

# FRAME YARD EXCAVATION REPORT 2013

*Rosabella Alvarez-Calderon Silva-Santisteban*  
*Garden Conservation Intern*  
*August 2013*

During the 2013 summer season, the aim was to complete the excavation of the Dumbarton Oaks vegetable garden frameyard which was started in July 2012 by Garden Conservation intern Siobhan Aitchison, and which is documented at the following webpage: <http://www.planetable.org/omeka/exhibits/show/kitchen-garden-and-frame-yard/frame-yard-excavation-2012>. The webpage also documents the history and development of the Dumbarton Oaks Kitchen Garden, which included the vegetable garden, a cutting garden for flowers, espaliered fruit trees and an orchard.

The kitchen garden was conceived by Mildred Bliss and Beatrix Farrand as early as 1922, as can be seen in their shared correspondence, and it was likely in operation by the late 1920's and early 1930's. Vegetables were no longer being planted by 1947, and the frame yard was dismantled and buried in fill sometime between 1950 and 1955. The space the frame yard occupied was filled, leveled, seeded and used for peony beds. It is important to clarify that although there are several plans and maps showing the larger context of the gardens and the Kitchen Garden, including outlines of the buildings in the frame yard, and several plans of the greenhouse and pit house located in the Service Court, we have not been able to find a plan of the frame yard located in the vegetable garden. However, it is also important to consider that even actual plans and blueprints are not always absolutely accurate, since there may be changes between the planning and the construction stages. Furthermore, a plan would not be useful to record changes and later alterations done to the structure.

## Summer 2012 excavation

In anticipation of a proposed plan to rebuild a greenhouse to complement the newly replanted vegetable garden, in 2012 garden conservation intern Siobhan Aitchinson and the Dumbarton Oaks gardening crew started to excavate the area where the frame yard used to stand. The team used a 1932 survey of the property to determine the structure's approximate boundaries and to define the area to excavate. Over the summer of 2012 the team removed the topsoil (grass) and a thick layer of compacted, clayish soil, sand, and brick rubble. The team also revealed a brick stairway that descended to the front entrance of the pit house on the northeast side of the frame yard, the stove enclosure, the tank enclosure, the granite retaining wall, the concrete centre aisle and the south and west foundations of the structure. The team also recovered numerous artifacts associated with the pit house, including brick rubble, as well as tile, slate, glass and metal fragments. The team also found several rose plant tags, which would indicate that the greenhouse was used not only for growing vegetables, but also for forcing flowers. The excavation also revealed that the interior and exterior walls of the pit house had collapsed inwards, and the fill was filled with brick rubble and debris from the demolition process. Aitchison proposes that the fill may have also been taken from the closest location immediately north and east of the structure. According to the garden crew, the excavation had to be halted when asbestos, likely used for insulation, was discovered, which required a significant clean-up effort. The description, images and plans of the pit house and the excavation process, as well as a 3D tentative reconstruction of the frame yard based on field

measurements and construction drawings can be found at the following link: <http://www.planetable.org/omeka/exhibits/show/kitchen-garden-and-frame-yard/frame-yard-excavation-2012>.

## Summer 2013 excavation

The objectives for the 2013 excavation were the following:

- Define the boundaries of the structure
- Finish the excavation past the structure's foundations
- Create a floor plan of the structure
- Compare the floor plan to Siobhan's 2012 plan (based on field measurements and construction drawings)
- Understand the construction process of the pit house
- Understand the stratigraphy of the frame yard and vegetable garden. Stratigraphy is a term borrowed from geology, and in archaeology it refers to the layers of both natural and cultural features. As a general rule, the more superficial layers are more recent and the deeper layers are older. Studying the stratigraphy of a site is useful to reconstruct the "life story" of the greenhouse: how it was built, how it was abandoned, and what has happened since then.

Considering these objectives, I decided on the following plan for the summer:

1. Clear the area of weeds, debris, leaves, rocks and vegetation
2. Trim the grass around the boundaries of the pit house, in order to better view the profiles
3. Create vertical profiles (trying to make them as perpendicular to the floor level as possible) in order to understand the stratigraphy of the pit house, its construction process, the way it was deconstructed, and what happened in the decades after it was abandoned.
4. Excavate a series of test pits at strategic locations, especially near the wall corners. The idea was to excavate past the foundations of the building, and to reach the level on which the pit house was constructed. This process would be especially useful in case the greenhouse was reconstructed, since it would be necessary to know how deep into the ground the pit house was built. The test pits would be excavated following archaeological conventions (layer by layer).
5. Document every stage of the excavation process using digital photography.
6. Create a floor plan of all exposed structures.

Although this project was treated as an archaeological excavation, following appropriate guidelines and procedures, certain parts of the structure were given more importance considering the objectives of the project and time constraints (for instance, work on the site had to be suspended when it rained and until the area dried out). For instance, elevations and depths (relative and absolute) were not measured, although information regarding the slope of the terrain is available in the general maps of the Dumbarton Oaks gardens which can be viewed both in ArcMap (GIS) and Autocad 10 (raster image) formats. However, relative and absolute depths and elevations can be estimated through the use of photographic images.

## Preliminary ideas regarding the pit house

Based on Siobhan's digital reconstruction, the available original construction drawings and photographs, the pit house would have consisted of an elongated rectangular space with a centre concrete corridor delineated with bricks. As was described above, the structure also contained a stove enclosure, and a structure that could have served as a cold frame/cold storage, although we have found no evidence of a heating system. The structure was semi-subterranean, built on a slope, and was accessed using a brick staircase. Old photographs imply that the structure had a gable roof, and the semi-subterranean location would have been useful to heat the building (for instance, during the process of excavation, the interior of the greenhouse felt significantly hotter than the outside).

The excavation exposed a second space associated with the original pit house, so in order to distinguish them I decided to name the original space with the centre concrete corridor the *eastern part* of the structure, and the other space was deemed the *western half*. The dividing line between these two spaces is the centre concrete wall. The main difference between these two areas is the floor level: while in eastern half there is a clear floor level indicated by the concrete corridor and a compacted earth floor associated with it, in the western half there is no clearly distinguished floor and the concrete foundations are at a higher level, together with the remains of a brick wall. Our very preliminary idea, based on the evidence, is that the greenhouse may have been built on two levels, taking advantage of the slope of the terrain, with the western half being at a higher level. Thus, the concrete level would have marked the foundation and lower floor level, followed by a small wall made of bricks (we have found evidence of at least two levels of bricks). However, we have not found a way to access and communicate between the eastern and western part of the structure, nor have we found a possible entrance from the eastern side. The only entrance to the pit house that has been identified is located in the western end, near the brick staircase.

In the western part of the pit house, near the entrance and the brick stairs, the imprint of demolished walls was found on the concrete floors and walls, on both the north and south walls of the structure. This would indicate the presence of a small subdivision, perhaps even a small room, on either side of the walls.

Three small rectangular holes were found along the concrete foundations of the walls: one in the northwest corner of the eastern part, and two of them at a mid-point of the north and south concrete walls of the western part of the pit house. These holes could have perhaps served to hold up the metal and glass superstructure holding the ceiling.

## The excavation process

### 1. *Clear the area of weeds, debris, leaves, rocks and vegetation*

In one year, the pit house had become full of weeds and vegetation, so the first step was to clear the weeds and trim the grass surrounding the area, as well as clearing all debris, leaves and other materials. This task was done with gardener Luis Marmol. After the area was clear, it was documented through a series of photographs, both panoramic and of details. This was done in mid-July 2013.

### 2. *Create vertical profiles*

Using the flat side of a shovel, the profiles of the pit house were made perpendicular to the floor level of the structure. This was also done to expose the boundaries of the structure, including the concrete walls, foundations and brick walls. This task was done by gardeners Luis Marmol and Rigo Castellon.

### 3. *Excavate a series of test pits at strategic locations, especially near the wall corners*

Three 5' x 3' test pits were excavated in different parts of the pit house, especially in wall corners (the location of the units is indicated in the plan of the pit house).

**Unit 1:** Located in the southwest corner of the east half of the pit house. This unit was excavated to establish the relationship between the walls and the centre concrete corridor.

The first layer consisted on very hard, compacted, clayish brown soil that was approximately 8-10 inches thick. The topmost 2-3 inches of the surface were lighter in color due to exposure to the sun and elements.

The second layer consisted of very hard, compacted, rocky greenish-brown soil with mica. This layer extended under the concrete foundations of the south and west walls, and due to its hardness, it was very difficult to excavate using normal tools (shovels, picks and trowels). It was decided to end the excavation at this level, since it was apparent that this soil would have served as the base of the structure.

Under the south wall, between the first and second layer, there was a small layer of sand and small pebbles, which would have been part of the building materials of the wall.

**Unit 2:** Located in the southeast corner of the east half of the pit house. This unit was excavated to establish the relationship between the walls, the centre concrete corridor, and the imprint of a demolished brick wall.

The stratigraphy in this unit was similar to unit 1, except that the first layer was thinner, and the second layer was rockier in texture. As in the case of unit 1, the excavation was finished at the second layer since it extended under the concrete foundations.

The excavation of this unit revealed some details about the way the structure was built, including some elements that were probably demolished either while the pit house was still being used or just before it was dismantled. An extension of the concrete floor was exposed, along with the imprint of a brick wall that was at least two bricks thick. Finally, a large cluster of broken brick was found under the central concrete corridor. These bricks would have served to reinforce and stabilize the foundations of the concrete floor.

**Unit 3:** Located in the northwest corner of the west half of the pit house. This unit was excavated to establish the relationship with the central wall, and to determine if the stratigraphy followed the same pattern that was seen in Units 1 and 2. The stratigraphy in the unit was similar to units 1 and 2. As in the case of units 1 and 2, the excavation was finished at the second layer since it extended under the concrete foundations.

4. *Document every stage of the excavation process using digital photography*

This stage was extremely important since photography was used to record not just panoramic views, but also details revealing how the structure was built, used and abandoned, as well as architectural details and the stratigraphy.

5. *Create a floor plan of all exposed structures*

Since the structure was rectangular and orthogonal in shape, the procedure to create the plan was to create a detailed draft with measurements in the field, and then a digital plan was created using the software Autocad 10 at a scale of  $\frac{1}{4}$ " – 1'. Once the plan was finished, three reference points were taken from known architectural features, and the plan was georeferenced and added into the general Dumbarton Oaks gardens map in the software ArcMap (GIS). This version of the plan was created for scaling, reference and location purposes, so that it was clear to see where the pit house fit within the larger context of the gardens.

## Suggestions for future research

Now that the excavation is complete, a potential next step could be to compare the floor plan of the excavated greenhouse with those of other, contemporary and similar structures; determining which areas were roofed and which were exposed; examine what was the relationship between the two main spaces we identified; and if we are looking at a structure that was built all at once or in stages.

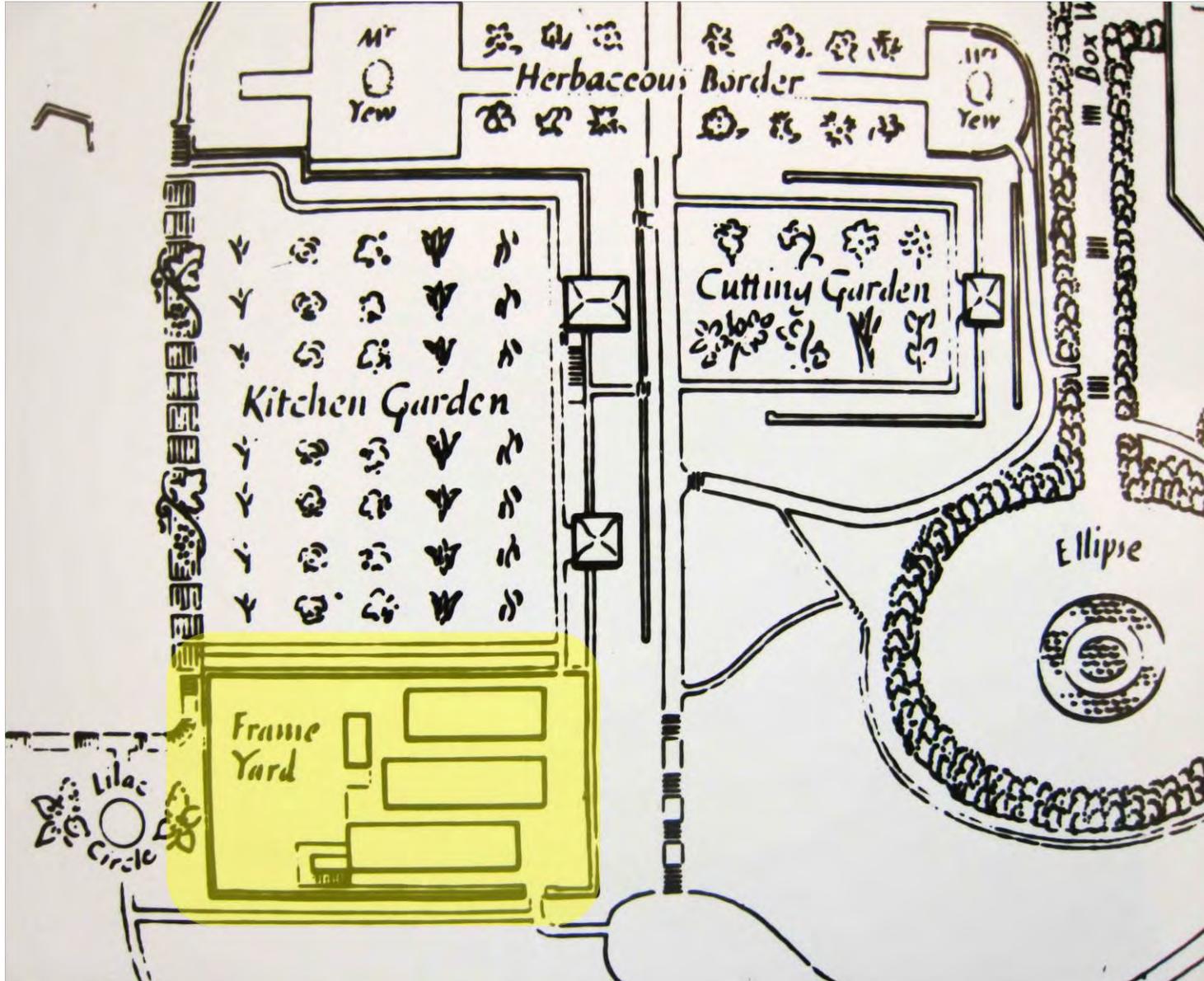
## Materials

The materials recovered from the excavation were cleaned, photographed and placed in storage at the Gardener's Court at Dumbarton Oaks gardens together with the materials recovered in 2012. The brick rubble was photographed but only a sample was placed in storage.

**IMAGES**



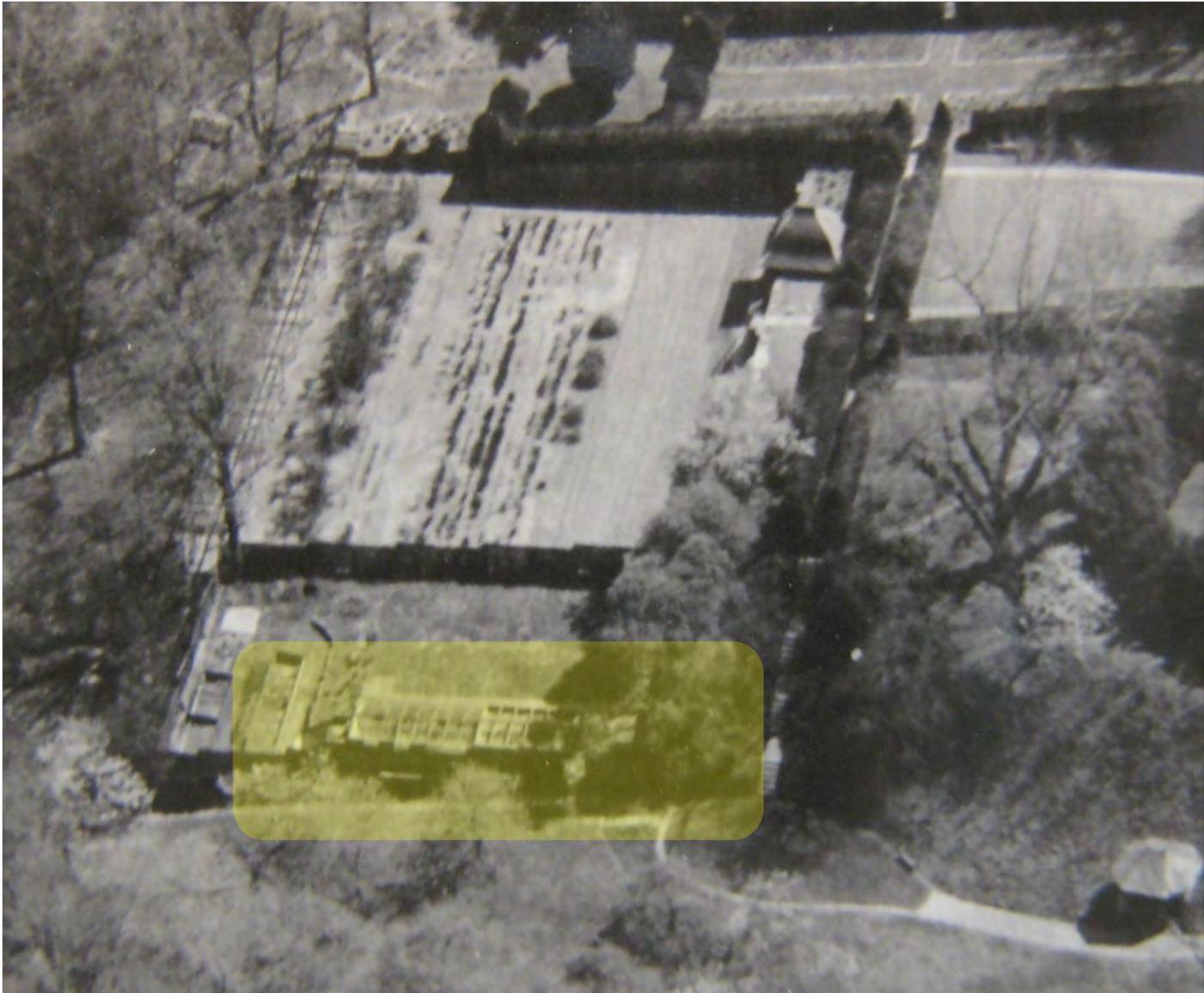
Detail from the image above, showing the frame yard and the vegetable garden. The 2012-2013 excavation focused on the bottom structure



Aerial view of Kitchen Gardens (1935), showing the frame yard (highlighted in yellow)



Aerial view of the Kitchen Garden at Dumbarton Oaks (ca. 1960)



The frame yard looking east from the Bird Walk through blooming cherry trees, spring 1945. The gable roof of the pit house can be seen, highlighted in yellow.



## Summer 2012 Excavation

Garden conservation intern Siobhan Aitchison and the garden crew starting the excavation of the northernmost pit house in the frame yard



Plan and sectional elevation of the pit house based on estimated dimensions, by Siobhan Aitchison

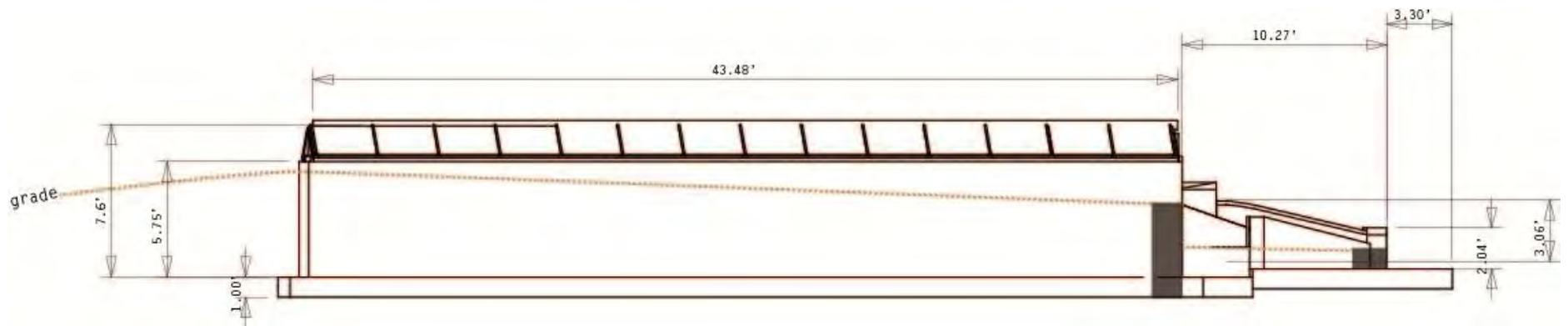
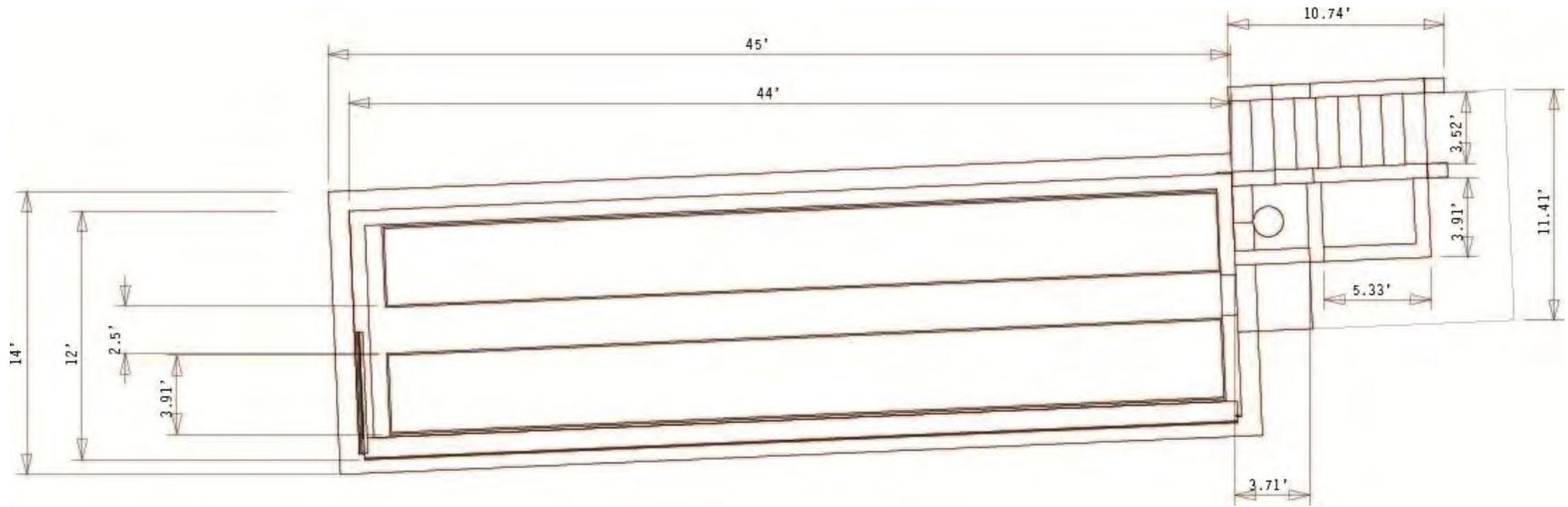
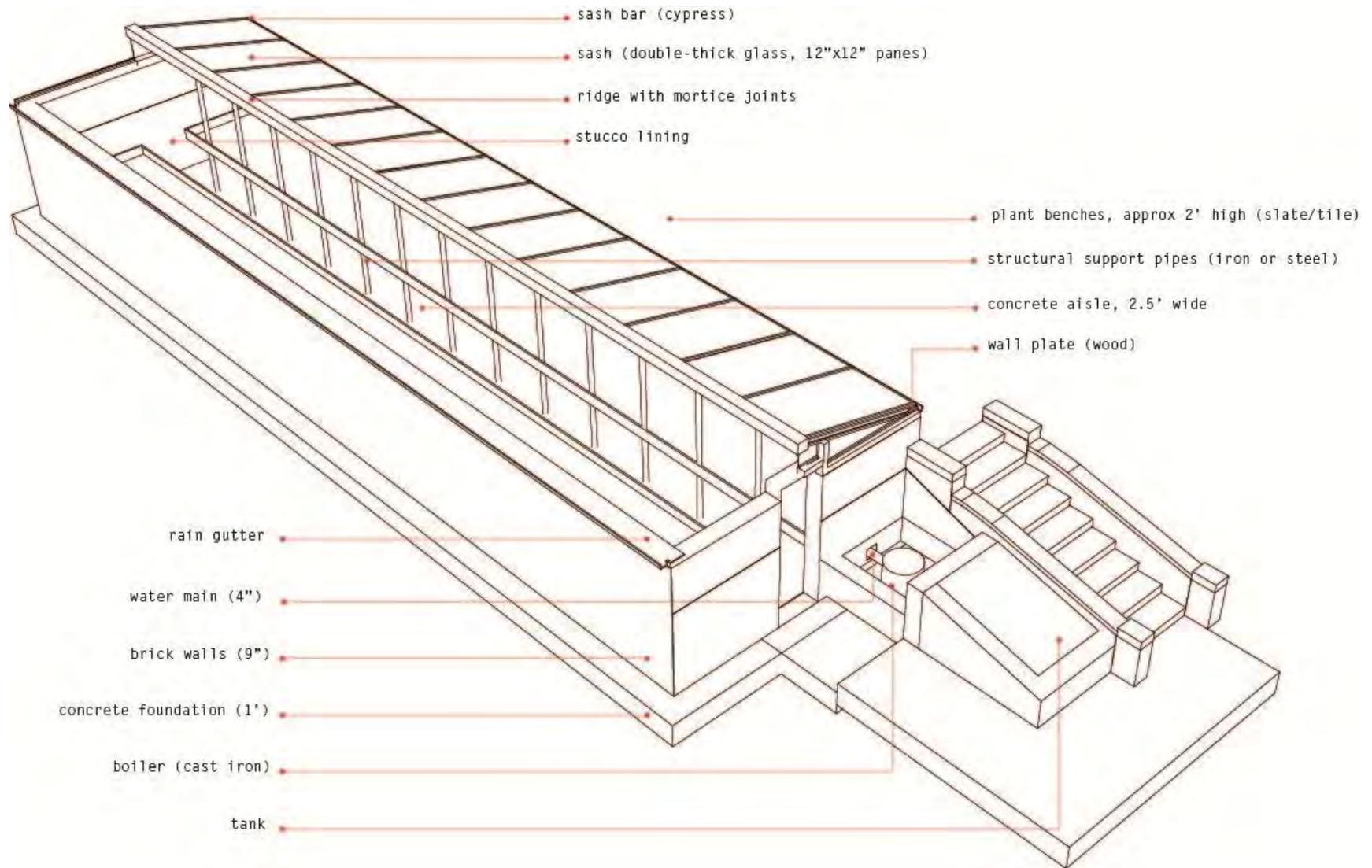


Diagram of the pit house based on estimated dimensions, by Siobhan Aitchison



## Summer 2013 excavation (all images by Rosabella Alvarez-Calderon)

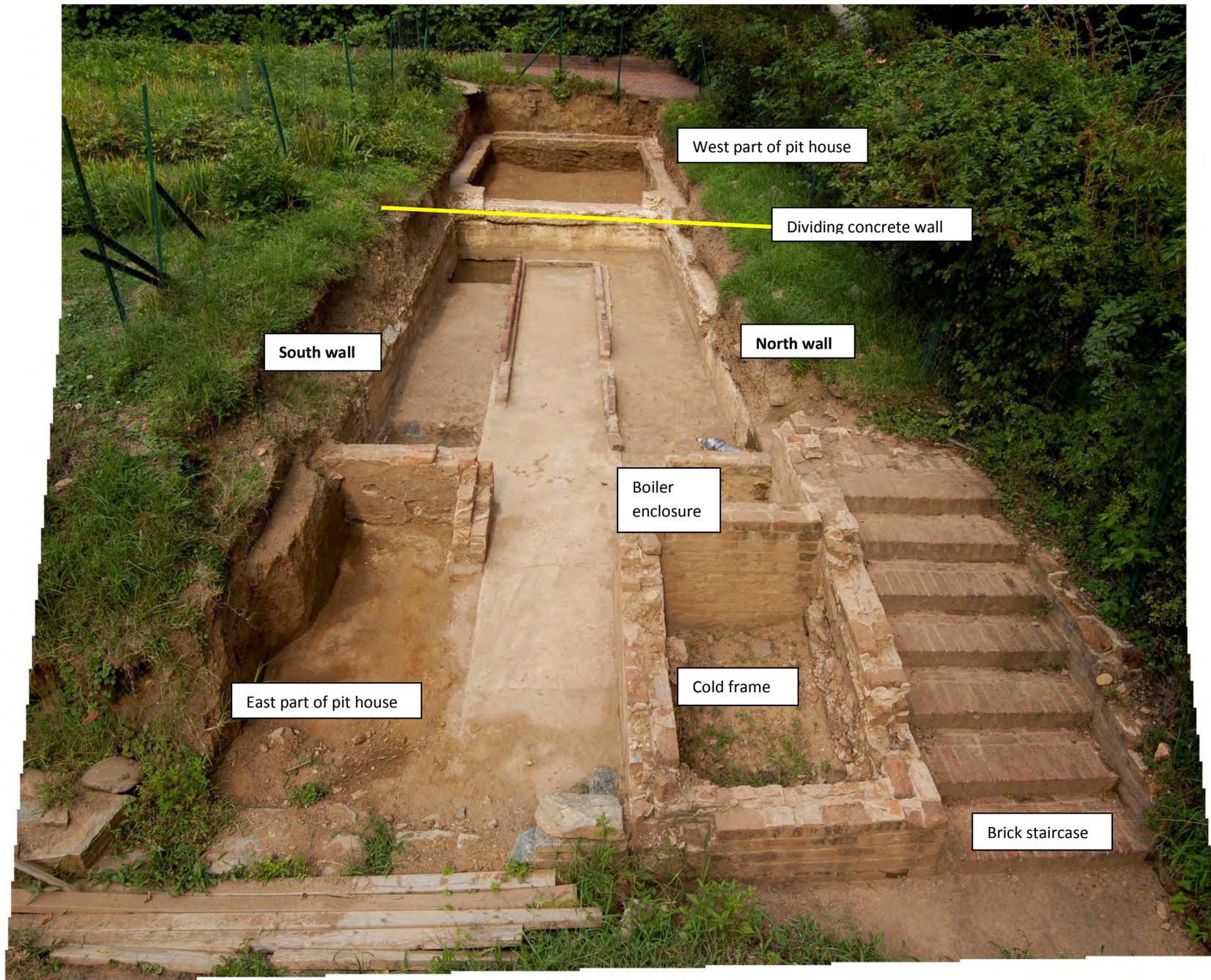
The pit house before starting the excavation, July 2013



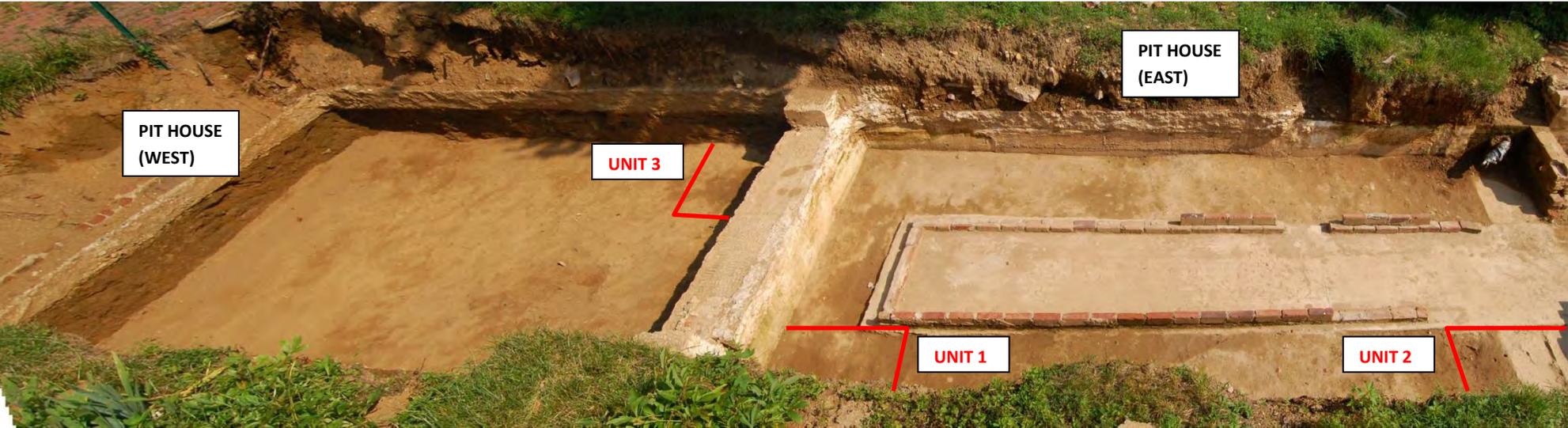
The pit house after clearing the weeds and trimming the grass around the area, July 2013.



The pit house at the end of the excavation, August 2013



The pit house during the excavation process, July 2013



The pit house during the excavation process, July 2013

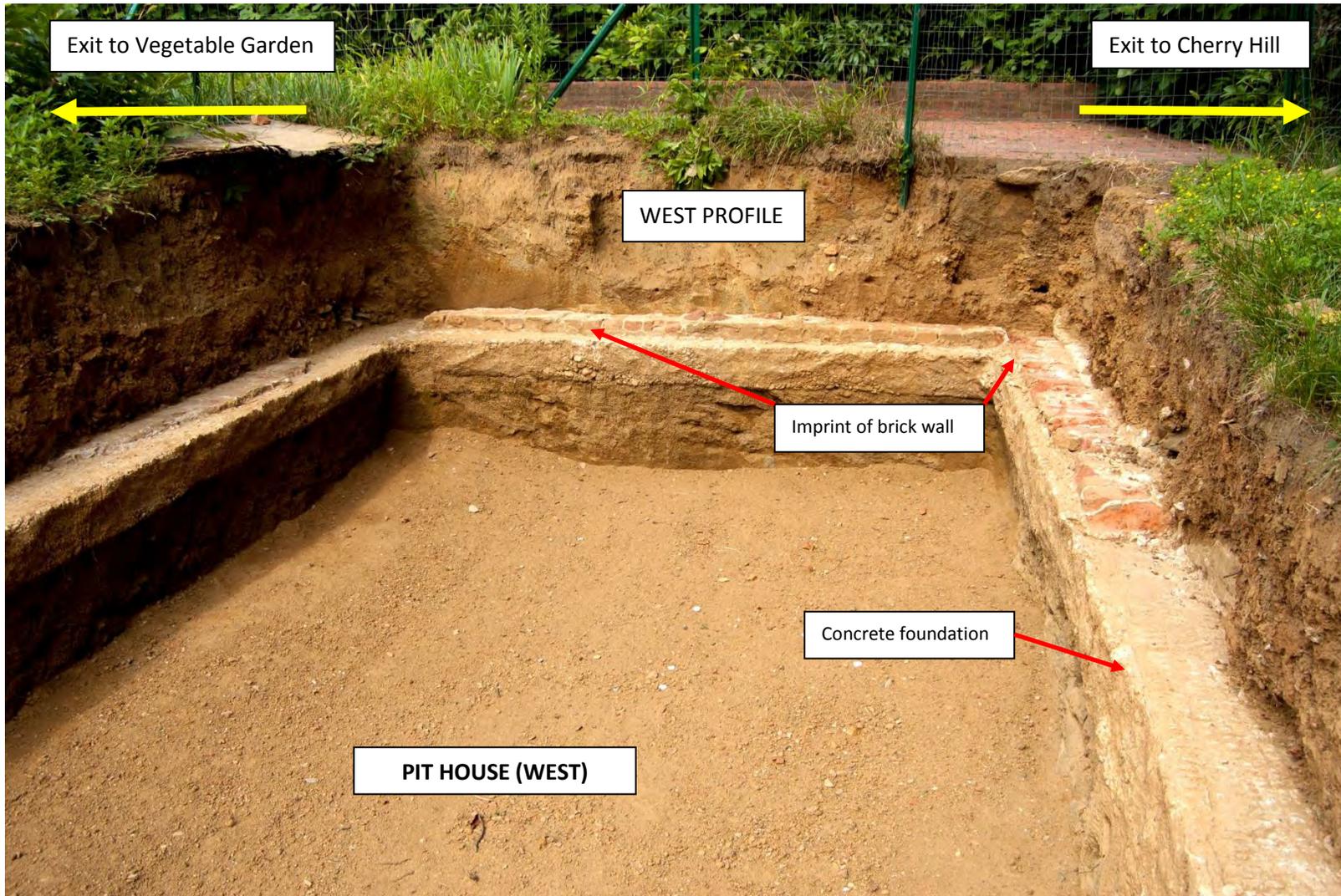
View of the east part of the pit house, showing the central concrete corridor, the boiler enclosure, the brick staircase, the boiler enclosure, and the entrance



View of the eastern part of the pit house, north profile, showing the stratigraphy. Layers 1 and 2 would have been deposited and grown after the structure was dismantled, leveled and planted over with peonies. Layer 7, which only became visible through the excavations in units 1, 2 and 3, consists on very hard, compacted and rocky greenish-brown earth. This level, which extends under the concrete foundations of the structure, would have served as the base on which the pit house was built.



Pit house (west), view from the east. Detail of the concrete foundations and the imprint of the brick walls. The walls were at least two bricks tall, and the surface of the concrete shows imprints consistent that imply that bricks bricks and mortar were laid on top. Unlike the east part of the pit house, there is no clearly distinguished floor and it is possible this space might have been at a higher level.



View of the pit house from the west, showing the east part (below), the west part (above), and the imprint of the brick wall with its concrete foundations (left)



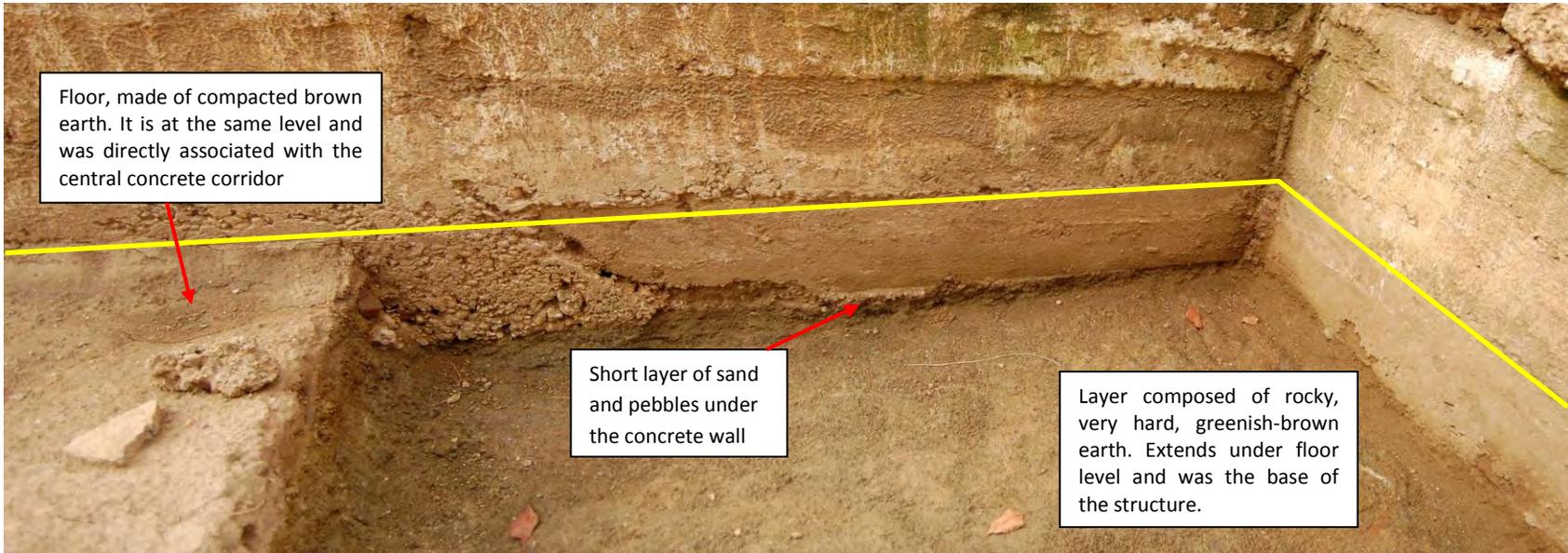
# UNIT 1

Left: View of unit 1 from the east



Right: View of unit 1 from the west





Top: Detail of the excavated area of unit 1, showing the layers. View from the north

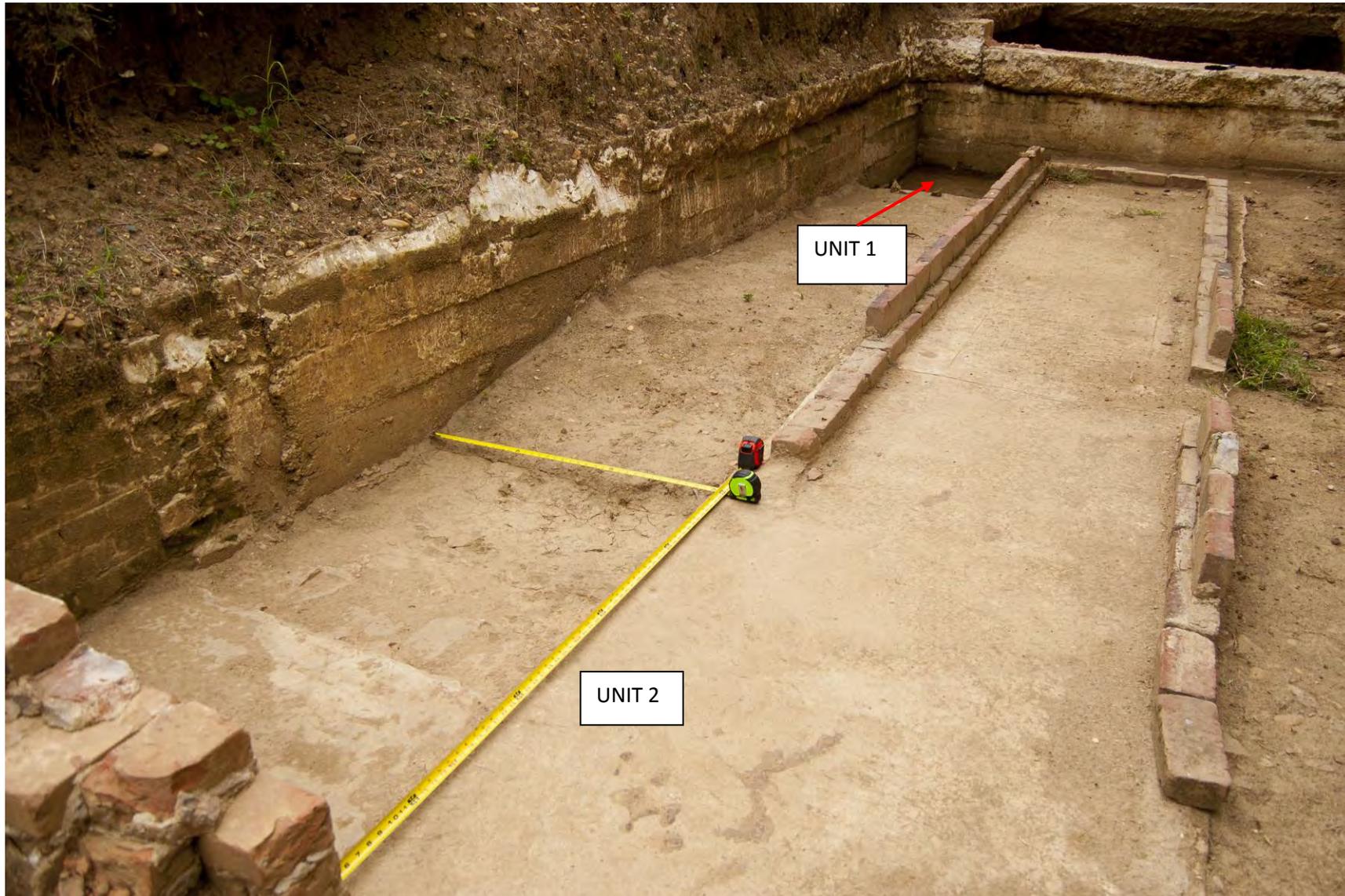
Bottom: Detail of the excavated area of unit 1, view from the east



Panoramic view of Unit 1 at the end of the excavation

## UNIT 2

View of Unit 2 from the east, before starting excavation. Unit 1 can be seen at the top



View of Unit 2 at the end of the excavation showing the concrete floor (left), the imprint of a demolished brick wall on the walls and floor (centre), and the layer of very hard, rocky, greenish-brown soil (right)



View of Unit 2 at the end of excavation, showing the broken brick and ceramic tile rubble located under the central concrete corridor



# UNIT 3

View of Unit 3 from the west



View of Unit 3 from the east. After reaching the layer of very hard rocky, greenish-brown soil, the team excavated a little deeper in a limited area (yellow rectangle) to verify that this was the base of the building.





