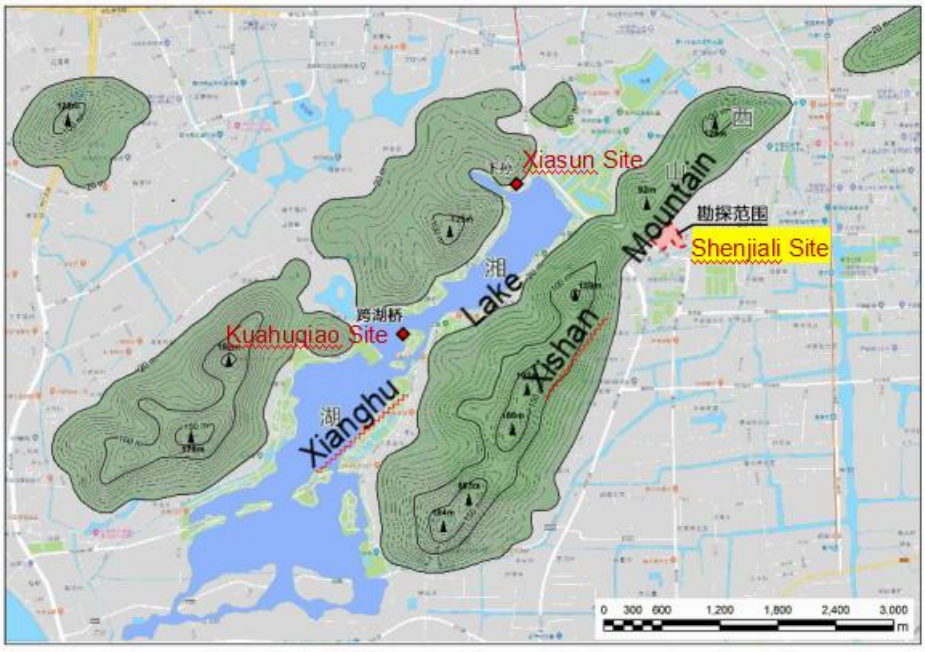
Declaration: The publication of this journal gets the permission from the director

Excavation Journal at Shenjiali Site (July 13 - August 20)

Shenjiali site was discovered in 2022 when a housing development project commenced on the site. Hangzhou Cultural Relics and Archaeology Research Institution conducted the archaeological excavation with the approval of the State Bureau of Cultural Relics.

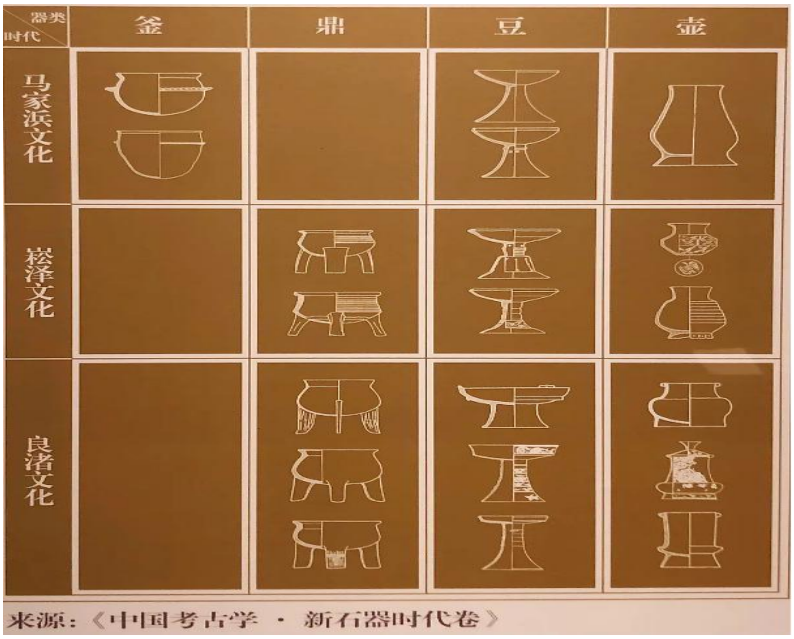
Located in Xiaoshan (Hangzhou bay area), Shenjiali is a neolithic site during Majiangbang Culture period. The site is of great research significance because its close proximity to Kuahuqiao site, a site dating back to 8,000 years ago and where the earliest known canoe in East Asia was unearthed. Archaeological evidence at Kuahuqiao indicates that its inhabitants had already begun to cultivate rice and had intervention in the life cycles of plants and animals. We are curious about the fate of the occupants of the Kuahuqiao Culture. Where did they go? Is it possible that they migrated to Shenjiali and then spread to Bajiabang/Humudu area? Or, they might not be able to survive from environmental events such as transgression? Our excavation aims to investigate and test this hypothesis.

Edited photo based on the map provided by Dr. Li Wei



Background information (Chronological Sequence in lower Yangtze River):
Shangshan Culture (10000-8500BP) -> Kuahuqiao Culture (8200-7200BP) -> Hemudu-Majiabang Culture (7000-5800BP) -> Songze Culture (5700-5300BP) -> Liangzhu-Qianshanyang Culture (5300-4300BP) -> Guangfulin Culture (4300-3800BP) -> Maqiao Culture (3800-3500BP)

An illustration of wares during Majiabang, Songze and Liangzhu from *Chinese Archaeology* (from top to bottom: Majiangbang-Songze-linagzhu)



Our excavation team

Day 1-Day 10: Post-fieldwork processing of potteries from the Zhangshan site

Day 11: July 13

16:00

Dr. Li Wei, the director of the excavation, picks me up at the subway station in Hangzhou and drives me to our home base in Shenjiali. Our home base is right in front of the site. It looks very nice.

19:00

Members of the team have dinner with personnel from the site to thank for their coordination and contribution to the logistics of the project. Their dedication and hard work have made this project possible.

Day 12: July 14

9:00

Visit Xiaoshan Museum.

12:00

We receive the pre-excavation training in Xiaoshan Museum where Dr. Li Wei introduces us the online excavation system. It is an e-version field note-books where photographic records, drawing records and other e-version records will be submitted and stored.

He emphasizes the importance of the concept of “behavior” and “settlement (community)” in archaeology. Every context also represents a behavior or an action. For example, when you see deposits within a rubbish pit, you see an action of littering rubbish into that pit at the same time. That is also the reason why a pit and the deposit within that pit are two distinct entities: one denotes a digging action, while the other represents a littering behavior. Because of that, it is necessary to have two separate forms for documenting the context: one describing the pit itself (such as its shape), and the other recording the deposit within the pit (such as its color).

Note: Our context record forms encompass soil information, excavation methods, stratigraphic relationships, interpretation, and more. A stratigraphic matrix can be created based on the stratigraphic relationships between individual contexts to visualize

the stratigraphic relationships between all contexts on the site. Here is an example to illustrate stratigraphic relationships: Ho①–Ho–②. (Context ② is cut by ash pit Ho and deposit ① fills that pit.)

He also mentions that it is crucial to find the activity areas of houses and roads.

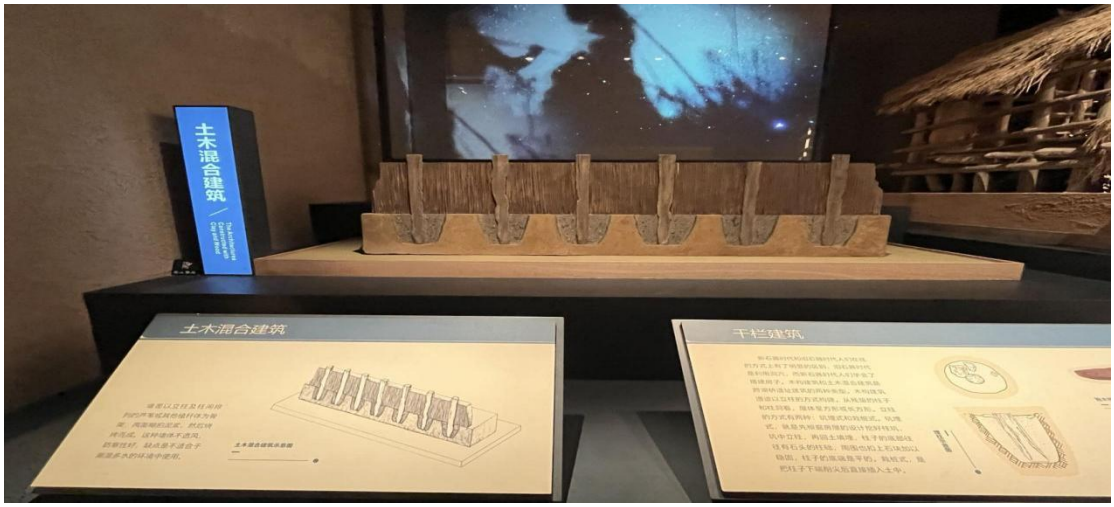
Day 13: July 15

9:00

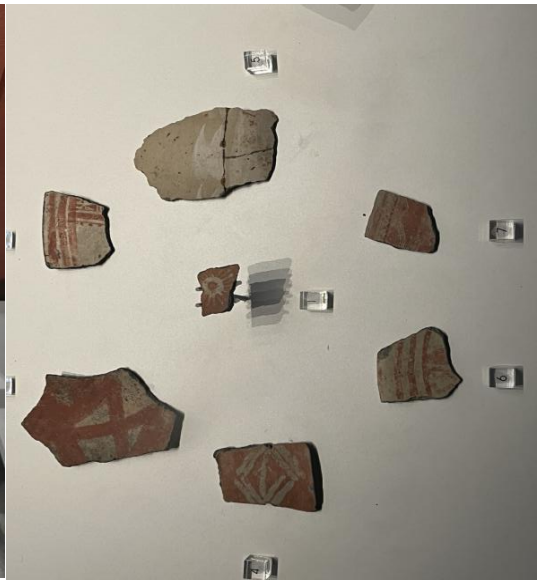
Visit Kuahuqiao site

A polished black pottery jar and a wooden adze handle.

The architectures constructed by clay and wood.



Painted jar with sun pattern



Day 14: July 16

9:00

Excavators and bulldozers arrive at the site to clear the topsoil and excavation tools are distributed to team members.

I get my excavation tools: a trowel, a spade and a mattock.

19:00

A group meeting is held at night to discuss our excavation schedule and our research interests.

Day 15: July 17

9:00

The director meets with us with latest excavation plan. Our field is confined by the road in the north, buildings in the south, two tunnels in the east and west. To avoid the collapse of surrounding area, we plan to start with an 5m*25m excavation area orientated northeast – southeast. The area is further separated into 5 unites. My excavation area is in the center of the field.

We are required to get familiar with the online excavation recording system after the meeting in the morning.

10:00

It rains heavily.

15:00

The excavation area is flooded due to the heavy rain. The excavation is postponed for the second time and we have to wait in the home base until the drainer arrives.

17:00

We set out to take aerial photographs. Nine markers are put on the ground.

Our specialist places RTK at the center of each marker to obtain their coordinates. Dr. Li Wei demonstrates how to use the drove to take photos. These markers will later serve as the reference points for the photos. The coordinates for each point on the photo can be calculated based on the coordinates of the markers.

For locations where markers are not accessible, detailed photos are taken. New references are selected. For instance, a bin with an unusual shape or a building with a colorful roof.

19:00

Meeting with the director at night. See below my meeting minutes.

1. Sampling requirements:

① Soil：2 bags
② Pollen, fossilized feces and phytolith：1 bag each
③ Human remains：coordinates required

2. Drawing records:

① Plans: required for each layer
② Sections: use thin strings and datum

3. Recording requirements:

① E-version
- Online system: 2 context record forms, excavation journal, scanned drawings, photos
- Personal computer: one folder for each context (2 context record form, scanned drawings, csv file of coordinates, photos)

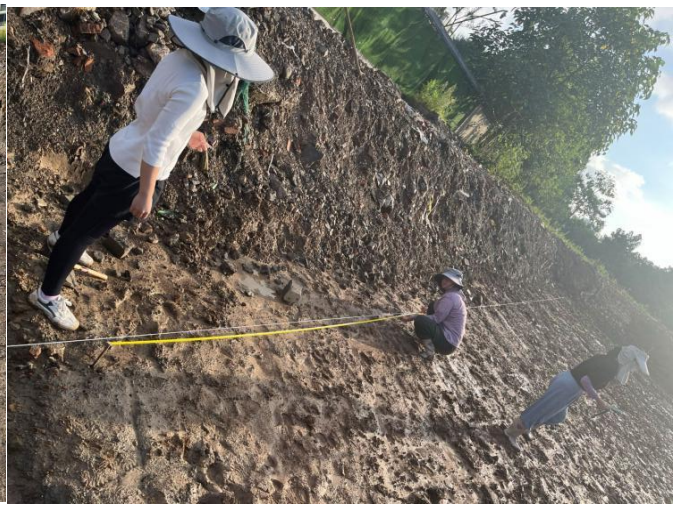
② Hard copy: printed excavation journals and record forms, drawings, printed coordinates

4. Our coordinates are based on CGCS2000 and WGS 84.

Day 16: July 18

6:00

Yesterday, we simulated a 5m x 25m excavation area on the computer and obtained simulated coordinates for its North-East, North-West, South-East, and South-West corners. Based on the coordinates, the first steel pole is installed in the northwest corner.

The coordinates of the pole's position are then calibrated using RTK with high precision.

The data displayed on the device required further adjustment since they are in the CGCS2000_3_Degree_GK_CM_120E system.

The second steel pole is put in the ground with a string attached between the first two poles. We then use the tape to recheck our coordinates by measuring the distance between the poles. If correct, the distance should be 5m. Likewise, two other steel poles are nailed on the ground.

An excavation area of 5m*25m is then being outlined with poles at the 4 corners, whose coordinates are calibrated by RTK.

A grid system of 5-meter squares is applied with unexcavated baulks between them. The baulks are located in the northeast and northwest areas of each unit and have a width of 1 meter. These strips serve as standing areas and will help us to establish the chronological sequence on the vertical sections.

Steel poles are put in the ground every 4m and 1m to mark the corners of unexcavated strips.

As a rocky surface stops us from putting the steel pole, we use white chalk powder instead to mark the position.

7:15

The grid is set up.

8:00

We organize a group of crew members to help us move the waste near the excavation area. (Warning: soil and waste dumped there will collapse and spill into the excavation area!)

9:00

A burial is found.

We go back to the home base to process data on the computer while other crew members will continue the work of moving the soil and rock in the surrounding area.

14:00

End the day after getting final RTK coordinates.

Day 17 July 19

6:00

It rained yesterday, and the excavation area became muddy. Crew members continued to clear the surface by moving stones and rocks in the northeast corner.

11:00

Because the photos taken on July 17 do not fit with each other well, we are informed by the director that we need to retake aerial photos using drove of higher resolution.

14:00

Our specialist comes to help us take aerial photos. Surrounding areas in the Northwest are cleared.

Day 18: July 20

6:00-14:00

One day off.

We gather at home base and read *Field Archaeology* by Drewett.

Day 19: July 21

6:00

Clear the surface in the northeast.

8:00

Shed installed. We start to clear the surface of each unit with the help of other crew members.

12:30-14:00

The excavation formally began in the afternoon. Starting from the northwest of the unit, an area of 1m*1m with depth of 15 cm was cleared.

One animal mandible, one human bone (ulnar/radius) and several potsherds were found in the first layer.

15:00

Potsherds are washed and stored in one bag.
Two bone samples are labeled and stored in two separate bags.

Day 20: July 22

6:00-14:00

Continue the work on the first layer.

The first layer with a depth of 10cm is cleared by the end of the day.

15:00

More than 20 pieces of potsherds of historical period are unearthed. Potsherds are washed and dried under the sun.

Day 21: July 23

6:00-11:00

We dig drainage ditches in the south of unit to get water drained and build a mini dam to protect the northern area of the unit.

A human bone is unearthed in the center of the unit.

13:00

The excavation is postponed by the rain.

14:00

The rain stops. The excavation area is flooded. We will fix the problem tomorrow.

Day 22: July 24

6:00-11:00

After the water is drained, the excavation continues. We use gypsum powder to demarcate the boundary of the unit.

Dr. Li Wei helps us to cut the edge of the unit.

12:00-14:00

The cut is further trimmed by chisel and trowel. The first layer is cleared.

14:15

After work, we visit the neighboring unit, where the excavators brief us on their excavation progress.

Stratigraphic layers outlined.

15:00

Wash potsherds unearthed today.

Day 23: July 25

6:00

Use RTK to get the coordination of the human bone.

6:15-9:00

Get the water in the southeast area of my excavation area drained and continue the work of trimming the edge of the unit.

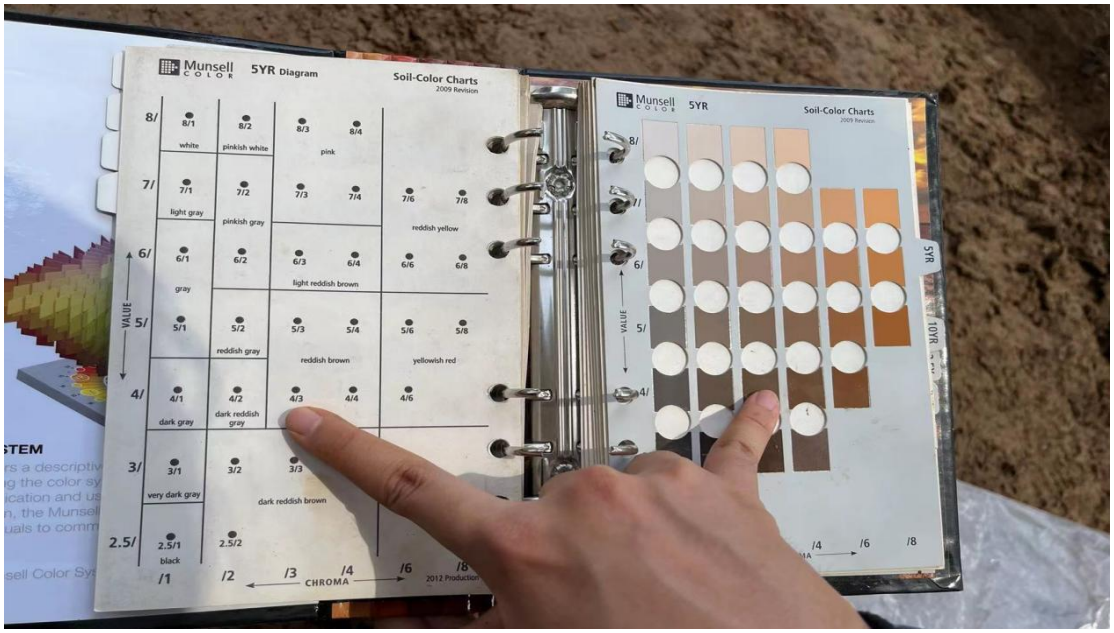

9:00-10:50

A row of bricks is found in the northeast of the unit. This might be part of a house. In addition, several ceramic sherds are excavated in the surrounding area.

A new layer is identified in the southwest, distinguished by a distinct color variation and an abundance of potsherds.

10:50

Analyze the soil color using Munsell Soil Color Book.



12:00-14:00

A ceramic specialist is invited to our site to assist in dating the sherd.

15:00-16:00

Wash potsherds.

Day 24: July 26

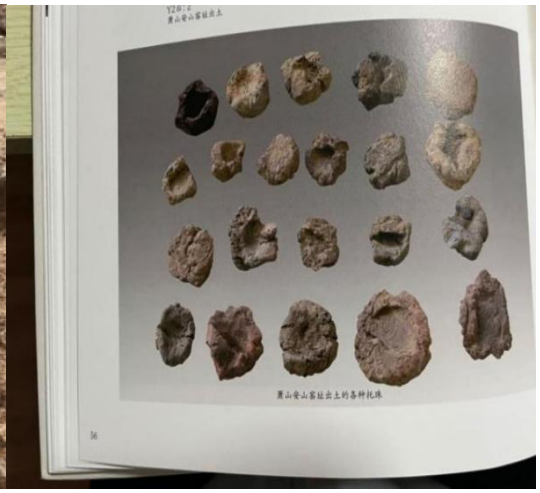
6:00-9:30

Continue the work in the southeast corner. A new layer of beige soil is identified.

A *Ben* (stone) is unearthed. We take photos of the *Ben* and record its coordination.

10:00-13:30

Proceed with the task of identifying the boundary of the feature. A tool used in firing ceramics is unearthed in the southeast. We find similar objects from an illustration in the book *Among the Ceramics* (陶瓷之间）.



13:45

Dr. Li Wei helps to determine the physical relationship of an ash pit and the layer surrounding it by selecting a test area, and excavating it to a depth of inches below the ground.

14:00

A field director visits our site to provide guidance on excavation.

15:00-16:00

Wash potsherds.

18:00-22:00

Each sample is carefully bagged and labeled. We visit the library to search for any records related to the pottery's curve pattern that we discovered yesterday.

Day 25: July 27

6:00-9:30

Remove the tibia and extract the soil beside the bone. The tibia is well preserved.

9:30-11:00

We start the work on the brick-chambered tomb. Dr. Li Wei helps us to identify the boundary of the tomb by seeking for the location where the bricks meet and checking whether there is any change in the contents of the layer.


Photographic records are taken by drove.

A photo of me and my partner: remove the broken bricks within the burial.

We spot fossilized feces of dung beetle in the peripheral area of the burial.

12:00

Drink wine during lunch to show respect to the deceased, a tradition among Chinese excavators when they first excavate a tomb.

13:00-14:00

The tomb is much longer than our expectation. More bricks are unearthed outside the lined burial area. We will continue the work tomorrow.

14:15

Visit other units to check their progress.

15:00

Wash potsherds.

Day 26: July 28

6:00-9:30

One day off due to typhoon. I study the material we collected since July 19 and try to figure out the physical relationship between layers.

Dry ball shaped soil v.s. Wet plastic soil

Day 27: July 29

6:00-9:30

One day off due to typhoon. Take the lecture on Majiabang Culture at Xiaoshan Museum.

Day 28: July 30

6:00-7:30

The excavation area is flooded. A drainage machine is employed to pump the unit dry.

7:30-11:00

Continue the work on the tomb. We have to remove the east baulk because part of the

tomb is buried under the baulk.

Various artifacts are unearthed in near the tomb.

14:00

All brick walls of the tomb are identified.

15:00

Wash potsherds.

Day 29: July 31

6:00-7:30

Work on the tomb and remove soil in the surrounding area.

13:30

A ceramic bowl is found. We collect the bowl carefully after using RTK to get its coordinates.

14:00-17:00

Wash potsherds.

Day 30: Aug 1

6:00-11:00

We have to postpone the work to tomorrow due to heavy rain.

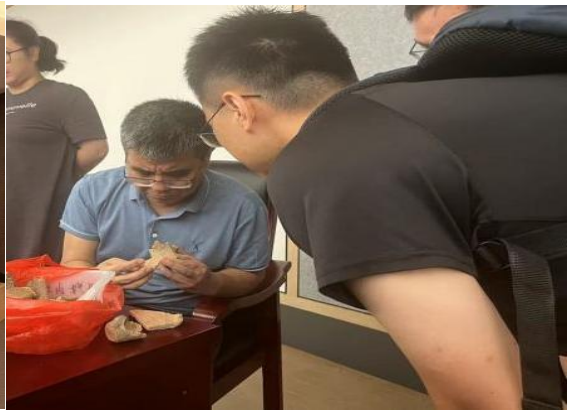
12:00-14:00

Wash potsherds.

14:30-17:00

Take the lecture on Kuahuqiao Culture at Xiaoshan Museum.

Mr. Jiang Leping, the leader of the second and third excavation of Kuahuqiao site, delivers the lecture and helps to date the artifacts from Ma'anshan site which is recently excavated by Dr. Li Wei.



Day 31: Aug 2

6:00-9:00

Continue to clear the soil off the tomb.

9:15

Work completed. Use RTK to get coordinates of the four corners of the tomb and take photo records.

Note: Ensure that the bubble is positioned in the center of the glass bubble level while using RTK.

10:00

Attention! Dr. Li Wei notices that the soil on the northeast side of the tomb is NOT cleared. Lesson learnt.

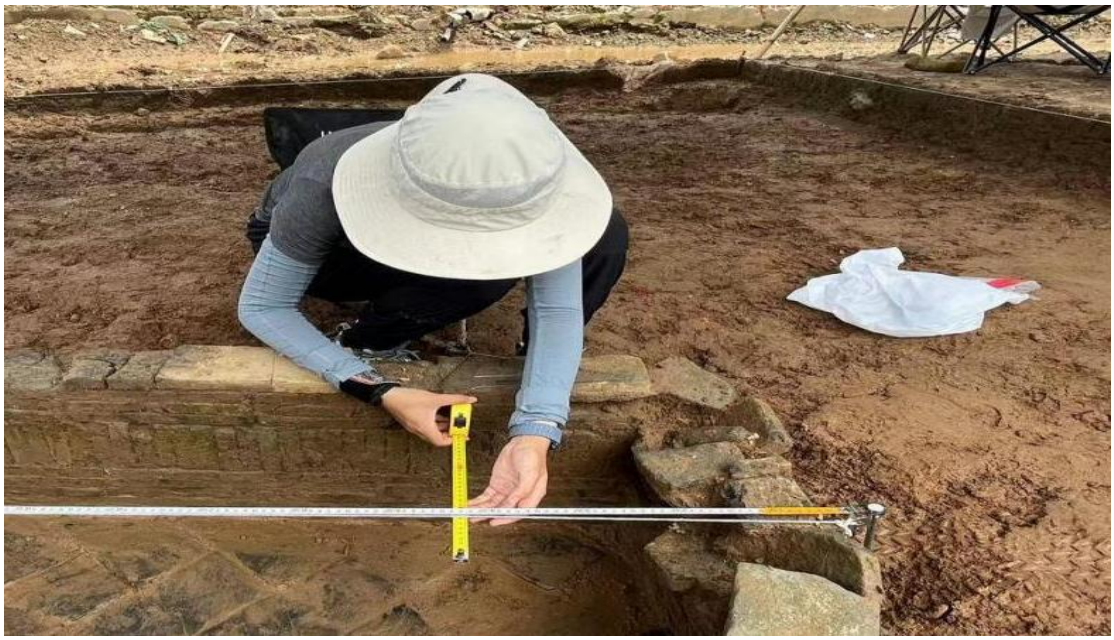
Continue the work on the tomb.

10:45

Work on northeast side completed.

12:30

Take drawing records of the tomb.
(1) Nail down two nails
(2) Tie a thin string to nails and pull tight along the section to be measured
(3) Level the string using a line level hung on the string
(4) Fix the measuring tape to nails, above and parallel to the string
(5) Read the measurements (horizontal and vertical distance from the string)



14:00

Weekly meeting.

Day 32: Aug 3

6:00-11:00

Continue to take drawing records of the tomb.

12:30-14:00

Remove the tomb bricks one by one and inspect them for any visible patterns or markings.


14:00-17:00

Wash potsherds.

18:00-22:00

Complete e-version drawing record on CDR.

Day 33: Aug 4

6:00-11:00

Sampling soil between tomb bricks for bonding agent test.

11:00

The tomb is completely removed. Extend the length of borders of the tomb area by 10 cm and clear soil within to minimize the soil disturbance to other area.

13:00

Level the ground and identify physical relationship between layers.

17:00-21:00

Proceed the subsequent work of drawing section records of the tomb.

Day 34: Aug 5

6:00-11:00

Identify physical relationship between layers.

13:00-14:00

Go to check our adjacent unit's layers and compare layers in two units. We aim to integrate our layers into theirs.

14:30-16:00

Wash potsherds.

18:00-21:00

Section drawing of the tomb at a scale of 1:20.

Day 35: Aug 6

6:00-14:00

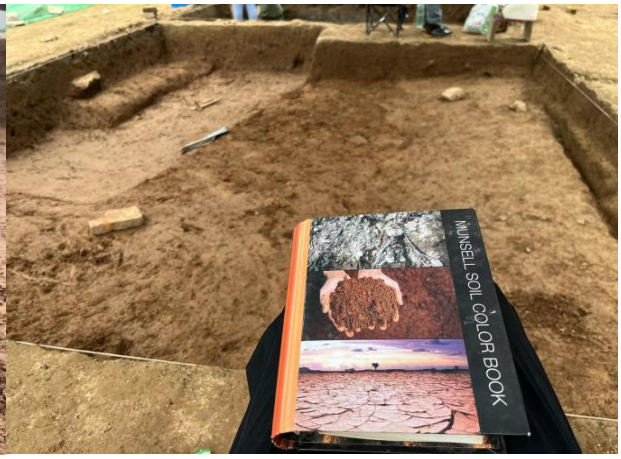
Remove the soil down to the ground by 5 cm to uncover stones.

Record coordinates of each stone using RTK.

Day 36: Aug 7

6:00-14:00

Remove the soil down to the ground by 5 cm to uncover stones. Record coordinates of each stone using RTK and record soil color using Munsel Soil Color Book.



14:30-15:30

Wash potsherds.

16:00-21:00

Draw front view map of the tomb on corelDRAW.

Day 37: Aug 8

6:00-14:00

Labeling and taking records.

Day 38: Aug 9

6:00-11:00

Keep removing the soil down to the ground by 5 cm to uncover stones. Each stone is sampled with coordinates recorded in RTK.

12:00-13:40

Take soil samples under the guidance of Dr. Li Wei.

13:40-14:00

Group meeting on site to brief this week's work

14:30-15:30

Wash potsherds.

Day 39: Aug 10

6:00-11:00

Soil removed are dried and sieved to remove the coarse components.

Keep removing the soil down to the ground by 5 cm to uncover stones. Each stone is sampled with coordinates recorded in RTK.

12:30-14:00

Take a group photo before my partner leaves the site today.

I will be taking charge of the unit for the upcoming week. As part of my duties, I will provide on-site training to workers, ensuring they have the necessary skills to assist me in efficiently carrying out our work.

14:30-15:30

Wash potsherds.

17:00

Get soil sample labeled and complete online record forms.

Day 40: Aug 11

6:00-14:00

Dr. Li Wei helps to adjust my stratigraphic matrix.

Keep removing the soil down to the ground by 5 cm to uncover stones. Each stone is sampled with coordinates recorded in RTK. The removed soil is then dried and sieved to eliminate the coarse components.

14:30-15:30

Wash potsherds.

Day 41: Aug 12

6:00-14:00

Continue to remove the soil of down to the ground by 5 cm to uncover stones. Each stone is sampled with coordinates recorded in RTK. Soil removed are dried and sieved to remove the coarse components.

More data is to be collected in the following days.

14:30-15:30

Wash potsherds.

Day 42: Aug 13

6:00-7:00

A set of three stones are found in the northeast corner of the unit, which might indicate two possible operational sequence :

1. 1 raw material→2 semi-finished product→3 finished product
2. 2 semi-finished product→(3 finished product + 1 remainder)

7:00

A digger is hired to remove soil and debris from the site.

7:00-11:00

Continue to remove the soil down to the ground by 5 cm to uncover stones. Each stone is sampled with coordinates recorded in RTK. Soil removed are dried and sieved to remove the coarse components.

12:30-14:00

Remove the moss from the walls of the unit.

14:30-15:30

Wash potsherds.

Day 43: Aug 14

6:00-11:00

Continue to remove the soil down to the ground by 5 cm to uncover stones. Each stone is sampled with coordinates recorded in RTK. Soil removed are dried and sieved to remove the coarse components.

12:00-14:00

Part of the east baulk is removed to determine the stratigraphic relationship.


8:30-14:00

A new feature is identified. We will focus on finding stoneware within the feature tomorrow.

Day 44: Aug 15

6:00-14:00

Level the ground and take aerial photo of the new feature.

Day 45: Aug 16

One day off.

Day 46: Aug 17

Remove the east baulk of the unit and take stone samples.

Day 47: Aug 18

Take stone samples.

Day 48: Aug 19

Take stone samples.

Day 49: Aug 20

Take stone samples.