section of the Parade Ground, south of the northern rampart walls to locate the northern most foundations of the padded cell block. According to historical records, these northern walls stood directly south of the northern rampart, in line with the walls of remaining buildings around the parade ground.

The tar surface was removed to reveal a reddish clay deposit underneath. A first layer of approximately 10cm was excavated and soil from this layer was red in colour and contained large amounts of building rubble and rocks, an indication of disturbance of deposits or features. The subsequent layers were excavated, and at a depth of approximately 20 cm large sandstone stones and clay-bricks were exposed in red coarse soil. The position of these stones and bricks corresponded with the position of the northern walls of existing buildings. Smaller stone clusters were found between the larger rocks. There was also a clear difference in colour between soil in this stone structure and soil in the trench directly south and north of it. This soil, "inside" the feature was dark brown, organic and damp. When the layer was cleaned up and brushed, it became clear that the stone structure and red soil was an intrusion into the darker brown soil. At this point it seemed that the structure was part of a wall foundation and that a trench was dug into the dark brown soil when the foundation was built (Figure 8).



Figure 8. Photograph showing the distinctive colour differences between the soil to the north and south of the stone 'foundation'.

The trench was then extended in an east-west direction to follow the apparent foundation structure but this exposed a casing that contains electric wiring in the feature. It thus became apparent that this was indeed a backfilled trench intruding into the brown soil but that it was dug recently for an electric cable. It seemed that no foundations remained in this area and excavation was halted. The trench was documented and photographed.

5.3.1.3 T03

According to historic sources the western wall of the padded cell block was located in the western section of the Parade Ground, in line with the existing western wall of the coffee shop. An east-west orientated trench measuring about 300cm x 0.5m was excavated in line with the western wall of the coffee shop, about 20m from the northwestern corner.

The tar surface was removed to reveal red-brown rocky soil. A first layer of ± 10 cm was then excavated. It was made up of this course red-brown soil. The next layer came down on a prominent layer of ash and charcoal that extended down to just above terminal depth. Signs of an intrusion into the ash layer appeared in the profile. This layer also revealed an iron water pipe in the western section of the trench and sandstone and clay-brick foundations in the eastern sector next to the intrusion into the ash lens. Bedrock was reached at a depth of 60cm. The sandstone and clay-brick foundation structure was then followed with a north-south orientated extension trench. This trench exposed a stone foundation structure, which included large chiseled sandstone blocks (Figure 9 & 10).

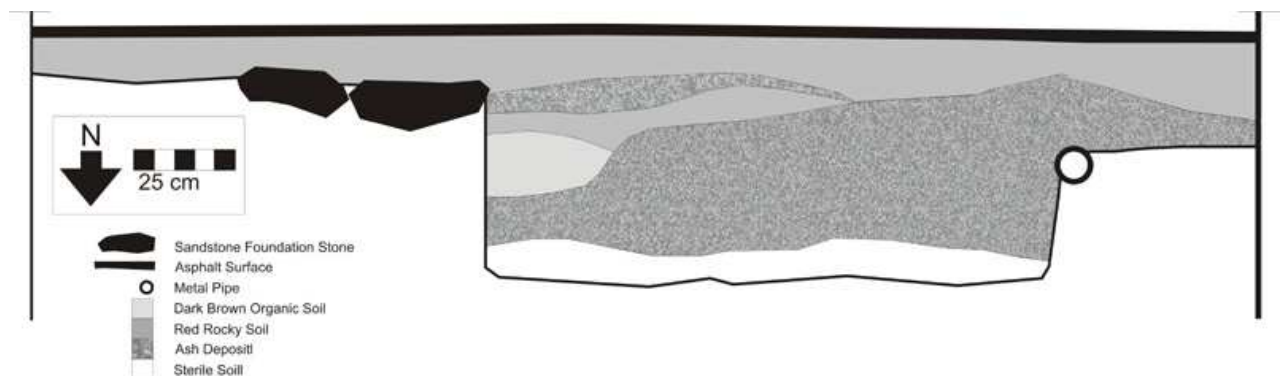


Figure 9. Profile of southern section of T03.



Figure 10. T03 with the stone foundation blocks in the foreground and the ashy landfill and water-pipe in the background.

On extension of the initial trial trench, the team exposed a water furrow, built with clay-bricks, running next to the foundations (Figure 11).



Figure 11. T03 stone foundations and brick furrow.

The entire southern section of foundation was then exposed. The trench was also extended to the north but the foundations, changing course in a northeastern direction, abruptly ended about 1 m north of the first T03 test-trench. It seems that the foundations were destroyed in this area (Figure 12). The trench was documented and photographed.



Figure 12. Northern extent of T03 foundation structures.

5.3.1.4 T04

Historic sources indicate that T03 formed part of the large cellblock, which extended northwards. The archaeologists demarcated a north-south trench –T04 -for excavation in the area where the eastern wall of this structure would have stood. The tar surface was removed and a first 10cm layer was excavated through red rocky soil. This layer exposed the sandstone foundations that were later identified as the main interior wall of the cellblock. As excavations progressed, the foundations of smaller clay-brick structure extending west were exposed in the northern sector. This structure was excavated and documented. Another smaller clay-brick foundation, with adjacent cement flooring, was exposed extending southwards from the middle of the large sandstone foundations (Figure 13).



Figure 13. Excavation T04 and T05 in the central parade ground.

Excavation of this structure revealed a large section of smoothed cement floor and a cement water furrow to the south. The water furrow, orientated north-south, was exposed to the north, however it disappears to the north. It seems to have been destroyed in line with the end of the northern foundations structures in T03. In order to establish the extend of the floor exposed next to the brick foundation structure, a small trench (T04a) measuring 100cm x 50 cm was excavated in the vicinity of the exposed floors. No floor surfaces were found in this areas and it seems that the floor was destroyed along with the northern extension of the water furrow and the northern foundations in trench T03. The entire excavation was documented and photographed.

5.3.1.5 T05

In correspondence with historical maps, a north-south trench was placed directly east of the eastern walls of the padded cell block. A wall, forming a demarcation between a courtyard and the cells, used to extend north here. The tar surface was removed and after a 10cm layer of red rocky soil was excavated, the clay-brick foundation structure of the wall under question was exposed (Figure 14).



Figure 14. Clay-brick foundation in T05.

Excavations were extended to the south and to the north, to reveal the extent of the structure. In the north the foundations ended abruptly in line with where the floor and foundation in T04 and T03 ended. It is apparent that large areas in the northern sector of the Parade Ground have been disturbed and possibly destroyed. This is probably also the reason why no structures were found in excavations T02, T06 and T07 (see later). The foundation structure excavated in T05 changed direction in the southern part of the excavation, and extended west in the direction of T04.

This east-west section also contained a cement water furrow right next to the foundation structure (Figure 15). The foundation also extended in a northerly direction, thus creating a U shape. In this direction the structure joined up with foundations, floors and water furrow excavated in the eastern sector of T04. The excavation was documented and photographed.



Figure 15. Water furrow found in T05.

5.3.1.6 T06

In order to establish whether the foundations in the northwestern section of the Parade ground were in tact, a test trench was excavated in the area. The historic maps show that this section of wall extended diagonally from the western walls of the cellblock, in a northeastern direction.

The tar surface was removed and the first 10cm layer exposed the ashy layer found in T03 (Figure 16). No foundations were found and the entire deposit in the trench was made up of this ashy soil until the terminal depth was reached at 35cm. The excavation was documented and photographed and the tar surface was partially replaced for practical and safety reasons.



Figure 16. Ashy landfill found in T06.

5.3.1.7 T07

The northern walls of the cell block extended from the north-western corner of the eastern buildings of the fort, in a westerly direction all along the northern rampart. A small 1m x 1m trench was excavated next to the north-western corner to see if signs of this extension still remain. The deposit in this excavation contained large amounts of building rubble and ashy soil but no foundations. The square was documented and photographed.

5.3.2 *Further excavations of the Old Parade Ground.*

After the foundations were exposed, the Project Manager decided to excavate the entire parade ground. This was done in line with permission SAHRA granted during the first phase of rehabilitation, and was monitored by the archaeologists. The tar surface was removed in all areas, and the red rock topsoil layer was removed to expose all remaining structures. Except for structures discovered during the archaeological excavations two additional freestanding structures were exposed, a section of a clay-brick foundation that formed part of a square clay-brick structure (Figure 4 - A) and a circular clay-brick foundation structure (Figure 4 - B).

The circular structure, possibly the remains of a well (Figure 17) is situated between T05 and the eastern wall demarcating the parade ground. It might relate to the circular structure visible on the early 1900s plans of the fort (Figure 3). These features were documented and photographed.



Figure 17. Circular brick feature B

5.3.2 The South-Western Rampart

5.3.2.1. The rampart wall (R01)

The artillery and lookout point on the southwestern rampart's top was connected to the area below by a staircase at the time of the South-African War (Figure 18). These stairs are no longer visible (Figure 19).

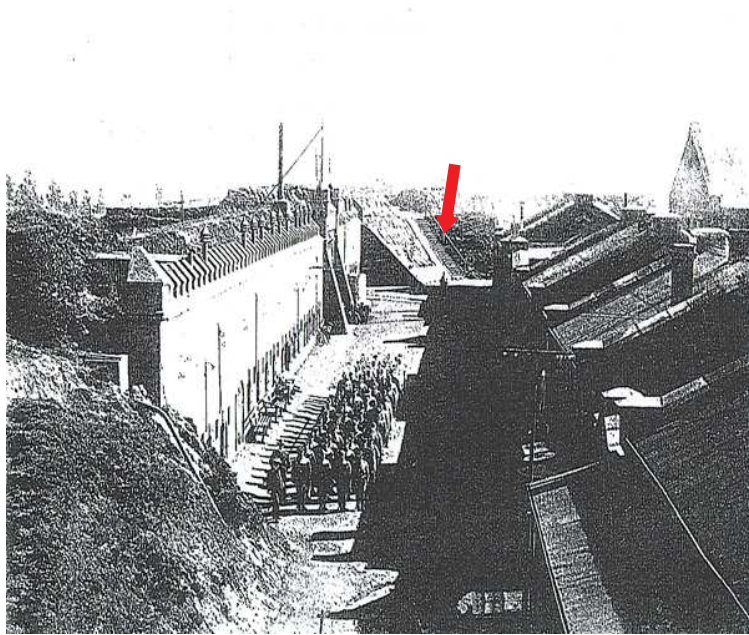


Figure 18. Historical photograph showing rampart steps in south-western corner.



Figure 19. The south-western rampart today.

This area was excavated to determine whether this structure still existed and to uncover its remains. Packed stones forming the wall of the rampart were removed and the soil underneath excavated. The deposit below the stones consisted of fine, sandy soil of a yellow-brown colour. The trench was approximately 1m deep. No definite structures or remains of any sort were uncovered in this trench, and it was decided to extend the trench downwards and in an east-west direction at the base of the rampart. The excavation in the wall was photographed and documented (Figure 20 & 21).



Figure 20. Excavation into rampart wall (R01).

The stones were then replaced as close as possible to its original position in order to re-stabilize the rampart and to return the structure to its former appearance (Figure 22).

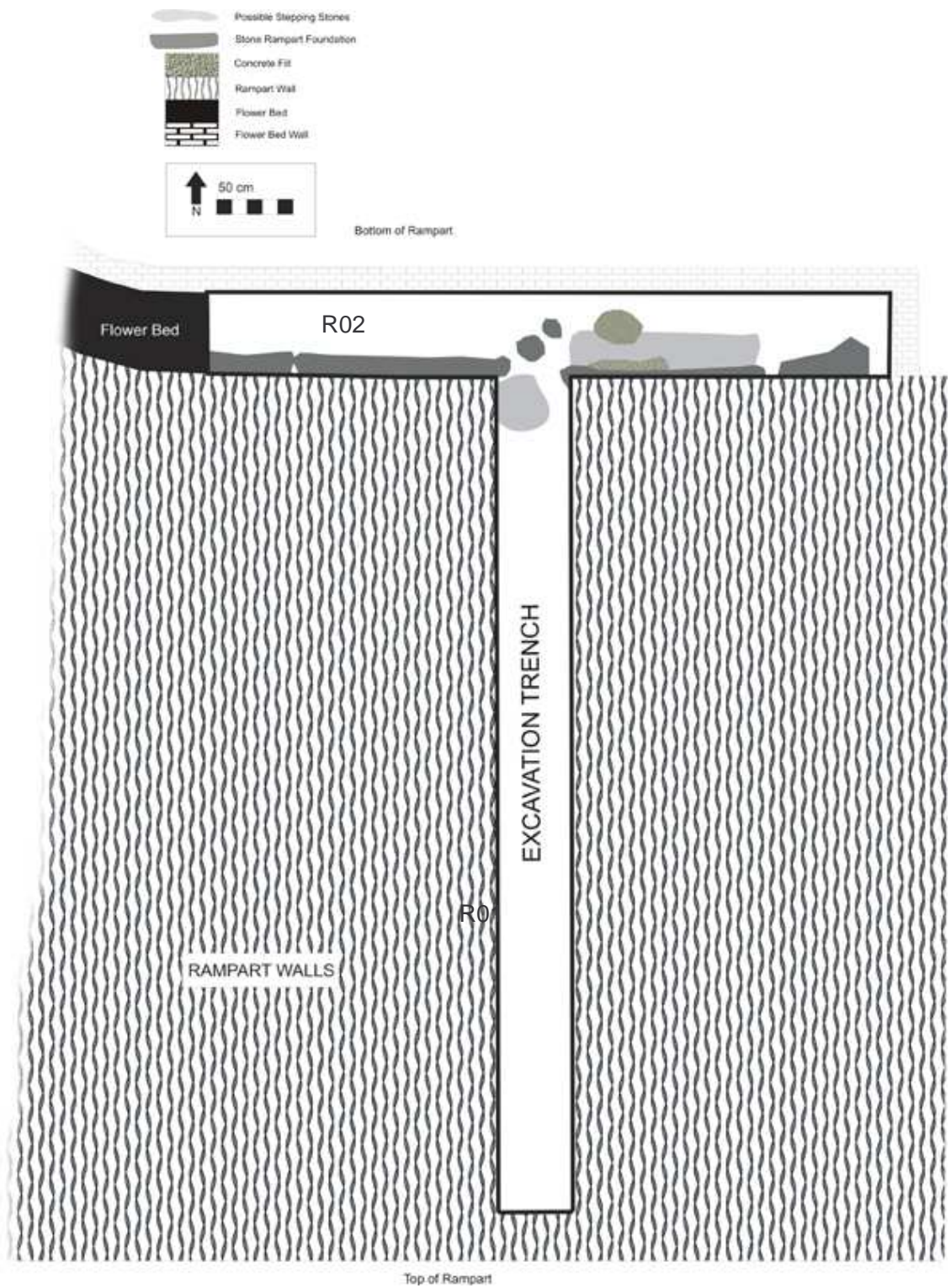


Figure 21. Plan of excavations on South-Western Rampart



Figure 22. Southwestern rampart after stabilisation.

5.3.2.2. The rampart base (R02)

This section of the excavation was done in what is today a flowerbed at the base of the rampart. The trench, measuring about 4.5m x 50cm, was an extension of the excavation into the rampart wall. The soil was removed as one unit and it contained stones, building rubble and refuse.

After the topsoil and soil at the base was removed the foundation structure and a possible stepping-stone, with some cement adhering, was exposed in the eastern section of the trench. The trench was excavated to the level of the foundation and the stepping-stone and these structures were photographed, documented and illustrated (Figure 23).



Figure 23. Stepping stone with cement adhering found in R02.

Although the flat stone in the trench closely resembles a stepping-stone it, however, is possible that this stone might be part of the foundation structure of the rampart. This question was pursued, by extending the trench, but could not conclusively be answered (Figure 24). The trench was the backfilled and stabilized.



Figure 24. R02 showing the sandstone at the base of the trench.

6. RECOMMENDATIONS

6.1 Conservation recommendations for the site

The test trenches, and subsequent extended excavations of the Parade Ground, exposed a large number of foundations. These structures were not backfilled, but left open pending a decision of the developers and Heritage Advisor. It, however, is the archaeologists' recommendation that if the trenches are to remain open all structures and exposed features should be stabilized and protected from weathering and erosion where necessary. It is also recommended that trenches containing structures or features that cannot be stabilized be backfilled in order to prevent weathering and possible damage.

6.2 Other Recommendations

Although no damp seals were identified in the foundations, the project engineer has recommended that the surface of the parade Ground (today the parking lot) be lowered to the original level. This will return the surface in the courtyard to below the surface inside the prison buildings, which will help prevent further damp problems. The original parade ground, however, sloped to the east. This will channel water into the Fort, which is obviously not desirable. Effective channelling of rainwater away or through the Fort would help alleviate the problem. The planning of these channels, however, has to take the exposed foundations into account.

It is necessary to monitor the area in the south-western rampart where excavations were conducted. Monitoring and early intervention will ensure its continued stability. This is needed because the moving of the rocks during excavations may have weakened the structure. It is further recommended that utmost care be taken if further excavations were to be done on the ramparts in order to ensure the stability of the rampart as a whole.

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APPENDIX 1 - TERMS OF REFERENCE



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Ref: J234/L2157

Date: 14th September 2006

Attention: Mr. J. Allison

Calbra Project Management
33 Ballyclare Drive
BRYANSTON
2060

Sir,


LONG TERM IMPLEMENTATION PLAN: CONSTITUTION HILL EXPLORATORY INVESTIGATION

1. With reference to the attached sketch, the following methodology is proposed to carry out the exploratory trial holes on the site:
 - 1.1 Exploration for foundations
 - Mark out the imaginary line from the existing walls to meet at point A.
 - Measure back on this line for a distance of 10m each side to get points C and D.
 - Measure a line 3m long, perpendicular to the imaginary line, 1.5m each side of the line.
 - Excavate a trench approximately 600-700mm wide, 1250mm deep at C, and 1000mm deep at D.
 - Dig a 600mm square pit, 800mm deep at point B, hard up against the wall, this is to look for the damp proof course.
 - 1.2 Exploration of the Ramparts

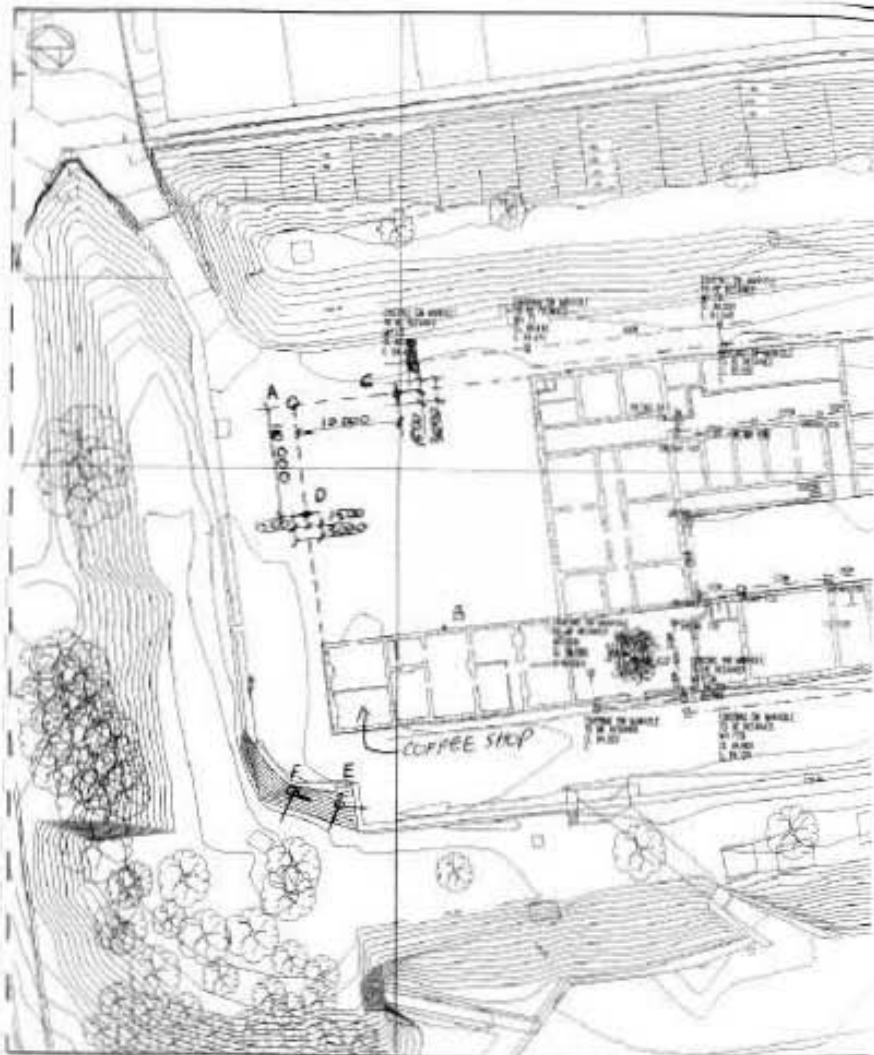
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Chief Joint BSc. Eng. - Gann, Gann, Ph.D., M.Sc., Eng. B.Sc. Eng.

- At points E and F, start removal of existing rock cladding about 1m wide, starting from the top of the Ramparts moving downwards until points E and F, halfway down the Ramparts have been reached.
 - Store dislodged stone where convenient for re-use.
 - Dig a slot, approximately 700mm wide into the Ramparts at E and F, about 1500mm deep (horizontally), take care to check for excavation stability during this exercise.
 - Fill in excavations and replace stone if no signs of the original material have been found.
 - If the original profile and/or steps have been found, further course of action must be decided on.
2. It is further proposed that a contingency amount of 15% of the value of the contract be allowed for which could be used for further investigation should concrete evidence be found of the foundations and rampart origins.

Yours faithfully --


MR. WEE YAN RUN
(for ASCH Professional Services (Pty) Ltd)





LEGEND

--- EXISTING STORMWATER

NOT TO SCALE