

IMTO – Italian Mission to Oman

University of Pisa

SUMHURAM

Preliminary Report

November – December 2013 (SUM13C)



PRELIMINARY REPORT (SUM13C)

November - December 2013

The last IMTO's campaign of 2013 (SUM13C), under the direction of prof. A. Avanzini, started on 2nd November and finished on 19th December 2013.

Excavation was performed in different areas with different goals.

In Area A, Eastern part (see map), excavation of the street A113 continued to the South in order to understand the layout of the residential quarter and also to allow the passage of tourists through the ancient buildings, walking on the ancient streets.

Again in Area A, Eastern part, the old path for the passage of the tourists was removed and three new rooms have been excavated, South of building BA6.

In Area B the goal was to understand the stratigraphic relation between the storage quarter, in this case the western most storage room, A207 (excavated in SUM13B), with the layers below the late building BB3. For this reason part of the walls of the late building were removed and the layers underneath exposed. In the same area excavation continued North of BB3, room A208, with the removal of the debris from AFSM excavation in 1952.

Also in Area B excavation continued in room A178.

Further more in Area B two of the northern storage rooms were cleared of the debris accumulated since their excavation in 1998.

In Area F three different operations took place. A deep sounding in the Square A20 in front of the Temple was aimed at the understanding of the early phases of this part of the town. Deep structures were unearthed, antedating the construction of the temple. A second goal in this area was to begin to understand the dating and the nature of the so-called Monumental Building 2, the massive structure lying East the city wall. Excavation was performed outside the western wall of the building, in street A43, reaching in a deep sounding layers beneath the level of the square A20. The excavation started also inside the building with removal of the massive collapse of the large limestone blocks fallen from the walls of the building itself.

The excavations were conducted on the field by dr. Vittoria Buffa, dr. Chiara Condoluci, dr. Alexia Pavan, Mr. Said al Mashani and Mr. Said al Amri, with senior students Giulia Buono and Cleto Carbonara. Dr. P. J Cherian, Director of the Kerala Council for Historical Research (KCHR), was guest of IMTO and carried out the excavation in room A178.

Arch. Alessandro Massa was responsible for the updating of the tourist paths and of the panels.

Arch. Simona Rossi was responsible of the architectural survey, the CAD digitalization and the updating of the plans of the city.

The restoration activities have been carried out at the city walls (dismantling and rebuilding of the walls M14, M220 and M221 at the north side, rising up of the tower M4 at the main Entry), restoration of the walls M3, M12, M11 at the north side, and some other restoration works as indicated in the technical report section.

The restoration of the walls M14, M220, M221 and M25 can be considered a huge intervention that involved the dismantling, the reconstruction and the rising up of the walls.

The restoration and consolidation of ancient masonry structures has been done under the coordination of arch. Valter Filatondi.

The work of IMTO has been possible thanks to the collaboration of the Office of the Adviser of His Majesty the Sultan for Cultural Affairs in Salalah and in Muscat, in particular Ghanem al

Shanfari, Said al Mashani, Ali al Kathiri, Said al Amri, Said al Salmi, Hassan al Jabri. We thank them all, together with all the Museum's team, for their kind helpfulness.

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Archaeological Report

Excavation in Area A, square I-11/12, Street A113 (trench supervisor: Cleto Carbonara)

The street A113, in Area A, has been the subject of previous archaeological investigations. The area has been first excavated by the American mission (AFSM) and then in three campaigns of Italian Mission to Oman (IMTO), SUM10C, SUM11A, and SUM11C.

The excavations in the street A113 during the SUM13C campaign started in 4th of November 2013 with the aim to continue to investigate the street A113 southward. From the section left in the previous campaigns between the two walls M484 to West and M563 to East, four layers from the level of the street A113 (29.10) have been recognized: US 458, US 469, US 508, US 516.

The superior two layers, US 458 and US 469, has been partially excavated in the previous campaigns, in effect the floor of the US 469 (US 469 floor) was already partially unearthed in the northern part of the area. The US 458, East of M484 and South of M563, to the elevation of 31.47, is an accumulation layer with a loam composition, a sandy consistence and light brown in colour. In it there is a very large amount of sandstone blocks and slabs. At the inferior elevation of 30.64 the US 458 shows a more compact consistence (US 458 floor), with several traces of ashes in the zone South of M608. The layer returned a good amount of pottery, specially fragments of storage vessels, two stone tools, a whet stone (S2376) and a game piece (S2377), a large amount of animal bones, a complete Tutufa Bardeyi shell (Sh 523) and several fragmentary shells. Also some iron scraps has been found.

The layer below US458, the US469, found at the elevation of 30.64 m, is an accumulation layer with a loam composition, a sandy consistence and reddish brown in colour. The layer shows a slope from West to East that in the North-East corner reaches 20 cm. During the excavation the presence of several limestone and sandstone blocks and slabs, medium and small in size, and several charcoal fragments have been noted. The lower part the layer shows the consistence of an earth packed soil grayish brown in colour (US 469 floor). US 469 has returned a few fragments of pottery (storage and table vessels), a carnelian bead (S2297), an iron fishing hook (MI219), and several animal bones and fragmentary shells. Covered by US 469, East of the southern end of M484, there is a large amount of blocks in limestone and sandstone which has been interpreted as the collapse of M484. The collapse rests on the level of US 469 floor.

At the elevation of 30.08, the layer below US 469 is US 508. This is an accumulation layer with a loam composition and grayish brown in colour. In the upper part US 508 shows a very compact consistence, while in the lower part the consistence becomes looser. There is a large amount of limestone and sandstone blocks small in size, at its inside. The layer has a slight slope from North-West to South-East. A large presence of charcoal has not been registered, but there are several traces of burnt ground along M484 in the northern part. Several iron scraps along M484 and a large amount of animal bones and shells for the whole surface of the layer have been found. US 508 has returned a quantity of pottery fragments including storage vessels (5 amphorae), table vessels (9 glazed) and kitchen vessels. In the pottery assemblage one shard shows traces of purple and another traces of iron. Two stone objects (mortar S2329 and pendant S2397), two bronze coins (Co 832-Co 836), three fragments of soft-stone vessels (S2394-S2395-S2396), and two bronze objects (MB 820-MB 822) were recovered.

The US 516, below US 508, consists of reddish brown loam. It has excavated down to the elevation of 29.48m. At this elevation, at the bottom of the wall M563, there is a row of limestone blocks medium in size, oriented NE-SW that probably could be a threshold.

The excavations in street A113 during the SUM13C campaign have led to the discovery of the whole structure of the stairway that from A113 leads to the entrance of the BB2. The four limestone steps had already been uncovered previously, but now the stairway appears to be supported by a wall on its western side. This wall (l. 342 cm; w. 54 cm; h. 110 cm.), oriented NE-

SW, is made of limestone blocks small, medium and big in size. Seven rows of stones are visible and the higher one is composed of blocks arranged as to cover the entire width of the wall.



Street A113 before excavation from South



Street A113 after excavation from South

M614: Area A, square I-13, room A115

The removal of the remaining part of US 534 and US 547, between the walls M538 and M373, partially excavated in the previous campaigns SUM11C and SUM12C, led to the identification of the stairway M614.

M614 is composed of five steps. The higher one, to the elevation of 30.47 is made of two stones: one block rectangular shaped of sandstone (l. 78 cm; w. 23 cm.) and one block of limestone with an irregular shape (l. 18 cm; w. 26 cm.). The step is high 16 cm.

The second step, to the elevation of 30.31, is made of two stones: one block rectangular shaped of sandstone (l. 70 cm; w. 30 cm.) and one block with an irregular shape of limestone (l. 19 cm; w. 26 cm.). The step is high 19 cm.

The third step, to the elevation of 30.12, is made of only one block rectangular shaped of sandstone long 91 cm and wide 26 cm. The step is high 19 cm.

The fourth step, to the elevation of 29.93, is made of only one block rectangular shaped of sandstone long 89 cm and wide 27 cm. The step is high 33 cm.

The fifth step, is made of two stones: one rectangular shaped block of sandstone (l. 87 cm; w. 25 cm.) and a squared block of sandstone (l. 27 cm; w. 26 cm.). The step is high 18 cm.

The first three steps were covered by US 534, an accumulation layer of reddish brown loam with a consistence rather loose. The layer has returned a fragment of soft-stone bowl (S2416). The fourth step was covered by US 547, an accumulation layer of reddish brown loam with a crumbled consistence and traces of ash. The layer has returned a small bronze finger-ring (MB800). The fifth step was already uncovered during the previous campaigns and rests on the level of 29.42.



M614 during excavation



M614 after excavation

Excavations in area A: building BA15 (Trench supervisors: Giulia Buono, Vittoria Buffa)

During the SUM13C season, excavation at the Area A has been conducted and the new building BA15 was brought to light. It is located in the southern part of area A, eastern part, to the east of the building BA12.

Surface

The excavation started with the removal of the tourist path. A section 1.2 m wide was held close to the wall M518. Underneath the surface, US619 covered the entire building. It was made of sand and stones (medium and big in size), medium compact in consistence and light brown in color. The layer, in the upper part, was cut by a large fireplace (US622), maybe belonging to the occasional use of the city after the abandonment. A lot of animal bones (including 3 wheel vertebrae) and shells and pottery shards (21 glazed) were collected from US619. Traces of burnt were present especially in the north-western part of the trench. Scattered traces of US619 floor were found all over the area at an elevation ranging from 30.97 to 30.85. The floor was made of hard packed soil with white inclusions and it was brownish-gray in color. A fireplace cut the floor near M610. In the layer the following findings were discovered: fragments of soft-stone vessels (S2287, S2288), a *Tutufa Bardeyi* shell (Sh503), three *Chlamys Townsendi* shells used as oil lamp (Sh504), a bronze strip (MB788), a bronze pin (MB791), a bronze stick (MB797), two beads (S2289, S2387), a grinding stone (S2290), a fragment of inscribed stela with incised three Ancient South Arabian letters (S2291), six whetstones (S2293, S2354, S2355, S2356, S2357, S2358), a fragment of bronze plaque (MB792), two mortars (S2311, S2340, S2366), four hammer stones (S2311, S2312, S2359, S2361), a fragment of an offering table (S2332) and one handstone (S2360).



Area A before excavation from the South

The building BA15 consist of several rooms of which four have been excavated. Two rooms remain unexcavated, the first one in the north-eastern part of the trench, to north of M610 that is partly hidden by the section and the second one to the south west of the compound. At the present moment it covers a surface of 5.85x8.60 m and it is composed of a central corridor and two rooms on both

sides of it. The entrance to building is located on wall M621 that will be object of excavation during the next campaign.

Room A210

The room A210, that covers a surface of 3.50x2.05 m is defined by the walls M610 to the north, M484 to the east, M608 and M612 to the south and M609 to west. The walls are made of dressed limestone blocks and were plastered; on M484 a window is visible (height from US619 floor 1.2 m).

Under US619 floor the deposit US636 was excavated. US636 was a layer made of very loose loam, soft in consistence and light brown in color. At an elevation of 30.02 some stone of medium size were found in the layer. The findings are the peculiarity of it: a large variety of shells were collected, such as *Chlamys Townsendi* shells used as oil lamps with remains of burnt material (Sh516, Sh517, Sh538), *Tutufa Bardeyi* shells (Sh518, Sh519, Sh527), *Anadara* shells (the mussel was generally eaten) and the *Oliva bulbosa* type that, in according with B. Wilkens could be used as weights for nets or as beads. In the layer were found also four whetstones (S2368, S2369, S2370, S2371), a pestle (S2372), some fragments of stone vessels (S2412, S2413, S2415), an incense burner (S2414), some stone weights (S2417), two hooks (MI214, MB821), a fragment of bronze plaque (MB799), a bone stick (D35) and beads made of glass and shell (G198, Sh524, Sh525).

The floor was reached at an elevation of 29.45 and it is made of hard packed soil in the central part of the room A210. In the eastern part of the room there is the plaster that covers a surface 0.80 cm wide. This plaster is lining a depression and it covered a row of limestone blocks delimiting the depression. In the remaining part of the room the plaster is preserved only in front of threshold that was connecting the room to central corridor (threshold elevation 29.50). US636 was left *in situ*.



Shells from US636



A210, US636 floor

Room A211

The room A211 is much smaller in size and it covers a surface of 1.70x1.40 m; it is defined by the walls M612 to the north, M613 to the east, M621 to the south and M623 to the West. The walls are made of roughly dressed limestone blocks and they were plastered. On M621 a window is present (height from US642 floor 1.1 m).

Underneath the superficial deposit US619, the deposit US642 was excavated. The layer was made of loam, brownish in color and medium compact in consistence. Some bones and shells, including four *Tutufa Bardeyi* shells (Sh528, Sh529, Sh530, Sh531), pottery shards, two mortars (S2388, S2409), two handstone (S2389, S2407), a whetstone (S2408), a stopper (S2410) and an incense burner (S2411) were collected.

The floor was reached at an elevation of 29.40 and it consists in hard packed soil with white inclusions and charcoals due to the remains of a fireplace. On the floor a row of three stone with an east-west orientation is still in situ. A threshold (threshold elevation 29.54) was connecting the room to central corridor A212.

Room A209

The room A209, that covers a surface of 3.40x1.75 m, is delimited by the walls M606 to the east, M607 to the south and M620 to west. The northern wall lies under the section . The wall M620 is made of roughly dressed limestone blocks and it has a window at 1.2 m height from US643 floor, while the walls M606 and M607 are built with small limestone blocks, sandstone slabs and mudbricks. All walls were plastered.

In room A209, under the surface US619, the deposit US643 consisted of loam, very compact in consistence and brown in color, with some stone of medium size. In the deposit, at about 40 cm above the floor a bronze plaque of 29x33 cm (MB823) with an Ancient South Arabian inscription was discovered.

The floor was reached at an elevation of 29.32 m and it is made of sandstone slabs covered by a thick layer of plaster leaning on the southern wall M607. On the floor near M606 three postholes (diam. 10 cm) indicate the wooden support for the first floor of the building. Moreover a well dressed limestone block of 0.45x0.30 m was found on the floor, leaning on wall M607. The floor was left *in situ*. Also in this room the threshold (threshold elevation 29.36) was connecting the room to central corridor A212.

In the layer the following findings were brought to light: the bronze plaque with inscription (MB823), a bronze mirror (MB804), six beads of different materials (Sh535, Sh536, Sh537, Sh640, D36, MB824), one oil lamp (Sh539), two whetstone (S2399, S2428), a weight (S2400), an handstone (S2424), one pressing stone (S2427) and a mortar (S2426).



A209, US643 floor from the South



The bronze plaque emerging from US643

Room A212

The central corridor that covers a surface of 4.75x1.90 m is defined by the walls M609 to the east, M621 to the south and M606 to the west. The northern wall lies under the section. Under the superficial layer US619, US672 was a layer made of loam and few stones of medium and small size, light brown in color and medium compact in consistence. Some bones and shells and pottery shards (9 glazed) were collected. In the layer a oil lamp (Sh506), some stone tools (S2298, S2327, S2351, S2352, S2353, S2363, S2393), some bronze objects as needle or rivet (MB793, MB794, MB795), a fragment of bronze vessel (MB801), *Tutufa Bardeyi* shell (Sh514), a mortar (S2365), two weights (S2378, MB807) and a glass bead (G199) were found.

The floor was reached at an elevation of 29.22 and it was made of hard packed loam, gray in color with white inclusions. At the northern end of the corridor a staircase made of four well dressed sandstone block was unearthed (0.85x0.25x0.15 m); it was supported by a wall made of limestone blocks. On the floor two rows of squared blocks are placed between M606 and the staircase M615. In front of the staircase the US627 floor was removed to check the base of the staircase. Four more steps were found below the US627 floor. All the US627 was then removed excavating US646. The layer was made of loam, very compact in consistence and brown in color. A few pottery shards and bones and one coin with owl image (the coin Co838 was discovered on the floor) were found in the layer. The lower floor in the room, US646 floor, was reached at an elevation of 28.65 and it is an hard packed soil, brownish gray in color with white inclusions.

This early phase of the building was excavated only in the corridor, but two thresholds at this level mark the entrance to rooms A209 and A210.

In the southern part of the trench two sandstones slabs mark the entrance to the unexcavated room and they were set on the US646 floor.



A212,US646floor



Area A, BA15 from the South after excavation

Preliminary observations

Two constructional phase are attested in building BA15. The early one, unearthed only in the corridor A212, has a floor at an elevation roughly comparable with the floors of rooms in buildings BA4 and BA5. In the later phase the rooms have floors set at elevations very similar to the one on the street A113, US526floor, equal to US22floor in street A45.

Excavation in Area B, room A178 (trench supervisor: P. J Cherian)

During the SUM13C campaign the continuation to the SE of room A178, excavated in SUM13A, was carried out. US235 was removed. Several fragments of pottery were recovered. The following objects were found in the US235: 5 whetstones (S2307, S2313, S2316, S2320, S2321), a mortar (S2317), one hammerstone (S2318), one handstone (S2314), two pestles (S2319, S2323), two polishers (S2322, S2324), one spindle-whorl (S2305), one loom weight (S2306), one iron hook (MI213) and one coin (Co823).

Under US235, US236 has been excavated. Few pottery shards were found in the layer. An incense burner (S2299), a mortar (S2300), and a strombus shell (Sh509) were recovered.

US237 was excavated below US236. Few pottery shards with an oil lamp (Sh512) and a game piece (S2315) were found.

US564 was excavated below US237. Only few pottery fragments were found.

A wall (still unnumbered) runs from S to N , partly closing the room, leaving only one opening toward M245.



A178 before SUM13C excavation



Room A178 after excavation, US564 floor

Excavation in Area B, squares n-10, o-10/11 (trench supervisor : Vittoria Buffa)

Part of the area in question had been excavated by F. Albright, AFSM, in 1952. During the SUM13A campaign part of building BB3 had been excavated, leaving a part not excavated (for section) in room A203 . It became clear that the building belonged to a late phase, built on top of earlier structures. This was confirmed during the SUM13B campaign, when the outer eastern part of the building was excavated while digging the storage room A207. During this campaign it was then decided to investigate the structures on which BB3 stood. Prior to this operation, the strata left *in situ* in room A203 were to be excavated.

Building BB3, room A203



Building BB3, room A203 before SUM13C excavation

Excavation started with the removal of US562, the most superficial layer in the room. US562 consisted of loose brown loam, incorporating a number of sandstone slabs. The US became crumbled under the surface. Six whale vertebrae were found in the deposit, making the total number of 10 vertebrae in US562 in the room. Only 5 fragments of pottery were recovered. Two mortars (S2328, S2364) and one whetstone (S2338) were found. Some fragments of mother of pearl shell found in the layer can be interpreted as raw material for making beads or pendants.

Under US562 the US565 was excavated. US565 consisted in brown grayish loam. To the NW, near wall M587 an area of fire was indicated by ashes and charcoals. A staircase (M605) leading to the 1st floor was set on the corner formed by M587 and M572. It was made of large limestone blocks.



Staircase M605 in room A203

A whale vertebra was placed slightly above the US565 floor. Very few fragments of pottery were found in the US. Among the small finds: one mortar (S2367), a whetstone (S2373), a pressing stone (S2405), an iron nail (MI815), a shell pendant (Sh526), a gem stone for ring (S2386), a small bronze cup, or ladle (MB817) and an oil lamp (Sh513).



Room A203 after excavation

To check the assumption that some of the walls of A203 were indeed late ones, one sounding was made below US565 floor along M588 and another one in the corner M577/M587. The soil recovered

was marked US633. Only few pottery shards were found. The soundings confirmed that M577 and M587 were built for room A203, while M588 belonged to an earlier phase and was used as the southern wall of room A203.

Excavation in squares o-10/11, new room A213

During the SUM13B campaign, while excavating the storage room A207, the superficial layers that covered the storage room after its abandonment were investigated. It became clear that walls M590 and M589 were built for the construction of building BB3. M589 prevented the erosion of the ground eastward, M590 was a semicircular wall that was built to reinforce the eastern wall of building BB3. Similar structures are known from other parts of the city (see Preliminary Report SUM13B).



Room A203 and North western part of storage room A207

To investigate the earlier phase in the area below building BB3, part of the US565 floor of the room A203 was removed. Also the NE part of M577 was removed. In wall M577 one bronze pin (MB813) and one bronze cosmetic stick (MB816) were found. About half of the deposit in the room A203, in the southern part, was left *in situ* (for section). At the same time the corresponding part of M589 was removed.



Area below room A203

The stratigraphic sequence unearthed shows a series of successive layers that can be partially correlated with the ones excavated on top of the storage room A207 in SUM13B campaign.

Excavating US582 between walls M589 and M590, the head of a bronze figurine (MB798) and a bronze ring (MB826) were recovered.

Under US565 floor of former room A203, US639 has been excavated. It consisted of grayish brown loam, loose in some parts and rather hard packed in others. US639 was covering wall M611, visible in the section SUM13B, leaning to the West to wall M169, the northern wall of A207. The foundation of wall M577 was visible in the section, cutting US639. Three oil lamps (Sh541), a shell pendant (Sh544), agatha fragment (S2421), two fragments of soft stone vessels (S2422, S2423) were recovered. US639 can be considered a layer associated with a scattered frequentation of the area (before the construction of BB3) for the presence of pottery, and animal bones at least to the West of the foundation of M577. Several fragments of mud-bricks scattered in the layer show that it did not represent a continuous occupation. US639 can be considered equal to US583 (see Preliminary Report SUM13B). A new wall M618, made of limestone blocks, was covered by US639. It is running West East and has a door 1 m wide. Its eastern stretch is tied to wall M611. The room defined by walls M611, M618 and M572 has been numbered A213.

Under US639, US641 has been excavated. It consisted in reddish brown loam, becoming dark reddish, loose underneath. It incorporates again some fragments of mud-bricks. IN US641 around one hundred pottery fragments, mainly storage vessels, among them amphorae, fragment of a bronze plaque (MB814), an iron nail (MI218), and two oil lamps (Sh542) were found. Excavation stopped at an hard surface, a kind of floor, (elevation 29.58 m) that needs further investigation.

Since the continuation of wall M611 to the South was not visible on the “floor” of US641, a sounding next to the section was made. Under 20 cm of a layer (still unnumbered) the continuation of the wall to the South was unearthed.

It must be noted that US639 and US641 are sloping eastward (as already noticed in SUM13B for US582 and the layers underneath) under M589, but they have an higher elevation in the area

between M589 and M590, and then sloping westward (se section). It is not clear yet if this fact is to be put in relation with the presence of walls M591 and M611 underneath.



New room A213



Wall M611 in the sounding

Excavation in square n-10, room A208, structures A214 and A215

Excavation continued during this campaign in the area W of square A74, NW of building BB3 where some structures were found during the SUM13A campaign. The trench has been extended to the NW and to the NE.

As already mentioned, the area have been excavated by the Albright in 1952. Different factors make the excavation and the comprehension of the structures present quite difficult: lack of precise documentation of AFSM excavation, cutting of walls by AFSM, collapses after the AFSM digging, further collapses after a superficial clearing of blocks for mapping by IMTO in previous campaigns.

The structures unearthed during this campaign will be described, awaiting further excavation, mainly to the NW, that hopefully will clarify the situation.

The area showed a massive presence of limestone blocks, sandstones slabs and small blocks. The deposits unearthed have been divided in two different stratigraphic units, in the hope of being able to distinguish between modern collapses and dumps from AFSM digging (US571) and ancient collapses and layers (US640). In fact the division does not correspond most probably in total to reality. In any case the most superficial layer US571 was recorded in all the area, while US640 was named the deposit inside a room, A208, (see below) of which three walls have been exposed.

US571

As mentioned above, since starting excavation in this area during the SUM13A campaign, US571 has been named the collapse considered “modern”. During the SUM13C campaign US571 has been removed in the NW and the NE extension of the trench. The wall M586 continued to the N, making an angle with a new wall M604. In the NW corner of the trench several limestone blocks were present on the surface and in US571.

In US571 we found: few pottery fragments, a mortar (S2374), a rubbing stone (S2375), an iron javelin point (MI217), a bronze ring (MB818), a coin (Co833), two shell beads (Sh543, Sh545), a clay bead (Cl57), a fragment of a glass vessel (G202), and a semi-worked bone (D37).

Room A208



Room A208

Digging US571 the walls delimiting the room A208 to the North, M604, to the East M586 and to the South M622 were unearthed. A portion of the room to the NW lies under the section. The walls M586 and M604 are made of sandstone slabs and stones. M622 is made of limestone blocks. The entrance to the room is from the eastern side with a door 1.20 m wide in wall M586. Another wall runs NE-SW inside the room, M619. It is made of limestone blocks. It is not yet clear if M619 and M622 are contemporary to the other walls delimiting the room, or if they belong to an earlier phase, as it would seem more probable. In the first hypothesis A208 would be in fact divided in two rooms.

In A208 US640 has been excavated down to the elevation of 29.45 m. It consisted in grayish brown loam, loose in some parts, rather hard packed in others. In it many medium size and small sandstones slabs were found. They probably belong to ancient collapses from M586 and M604. In US640 several pottery fragments, two coins (Co834, Co835), a whet stone (S2401), a handstone (S2402), two pestles (S2403, S2404) were collected.

Structure A214

A214 has been named the “peculiar structure” excavated by Albright (Albright 1982, 33-34, fig. 5, VIII). It stands North of room A202 of building BB3. It is a small space 1.50 m x 1.20 m, surrounded by thick walls, made of large roughly dressed limestone blocks. Two walls of A214, M571 and M572, were later used for building BB3, room A202. The other walls are M617 and M616. In the southern part of the space a kind of bench raises from the floor 0.80 m. The floor US644 was reached at the elevation of 29.91 m. It is made of thick plaster that covered also the inner face of the walls. No finds are recorded from A214.



Structure A214



Plaster floor of structure A214

Structure A215

Another structure, A215, similar to A214 at least for the plan and size, stands to the NE of A214. Only the surface has been removed to expose the walls. The northern wall M622 is made of sandstone slabs, the southern one is M616 of A214, the eastern one is M586 of room A208 (see below). The western wall has not been completely unearthed. The modern debris accumulated inside the structure, US645, has not been excavated. Albright reports having found fish bones and pottery shards.

Excavation continued also to the West of A214, an area certainly excavated by AFSM. The situation is not at all clear and further investigation is needed, with the enlargement of the trench to the West. The continuation of wall M571 (later used for A202) was unearthed.

Preliminary observations



Squares n-10, o10/11

At this point in the excavation of the area in question only few points can be fixed.

Room A213 belongs to an early phase (in terms of stratigraphic sequence of the area and not of the entire city) together with the rooms excavated by AFSM to the South of them (not yet re-excavated by IMTO). A213 opens to the square A74 in front of the storage complex. The room was in use at the time of US181 floor in the square, and probably earlier. It is not yet clear if A214 existed already at this time, or if it was a later addition made using earlier wall M572.

Over the ruins of A213, after a stretch of time, building BB3 was built. Judging from the finds, its construction can be dated around the 3th cent. AD.

The date of construction of the room A208 is not clear yet, but a late date cannot be excluded.

Area B. Cleaning of debris in two of the northern storage rooms , squares o-13/14 (trench supervisor: Said al Amri)

Excavation by IMTO was performed in 1997 and 1998 campaigns in some of northern the storage rooms in Area B. Due to the debris accumulated since then, it was necessary to do some clearing work. Two storages were cleared of the debris: A17 in Albright report equal D16 in Morandi Bonacossi report , and storage 1 in Morandi Bonacossi report (Albright 1982, fig. 5, VI; Morandi Bonacossi in Khor Rori Report 1, p. 34-37, fig. 4).

US638 were denoted the modern debris removed in both storage rooms. Few fragment of pottery were found and one pestle (S2404).



Storage A17 – D16 before cleaning



Storage A17 – D16 after cleaning



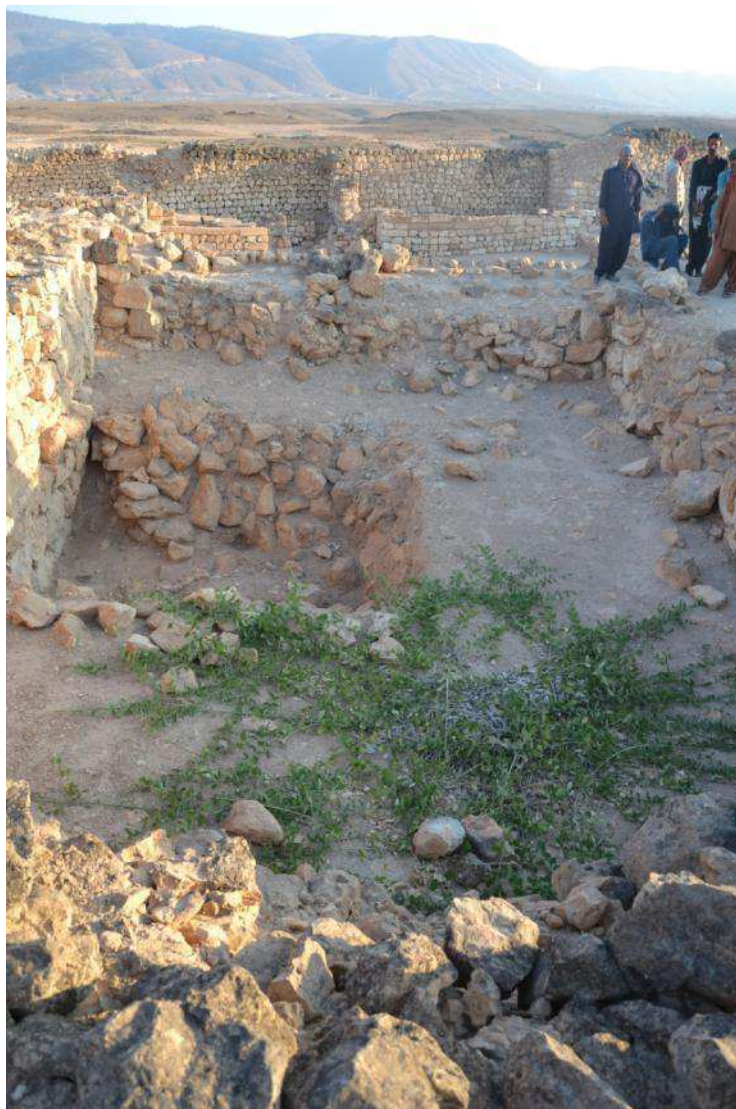
Storage 1 before cleaning



Storage 1 after cleaning

Area F, removal of the collapsed limestone blocks inside the so-called Monumental Building 2

A first operation in order to begin to excavate this important monument, the massive structure lying East the city wall, started inside the building with removal of the massive collapse of the large limestone blocks fallen from the walls of the building itself. Around two third of the collapse has been removed, leaving the SW section *in situ*. All the internal faces of the massive walls have been exposed. The operation stopped at a level apparently without fallen blocks.



“Monumental Building 2” before excavation



“Monumental building 2” after excavation

Excavation in area F: deep sounding (square g-5) (supervisor C. Condoluci)

Among the goals of this campaign was the investigation of the lower stratigraphy of the city in order to understand both the possibly existence of a previous settlement than to shed light on the foundation technique of the already exposed buildings, i.e. on the development plan of the city. The best place for this type of investigation was obviously an open space as the temple's square on which, moreover, overlooks one of the most considerable buildings of the city, the Monumental Building 2 (BF5).

During the 2003 campaign a deep sounding was made by A.V. Sedov¹ outside the main perimeter walls of the temple (BF3). A series of superimposed fillings were exposed and the bedrock reached at point 24.96.

On the basis of this survey we supposed to find a similar stratigraphy about 10 meters towards the south, but the situation in the selected area was different.

The work has been organized as follows: within the main trench, a number of sections of the identified stratigraphy were left as witnesses, until the reaching of the bedrock - inside what has been called 'deep sounding'. At a later time the main trench was enlarged.

Main trench

The main trench, 5x2 m in size and NW/SE oriented, was located in the southwest part of the temple's square, across the north external wall of Monumental Building 2 (M93-BF5). From the beginning, it was decided to include a semicircular alignment of stones visible on the surface, to have any structure to relate with the layers to highlight.



Main trench area before excavation, view from north.

¹ A.V. Sedov, The cultural quarter: Area F, in A. Avanzini (ed.), *A port in Arabia between Rome and the Indian Ocean (3rd C. BC – 5th C. AD)*. Khor Rori Report 2. Roma 2008, 183-213. 192

After the quick removal of a surface layer of a few centimeters, the underlying **US620** was exposed. This deposit consisted of a compact, reddish-brown loam with ashes lenses, mixed with stones (medium, big and small sizes), scattered fragment of mud bricks (light grey in colour) and fragment of burnt mud bricks. A low presence of animal bones, fish bones, shells and potsherds was registered.

In the middle of the trench a stone alignment, N/S oriented, has been considered part of the same intentionally fill and was left *in situ*.

US620 reached its highest elevation at the southeast end of the trench, close to wall M93, sloping down northwards as it followed the setting of the underlying deposit US621.

The layer US620 was partially excavated over the majority of the trench area, i.e. the central north part, and completely removed inside the deep sounding.



The main trench before excavation, views from North and from South.



The main trench after excavation, views from North and from South.

Deep sounding

For the investigation of the lower stratigraphy has been chosen the southern part of the trench, close to wall M93, in order to explore the foundations of the wall itself.

The exposed stratigraphy, below US620, is the following (see related sections):

US621 - Very compact and thick yellowish mud layer mixed with a low percentage of loam, deeply sloping from south to north. Rare non diagnostic potsherds (5 fragments of amphora walls) have been found at the top. It covers the intentionally fills US628 and US626.

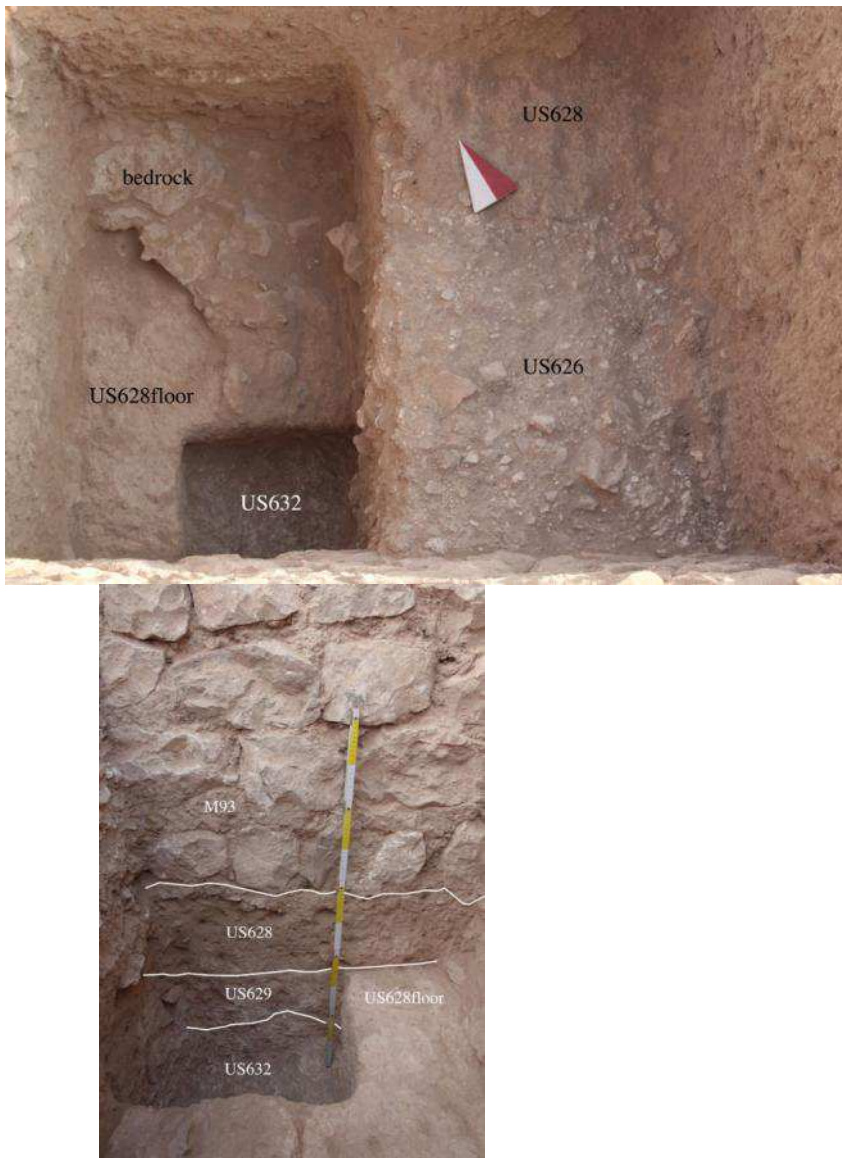
US626 - Medium compact, whitish brown layer of limestone chips (small and medium sizes) mixed with brown loam, scattered medium sizes stones and few charcoals. The layer slopes drastically northward, point where its thickness is reduced from 0,60 to 0,05 m. The layer covers US628.

US628 - Very soft loam mixed with low percentage of mud, yellowish in colour. Presence of rare small/medium size stones and rare charcoals (microscopic in sizes). The layer, 0,24 m thick, continues under the wall M93.

It covers the medium compact surface **US628 floor**, whitish in colour with scattered lumps of limestone. In the north corner of the trench, it also covers part of the emerging bedrock. Soil sample (n. 34) has been taken for analysis.

US629 - Medium soft whitish brown loam mixed with mud and lumps of limestone. Presence of rare small charcoals fragments. The layer, 0,12/0,18 m. thick, continues under the wall M93. It covers the underlying US632.

US632 - Very compact whitish mortar composed by limestone and probably sand (silica crystals are visible) mixed with very small size stones and a rare percentage of brown loam. The excavation stopped at level 24,90, and the bedrock was not reached. Mortar sample (n.36) has been taken for analysis and comparisons.



Deep sounding, zenithal view (left) and details of the foundation layers of wall M93 (right).

Enlargement of the trench

The main trench was enlarged 3 meters eastward, including a total area of 5x5m. It was thus possible to verify and implement the documentation on the exposed features located in the main trench. More, it has been decided to remove the platform leaning against the wall M93, discovered and documented during the 2004A campaign², to better expose the well-done wall itself.

Along the North limit of the trench two stone walls have been revealed, different for construction technique, **M600** and **M601**. The former, NE/SW oriented, was built with medium and big size stones bound with a light brown mortar of mud mixed with loam. Three regular rows have been exposed: the central one made by big squared-shaped stones, the other two by big slabs. Along its south side the wall was covered by US620. On its NW side, where the wall is broken (top part), was set the later wall M601.

² see *Khor Rori, Preliminary report 2004a*.

The poorly preserved wall M601 was visible on the surface at the beginning of the excavation as a semicircular alignment and exposed in the northernmost part of the main trench. The enlargement of the trench showed its east prosecution. The wall has only one face and was made by two/three irregular rows of medium and big rough blocks bound by a bad quality mortar of mud mixed with high loam percentage. This containment wall clearly curves from east to north. On its south and south-west sides was covered by the wide US620.

Both walls M600/M601 contained the medium compact light brown surface **US624**, not excavated and extended in the northernmost part of the trench only in a small portion. This floor/surface could correspond to the US54 floor exposed in the temple square during the 2003 campaign³.

On the south limit of the trench, the removal of the majority of the **platform** (i.e. until the actually tourist path section) has allowed the investigation of its construction technique and the discovering of a new stone wall (M603).

The construction technique of the platform reflects several restoration, reuse or rearrangement phases of the structure. Thus - despite the bad state of preservation – the mud bricks frame on its top west side are replaced on the east side by unshaped stones and loam. As stated above, part of the platform rests below the section limit. The exposed part of it, measured circa 2,0x1,60 m. and preserved for 0,60 m. high.

Generally, it presented an ‘external skin’ of mud bricks and medium compact loam and an ‘internal core’ of mixed and incoherent material (US634). The foundation was reinforced by big size unshaped blocks. On the top surface, only in the SE side, big size stones were present. The continuation of these features eastwards is visible in the section. The ‘core’, named **US634**, was composed by a medium compact dark brown loam mixed with a large amount of big and medium sizes stones, with presence of scattered charcoals, animal bones, rare potsherds.

Close to the foundations, the filling-core edges were highlighted by stones and big size stone tools, like fragmentary mortar, hand mill, limestone oil lamp (S2330, S2331, S2339). In the filling a complete bad preserved small bronze plaque has also been found (MB796).

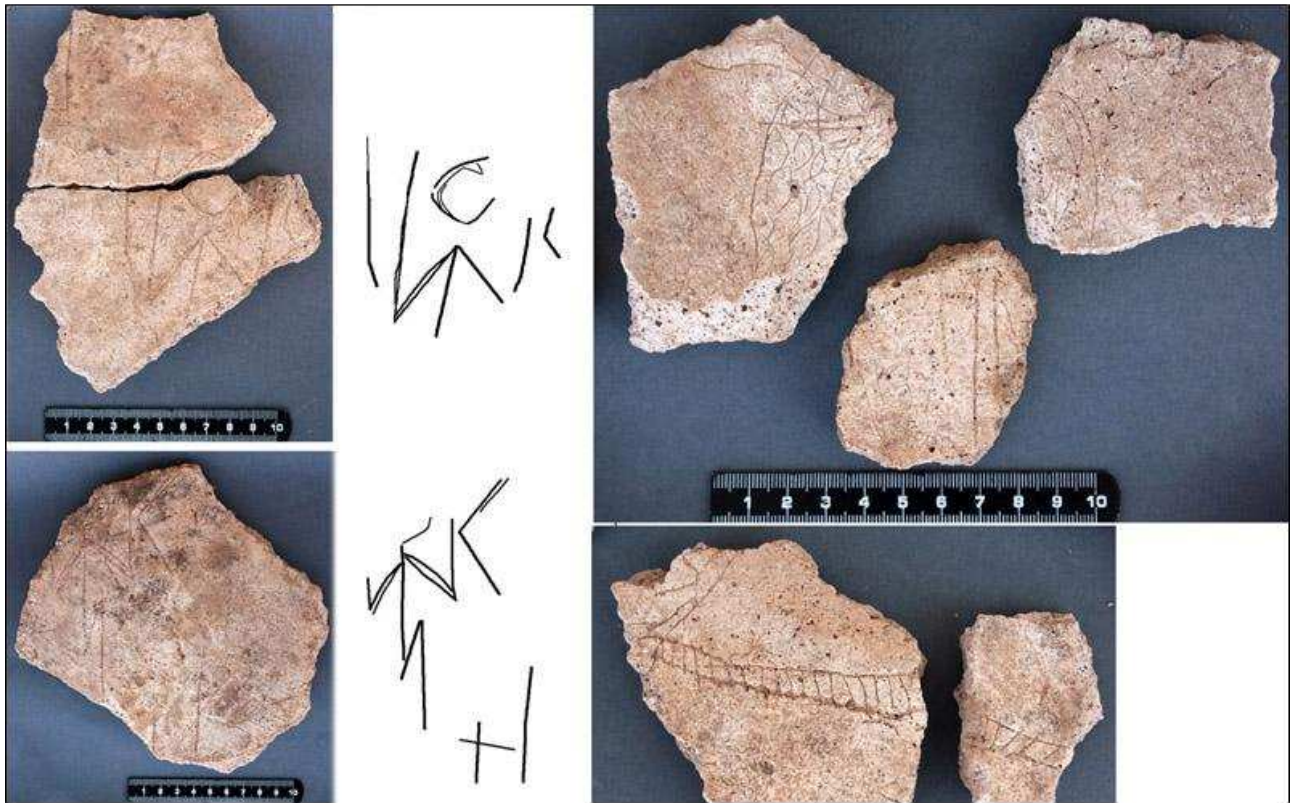


Lower part of a hand mill (S2331) and a limestone oil lamp (S2339) from US634.

The platform was covered by US620, which has been removed till reaching the same level of the main trench (26,92). For this reason the lower part of the platform foundation is still *in situ*. The large amount of plaster found inside US620, more precisely along the north east front of the platform, confirms - beside the 2003 campaign findings – that the platform was originally plastered. More, it was plastered many times, as shown by the fragments with different coats of plaster.

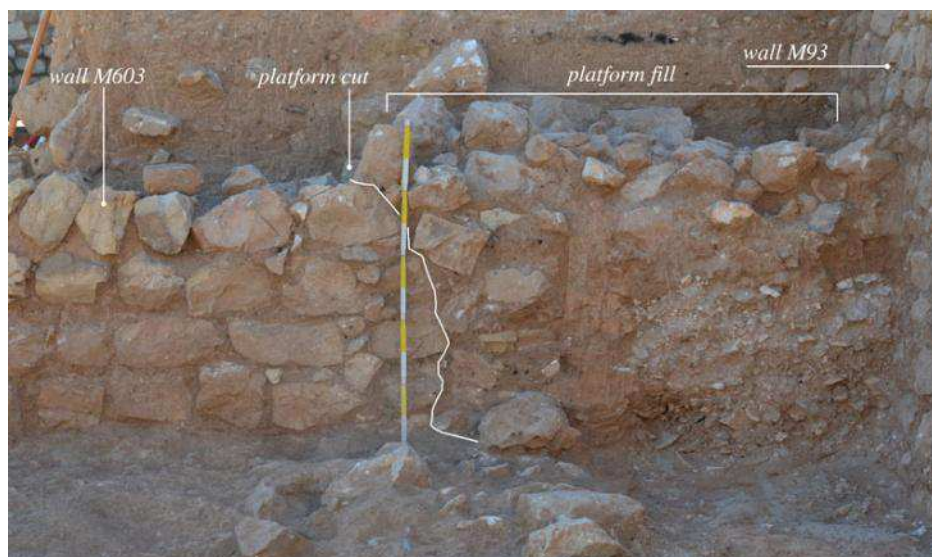
³ A.V. Sedov, The cultural quarter: Area F, in A. Avanzini (ed.), *A port in Arabia between Rome and the Indian Ocean (3rd C. BC – 5th C. AD)*. Khor Rori Report 2. Roma 2008, 192.

Big plaster fragments showing engraved geometric decorations and phytomorphic designs has been found and collected (D31, D32, sample n.37) for eventually consolidation.



Plaster fragments with geometric and phytomorphic design from US620.

The removal both of US620 and the platform, has allowed the uncovering of the wall **M603**, which was clearly cut by the platform. This well-done stone wall is located along the east limit of the trench, NNE/SSW oriented, and preserved for a length of 3,60 m and a wide of 0,65 m. Four regular rows of semi worked big and medium size blocks have been exposed. However, its south side shows a more regular texture than the NE side, where it is cut off (trench limit). As stated above, the wall was cut on its southernmost part by the fitting of the platform structure. This is evident in the section, where the integration with small size stones is visible. The wall foundations were not reached, as yet covered by US620.



The stone wall M603 cut by the platform, view from west.

Finally, among the finds of US620, we report a complete discoid-shaped shell button with pyramidal profile and slightly worked edges (Sh515). Four drillings for the engagement of the wire are located on the apex of the internal surface. Fragments of the same kind of accessory object has been found in previous campaigns and partially published⁴, some of which come from the temple area (see Sh183, preliminary report 2004a). Contrary to those found until now, that always bear an excised decoration on the top surfaces, the shell button Sh515 is plain.



Shell button Sh515.

Comments

The excavation of this area has highlighted part of some features corresponding to different phases related to the beginning and to the 're-arrangement' of the city.

⁴ A. Lombardi, Small finds from the Gate Complex 1999-2000 seasons, in Avanzini (ed.), *Khor Rori Report 1*, Pisa 2002, 168, fig. 29.

First of all, the exposure of the Monumental Building 2 foundations - i.e. the wall M93 foundations - showed that it was built during the first phase of the city, as it was built directly on the bedrock and no traces of previous activities has been found.

For its construction, on its north side, the outcropping bedrock was levelled with a series of superimposed intentionally fills - US628, US629, US632 – which all together constituted its foundation filling. The layer US626, mainly made of limestone chips, probably constituted the upper part of the foundation trench, used to protect the first two rows of the wall and to level and prepared the ground floor. It was obliterated, in the next stage, by US621.

This kind of foundation differs from those commonly found all over the city, made up of stone chips and loam. In particular, the presence of the very soft US628 layer just below the first wall row is rather unusual. Sandy layers were often used, not only in antiquity, as stabilizing in the building foundations. Is to take into consideration that US628 would served to distribute the compression forces related to the massive structure. The Monumental Building 2 – besides the well and the city gate - is in fact one of the most imposing structure in Sumhuram, with its squared plan of 12,5x10,5m and its walls 2,5m thick, splayed inwards at the corners.

The Monumental Building 2 can be considered in phase with the first constructional phase of the temple (BF3).⁵

Comparing the two deep soundings made in the temple's square – i.e. our trench and that of the 2003 campaign – we can see that in the area the bedrock stands approximately at the same altitude: 24,96 (Sedov trench), 25,30 (our deep sounding)⁶. The foundation plan of the main walls of the temple's first phase M38/39 are set directly on the bedrock, as M93 is set on a series of intentionally overlapping *strata* used to level the bedrock and to strengthen the building foundation. More, since here the bedrock lowered abruptly, it seems that it was necessary to reach a definite surface that in our case corresponds to US626floor. This floor/surface might coincide ideologically to US98floor.

To a later architectural phase we have to ascribe the levelling of the ground - towards the space then used for the temple's square area - for the creation of a 'living surface' which probably corresponds with the second constructional phase of the temple. This is what suggests the intentionally fills US620/US621, both used as levelling layers, as seems to confirms the presence of the containment walls M600 and M601⁷ and the surface US624. More, the US620 composition, which reflects the use of resulting materials/rubble – as the large amount of scattered mud brick fragments and stones – could suggest the dismantling of structures/buildings for the reaching of the goal (opened square?).

Never the less, to better understand the features located in the temple's square and their relations with the exposed stratigraphy, it needs an extensive investigation. That is the case also for the walls M601 and M603, which are previous of the above mentioned levelling layers US620/US621 and most probably in connection with the oldest constructional phase of the city.

As regards to the platform - in view of the fact that it was covered by US620 and the real foundations were not reached - there is the possibility that it was originally in phase with the Monumental Building 2 and that it has been re-built and raised many time. Its reuse is showed, besides the double plaster layers, by an untidy construction technique, made up by superimposed

⁵ A.V. Sedov, The cultural quarter: Area F, in A. Avanzini (ed.), *A port in Arabia between Rome and the Indian Ocean (3rd C. BC – 5th C. AD)*. Khor Rori Report 2. Roma 2008, 183, fig.1.

⁶ This level is referred to the top part of the outcropping bedrock. The lowest average of the bedrock was not reached in the trench.

⁷ Wall M601, most probably belonging to an ancient phase of the city, was used at this stage as containment for US620/US624.

incoherent materials. Concerning its use – considering also its prosecution towards the east below the trench section - it is to take in consideration that of a ramp leading to the Monumental Building 2.

Area F, squares g-h/4 (Trench supervisors: Alexia Pavan, Said Al Mashani)

During the SUM13C campaign a new trench has been opened in area F, western from the so-called Monumental Building 2, in squares g-h/4.



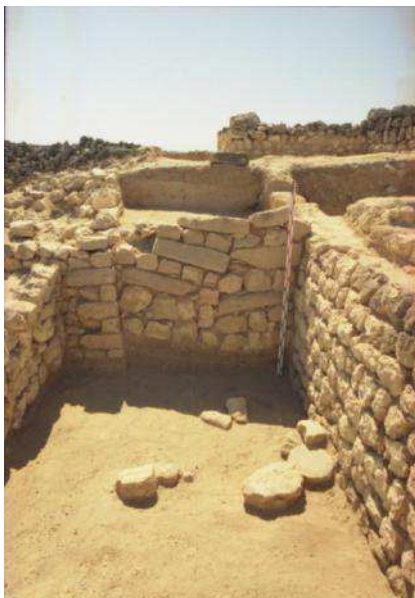
The trench in squares g-h/4 before and after excavations (from South)



The trench in squares g-h/4 before and after excavations (from South)

The area was partially excavated during SUM03A and SUM04A, when it has been named room A43. The room was delimited in the northern side by wall M87, in the eastern side by wall M92 and by western side by wall M86. The excavated length was 1.6/2.1. Southern edge was not reached.

In SUM13C the northern limit represented by wall M87 was no more existing; the wall has been removed in SUM11B because of its very bad state of preservation. However, we keep as limit the section still visible.



On the left, wall M87 and the related floor US56 floor as excavated in SUM03A

The northern part of A43 was already excavated till US130 floor reached at the point 28.35 according to the elevation measured in SUM04A, but at point 29.03 according to the measures checked in SUM13C. This remarkable difference could be only partially explained as a deposit accumulated as a consequence of the rains. In the southern part of the area the accumulation was higher and it was supposed to be interpreted as US130 accumulation on US130 floor. However, consistence, colour and findings seem more consistent with US80 than US130 (from US130 only two small finds have been registered). For this reason we preferred to consider the top accumulation as US80 also if we did not find a

clear separation with US130. The following small finds have been unearthed: the coin Co827, the whetstones S2301-S2302-S2303-2304, the fragment of stone vessel S2308, the incense burner S2309 and S2379, probably a piece of quartzite to be interpreted as a dice. Reached US130 floor (not a real floor, but, a sort of) in all the length of the trench, US623 has been excavated. The layer consist of a very soft brown loam mixed with a great amount of ashes, charcoal (sampled), a noticeable amount of pottery fragments and a huge quantity of animal bones. The composition is very similar to US127 and US146 in the next room A42 belonging to BF3. A huge quantity of pottery has been found. The pottery cards will be completed in the next campaign, but some data are already available. 5 bags of amphorae walls have been stored and will be re-examined during next campaign in order to find the matching fragments, as well as 5 bags of walls of storage vessels. 143 fragments of table vessels (8 are recognizable as wavy rim bowls and 8 as glazed vessels fragments) and 126 pieces of kitchen vessels have been found as well. Among them, a fragment of wall and rim of an Indian cooking pot bearing a south Arabian inscription - °qr.



Picture of the vessel and detail of the inscription

Usually, letters scratched on the pottery, made post firing with sharp tools, indicated the property of the object, it means the name of the owner of the vessels. This, however, could have a different and more curious explanation. °qr sounds very similar to the Jibbali word °oqor indicating a tree or shrub, exuding, when cut, an odoriferous resin (*Commiphora Habessinica*). Thus, the vessel could have been used to contain substances probably for medical purposes and could belong to a local Dhofari inhabitant of Sumhuram who wrote, on the exterior, the contents of the vessel. If the name is rightly interpreted as the name of a plant it would be the first example of this kind at the site, moreover in Jibbali.

A remarkable number of small finds have been discovered as well: the coins Co822, 824, 828, 830, 831, 835, the iron nail MI216, the unidentified bronze objects MB805, 806, 811, 812, the bronze nail MB803 and MB810 probably to be interpreted as the handle of a weight.

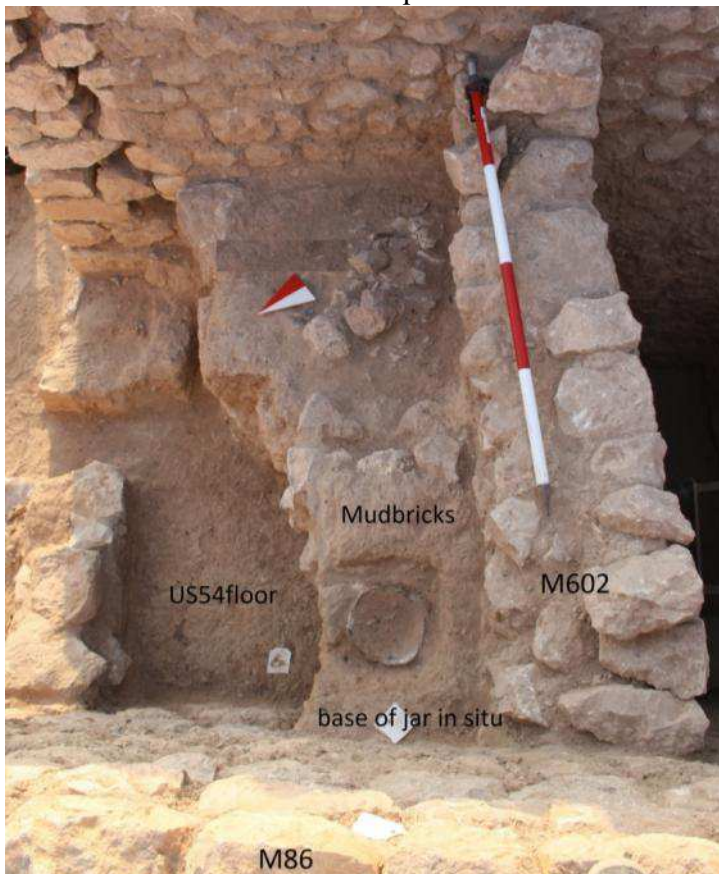
Many objects in stone have been unearthed, mostly stone vessels or fragments of them (S2325-2326-2380-2381-2384-2390-2391-2392-2406-2418), the mortar S2310, the incense burner S2419, the handstone S2420, the agate bead S2382 with a piece of raw agate S2383, confirming the existence of a production of beads at the site.

Bones and seashells have been found in huge quantity as well. Bones seem, in general, of big size (cows? Camels?) and some of them are burnt, suggesting an interpretation as remains of cooking process.

US623 covers the small wall M602 (top elevation 28.17) leaning both to wall M86 of BF3 and to wall M92 of the so-called Monumental Building 2. The foundation of the wall have been reached at an elevation of 26.02 in correspondence with the new US635.

US623 and US635 are not separated by a floor; US635 is a bit more reddish and more compact but, at a first sight, the material appear consistent with those discovered in US623 (see, for example, the amphorae fragments). US635 has been only partially excavated because we preferred to go down in all the length of the trench. A coin (Co829) has been discovered in the deposit.

US635 has been excavated only southern from wall M602. This wall, in fact, marks very clearly two different stratigraphic situations. Southern from it, we can recognize the two big deposits US623 and US635 which seem an accumulation of leftovers not divided by floor, northern from it we found instead a different sequence of floors and accumulations.



The area northern from M602 with the installation linked to furnace excavated in SUM04A

Northern from M602 (see the picture above) US623 covers a level reached at an elevation of 27.90 representing the top of an installation linked with the furnace excavated in SUM04A and standing on US54floor.



The installation discovered in SUM13C



The furnace discovered in SUM04A

The situation in this area is still to be clarified but the general idea is that the neck of amphora visible in section, the small wall still to name leaning to the corner of MB2, the base of jar placed on a short basement of mud-bricks (very bad preserved) are to be linked with the furnace discovered in SUM04A. The installation, as well as the furnace, stands on US54floor, reached at an elevation of 27.23. If US623 represents the accumulation unearthed of the top of the so-called “installation”, from the top till US54floor a different kind of deposit has been recognized. It's US637, very soft and very rich in ash with few animal bones and a small amount of pottery (one complete base of high ring base in reddish straw temper). No objects have been unearthed.

Main goal of the future excavations in the area are the clarification of the deposit in A43 where no floors have been individuated. The unearthed accumulations US623 and US633 have the appearance of remains of garbage pit or waste dump where kitchen leftovers were deposited. However the idea that A43 has never been used as “street” is difficult to explain also because, in this way, the circulation in the western part of the city where not possible.


Moreover, the possibility that wall M86 has been used as foundation for a new structure has to be re-thought. Along all the length of the wall a kind of recess is visible. Could this recess be linked with a particular use of A43?

Object Index Card

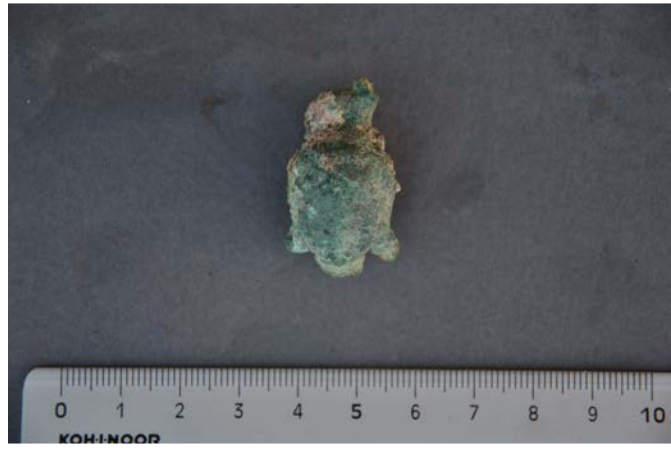
| | | | |
|--|--------------------------------------|---|-------------------------------|
| Registration Nr. SUM13C US643,1 MB823 | For the picture see below | | |
| Provenance Area A, A209 | | | |
| Drawing code Nr. | | | |
| Definition Plaque | State of preservation Good | Measures l. 33 cm w. 29 cm th. min 0.5 cm th. max 1 cm | Shape Squared |
| Material Bronze | Preserved part Complete | | Section Rectangular |
| Description SUM13C, US643,1 MB823 Complete inscribed bronze plaque. The inscription is framed by a framework 2 cm wide. Four holes are present at the corners. The inscription is composed of 10 lines: <ul style="list-style-type: none"> – Language: Ancient South Arabian – Writing technique: relief – Script typology: monumental writing – Measures of letters: 2.5 cm – Textual typology: dedicatory text | | | |
| Responsible Giulia Buono | | Date 08/12/13 | |

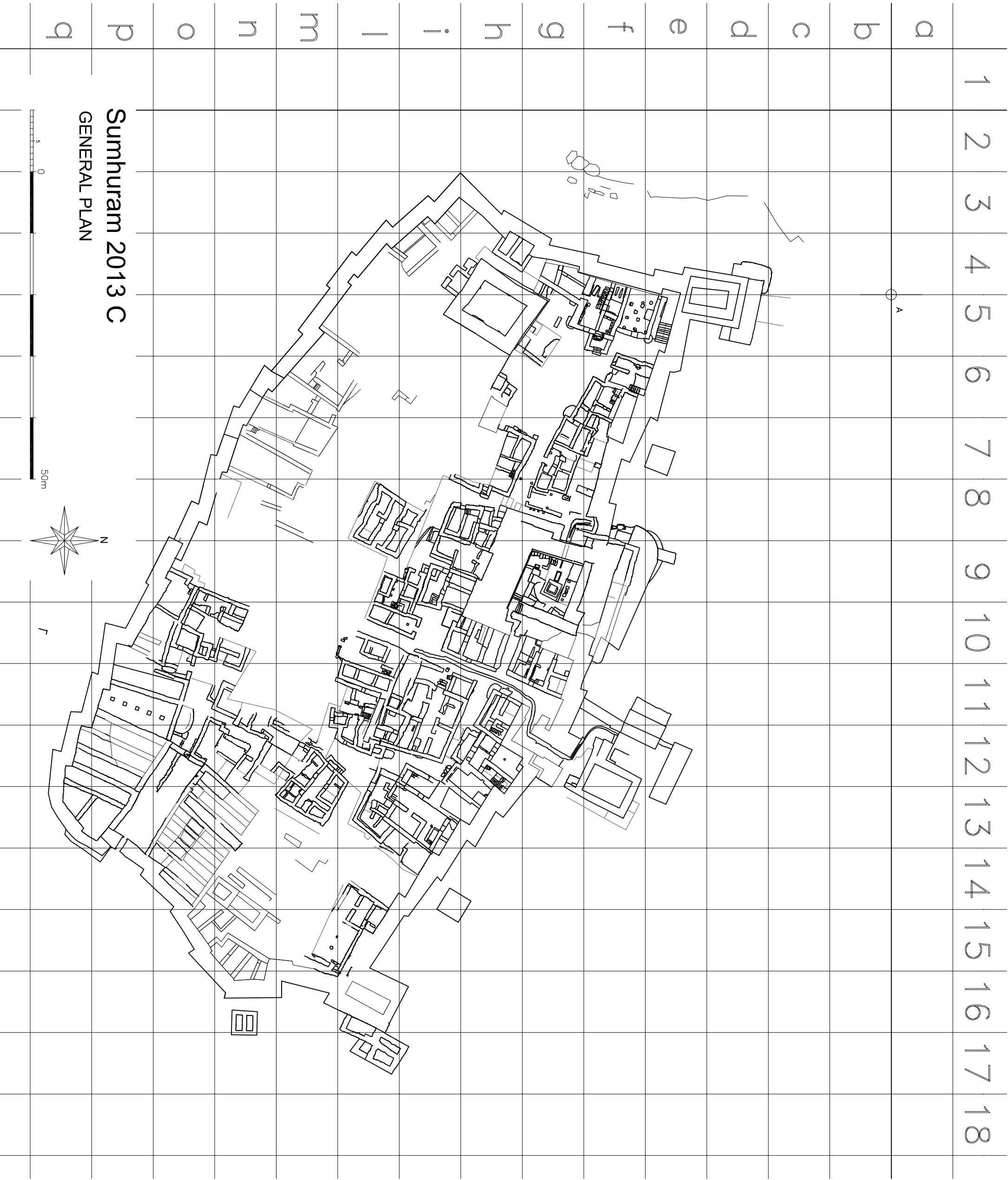


Pottery Card

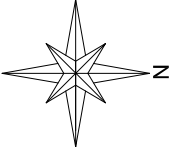
| | | | |
|---|--|------------------------------------|---|
| Index Nr. SUM13C US623,158 |  | | |
| Provenance F A43 | | | |
| Photo | | | |
| Drawing code Nr. | | | |
| Category Kitchen | | | |
| Shape Closed | Type Cooking pot | Preserved part Rim, wall | State of preservation |
| Measures. cm Diam. 18 Th. 0.8 | Color inter. surface | Color ext. surface | Color section |
| Characteristic of paste Compact | Inclusions Several white mineral inclusions | | Method manufacture Wheel made |
| Surface treatment (ext.) | Surface type (ext.) | | Decoration (ext.) |
| Surface treatment (int.) Burnishing | Surface type (int.) Plain | | Decoration (int.) |
| Description/observations SUM13C, US623, 158. Fragment of rim and wall of Indian cooking pot. The fragment is burnt. On the rim there are three Ancient South Arabian letters incised after firing: ʿqr. | | | |
| Date 10/12/13 | | Responsible GB | |

Object Index Card

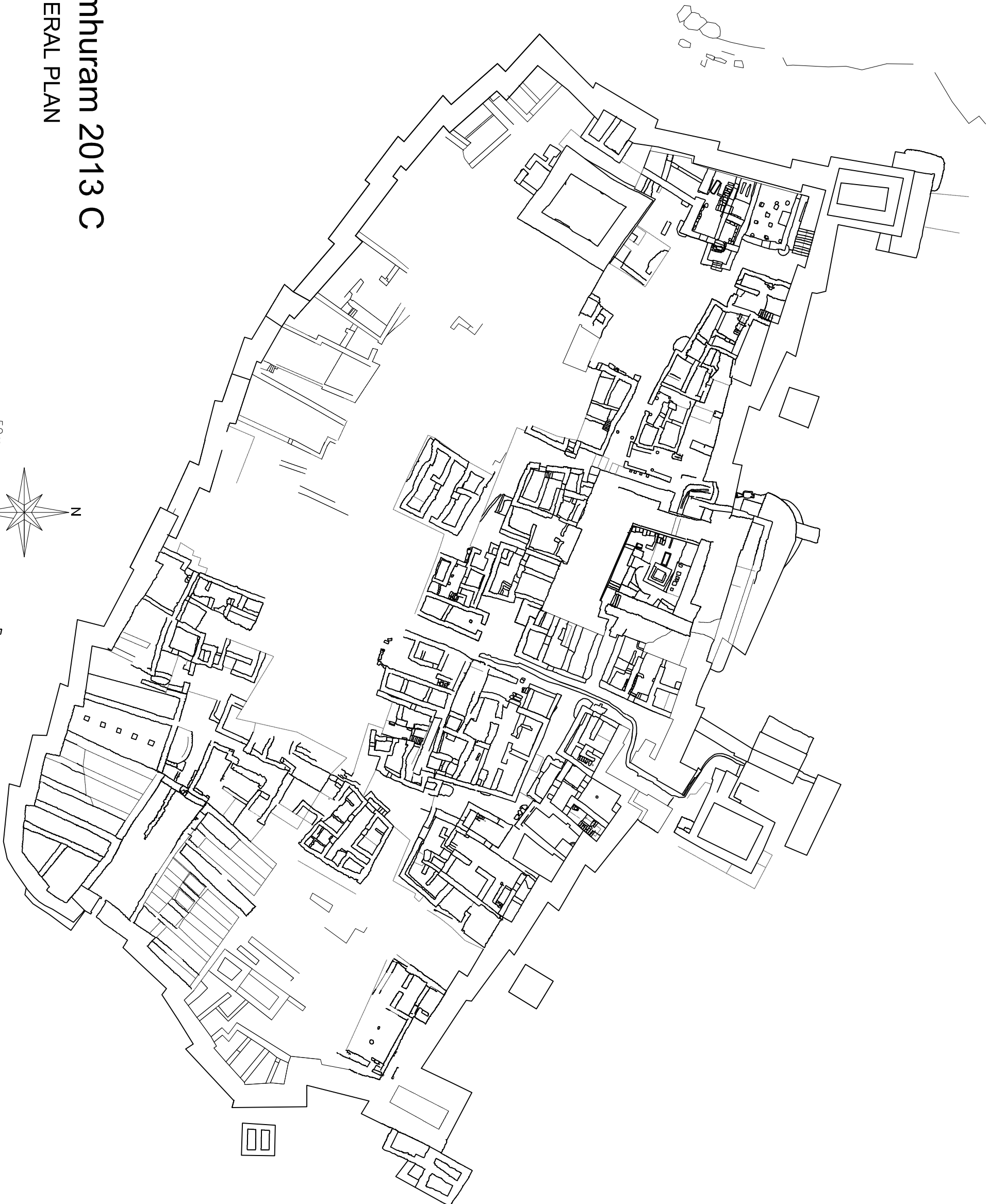
| | | | |
|---|--|---|----------------|
| Registration Nr. SUM13C US582,3 MB798 |  | | |
| Provenance Area B, o11, | | | |
| Drawing code Nr. | | | |
| Definition Head of human figure | State of preservation corroded | Measures l. 2.0 w. h. 3.8 th. 2 diam. | Shape |
| Material bronze | Preserved part complete | | Section |
| Description SUM13C, US582,3, MB798 Bronze head of human figure. The back of the head is decorated with a series of knobs. On top of the head a crown or a kind of ornament. File to be completed after restoration. | | | |
| Responsible VB | | Date 26.11.13 | |



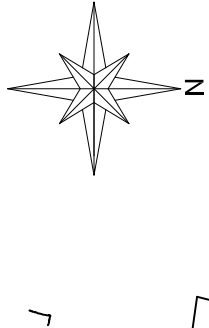
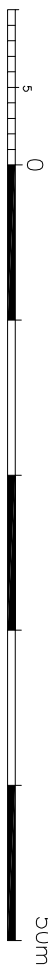
Sumhuram 2013 C
GENERAL PLAN

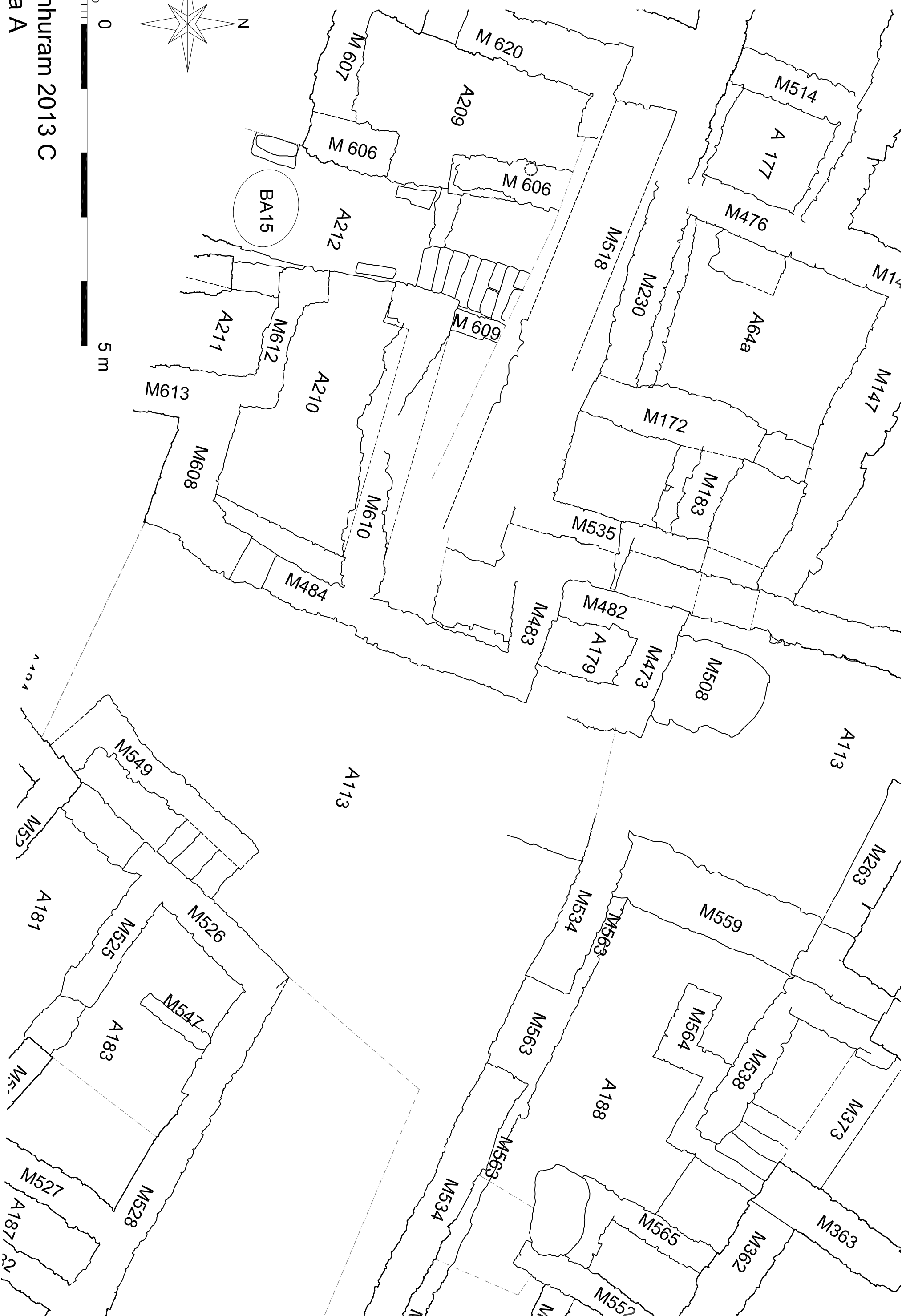
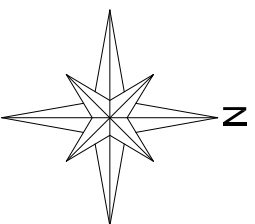


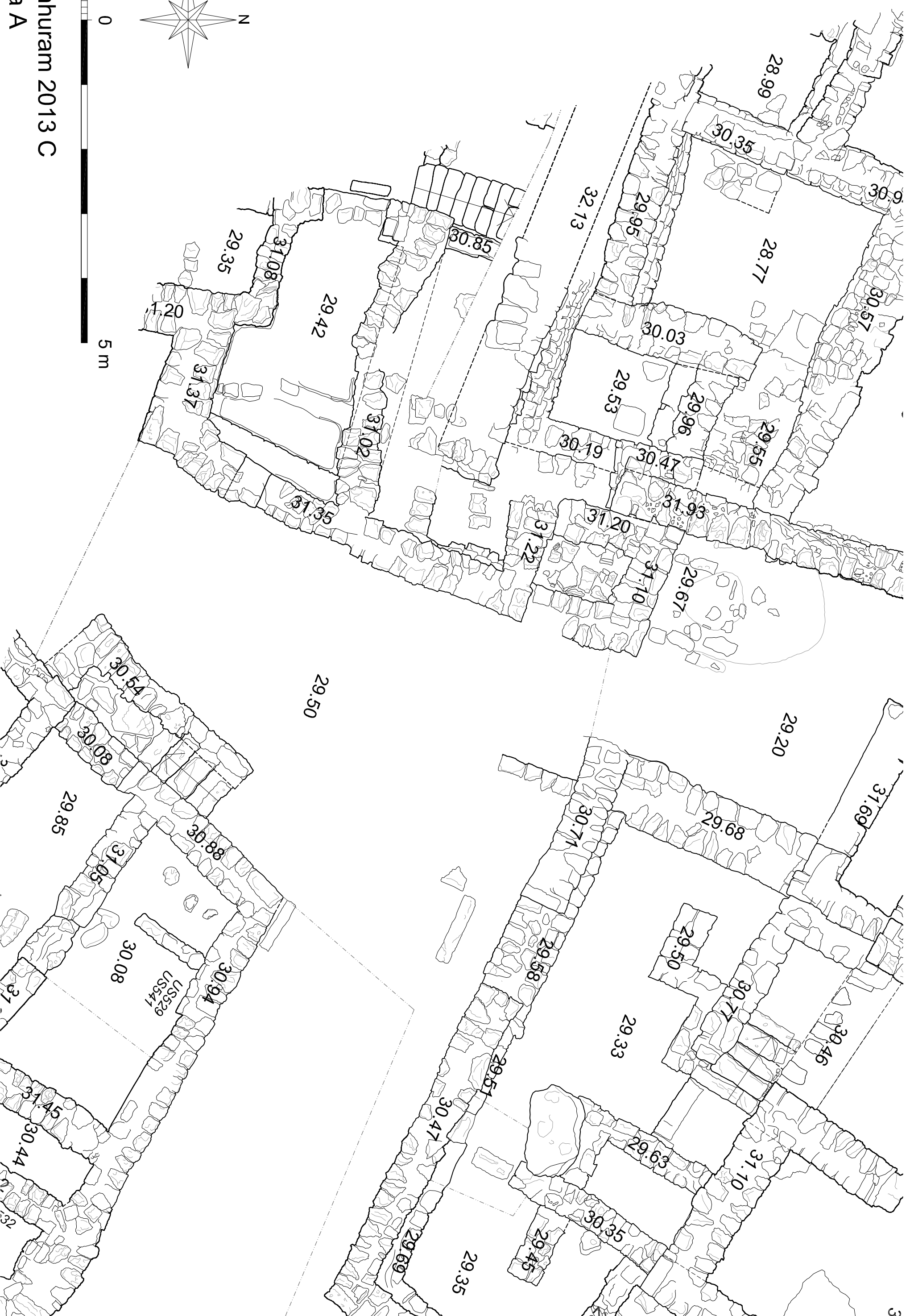
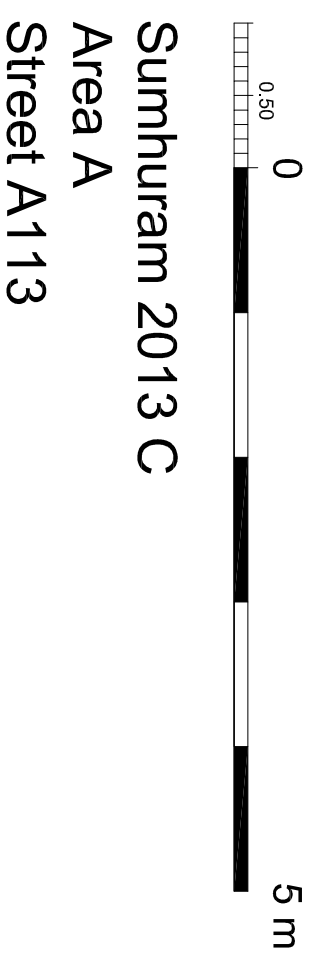
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Sumhuram 2013 C
GENERAL PLAN

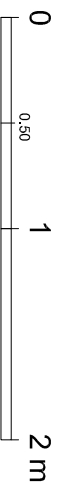
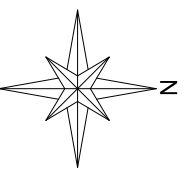


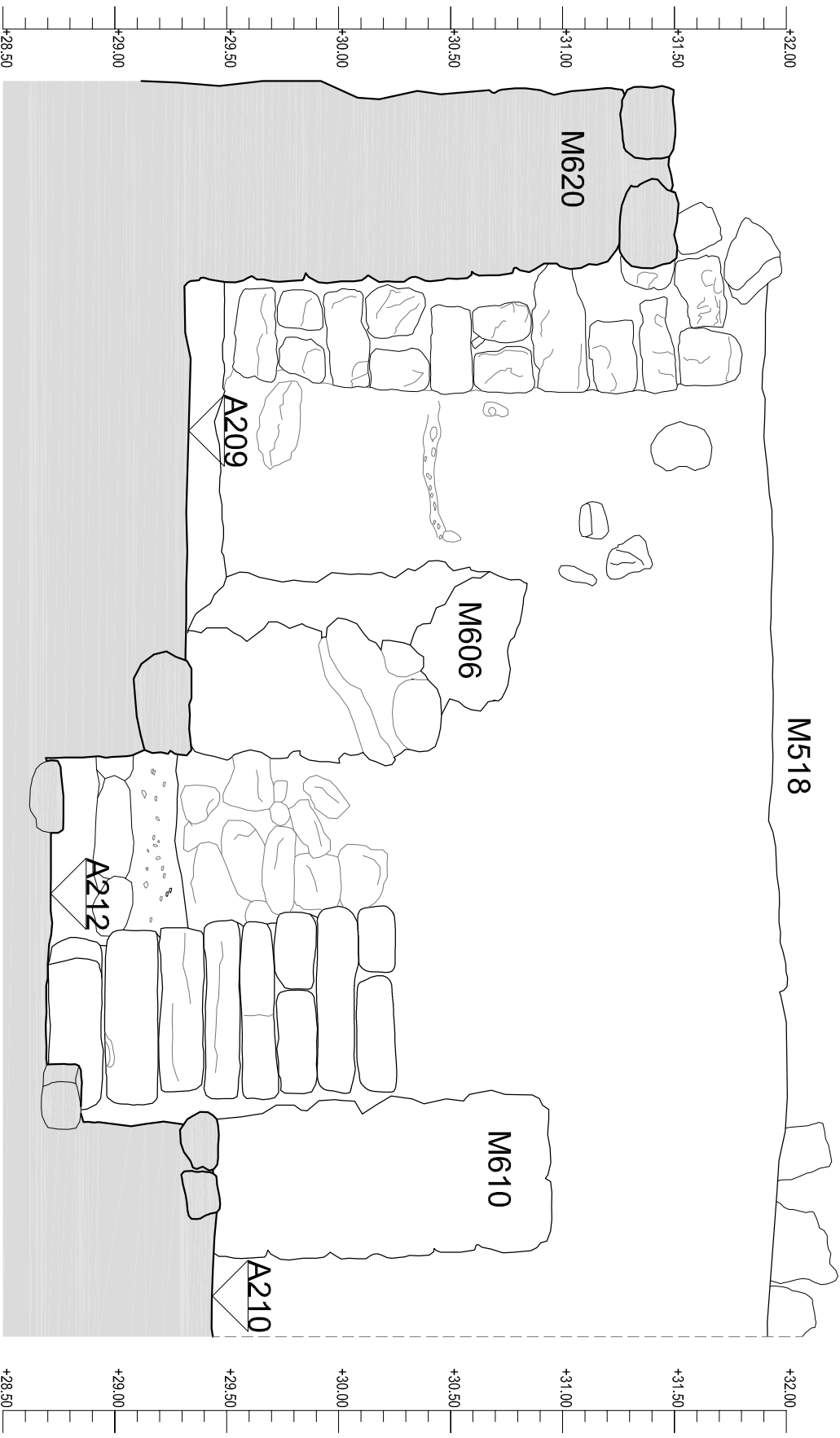
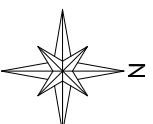


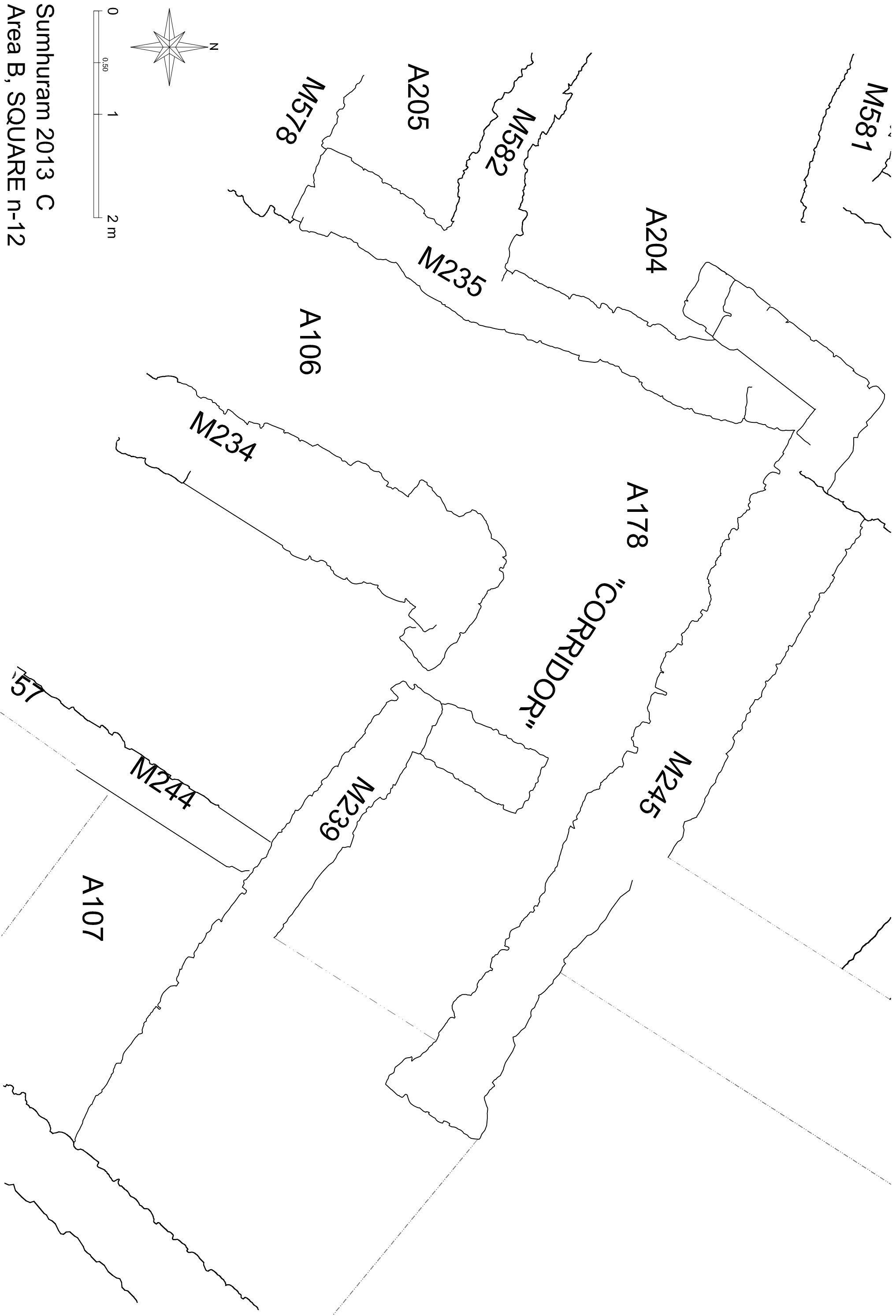




Sumhuram 2013 C
Area A, BA15



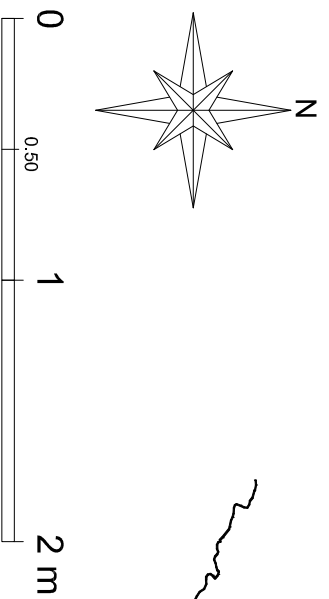




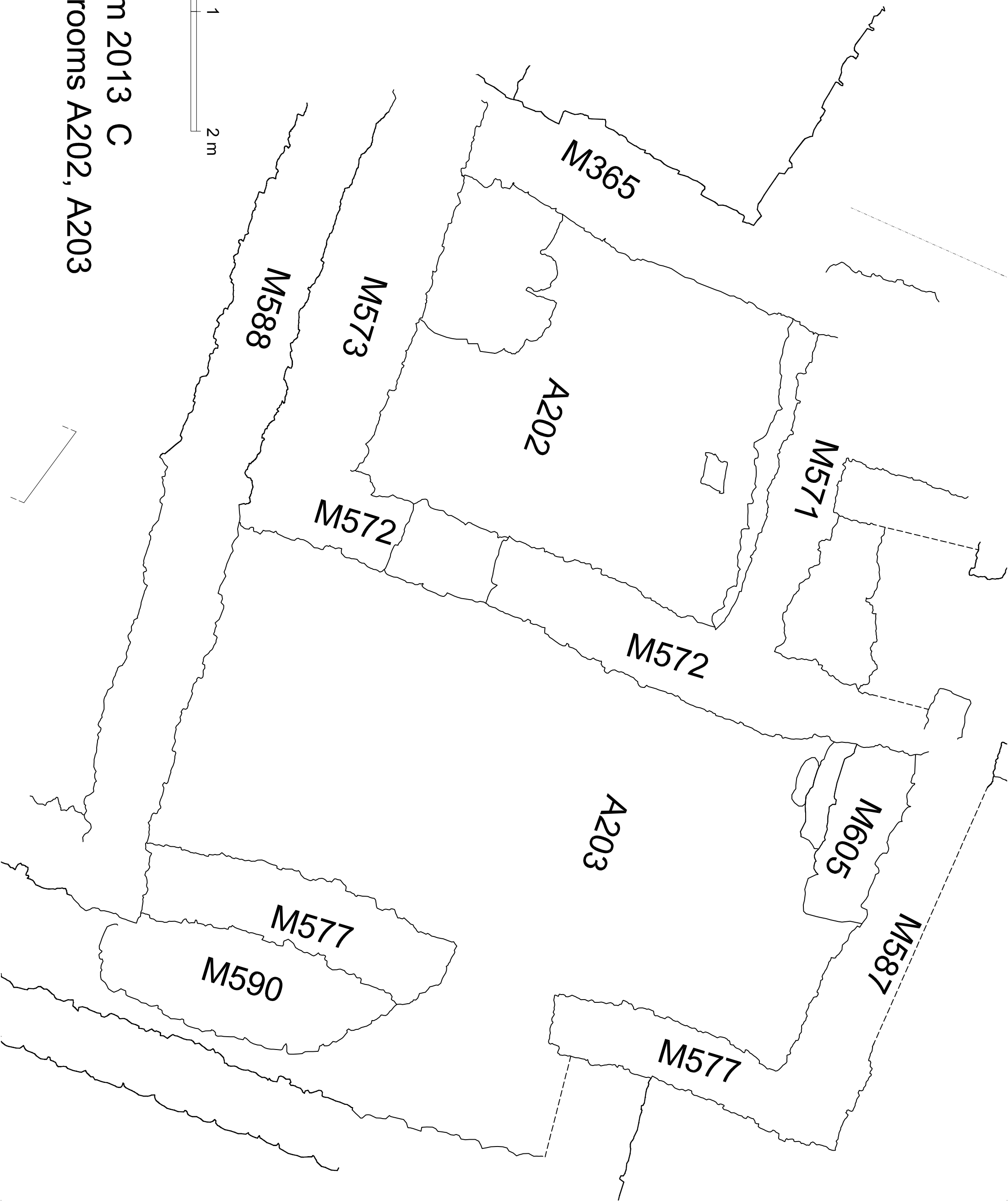
Sumthuram 2013 C
Area B, SQUARE n-12

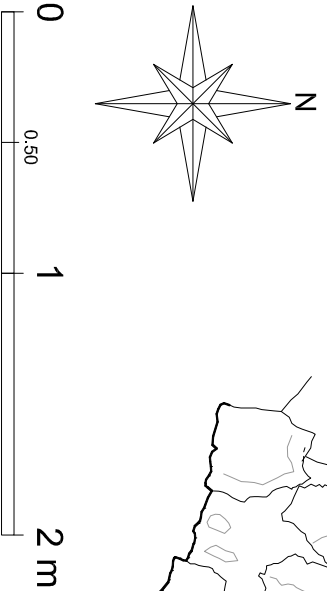
Sumthuram 2013 C
Area B, SQUARE n-12



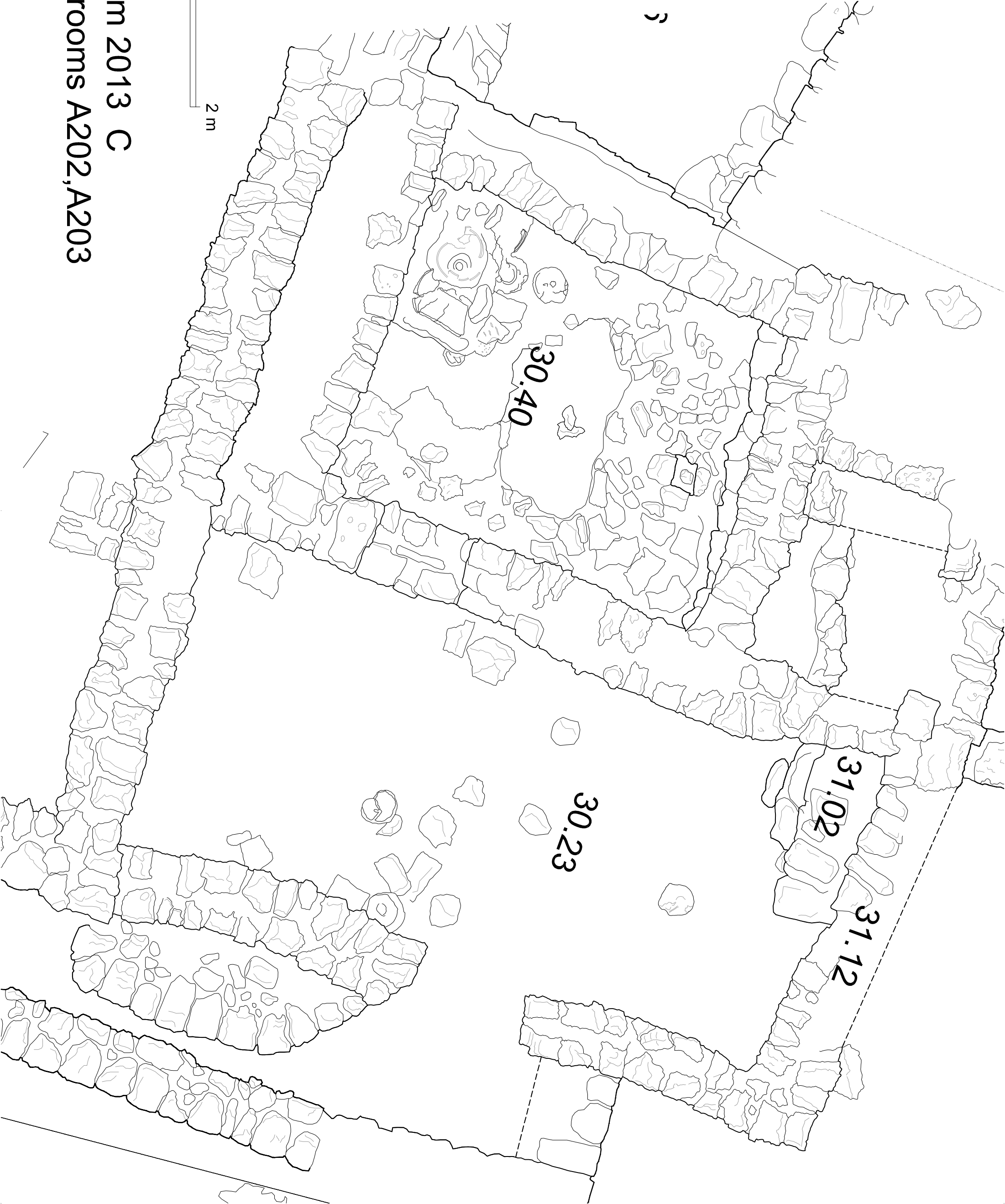


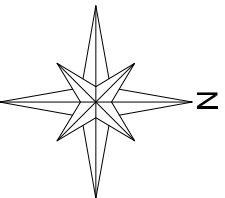
Sumhuram 2013 C
Area B, rooms A202, A203



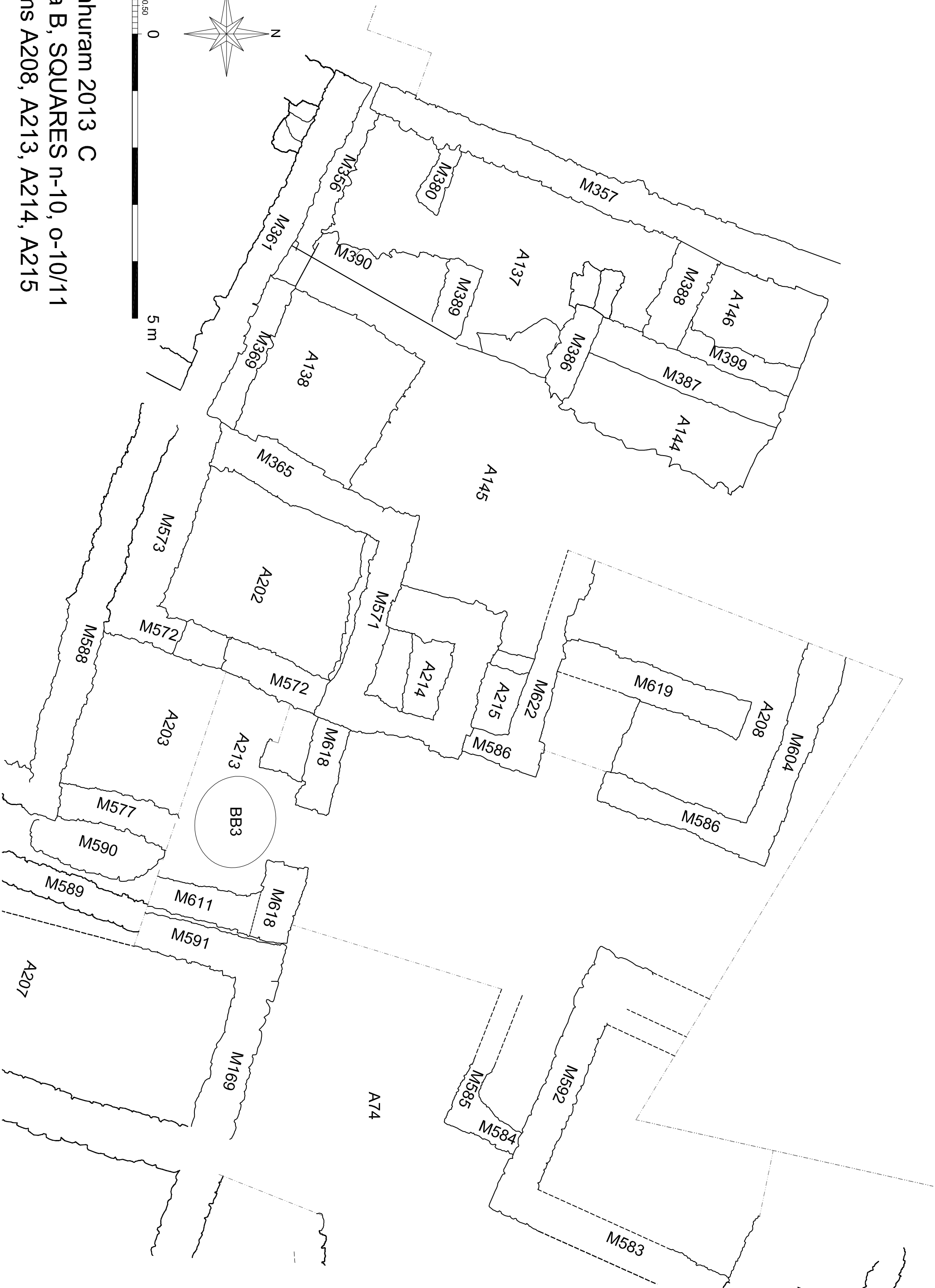


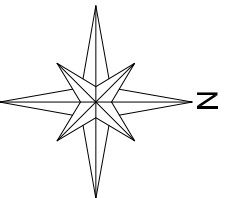
Sumhuram 2013 C
Area B, rooms A202, A203



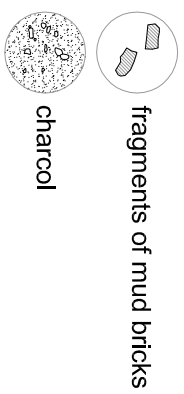
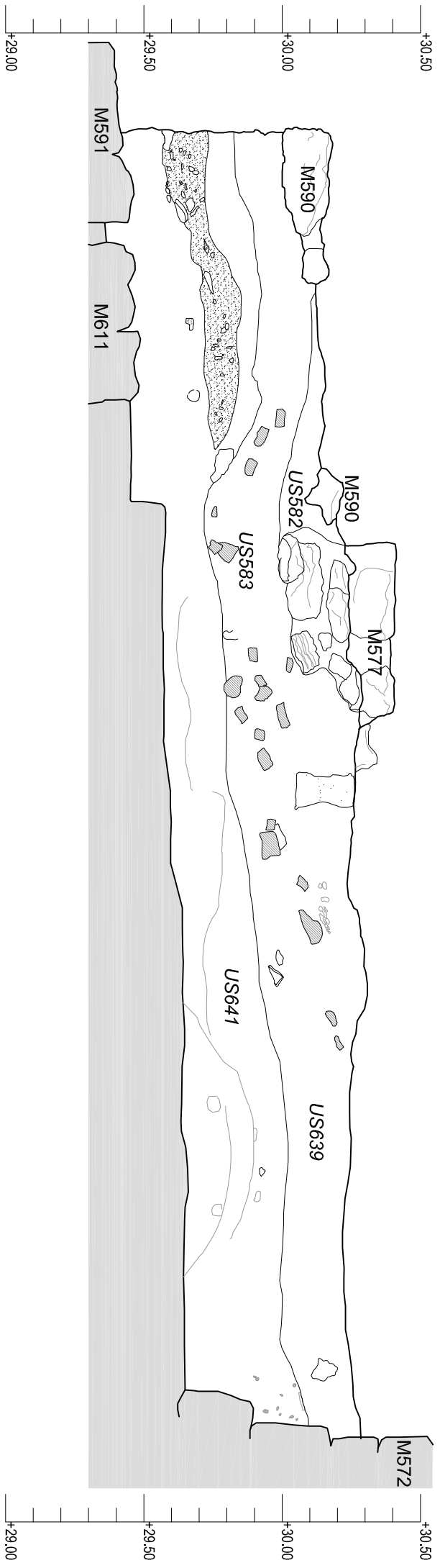


Sumhuram 2013 C
Area B, SQUARES n-10, o-10/11
rooms A208, A213, A214, A215

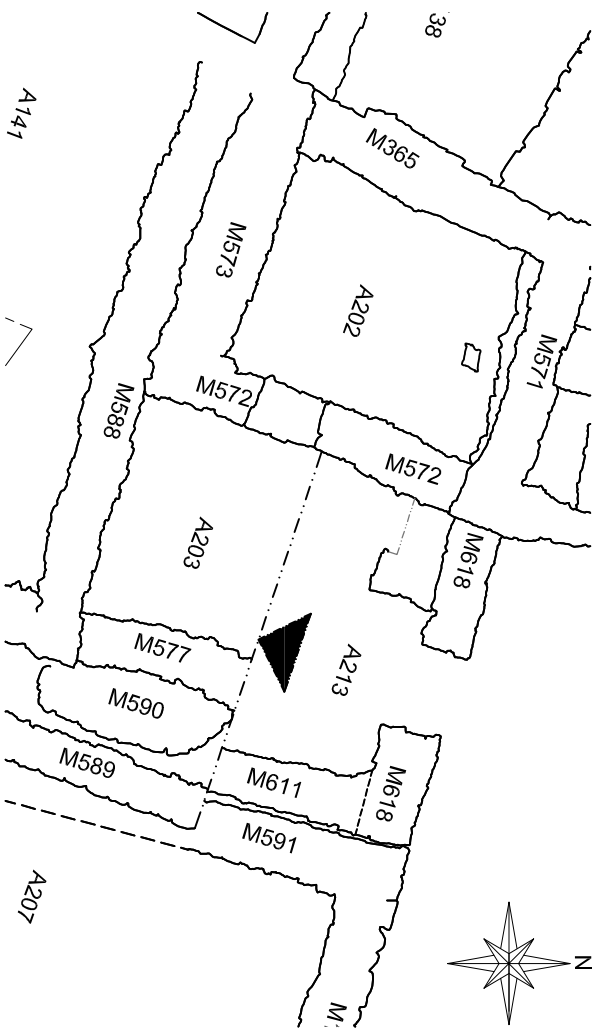


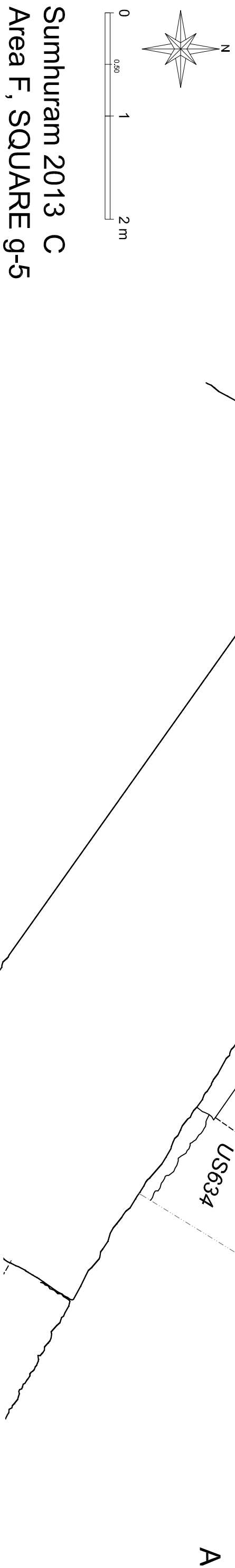


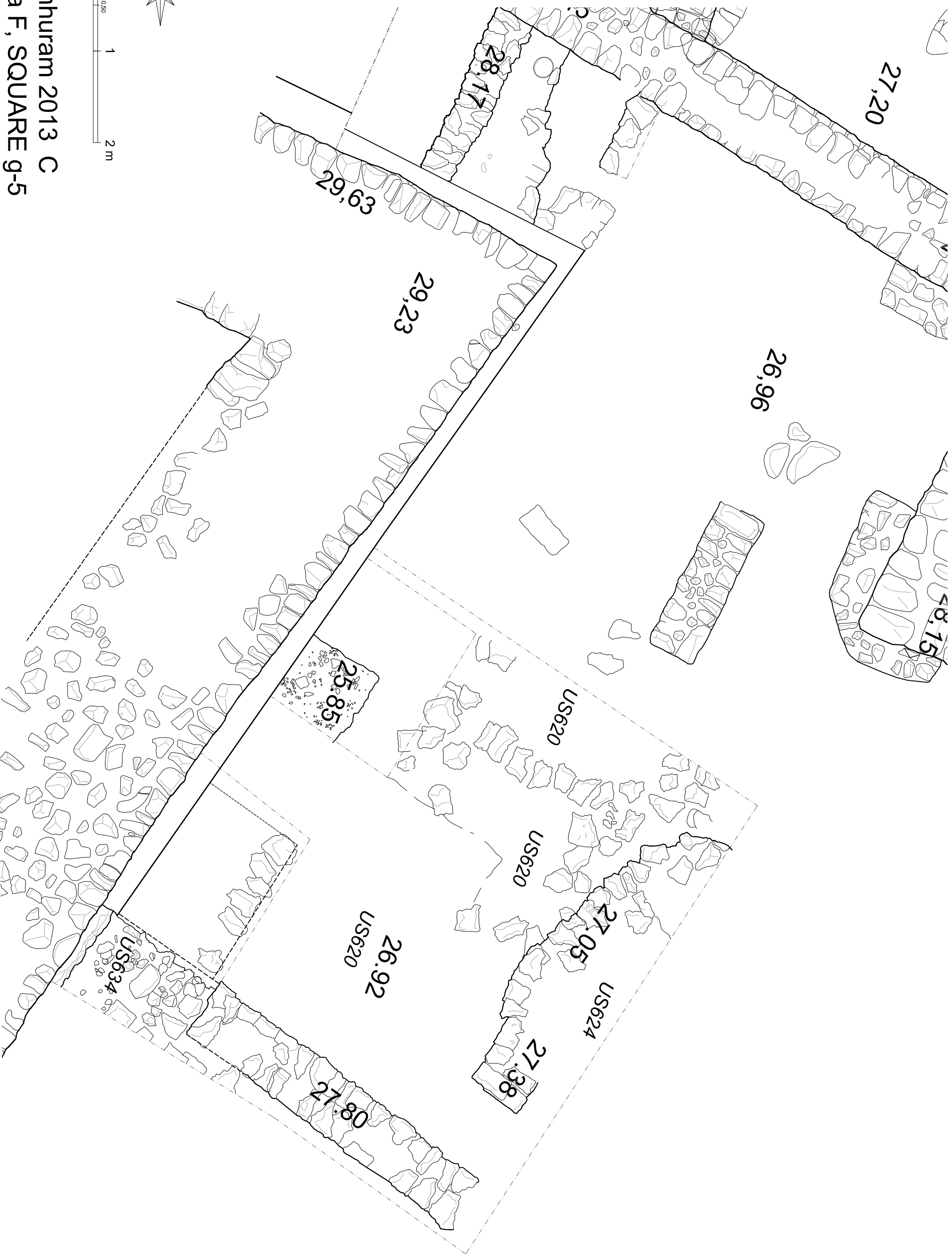
Sumhuram 2013 C
Area B, SQUARES n-10, o-10/11
rooms A208, A213, A214, A215



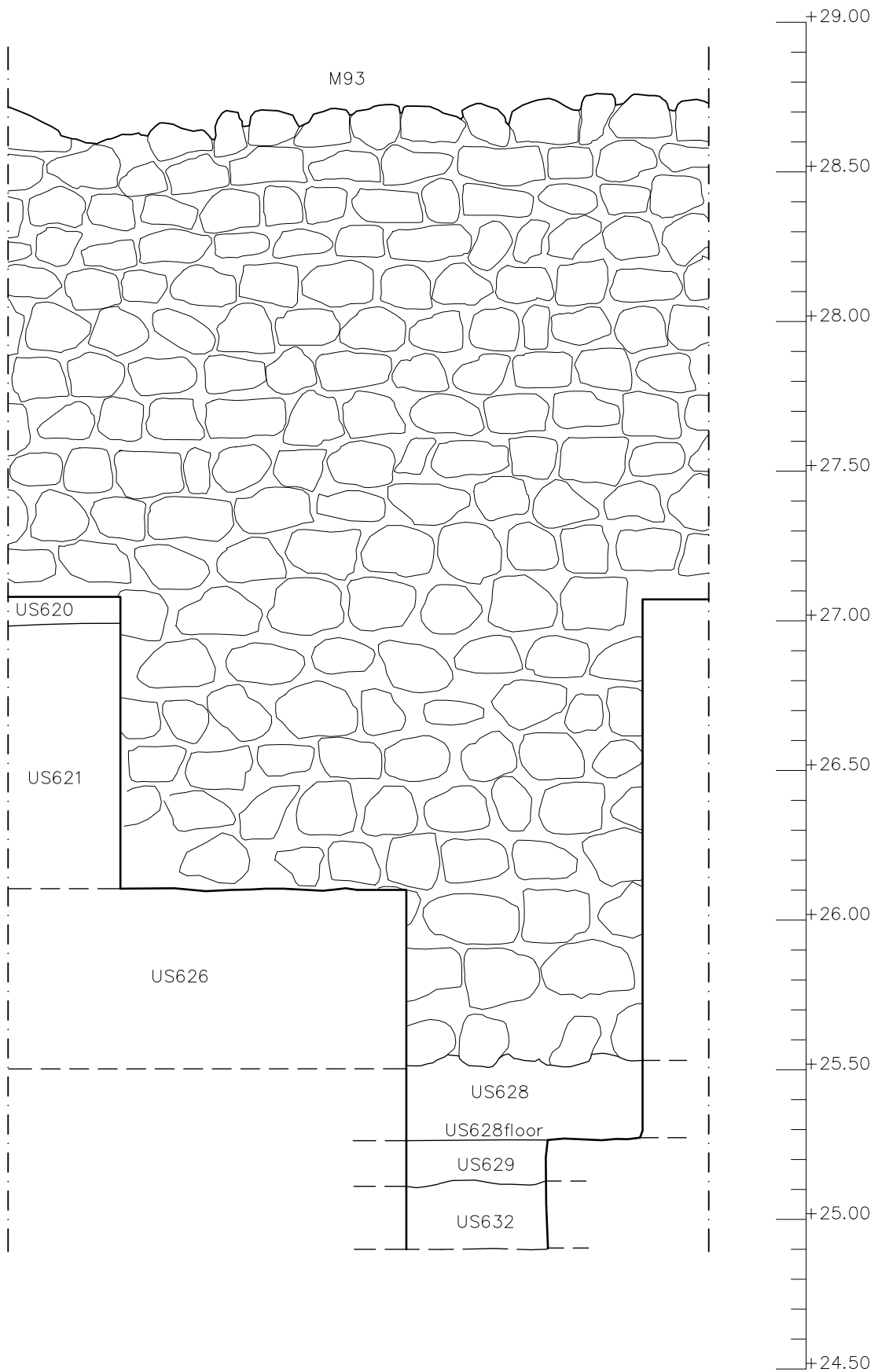
Sumhuram 2013 C
Area B, A213 section

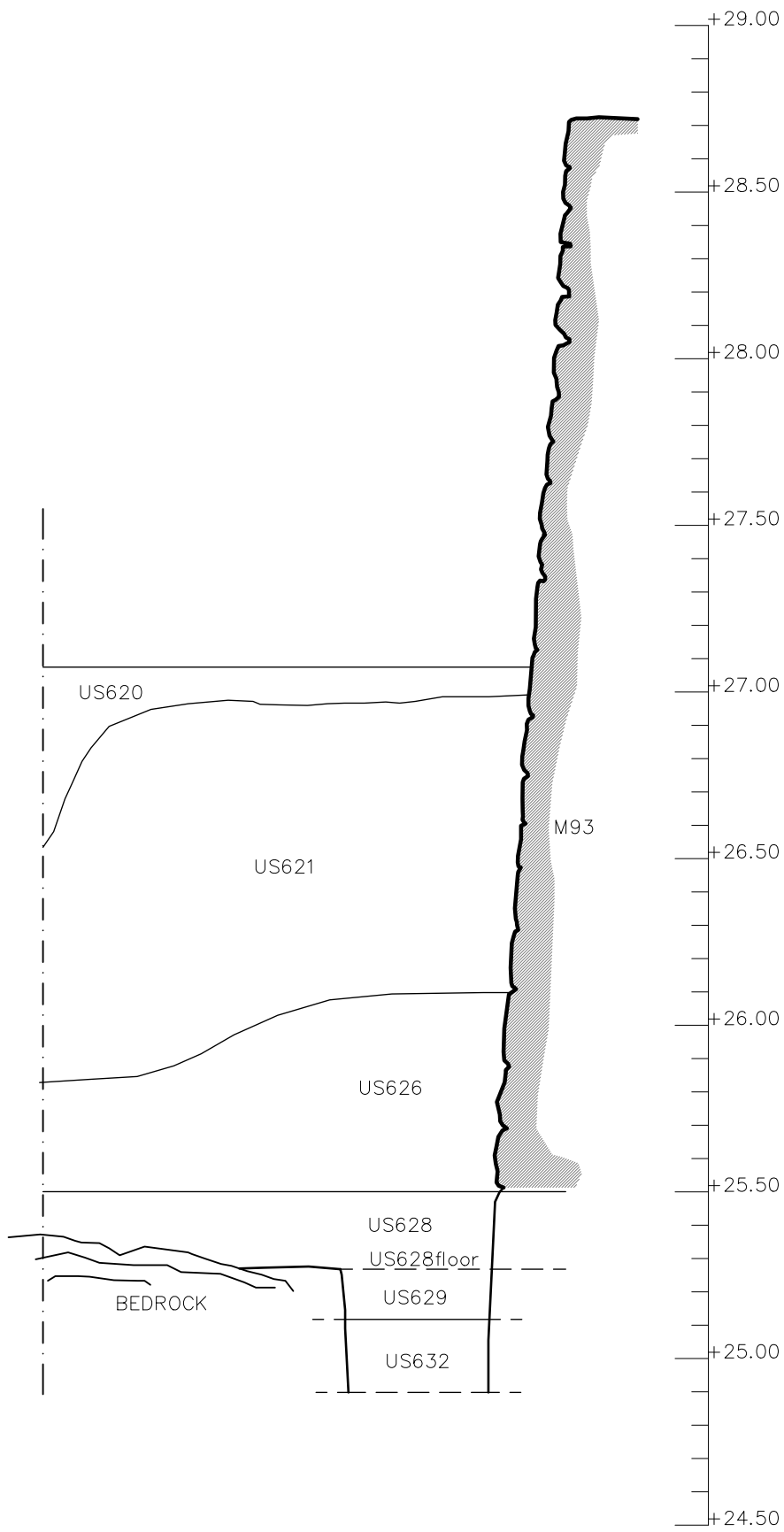


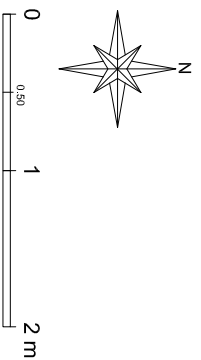




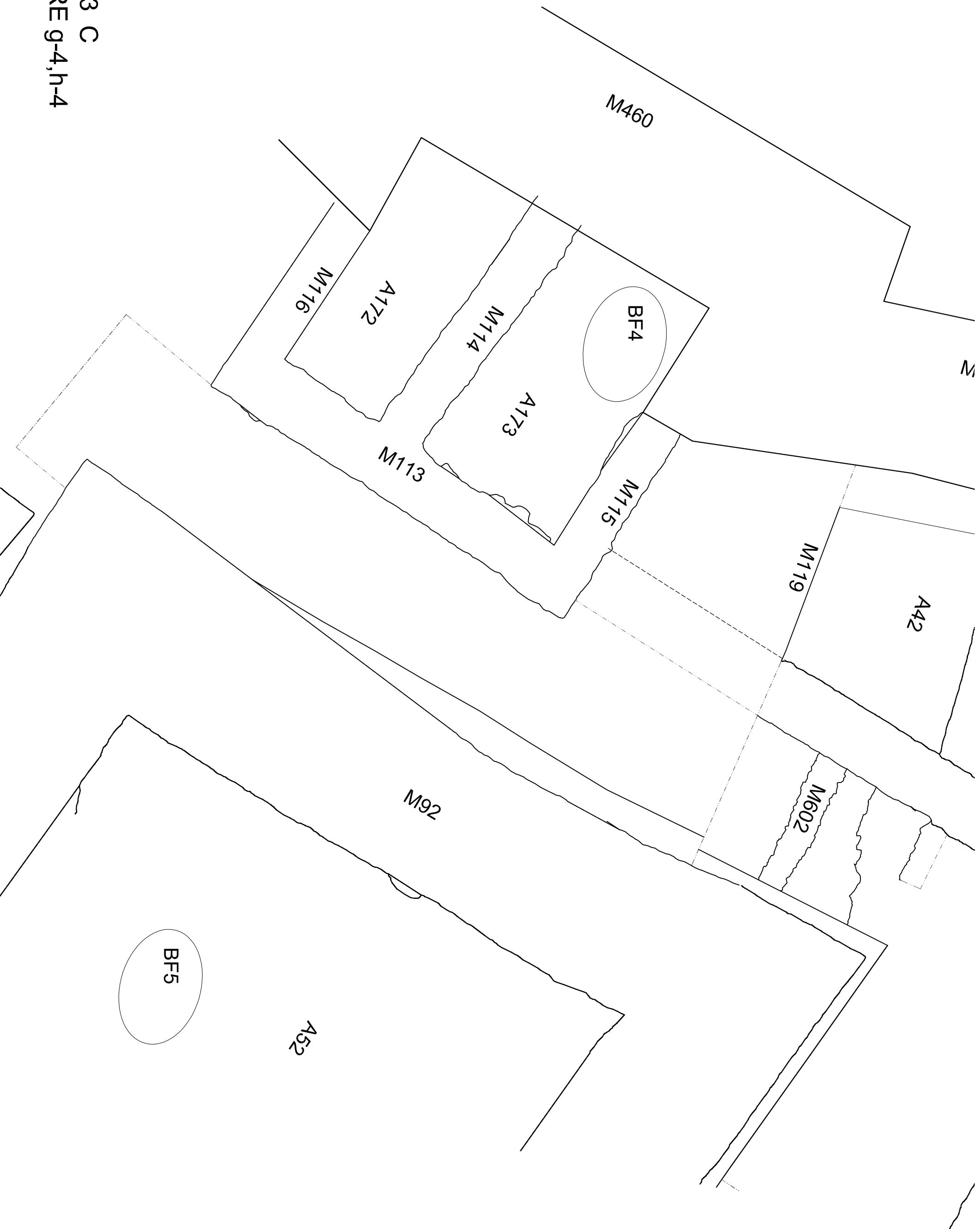
Sumhuram 2013 C
Area F, SQUARE g-5

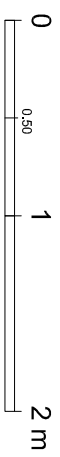




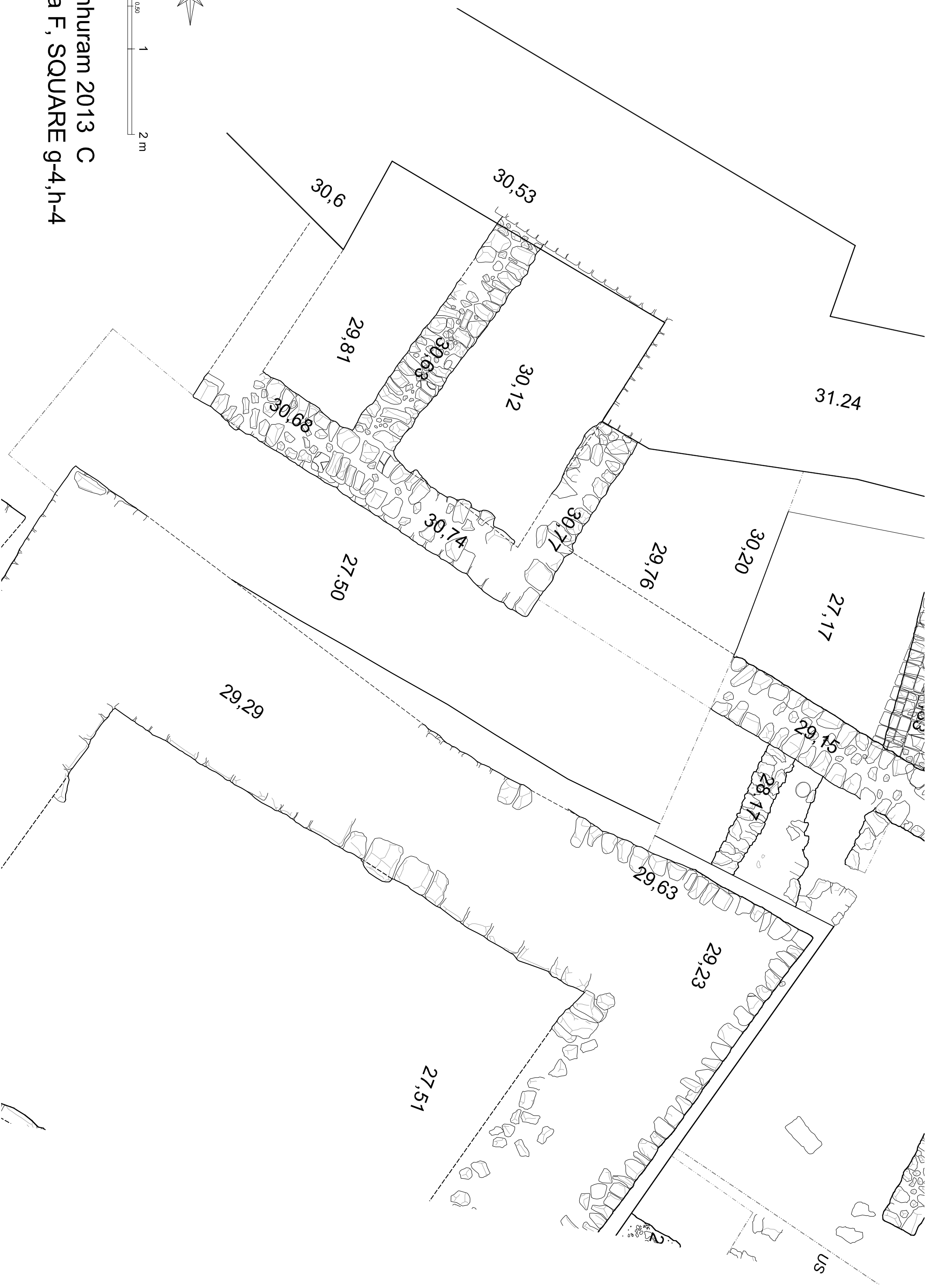


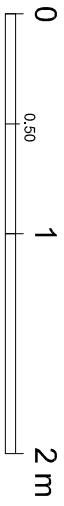
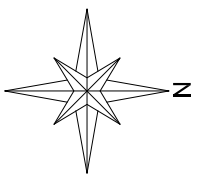
Sumhuram 2013 C
Area F, SQUARE g-4,h-4





Sumthuram 2013 C
Area F, SQUARE g-4,h-4





Sumhuram 2013 C
Area F, SQUARE g-4/5



26,96

27,20

28,83

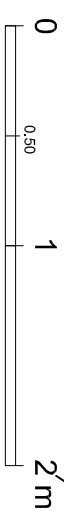
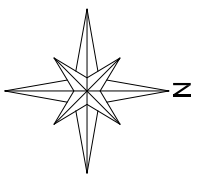
27,17

29,15

28,17

29,63

29,23



Sumhuram 2013 C
Area F, SQUARE g-4/5

**RESTORATION WORKS AT SUMHURAM
(ARCHAEOLOGICAL PARK OF KHOR RORI)**

(Sultanate of Oman)

CAMPAIGN Sep - Dec 2013

IMTO

Italian Mission To Oman



Technical Report

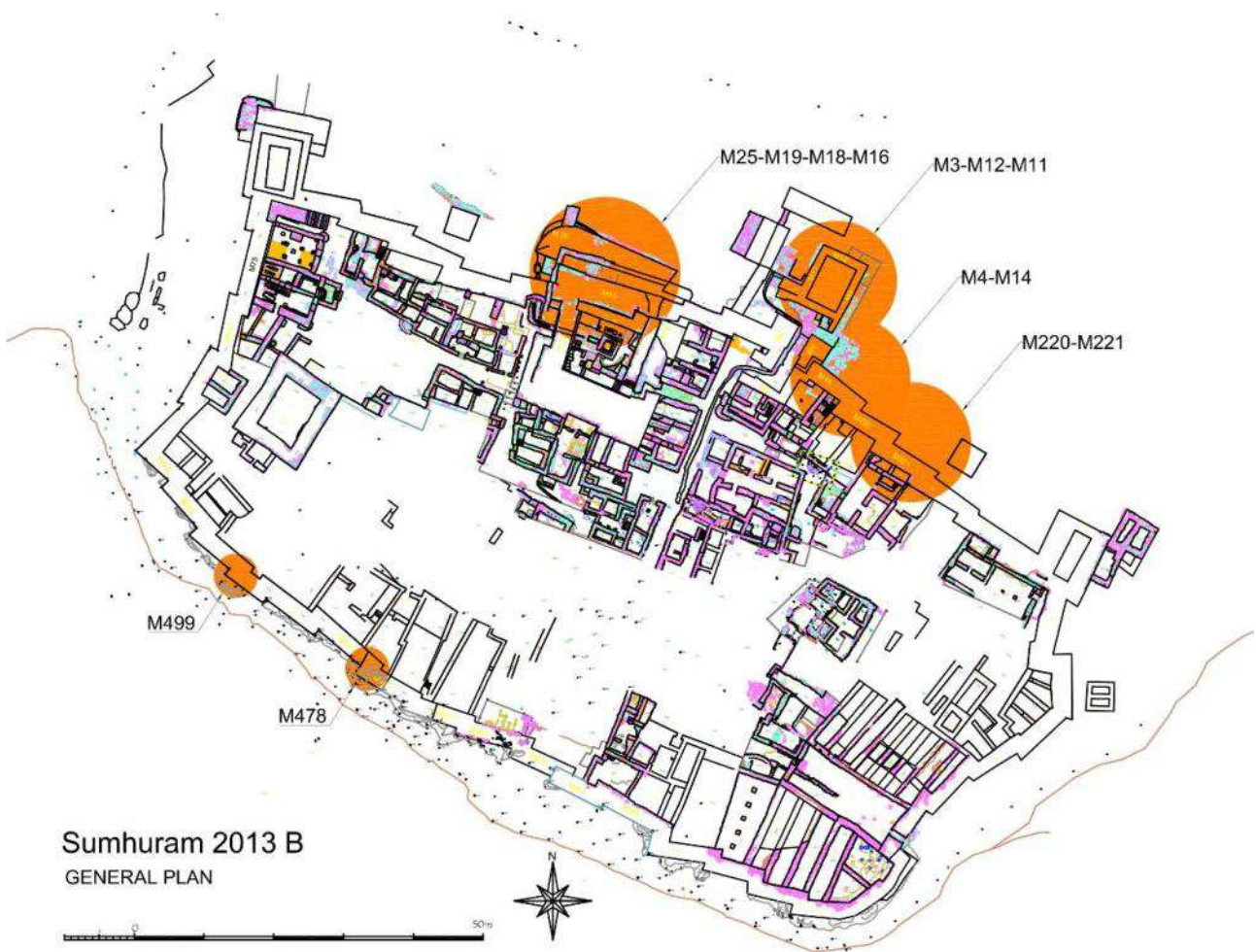
07th September – 03rd December 2013

Valter Filatondi

Introduction

The restoration activities, during this campaign, regards the dismantling and the reconstruction of part and/or entire external layer of the walls M3, M4, M12, M11, M14, M220, M221. All these walls are located at the north side of the city walls on the left side of the main entry of Khor Rori. The restoration also regards the rising up of the wall M499, M478 on the southern side. At last the restoration will regard the dismantling and rebuilding of the wall M19 located at the right side of the main entry on northern side.

The following map shows all the locations:



Worker Teams

Four teams of workers of twelve people each have been engaged for all the needed operations to complete the reconstruction of the above mentioned areas. One team of eight people was engaged to prepare the mortar and it is also necessary other four masons to follow and control all the workers

Working progress status

In order to check the advancement of the works, we daily took a significant number of pictures of the areas. The number of the pictures and the point of viewing from which they are taken from, are hereby reported in order to have a daily update about the working progress status.

Mortar preparation

Before starting the reconstruction of the walls, we provided several samples of composition for the mortar. We tried different percentages of brown and yellow colour in order to reach the same chromatic tone as the mortar previously used in the restoration. We prepared four different samples using the following mix:

1. **80** parts of brown colour with **200** parts of yellow colour
2. **80** parts of brown colour with **250** parts of yellow colour
3. **100** parts of brown colour with **300** parts of yellow colour
4. **200** parts of brown colour with **300** parts of yellow colour



Sand and lime were always:

- four buckets of sand with eight scoops (600grams/each) of lime powder.

As soon as the mortar dried, we chose the composition n. 2 that was the more similar to the previous used mortar.

To fix the stones one another, we used two different kinds of mortar as it has been done during the previous campaign:

- **stone mortar**, for the external stones, obtained by the mix of sieved sand, hydrated lime, brown and yellow oxides for the chromatic tone.
- **filling mortar**, used for the back filling of the structure, made with the same components, except the use of raw sand instead of sieved sand without any brown and yellow oxides.

Rising up of the wall M499

The wall was rebuilt during the SUM12B campaign, but because the level of the new pedestrian path, it is now necessary to rising it up. The current situation is shown on the following pictures.



From west side



From east side

On 09th September 2013 the preparation for the rising up of the wall, started. The top beautification has been removed and we proceeded with four new rows of stones on the front face of the wall. On 14th September 2013 the rising up of the wall was finished as shown on the pictures below.



From west side



From east side

Rising up of the wall M478

The wall was also rebuilt during the SUM12B campaign, and again because the level of the new pedestrian path, it is now necessary to rising it up of one meter. The current situation is shown on the following pictures.



Current Outside view



Current Inside view

On 09th September 2013 the preparation for the rising up of the wall, started. The top beautification has been removed and we proceeded with six new rows of stones on both faces of the wall. On 27th September 2013 the rising up was finished as shown on the following pictures.



Outside view after restoration



Inside view after restoration

Restoration of the wall M14

The current situation on 06th September 2013 is shown on the following picture.



On 07th September 2013 we started the dismantling of the external layer and the demolition of the collapsed left corner. At the end of the day the situation was as shown on the picture below.



On 14th September 2013 the demolition and cleaning was finished as shown below.



Then the reconstruction began and on 21th November 2013 the situation was as shown below.



Restoration of the wall M220

The current situation on 06th September 2013 is shown on the following two pictures.



Front view



Side view

On 14th September 2013 the demolition and cleaning was finished as shown below.



On 21th November 2013 the restoration was finished as shown below.



Restoration of the wall M221

The current situation on 06th September 2013 is shown on the following two pictures.



Front view



Side view

On 30th September 2013 the demolition and cleaning was finished and than the rebuilding started as shown below.



On 21th November 2013 the restoration was finished as shown below.



Rising up of the tower M4

The current situation on 06th September 2013 is shown on the following two pictures.

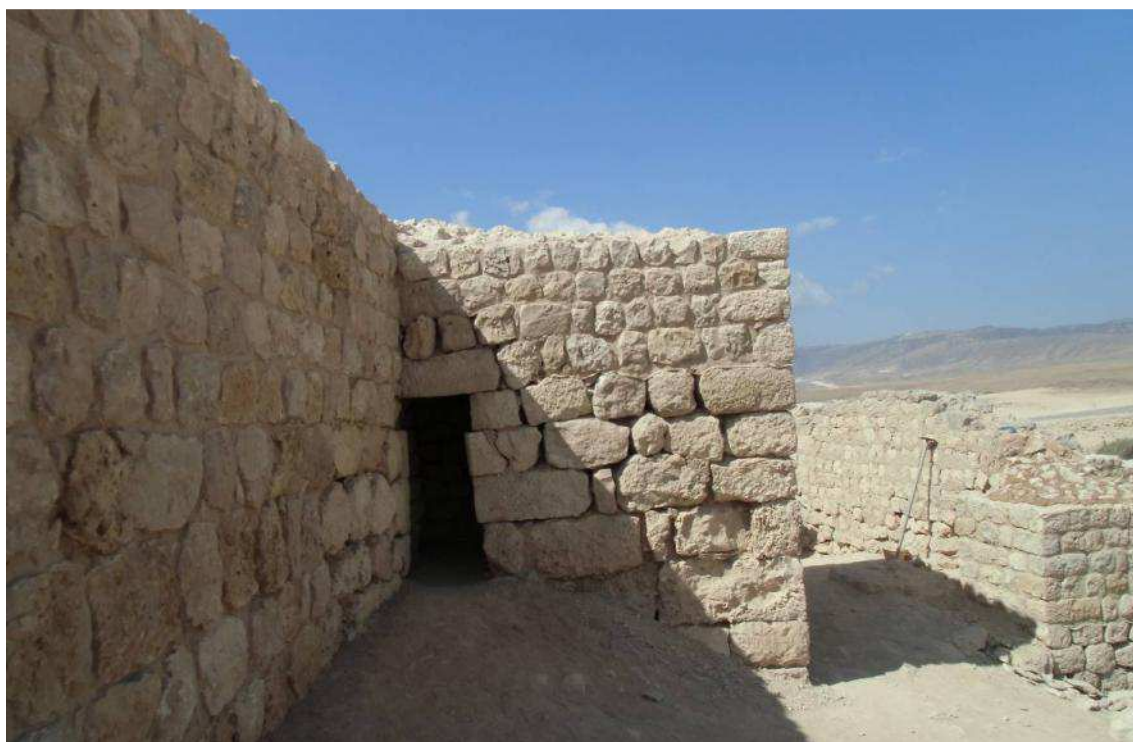


east view



north view

On 30th September 2013 the rising up of the tower was terminated as shown on the pictures below.



east view



north view

Rising up of the tower M6

The current situation on 30th September 2013 is shown on the following picture.



From east



From west

On 12th November 2013, after restoration the tower looks like shows below.



From east



From west

Restoration of the wall M3

The current situation on 06th September 2013 is shown on the following picture.

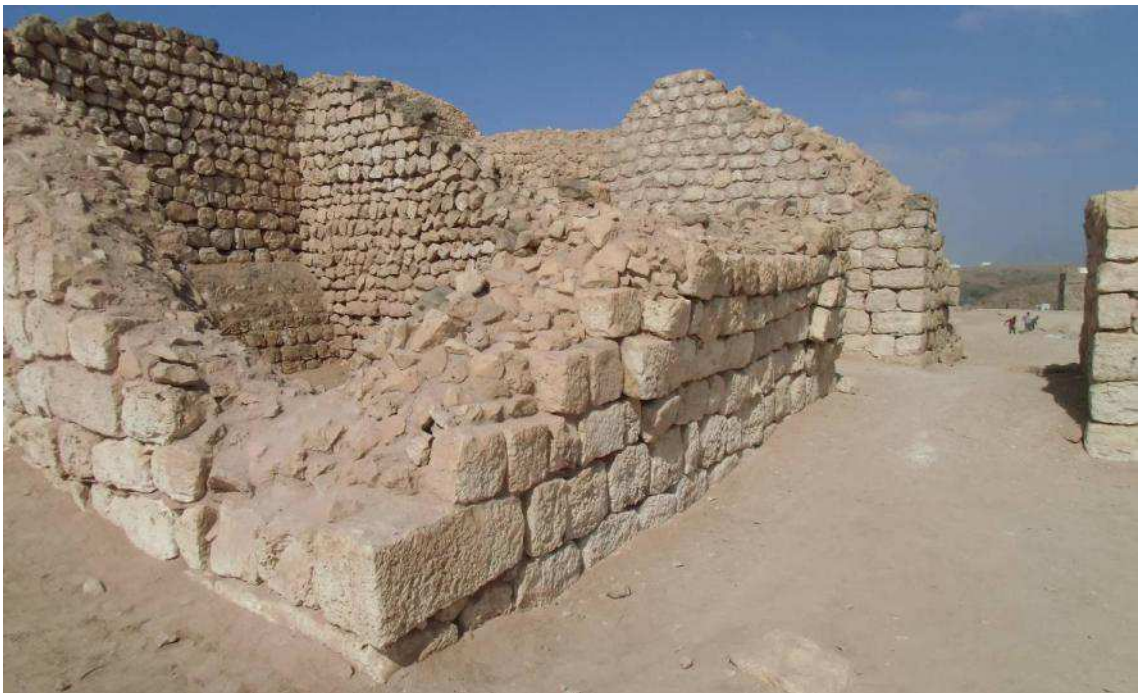


On 28th November 2013 the restoration was finished as shown below.



Restoration of the wall M12

The current situation on 06th September 2013 is shown on the following two pictures.



The picture below shows the wall during the restoration



On 28th November 2013 the restoration was finished as shown below.



Restoration of the wall M11

The current situation on 06th September 2013 is shown on the picture below.



On 24th November 2013 the restoration was finished as shown below.



Panoramic view of the left side of the main entry

The current situation, before restoration, on 06th September 2013 was as shown on the following picture.



After the restoration on 06th November 2013 is as shown on the following picture



Restoration of the wall M19

The current situation on 06th September 2013 is shown on the pictures below.



from inside



from outside

At the end of the mission, on 03rd December 2013, the situation was as shown on the pictures below. The rising up will continue during the next mission.



from inside



from outside