Interpreting Ancient Maya Neighborhoods through the Archaeological Record: Definition of the Dos Aguadas Neighborhood: Caracol Archaeological Project Investigations during 2023

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Report Submitted to Belize Institute of Archaeology

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Despite a century of settlement research in the Maya area, we do not have a full understanding of everyday life within ancient Maya society. Early research focused on the social elite with investigations of average residences only advancing through the last few decades of household archaeology. While we can make assumptions, we cannot demonstrate how these ancient people chose where they lived or how (or if) they were related to those who lived nearby; we also cannot fully establish whether neighborhoods were important factors for social cohesion and can only speculate about the importance of local community in establishing and continuing group identities. Previous field excavations, lidar acquisition, and subsequent analyses undertaken at Caracol, Belize supported by various grants, and in particular the Alphawood Foundation, has put us in a unique position to test and verify preliminary findings of neighborhood identification, composition, and cohesion by providing the first complete view of one ancient Maya neighborhood.

Research on ancient neighborhoods, including those at Caracol, has typically focused on crude topographic identifications of neighborhoods or suggested that clusters of residences are neighborhoods (e.g., Smith 2010b) without scientifically testing the validity of those neighborhood identifications. However, we can now more accurately define neighborhoods through geospatial analysis by focusing on the likelihood of regular and repeated interpersonal interactions among residents and testing these models with archaeological data. Initial work has also shown that material culture remains – particularly remains associated with ritual activity

found in burials and caches that are more resistant to change – are more similar within sampled neighborhoods than they are with other residences at the site (Chase 2021, 2023a). In addition, other functional necessities appear to be incorporated within each reconstructed neighborhood (e.g., lithic workshops). However, up to this point, we do not yet have complete information from all the residences within any one neighborhood at the site.

We propose to fully investigate the reconstructed Dos Aguadas neighborhood at Caracol during the 2023 and 2024 field seasons by conducting excavations in nine additional residential groups, leading to a sample that includes all 22 residential groups in this neighborhood. The 2023 field season successfully investigated six of these groups and the 2024 field season will investigate the remaining residential units. Conducting investigation in all residential groups in this neighborhood should provide us with a unique window into ancient life at Caracol, providing insights on how a neighborhood was organized and integrated. This information will be useful for other Mayanists and facilitate future research exploring the variation in the residential experiences of the ancient Maya in their cities, and it should also be useful to archaeologists in other regions and even social scientists interested in how (and to what degree) neighborhoods originate, operate, adapt, and endure in ancient (and modern) cities.

Background

Settlement pattern studies have broadened our archaeological understanding of the ancient Maya beyond a focus on elites, their material culture, and associated monumental architecture through the incorporation of data that pertains to the bulk of the population that once made up the ancient societies of the southern lowlands (Sabloff 2019). What this means for Maya archaeology is that we have gained a sizeable amount of archaeological information relating to the "every-day," non-elite segments of any Maya center. The application and conjunction of lidar data with settlement archaeology has also permitted Maya researchers to

leverage spatial data pertaining to where and how ancient populations were distributed, permitting the definition of urban and regional boundaries as well as the better contextualization of the monumental architecture in the final phase of any given center (A. Chase et al. 2012, 2014a, 2014b). What this means is that we should now be able to define the structure of ancient Maya cities – however, this is not an easy task, especially given the variation in city sizes (e.g., D. Chase et al. 2023).

Largely due to the new dimensions added by both lidar and extensive settlement data to our understanding of the past, there has been a flurry of recent interest in defining the structure of Maya cities and in analyzing their variability (ASZ Chase 2016, 2023b; ASZ Chase et al. 2024a; A. Chase and D. Chase 2016; A. Chase et al. 2022; Houk 2015; Hutson 2016; Marken and Arnauld 2022). Whereas such interest in the past generally focused on elites, their texts, and their associated structures like palaces and temples (Inomata and Houston 2001; Martin and Grube 2000; Schele and Mathews 1998), broader archaeological interests today focus on the distribution of households over the landscape and on their relationships to larger constructions, plazas, and resources, such as water sources – features that could facilitate or provide services to a city's inhabitants (ASZ Chase 2021; A. Chase et al. 2020; D. Chase et al. 2020; see also Robin 2003).

Using Caracol, Belize as an example, we have been able to demonstrate that the ancient city covered some 240 square kilometers and contained minimally 100,000 inhabitants at 650 CE (ASZ Chase et al. 2024b). The city was characterized by a dispersed arrangement of public plazas and architecture, some purposefully constructed, but with other pre-existing units incorporated into the metropolitan infrastructure as the city came to cover its huge landscape. One reason that the city grew to the size that it did was because it was a long-term sustainable

center. The agricultural terraces that define the terrain between the almost 9000 residential groups meant that each household was capable of growing the basic crops that they needed – and then some – possibly enough for the trade and export of some subsistence items. Based on his own work in similar kinds of cities like Angkor in southeast Asia, Roland Fletcher (2009, 2012, 2019) has defined this kind and form of city (that is actually found worldwide in tropical environments) as "low-density agricultural urbanism." We have referred to it as a "garden city" (A. Chase and D. Chase 1987:53, 1998; see also Barthel and Isendahl 2013 and Graham 1999) because of its urban character, the inclusion of intensive agriculture within city boundaries, and its long-term sustainability.

Even though very extensive in size, Caracol the city was tied together by a dendritic internal causeway or road system that linked monumental plazas at each causeway terminus into an integrated unit that eventually connected to the unique central architectural complex known as Caana (A. Chase and D. Chase 2017). The primary road system in Caracol geographically spanned over 20 kilometers, running from the city's eastern boundary above the Macal and Raspaculo Rivers through several architectural nodes before reaching Caana and then continuing west through two other nodes and ending above the Chiquibul River in Guatemala. This road system provided centralized control for the flow of goods moving from the Maya Mountains into the southern lowlands and also permitted other imported and traded items widespread distribution throughout the city (again with centralized control; all roads lead into or away from the downtown).

Based on the distribution of architectural features over the landscape, it has proven possible to subdivide the city into 25 districts (with three primarily in Guatemala), each centered on a concentration of monumental architecture and public space. These districts were all

connected to downtown Caracol via the causeway system and would have been used for economic matters and administration of the Late Classic city. Each district would have contained an average of approximately 4,500 inhabitants (ASZ Chase 2021, 2023b). While the larger interconnections of the city are easier to identify because of the causeway system and the distribution of the public architecture, getting at smaller social units is considerably more difficult. Spatial analysis, more complex than that carried out to establish the various districts, has established that 373 neighborhoods likely existed within the portion of Caracol that is in Belize based on models of past residential movement (Figure 1).

The Problem: How was Ancient Maya Residential Settlement Organized at Caracol?

For almost four decades, we have been involved in looking at the archaeological variability that was expressed in residential groups within the city of Caracol. In the residential groups that we initially tested at the site, we focused on getting an idea as to when they were occupied and used (i.e., "dated") (A. Chase and D. Chase 1989; D. Chase and A. Chase 2003). Over the course of initially testing these residential groups, a ritual focus on the eastern structures in most of these groups became clear (A. Chase and D. Chase 1994; D. Chase and A. Chase 2004a) and it also became evident that there were different numbers and kinds of deposits in these ritual structures (e.g., D. Chase 1998; D. Chase and A. Chase 1998; Jaeger 1994). Excavations in residential groups also revealed that occupants in some of these groups manufactured specific goods made of different raw materials (e.g., Cobos 1994; Jones 1994). This initial research also led us to postulate the existence of markets at Caracol (A. Chase 1998; D. Chase and A. Chase 2020).

Over time, the settlement pattern research that we carried out became more focused in specific areas. After testing residential groups for temporal placement in various parts of the site

(D. Chase and A. Chase 2003), we subsequently began to focus on concentrated excavations of residential groups located in specific areas. This led to the excavation of a series of residential groups that were helpful in identifying many of the ritual deposits as being symbolic markers of time (A. Chase and D. Chase 2013a; D. Chase and A. Chase 2004b, 2011, 2024).

The recognition of the existence of multiple market areas at Caracol (A. Chase and D. Chase 2001; D. Chase and A. Chase 2014; A. Chase et al. 2015) also suggested to us how the different goods that were being excavated in residential groups came to be there (following Hirth 1998) and also that intensive household craft production was being undertaken to participate in this exchange system. Thus, we also wanted to investigate the differential distribution of goods across the city and to know whether or not different markets had access to different goods. Some items, such as obsidian (Johnson 2016), were rather ubiquitously distributed throughout the city, but others were not. For instance, the archaeological distribution of Belize Red footed plates versus Belize Red footed dishes in special deposits appeared to indicate a distinctive distribution (D. Chase and A. Chase 2014:fig. 4) within certain parts of the site. We also wanted to know whether there was any organization in terms of production and distribution within co-located residential groups. This led us to explicitly try to look for neighborhoods in the archaeological record of Caracol.

The research outlined here seeks to hone in on the definition of neighborhoods at Caracol based on lidar analysis, archaeologically recovered materials, and variability within adjacent residential groups during the Late Classic era.

Relevant Archaeological Research

Our archaeological interest in neighborhoods started with our research at Santa Rita Corozal, Belize, carried out between 1979-1985, where we focused on how that city was

organized and structured (D. Chase 1986). However, Santa Rita Corozal was much smaller than Caracol and the larger site size at Caracol meant that we could not focus on neighborhoods initially because of the need to obtain a basic spatial and temporal understanding of the city's expansive landscape. After some 20 seasons of research at Caracol, however, we began to wonder if the Santa Rita Corozal patterns, such as an elite and ritual focused residential group being placed within each site sector, might also exist at Caracol.

Prior to 2008 at Caracol, our approach to looking at co-located residential groups had been minimal. However, excavation of the GRB Group in 2007 changed this focus by highlighting the variability in ritual practices that could occur in residential groups. The GRB residential group had been selected for excavation simply to determine what kind of settlement existed northwest of Caana. The excavation of its eastern structure produced a stratified sequence of cache vessels and burials that could be temporally seriated. The number of deposits and items found within the eastern building of the GRB residential group was also reminiscent of the large number of deposits found within the eastern building of the Highrise residential group in 1989 by Susan Jaeger (1991), something we had believed to be an anomaly given the other excavations that had been done in the two decades after this. While certain residential groups had large numbers of cache deposits within their buildings and not only in front of the eastern ritual building, the pattern initially appeared to be random. Excavations in 2008 and 2009 in the conjoined residential groups of Alta Vista and Baja Vista confirmed the patterns seen at Highrise and GRB in terms of the large numbers of eastern deposits, but not the reason that such a pattern existed (A. Chase and D. Chase 2013).

Starting in 2012, we explicitly targeted what we considered to be a potential neighborhood, intending to test every residential group within the defined area with extensive

and intensive excavation. The research design was oriented so as to see how the residential groups did or did not articulate with each other and also to look at the distribution of goods within these residential groups as a result of participation in a market system. The research proposed here seeks to complete the sample of residential groups within the Dos Aguadas neighborhood, which has firmer boundaries established as a result of lidar analysis (ASZ Chase 2021).

To initially define this neighborhood, we focused on topography and selected a highly visible area immediately southeast of the Caracol epicenter that we called the "Machete Plateau;" it was characterized by residential groups located on a higher ground surrounding a flat area (plateau) that supported a natural aguada or bajo; these residential groups were in turn surrounded by lower terraced agricultural fields. Our working definition of neighborhood was that supplied by the work of Michael Smith (2010a, 2010b:139): "A neighborhood is a residential zone that has considerable face-to-face interaction and is distinctive on the basis of physical and/or social characteristics." We viewed the identification of neighborhoods as being useful in determining other underlying principles of organization within the city of Caracol.

From 2012 through 2014, some fourteen co-located residential groups on the Machete Plateau were excavated, as well as two others immediately west of this area and the Conchita Causeway (Figure 2). These excavations resulted in the archaeological investigation of 45 structures and the recovery of 9 tombs, 31 burials, and 71 caches that provided useful information in terms of dating and the primary distribution of material items. The primary context, recovered archaeological materials generally spanned the Early Classic through Terminal Classic Periods, although Preclassic materials were also recovered in fill deposits. A lithic workshop area and a bone workshop area were additionally identified for this area.

As a result of investigating these residential units between 2012 and 2014, a series of interpretations were possible concerning the settlement of this area (see also ASZ Chase et al. 2023a for more detail). First, some of the residential groups on the Machete Plateau appeared to have begun construction in the early part of the Late Classic Period and to possibly represent in-migration to Caracol resulting from the successful warfare practiced by the site (A. Chase and D. Chase 1989; D. Chase and A. Chase 2002, 2003); future analyses will check the stable isotopes of burials recovered in these contexts to determine origin. Second, groups that are nearest neighbors can manifest very different statuses, which is a pattern evident in what are called "walking cities" (A. Chase and D. Chase 2016:365; Story 2006; see also Hutson and Welch 2021); this is evident in both the size and quality of construction, and confirms interpretations made earlier about different residential groups having different diets (A. Chase et al. 2001). Third, all residential groups within this area appear to have had access to the use of ritual items like face and finger caches and to have had access to prestige items like jadeite and ceramic tradewares, indicative of participation in a market economy (D. Chase and A. Chase 2014, 2020). Fourth, manufacturing of lithics and bone artifacts was generally undertaken in smaller groups that were not the highest status based on size, quality of construction, and other deposits. Finally, this area evinces signs of extensive urban renewal in which complete groups were demolished, removed, and then rebuilt in the Late Classic Period, with ritual objects from earlier occupation sometimes being included within later deposits. This means that there would be great difficulty in assuming the full recovery of a complicated occupation history through limited - archaeological excavation.

Following the Machete Plateau neighborhood program, we sought to gain larger samples of well-excavated residential groups from other areas for comparative purposes. From 2018

through 2020, this resulted in the return to the northeastern sector of Caracol proper in order to see if there were possibly different goods being distributed in different markets. These excavations built upon an earlier settlement program that had been carried out between 1992 and 1994, specifically focusing of residential groups in the vicinity of the Puchituk Terminus and in the vicinity of an area of public architecture 5 kilometers distant from the epicenter. New excavations in the "Monterey public architecture" some 5 kilometers distant from the epicenter were carried out in the 2019 field season and recovered a plain ballcourt marker and also two Late Preclassic caches that were dated by stratigraphy and two associated carbon dates to between 74-130 CE; another residential group south of the Monterey public architecture also produced Late Preclassic caches and an overlay of Late Classic and Terminal Classic materials.

Residential groups associated with Puchituk Terminus were the specific focus of excavations carried out in 2018, 2019, and 2020, resulting in eleven new complexes being excavated in this area (thirteen in total). These investigations gathered information on 24 buildings in the residential groups and the recovery of 8 tombs, 26 burials, and 34 caches. Two of the excavated groups also produced evidence of having practiced lithic production; indeed, one excavation alone yielded 54,686 pieces of chert (with none visible on the ground surface). Taken together, these two areas, both located some distance from the Caracol epicenter, permit intra-site comparison of the kinds and quantities of market goods that were being distributed to residential groups

A different approach to looking at neighborhoods was undertaken by Adrian Chase (2021) for his PhD dissertation on the urban structure of Caracol. Using models and theories from cognitive science, network science, sociology, and geography, he was able to document that ancient neighborhoods, characterized by face-to-face interactions would have been

constituted by under 500 people given cognitive constraints on frequent face-to-face interactions (see Kosse 1990; 2000; Lindenfors et al. 2021). The distribution of causeways and public architecture at Caracol permitted him to identify the nodal units for 22 districts in Belize (an additional 1 to 3 exist in Guatemala for a total of 23 to 25). Using the lidar data, he was then able to use least cost area allocation to segment the urban landscape into units that would have likely comprised each district (as urban service areas centered on public plazas) (see A.S.Z. Chase 2016:24). Conducting a more detailed analysis of travel times, facilitating frequent face-to-face interactions in the past, resulted in the definition of minimally 373 neighborhoods (only in the Belizean portion of Caracol) through clustering analysis of residential travel-times. The cohesiveness of eight of these proposed neighborhoods were then tested with archaeological materials recovered from the residential groups within their boundaries (A.S.Z. Chase 2021, 2023a).

Use of his methods segmented the initially proposed Machete Plateau neighborhood into two different units, the Machete and Dos Aguadas neighborhoods (Figure 3), but the archaeological comparison of this result showed distinct material differences in each of these halves, demonstrating that residential groups within each proposed neighborhood were more similar to each other- in terms of ritual deposits – than to those outside the proposed neighborhood. To carry out this archaeological analysis, the items recovered in ritual deposits were broken into both materials and form classes that could be tested relative to kinds and numbers of items using similarity and dissimilarity indices (see Horn 1966; Morisita 1959; Wolda 1981). Correlation coefficients were then run for excavated units within each neighborhood which strongly supports these suggested divisions (with statistical significance).

However, other patterns became manifest in this analysis that can be used to categorize Caracol neighborhoods as broader social units. Without this kind of analysis, the identification and validation of these patterns would probably not have been possible (e.g., Thompson et al. 2022). In looking at excavated residential groups within the neighborhoods defined by least cost allocation methods, it became clear that while there was differentiation of the residential groups within each neighborhood, taken together, the residential groups within each neighborhood would have likely functioned as a cohesive unit.

This can be seen in the distribution of notable practices and social markers within residential groups and neighborhoods. For instance, based on the current excavation dataset, no neighborhood had more than one or two residential groups focused on the same kind of craft production. Nineteen lithic workshops have been defined in the settlement work carried out at Caracol and their distribution shows that no more than one or two residential groups in a neighborhood were producing lithics for the rest of that neighborhood (Johnson and Chase 2024). The use of obsidian eccentrics within residential groups within a neighborhood is limited in the same way, as are patterns related to the decoration of human dentition. For instance, the distributions of both Tau-Notched Teeth, sometimes referred to as Sun God teeth, and the various inlaid jadeite, pyrite, and filed teeth that are widely distributed in the Caracol residential groups (occurring in at least 65 excavated residential groups; D. Chase and A. Chase 2017), suggest that some neighborhoods may have higher proportions of these features than others, perhaps relating to occupations, ethnicities, or family ties.

Perhaps the most interesting pattern relative to neighborhoods appears to be the concentration of caching practices within one residential group within each neighborhood, suggesting that, while each residential group could carry out its own ritual ceremonies, there was

one plazuela group in particular that likely represented the neighborhood unit. The residential group that does this usually has a preponderance of ritual remains in the form of cache vessels that are often embedded into the eastern structure, rather than existing simply in front of the building; it is often not a presupposing building. Thus, Structure 2E28 in the Highrise residential group (Jaeger 1994) is associated with 14 caches and 1 tomb; Structure I5 in the GRB residential group is associated with 7 caches and 6 burials (Chase and Chase 2013a); Structure I28 in the Rebel residential group yielded 13 caches, 1 tomb, and 2 burials; Structure K26 in the Zumba residential group is associated with 10 caches, 1 tomb, and 4 interments; and, Structures F33 and F39 in the double group known as Alta Vista are associated with 15 caches and 6 burials.

Thus, multiple patterns visible in the archaeological data - both on the levels of the artifactual materials and the residential groups themselves, and especially when organized through least cost allocation analysis, appear to validate the existence of neighborhoods as important social units in ancient Caracol. However, as a result of these newer groupings and analyses, we did not have a complete sample for any Caracol neighborhood – and this research program was intended to remedy this.

Research undertaken during the 2023 Field Season

Whereas the original topographic conceptualization of what was then termed the "Machete Plateau" in 2012 – and conceived of as a single neighborhood – had largely excluded agricultural fields and actually used them to aid in formulating a boundary, the newer lidar spatial analysis that defined neighborhoods was based on least-cost paths, clustering, and nearest neighbor analyses (ASZ Chase 2021) and included the agricultural fields within the neighborhood boundaries. The new analysis reconceptualized the topographic information and divided the Machete Plateau into two distinct neighborhoods. The western ridge of the Machete

Plateau that bounded the Conchita Causeway (and including the Machete, Bimbo, and Tortilla residential groups) was included within a distinct western-focused "Machete" neighborhood. The reconceptualized eastern "Dos Aguadas" neighborhood incorporated nine new groups to the east and southeast as well as new field systems.

Accordingly, a two-year project to fully document the Dos Aguadas neighborhood was submitted to and accepted by the Alphawood Foundation in 2022. The 2023 field season lasted from mid-January to the end of March and involved a crew of 20 individuals (Table 1). As a result of the field season, a series of six co-located residential groups located in the extreme southeastern section of the Dos Aguadas neighborhood (see Figures 2 and 4) were investigated. Each of these residential groups had multiple buildings lining the edges of a central plaza and were located in an area approximately 1.5 km southeast of the site's large central monumental architecture. The northern three groups were each associated with their own reservoirs. One or more of the structures in each living area were intensively excavated (Figure 5). Of particular importance to this research design were the recovery of artifactual items that would show differences among the Caracol inhabitants living in these residential groups. Having long established that the eastern building in most Caracol residential groups was the locus for ritual deposits associated with burial and caching practices (A. Chase and D. Chase 1994; D. Chase and A. Chase 1998), the materials recovered in these buildings reflect the beliefs, wealth, and status – and differences – of various family units living within the residential groups. During the 2023 field season, the archaeological investigations produced a series of twenty relevant ritual deposits – 5 tombs, 7 non-tomb interments, and 8 caches – that help both to date the archaeological contexts and also to provide comparative materials for understanding past inter-group relationships. One potential lithic workshop was also identified in a residential group. The

full comparative analysis of these residential groups will be concluded after the 2024 field season has been completed.

Astro Residential Group: Structures L59-L63

The Astro residential group is located on the northern end of a ridge that supports three residential compounds; the ridge is approximately 1 kilometer southeast of the downtown part of Caracol. The Astro group contains six buildings, the most prominent of them being the eastern structure. The other buildings in the group are all very low platforms. All three residential groups on this ridge were selected for excavation because they were within the defined boundary of the Dos Aguadas neighborhood.

Structure L61

Structure L61 is the eastern structure within the Astro Residential Group (Figure 6). It rose approximately 0.8 m above the plaza level and constituted the focal building for this complex.

Operation C229B was an axial excavation on Structure L61 that measured 2 m north-south by 6.35 m east-west (Figures 7, 8, 9). The excavation was carried down to bedrock in the middle of the structure. There appeared to be two architectural orientations in existence at this locus. The latest one, for which little architectural detail existed other than the platform itself, was oriented approximately 17 degrees east of north, while the bulk of the buried features were oriented to true north. It would appear from the mounded platform that the latest version of the building had a significantly different orientation from all earlier manifestations. Part of an earlier front step was in existence on the western side of the building, behind which a burial had been placed into bedrock. The well-constructed tomb chamber in the rear of the building that was set atop bedrock was missing its upper portion and much of its western wall. The proportions for

this chamber suggest that the earlier version of Structure L51 was likely over a meter in height. All of the recovered special deposits appear to have been associated with the earlier orientation. Additionally, pieces of a reconstructible cache vessel (Figure 10a) were recovered in the fill of the western part of the excavation and this may have once been purposefully placed in the plaza in association with the earlier building. The only other artifact of note is a crudely shaped large rectangular piece of limestone that resembles a large limestone bar (Figure 11)

SD C229B-1 was assigned to an interment that had been placed deep into a hollowed-out bedrock cut that had been edged with a layer of stone and then covered with a series of capstones (Figures 9, 12, and 15). The earth in the crypt was very hard packed, making excavation difficult. The crypt contained the largely disarticulated bones of minimally three individuals, two adults and one older adult. Two skulls were recovered on the south edge of the crypt and one in the middle. Two teeth with inlay holes also were recovered. Burial items accompanying this interment included two complete vessels and the base of a third cylinder (Figure 13), two spindle whorls (Figure 14b and c), and one shell scoop (Figure 14a).

SD C229B-2 was assigned for what appears to have been a partially dismantled tomb, which left some of the artifactual material in place (see D. Chase and A. Chase 2003 for other destructive re-entries at Caracol). The chamber measured approximately 2.2 m in length and approximately 1.05 m in width (Figures 15 and 16). The complete chamber would have enclosed approximately 3.1 m^3 of space. Set outside the chamber on axis to it and against the back of stones that supported the tomb's western wall was half of a vessel (Figure 10b). While the entire length of the eastern and northern walls of the tomb existed, only about half of the original height of these walls were still intact; the lower part of the southern wall was intact as was the southwest corner, but the western wall of the chamber had been almost entirely

dismantled. A 0.5 m wide bench ran the length of the chamber on its eastern side and a smaller one, 0.25 m wide, appears to have also existed on its western side. Most of the materials that were still extant in the chamber were found in the deeper depression between these two benches. It was clear that everything had been disturbed and that nothing was in its original place. Materials clearly associated with the chamber include four reconstructible ceramic vessels (Figure 17a-d) and the complete base of an olla (Figure 17e); the inclusion of a partial olla matches burial practices seen in the group to the west of Alto (in the Dos Aguadas tomb). The human remains of two adult individuals were recovered (although not in anatomical order); one mandible shows tooth loss.

SD C229B-3 was assigned for an interment found just above bedrock in the central part of the investigation (Figure 18). Age and sex could not be determined. A jadeite bead accompanied the burial as did two ceramic vessels (Figure 19).

Structure L62

Structure L62 was the southern structure in the Astro Residential Group (Figure 6). It was a very low platform Because some of the stones for the front step were visible without excavation, suggesting that others might be in place, it was selected for areal excavation.

Operation C229C was assigned for an areal excavation placed over the northern step of Structure L62 (Figures 20 and 22). The excavation measured 2.3 m north-south by 7.0 m east-west and only consisted of the removal of the humus layer in order to expose the underlying construction. Because a second step or facing was revealed in this excavation, a summit axial excavation was undertaken to the south (measuring 2 m by 2 m). This smaller summit excavation also found linear stone feature, suggestive of one or more benches. Two benches had originally existed on the summit, with the eastern one protruding further north and the western one.

However, at some point in the past these two benches were joined and became one. Excavation in a small area between the original bench stones (visible running north-south) confirmed this modification, showing that an alleyway had been infilled with the western bench joined to the eastern bench and giving the appearance of a single construction. Beyond the usual sherds, chert, and obsidian, a hammerstone and mano fragments were also recovered.

Houston Residential Group: Structures L64-68

The largest group associated with the ridge was the one that surmounted the highest point on the ridge. This group was situated on a raised platform that had structures on its northern, eastern, and southern side. The eastern side had three structures, two of them appearing to be lower wings to a taller central building; however, excavation demonstrated at least one of these presumed wings was a separate platform, distinct from the central building.

Structure L66

Structure L66, centrally located on the eastern side of its plaza, was the tallest structure in the residential group and rose over 1.8 m above what had once been a plastered plaza surface (Figure 22). A constructed reservoir is situated to the east of the building. The axial excavation of the building recovered the remnants of steps on its western slope and also a floor that covered the northern extent of a double-chambered tomb complex and its entryway. Four other formal deposits were recovered in the plaza area in front of the building - two burials and two caches.

Operation C230B was an axial trench on Structure L66 that measured 5.75 m east-west by 2.0 m north-south (Figure 23, 24, and 25). Two northward excavation extensions were made from this original trench. The first measured 0.5 m by 0.5 m and was placed so as to fully excavate C230B-4. The second measured 1.7 m (east-west) by 3.0 m and permitted exposure of

the capstones over the northern end of SD C230B-6 and the entryway to a double-tomb complex, thus, providing the ability to also excavate the chamber containing SD C230B-7.

SD C230B-1 was assigned for a Late Classic censer lid (Figure 26a) that was in the center of the trench on the floor level in front of one of the steps for the building. Located in the fill of the building beneath this lid were a broken celt (Figure 27a), a round limestone ball (Figure 27b), most of a finger bowl (Figure 26b), as well as a marine shell (Figure27m).

SD C230B-2 was assigned for a face cache located in the center of the trench in front of Structure L66 (Figure 28b). The upper part of the vessel containing most of the rim was missing. The face of the vessel was oriented to the southwest. Located in the interior of the face cache was a lip-to-lip finger cache (Figure 28a). It is suspected that the finger cache was deposited in this location subsequent to the initial placement of the face cache and that its siting disturbed the face cache, resulting in the missing rim.

SD C230B-3 was assigned to a face cache located half a meter south of SD C230B-2 at the edge of the trench. This vessel was complete with its lid (Figure 29) and faced to the southwest. Within the base of the vessel were six oyster shells and two small clam shells (Figure 27e-j).

SD C230B-4 was assigned for burial containing a supine individual extended north-south in the center of the excavation with head to the north (Figure 25). The individual had been placed directly on bedrock and had been covered with a set of capstones (Figure 24). A single clam shell accompanied the interment (Figure 27l).

SD C230B-5 was assigned for a flexed burial uncovered on bedrock in the western extent of the excavation (Figure 30). The head of the individual was to the north. One of the recovered teeth had an inlay hole. Bones of a second individual were also recovered. The

burial was covered with a single large capstone upon which a large number of sherds were deposited (Figure 24). The only artifact associated with the interment is a small carved shell (Figure 27k).

SDs C230B-6 and 230B-7 was assigned for a double-tomb complex with antechamber that was uncovered beneath the frontal portion of Structure L66 (Figures 31 and 32). The westernmost tomb was assigned SD C230B-6 and the easternmost chamber was named SD C230B-7. The western chamber had bedrock as its western wall and base for the opposite wall. The eastern chamber was completely stone lined, but set on bedrock. There was a fairly sizeable antechamber to the north that opened into each tomb with a formal step-down in each. The eastern chamber enclosed approximately 2.08 m^3 of space and the western chamber had 1.97 m^3 of space. With the antechamber, a total of 5.36 m^3 would have been open-air when constructed. Artifactual materials were distributed throughout the chambers and the antechamber, but most of the bone was in the two chambers and was disarticulated. As two skulls were found at the southern end of the western chamber, it is likely that the individuals had been placed with their heads in that direction. In contrast, a mandible and skull fragments were recovered in the northern half of the eastern chamber. Two teeth were recovered in entryway for the chambers, probably indicative of reentry and disturbance (as evidenced in the non-articulated bone arrangement in the chambers) The easternmost chamber also yielded a jadeite inlay on a tau-shaped upper incisor. Both chambers held the remains of more than one individual; age and sex are problematic. The antechamber yielded a carved shell (Figure 33a) and part of a ceramic cylinder (Figure 34a). The eastern chamber (SD C230B-7) contained the upper half of a small pottery drum (Figure 35a), as well as a small red footed bowl (Figures 35b and 36b) and half of another bowl (Figure 35c). The western chamber (SD C230B-6) contained three pottery

cylinders (one polychrome; see Figure 36), a small footed plate, a dish, and pieces of two large pottery cache dishes (Figure 34). Also recovered in the eastern chamber were a limestone spindle whorl Figure 33d), a hematite bead (Figure 33b), a marine shell fragment (Figure 33c), and 22 flamingo-tongued shells in the middle of the chamber associated with the mandible and skull fragments (Figure 33e-z).

Structure L67

Structure L67 appeared to be a southern wing that had been added to Structure L66, rising approximately 0.5 m above the modern humus level. To double-check the relationship between the two buildings, an excavation was placed at the southwestern area where the two should have joined.

Operation C230D was a small areal excavation measuring 2.0 m east west by 2.6 m north-south situated at the juncture of Structure L66 and L67; an additional area of 0.5 m by 1.0 m was excavated in the southeastern part of the excavation on the structure summit (Figure 39). Only the humus layer was cleared down to the plaza floor level for this excavation, exposing the facing for Structure L67 and the side of Structure L66, demonstrating that they were in fact two different buildings.

Plaza Test

Because no structure was in evidence on the western side of the Houston plaza, a test excavation was placed near the western edge of the raised platform to see if these was any evidence of buried construction.

Operation C230C measured 2.0 m east-west by 3.8 m north-south and was dug down to bedrock (Figures 37 and 38). No evidence of any architectural construction was encountered.

The entire excavation consisted of platform fill set directly on bedrock, indicating a single phase construction effort.

Nasa Residential Group: Structures L73-L75

The third residential group on the ridge containing Astro and Houston residential groups was named Nasa. Nasa is located approximately 50 m southeast of the Houston residential group at a slightly lower elevation. It consists of three very indistinct structures. The eastern and southern structures are very low (Figure 40); the southern building could be defined by a crude line of stones and the eastern one was not very clear. The northernmost structure was situated on the edge of the raised platform and was about 0.2 m in height on its eastern side. Three small excavations were made into the Nasa residential group. Only one of these excavations produced a substantial amount of artifactual material, indicating the possibility of a lithic workshop in this area.

Structure L73

A very indistinct rise is visible on the eastern side of Nasa residential group, suggesting that a structure was located here. Excavation recovered a facing that was not aligned with the underlying platform (Figure 40). This low building was clearly not an eastern shrine; the artifactual material indicates probable lithic production at this locus.

Operation C231B measured 2.0 m by 2.0 m and was oriented to the edge of the Nasa platform (Figures 40, 41, and 42). The excavation exposed the southern facing of a building, indicating that it was more directionally oriented than the supporting platform. Even though only humus was removed, a surprising amount of chert lithics were recovered. Some 409 pieces of chert were catalogued and include: 20 drill blanks, 15 drills, 111 chert chunks, 2 chert cores, 46 chert core fragments, 214 chert flakes, and 1 chert hammerstone. Part of an obsidian blade with

heavy edge damage was also recovered. Thus, it is likely that limited lithic production was taking place on the eastern edge of Nasa.

Structure L75

Structure L75 was located on the southern edge of the Nasa residential group. It was most likely a line-of-stone building supporting a perishable structure. An excavation was placed over what was thought to be its front, but only succeeded in finding the western edge of the building.

Operation C231C was a small areal excavation, measuring 1.3 m north-south by 3.0 m east-west, placed over the front of Structure L75 (Figures 43 and 44). It exposed the western facing for this building, but little else. Excavation into the core of the building did not reveal evidence of earlier architectural construction at this locus.

Structure L74.

Structure L74 is the northern building in the Nasa residential group. It is the best-defined structure in this group, but even its outlines are not clear on the ground surface.

Operation C231D was an excavation into the western side of the building, seeking to examine what appeared to be two defined facings. Both of these facings were in fact recovered. The investigation measured 3.95 m east-west by 2.0 m north-south (Figures 45 and 46). The excavation was taken down to bedrock and found no other architectural features, indicating that Structure L74 was a single phase Late Classic construction. A broken portion of a granite mano in the building fill (Figure 47).

Apollo Residential Group: Structures 2C1-2C4

Located on a high hill approximately 200 m southeast of the ridge supporting Astro, Houston, and Nasa residential groups is the Apollo residential group. The group is on a raised platform with a structure on each side of a central plaza; the northern structure is the tallest,

raising about 1 m above ground level. Two excavations were made in this group, an axial penetration of the eastern structure and a plaza test (Figure 40).

Structure 2C2

Structure 2C2 is located on the eastern side of the Apollo residential group and rises approximately 0.7 m above the ground level in the associated plaza. No architectural features could be seen associated with the building prior to excavation.

Operation C232B was assigned to an axial trench, measuring 2.0 m north-south by 5.3 m east-west, placed over Structure 2C2 (Figures 48, 49, and 50). Two facings associated with the structure were recovered, a front (west) step and then a facing for the summit, which likely held a perishable structure. Penetration of the fills for this structure resulted in the recovery of two burials (one in the structure and one in the plaza) and five caches (three in the plaza and two in the rear of the building). An earlier floor level was encountered in the rear of the building, indicating minimally two different phases of construction. Bedrock was encountered in both the front and rear excavation.

SD C232B-1 was assigned for a small lip-to-lip cache (Figure 52a) found on axis to the structure in the fill for the plaza floor associated with the latest building (Figure 50). Of the three caches in front of Structure 2C2, this one was located the furthest west. Initial clearing also recovered a worked shell in this general vicinity (Figure 51c) as well as an upper left human central incisor.

SD C232B-2 was assigned for a second lip-to-lip cache. (Figure 52b) found in the plaza floor fill between SD C232B-1 and SD C232B-3 (Figure 50). The upper lid was fairly intact, but the lower vessel was crushed. However, the lower vessel rested on a large “laurel-leaf shaped” chert biface (cover; Figures 53 and 54a) that was in association with three obsidian

lancets (Figure 54b-d) on the southern end. The chert biface was roughly oriented north-south and measured 25 cm in length by 4.6 cm in width by 1.5 cm in thickness.

SD C232B-3 was assigned for the final cache found in the plaza fill in front of Structure 2C2. This cache consisted of three single finger bowls (Figure 52c-e) placed in a north to south line directly in front of the building step. The medial section of a human long bone (a humerus) was found immediately beneath the southern vessel, but no artifactual material was recovered with these vessels.

SD C232B-4 was assigned for a cache of stacked pottery vessels in the northeastern corner of the excavation, partially obscured by the covering plaster floor, indicating that this deposit was associated with the earlier construction effort (Figure 50). Fragments of two limestone bars were also found in this area above the cache vessels (Figure 51a, b). Twelve ceramic dishes were recovered from this deposit (Figure 55). There were two definite sets of lip-to-lip vessels in this stacked mass, one set at the top of the deposit and the other at the bottom (Figure 56). The other vessels were situated in between and adjacent to these two sets of larger cache vessels (Figures 55a and 55d). There were no other artifacts in association with these pottery vessels.

SD C232B-5 was assigned to a burial on bedrock in the southwestern corner of the excavation (Figures 50 and 57). The individual was placed in a flexed position with head to the south. The presence of a second individual is indicated by extra long bones being present. While no pottery was recovered with this burial, twelve pieces of carved shell, one carved pisote portrait on shell (Figure 62), one small non-worked conch shell, and one small polished river stone had all been deposited south of the skull directly on bedrock (Figure 58).

SD C232B-6 was assigned to a crypt burial that was recovered in the summit of Structure 2C2 (Figures 53 and 59). The crypt was outlined in stone, covered with capstones, and contained the remains of two individuals, five pottery vessels, and a host of smaller artifactual material. Both of the individuals were adult with head to the south in a supine position. Based on a partial mastoid from a skull, one may have been male. One mandible shows evidence for resorption. The ceramic vessels consisted of three cylinders and two large bowls, all of Late Classic date Figure 60). The bowls were nested in the northeastern side of the crypt with two of the cylinders immediately west of them; the other cylinder was located in the southeast section of the crypt. Duplicate pottery vessels of eroded blackware cylinder with incised squares (Figure 60a) have also been recovered at the Conchita Terminus (14A), the epicentral Ultimo residential group (49A), and the distant Earth residential group (103B) over 4 km northeast of the epicenter. A large assortment of smaller artifactual material was also located at the south side of the crypt, including as set of carved shell earflares (Figures 61r, s and 62), a single decorated earflare (Figure 61t), a shell frame with a jadeite interior (Figure 61m, p), four other carved shells (Figure 61n, q, u, v), two oval greenstone beads with hematite inlays (Figures 61l, o and 62), an obsidian blade (Figure 61k), and a host of worked and carved bone (Figures 61a-j and 63) that includes a rasper (Figure 61a) and a bone with a hieroglyphic text (Figures 61e and 63).

SD C232B-7 was assigned for a cache located in the eastern rear of Structure 2C2 just south of the building axis (Figure 50). The cache consisted of two lip-to-lip pottery vessels (Figure 64) that rested upon the medial section of a human humerus. This cache was also in the fill that had been capped by the earlier floor in the rear of the building and the vessels match the vessels in SD C232-4.

Plaza Test

A small test pit to look for earlier architectural activity was placed on axis to Operation C232B, but in the center of the Apollo residential group plaza.

Operation C232C measured 2 m by 2 m and was dug to bedrock (Figures 65 and 66). No evidence of any architecture or floors were found. A broken handled barkbeater was recovered in the plaza fill (Figure 67).

Jupiter Residential Group: Structures L76-79

The Jupiter residential group consisted of a set of very low platforms set amid and atop agricultural terracing south of the ridge that supported the Astro, Houston, and Nasa residential groups. Jupiter is located approximately 75 m due south of Nasa. Two small structures are set top an agricultural terrace that rises above the group's plaza which is bounded on the east and west by other small structures; the southern part of the plaza ends in an agricultural terrace that extends further to the west.

Structure L78

Structure L78 is a large low platform associated with the Jupiter residential group that was situated on the eastern edge of the residential platform. It could be defined by a 20 cm rise in surface elevation and a northern line of stone running east-west.

Operation C233B was the areal excavation that was placed over Structure L78 (Figure 68). the excavation measured 6.2 m north-south by 3 m east west. With the exception of two deeper probes to bedrock along the southern and northern side (Figures 69 and 70), only the humus was stripped from the building. The excavation did not find the front or rear walls of the structure, but did apparently encounter a lower east-west 0.5 m wide alleyway in the middle of the excavation that suggests that Structure L78 may have actually been two square-shaped

buildings (Figure 71). A shaped bar of slate was uncovered during the clearing of humus from this structure (Figure 72).

Mars Residential Group: Structures L80-L83

The Mars residential group is located approximately 55 m southeast of the Jupiter residential group within a valley amidst the agricultural terraces. The group consists of four structures, two on the west, one on the north, and one on the east; the south side of the platform has no buildings but defines the end of the raised residential plaza. The eastern and northern structures are the highest buildings in the group.

Structure L81

The eastern edge of the Mars residential group is anchored by Structure L81**.** This squarish building is elevated approximately 1.2 m above its associated plaza. An open tomb was visible in the building summit and another open tomb existed just north of the structure (Figure 68).

Operation C234B was assigned to an axial trench placed over Structure L81. The excavation measured 2 m north-south by 7.5 m east-west (Figures 73, 74, and 75). An excavation extension to the north of the trench, measuring 0.7 m north-south by 1.0 m east-west was also excavated in order to recover the burial found in front of the building's step. The eastern part of the investigation consists only of the open tomb, which was not sub-floored. The front part of the structure in front of the tomb was also not penetrated; only the humus was removed. However, the area to the west of the front step for the building was excavated down to bedrock, resulting in the recovery of three more special deposits. No evidence of earlier construction activity was encountered in the plaza.

SD C234B-1 was assigned to the open tomb on the summit of Structure L81. The tomb was unusual in being oriented east-west rather than north-south (Figures 77 and 78). It also had an entryway on its western side, which would have been barely beneath the floor of the structure when it was used in the Classic Period. The chamber measured 2.1 m in length by 1.1 m in height by 0.85 m in width and would have had an estimated tomb volume of 1.96 m^3. The chamber had been looted and few artifactual materials were left. However, re-excavation of the chamber produced an inlaid human tooth, an obsidian lancet (Figure 76a), and 7 carved marine shell artifacts (Figure 76b, d, f-j).

SD C234B-2 was assigned for a human skull that had been placed on axis to Structure L81 in the plaza fill in front of the building (Figure 79). The skull is higher than the burial that was later found to its north.

SD C234B-3 was assigned to a very decomposed face cache and lid (Figures 79 and 80b) that was on axis to Structure L81 in plaza fill. Three pieces of a mirror back were recovered from within the cache vessel. A fragment of a limestone bar (Figure 76e) and a marine shell (Figure 76c) were also recovered from the plaza fill in the vicinity of the face cache and may be associated with this special deposit.

SD C234B-4 was assigned to a burial found immediately in front of the step for Structure L81 (Figures 73 and 81). The burial was covered by a layer of capstones (Figure 75) and was partially lined with vertical upright stones. It surmounted a deeply dug pit in bedrock. The interment consisted of two individuals laid out in supine position with heads to the south; one individual had its legs extended, but the other individual may have had their lower legs bent backwards underneath their femurs. A single cache vessel (finger bowl; Figure 80a) accompanied the interment, being placed above the eastern tibia.

Operation C234C was assigned to an excavation designed to clean out and record the tomb immediately north of Structure L81. This tomb was associated with what appeared to be the butt of a plain stela (Figure 68). The stela butt was still in place to the north of the tomb's axis just west of the open chamber; segments of the top of the stela may have been represented in surface stones on the south side of the tomb.

SD C234C-1 was assigned to the open chamber. Plans and a cross-section of the chamber were made (Figures 82 and 83). One of the tomb's capstones was still in place. The tomb had a stairway into the chamber from the northside and had been constructed directly on bedrock (Figure 84). The chamber measured 2.85 m in length with a maximum height of 1.62 m and a width of 0.85. Its estimated tomb volume is 3.11 m^3. The only artifactual materials recovered in association with the chamber were a limestone ball (Figure 76k) and the lower portion of a polychrome drum (Figure 85).

Significance

A topic of interest to many Mesoamerican researchers in recent years has been the identification of neighborhoods in the archaeological record. By identifying neighborhoods within a larger urban community, archaeologists hope to gain more information on the local-level social organization of larger centers and to examine material similarities and differences among these theoretically cohesive social groups. The Caracol Archaeological Project has carried out settlement pattern research since starting in 1985 and has specifically engaged in attempting to identify and investigate co-located residential groups in various Classic Period (CE 550-900) neighborhoods since 2006 (even though some co-located groups were excavated during earlier field seasons). Comparison of the archaeological materials recovered in the residential groups from different neighborhoods permits the examination of the material record for

information related to relative social status, ritual practices, and access to and participation within a broader market economy.

Initially, potential neighborhoods were crudely defined through topographic analysis. More recently, however, lidar has been employed with least cost path, clustering, and nearest neighbor analyses to derive potential neighborhood aggregations based on service areas and models of interaction. These geospatially derived neighborhood divisions can be tested and analyzed in terms of recovered archaeological materials. Preliminary analysis of ritual materials from residential groups at Caracol, Belize has suggested that these urban delineations represent meaningful units with more similarities within than between neighborhoods (ASZ Chase 2021). The research that was undertaken during 2023 was designed to help complete the sampling of one neighborhood, something that will hopefully be finished during the 2024 field season.

So far, however, this research is suggesting that what appears at first to be randomly distributed residential settlement on the ground at Caracol is actually organized in very specific ways that better integrated the site's population into cohesive local social units in antiquity. As a result of research undertaken in 2023 and 2024, an entire Caracol neighborhood (as defined by the newer lidar analysis) will have been archaeologically tested and serve as a benchmark for further comparison and interpretation. Neighborhoods are often assumed to form the backbone of ancient cities, but they have been difficult to identify or test archaeologically. Thus, the methods and results of the Caracol research undertaken here may have broader use in other disciplines interested in city planning, social organization, and urban sustainability.

Excavation undertaken in 2024 should complete the testing of all 22 residential groups that exist in the Dos Aguadas neighborhood. This neighborhood sample will permit us to model the development of this neighborhood over time and also to use the results from these

investigations to generate future research questions. It should also provide a meaningful archaeological sample from which to derive an understanding of the internal spatial organization of Caracol on a smaller local scale.

Acknowledgements

With support of the Belize IOA and its director, Melissa Badillo, the 2023 field season of the Caracol Archaeological Project was able to successfully take place after a two-year hiatus caused by COVID. We sincerely thank Brian Woodye for his continued friendship and work in ensuring that the practical aspects of running the project at Caracol proceed without problems; he also spearheaded a serious camp repair in December 2022 and January 2023 after two and a half year of disuse. The 2023 field season would not have been successful without Maureen Carpenter's aid in supervising archaeological investigations. After the field season Lucas Johnson aided in preparing the inked drawings of the field records which then became many of the figures in this report.

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TABLE 1:
Caracol Project Members: 2023 Field Season

Staff:

Directors

Arlen F. Chase	C1
Diane Z. Chase	C2

Lab and Field Directors

Maureen Carpenter	C56
Adrian S.Z. Chase	C154

Field Supervisors

Jordan Kobylt	C258

Field Assistants

Luca M'Closkey	C255
Shelby Ottengheime	C256
Sander Wimmer	C257

Specialists

CBS Saturday Morning film crew

Belizean Support Personnel:

Kitchen

Angelica Meneses
Linda Aurora Meneses
Rosita I. Lalwani

Field

Carlos Mendez
Saul Galeano
Jaime Iglesias
Julio M. Trujillo
Reynaldo Cunil
Jorge Israel Itza
Flavio Pirir
Abner David Mendez
Edwin Rafael Chan

Figures

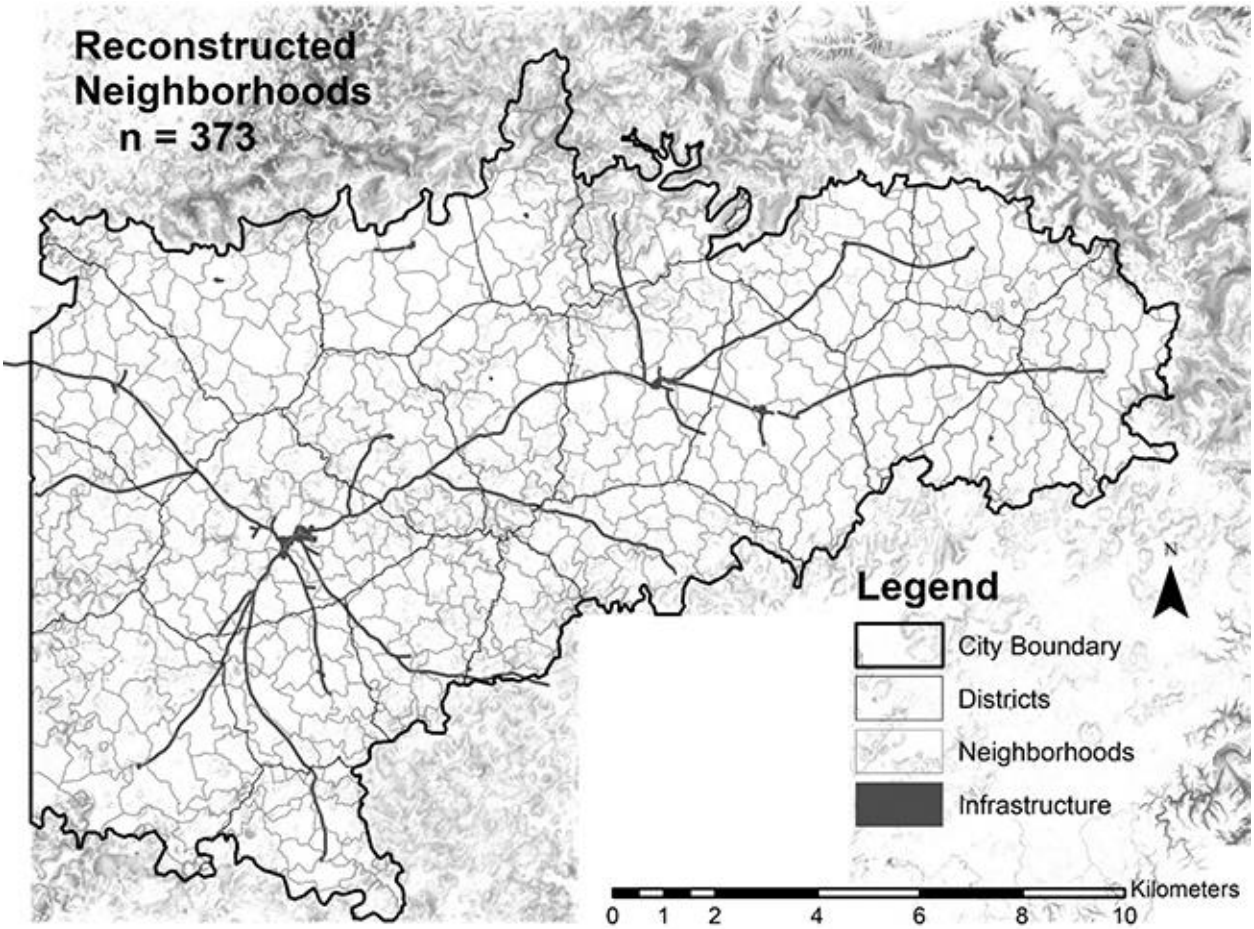

Figure 1. Reconstructed districts and neighborhoods at Caracol, Belize (image provided by ASZ Chase).

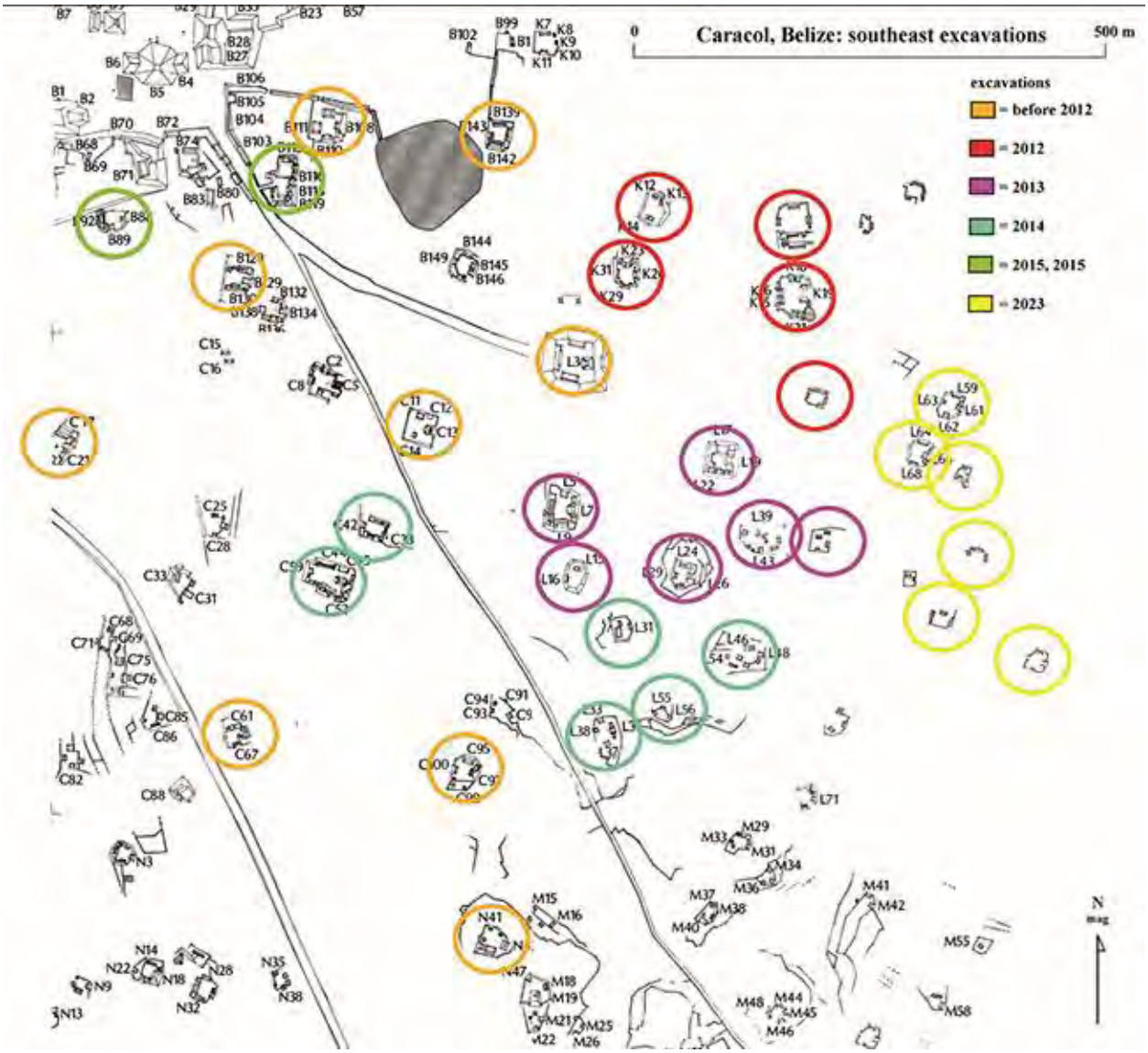

Figure 2. Groups excavated to the southeast of the Caracol epicenter, largely as a result of the Machete Plateau program from 2012 to 2014.

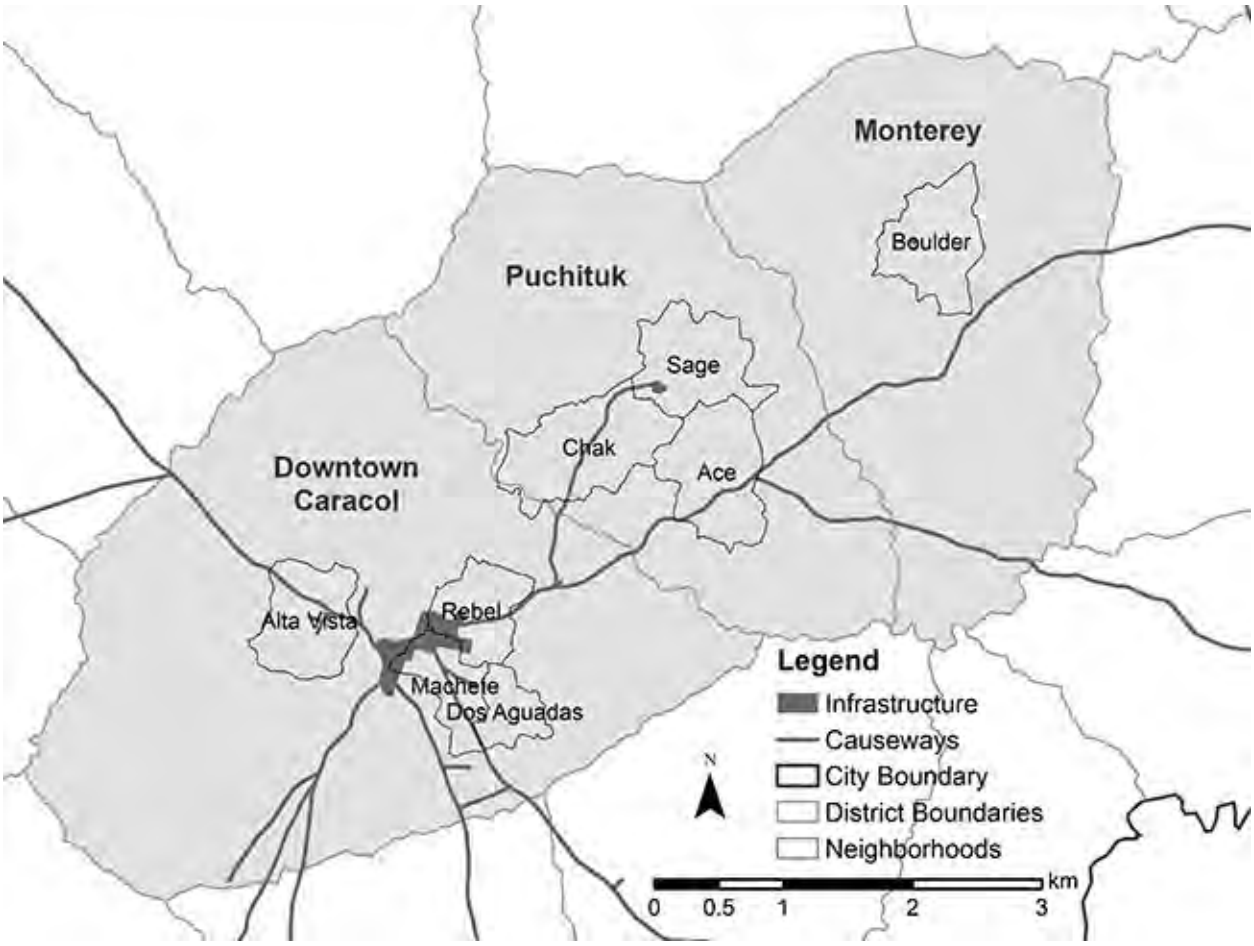

Figure 3. Neighborhoods defined and characterized by artifact analysis carried out by ASZ Chase (2021; image provided by ASZ Chase).

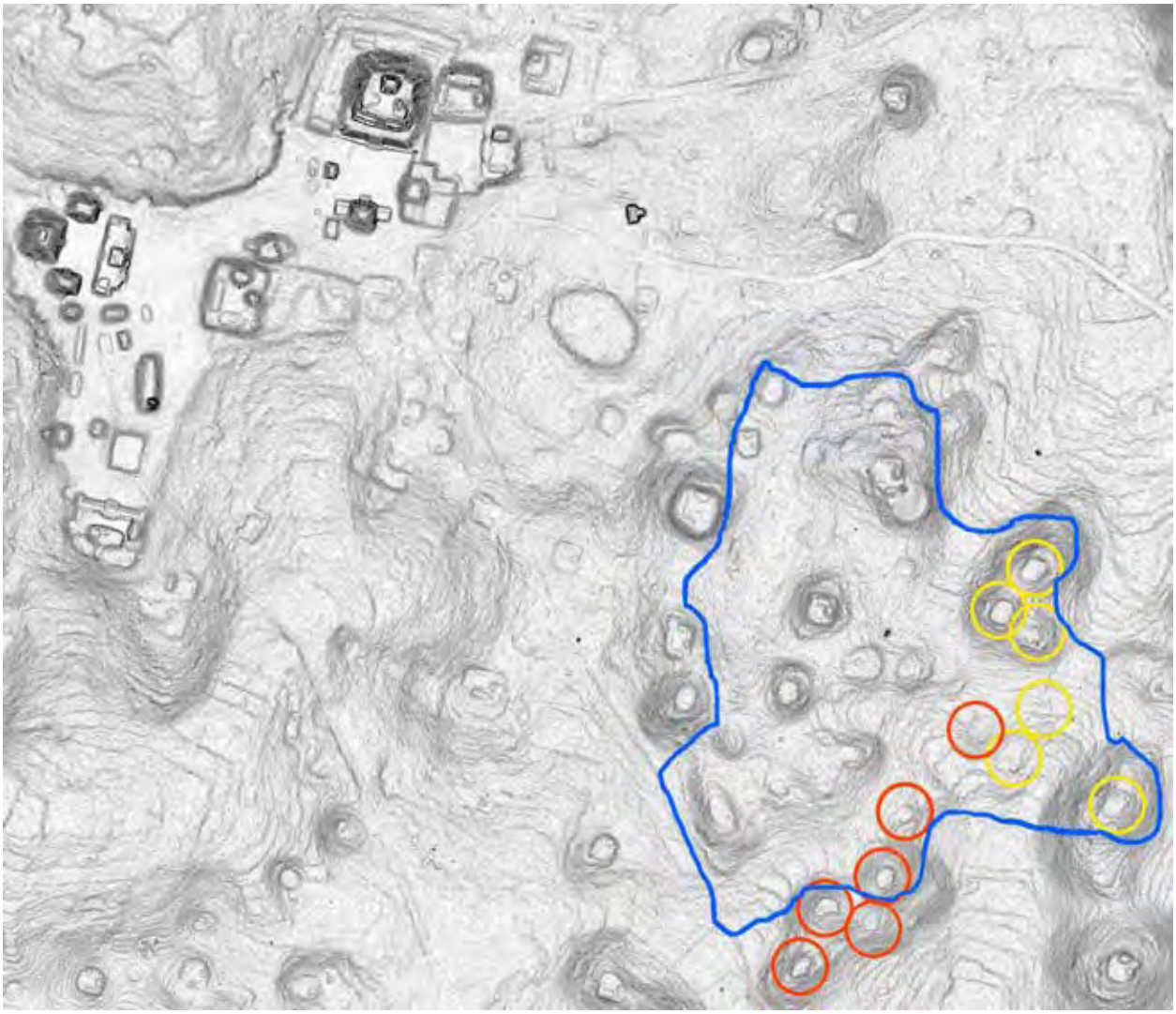

Figure 4. The Dos Aguadas neighborhood (blue outline) showing the residential groups excavated during the 2023 field season (yellow) and those to be investigated during the 2024 field season (red circles).

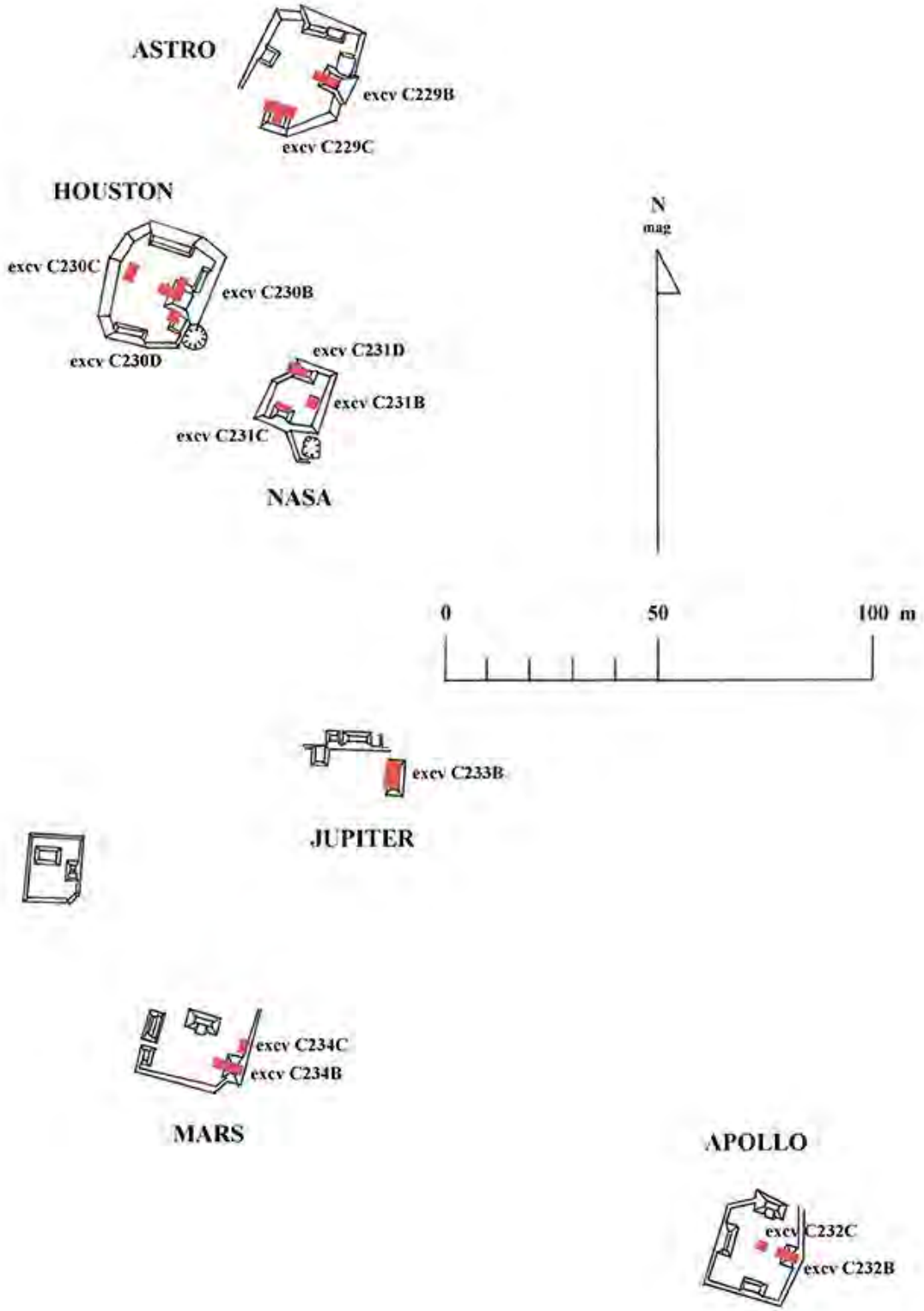

Figure 5. Plans of the residential groups excavated in 2023 with the locations of the excavations included within this report.

Figure 6. Photograph of Caracol Structure L61 (top) and Caracol Structure L62 (bottom).

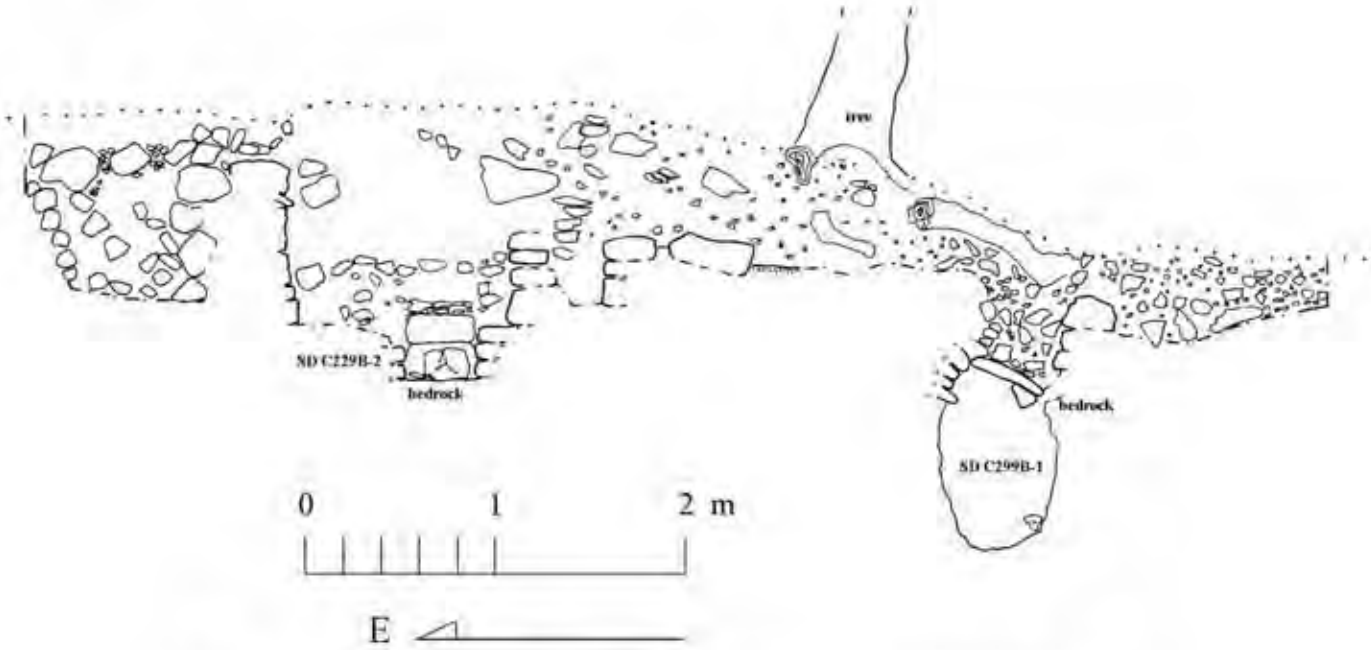

Figure 7. Section through Caracol Structure L61, as revealed by Operation C229B.

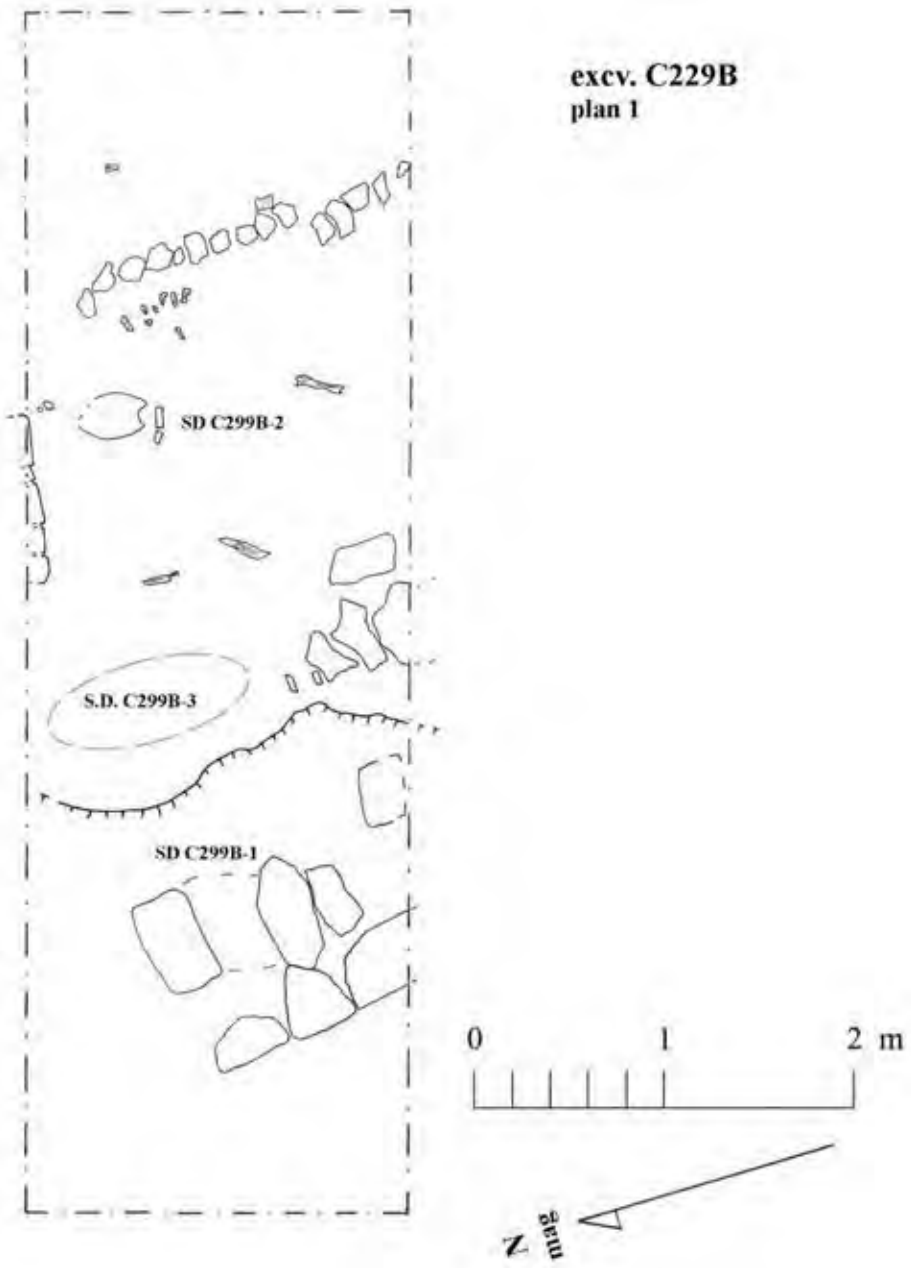

Figure 8. Plan of latest building features associated with Caracol Structure L61.

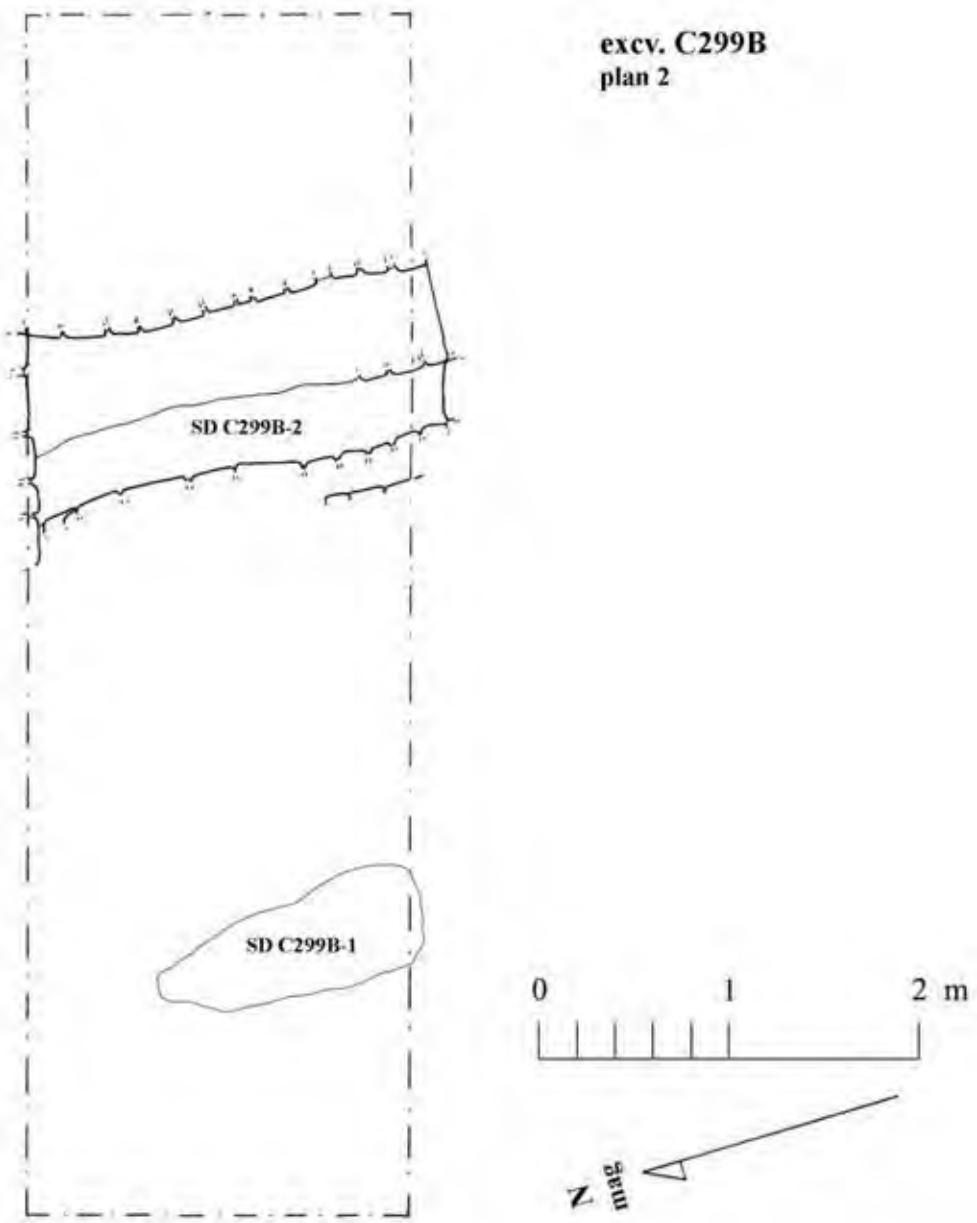

Figure 9. Plan showing location of rear tomb chamber (SD C229B-2) and front crypt (SD C229B-1).

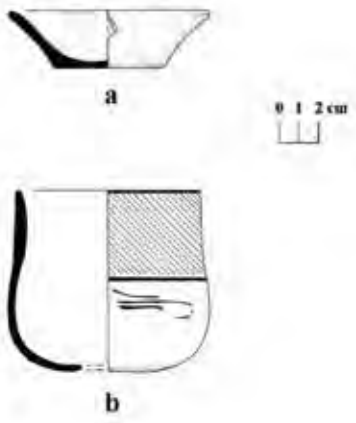

Figure 10. Pottery vessels associated with Operation C229B: a. Ceiba Unslipped; b. Saxche Orange Polychrome.

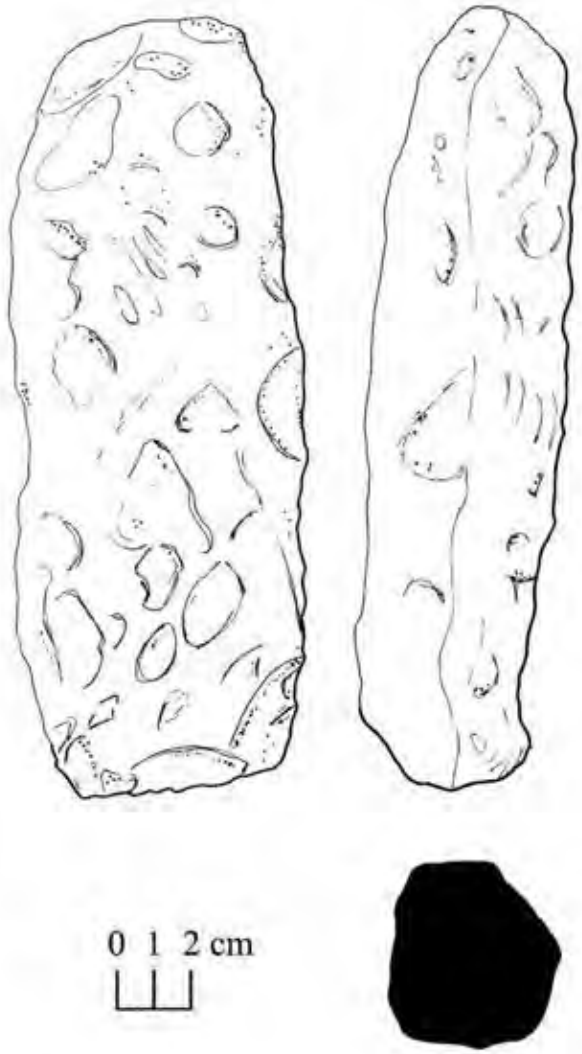

Figure 11. Artifactual material recovered in association with Operation C229B: a battered granite mano.

Figure 12. Detailed plan of SD C229B-1.

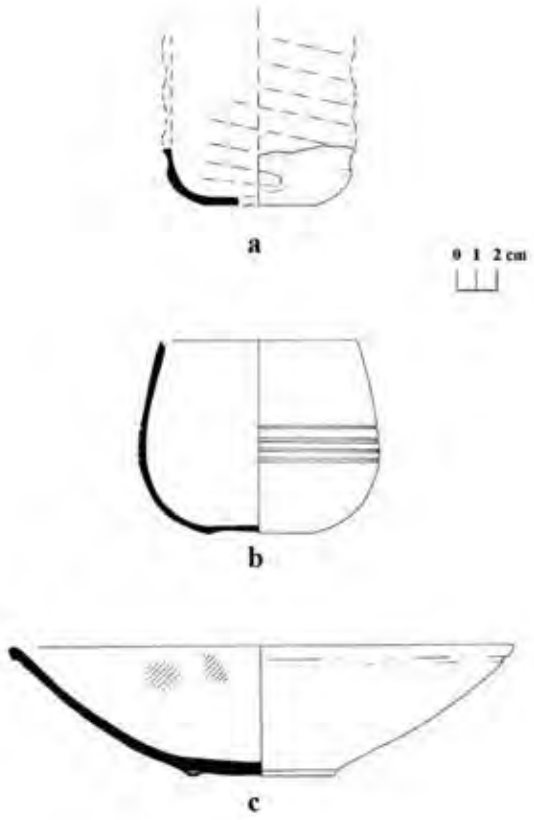

Figure 13. Pottery vessels associated with SD C229B-1: a. Galinero Fluted; b. related to Molino Black; Machete Orange-Polychrome.

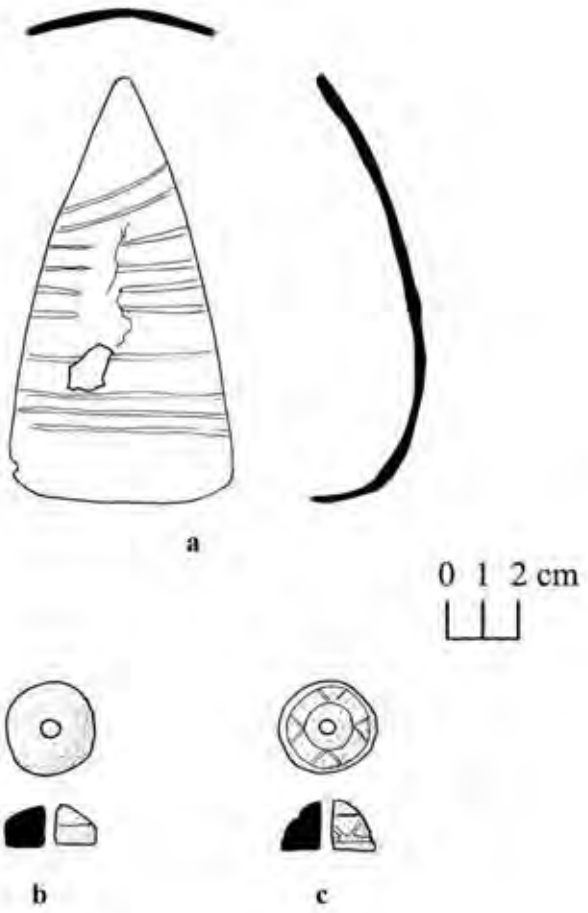

Figure 14: Artifactual material associated with SD C229B-1: a. conch shell scoop; b., c. limestone spindle whorls.

Figure 15: Photographs of SD C229B-1 and SD C229B-2.

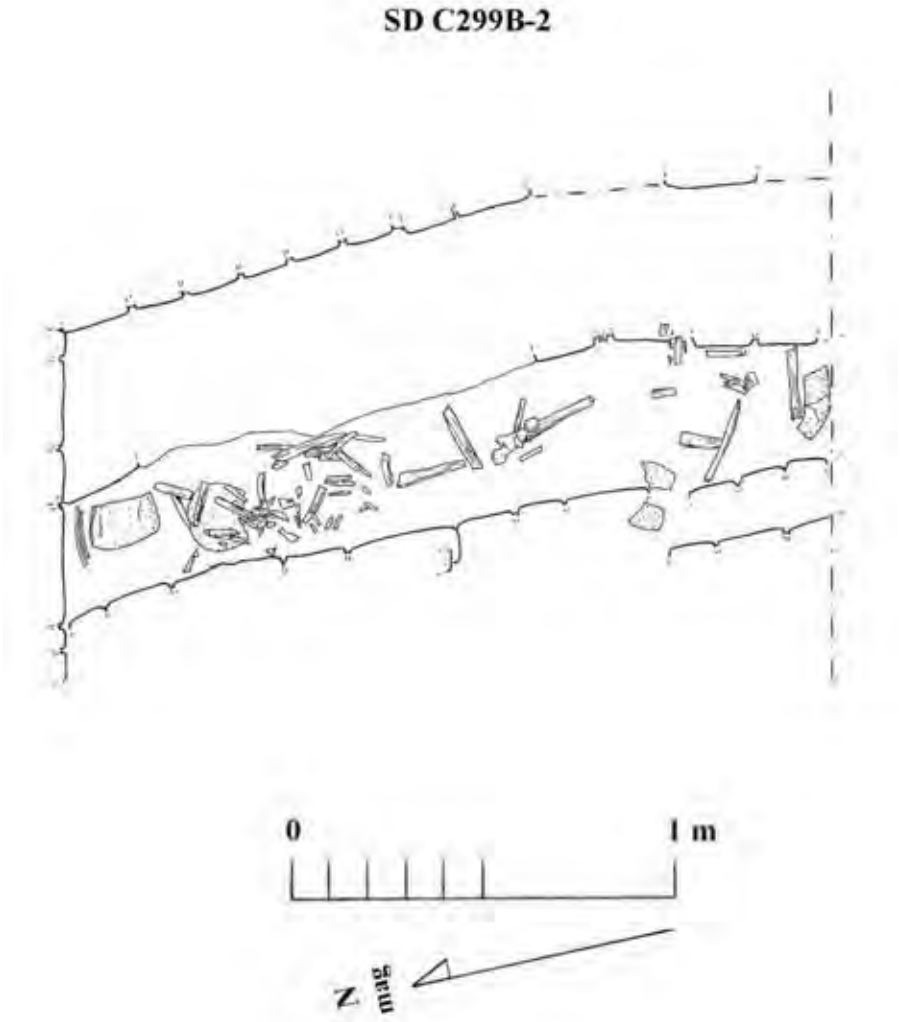

Figure 16. Detailed plan of SD C229B-2.

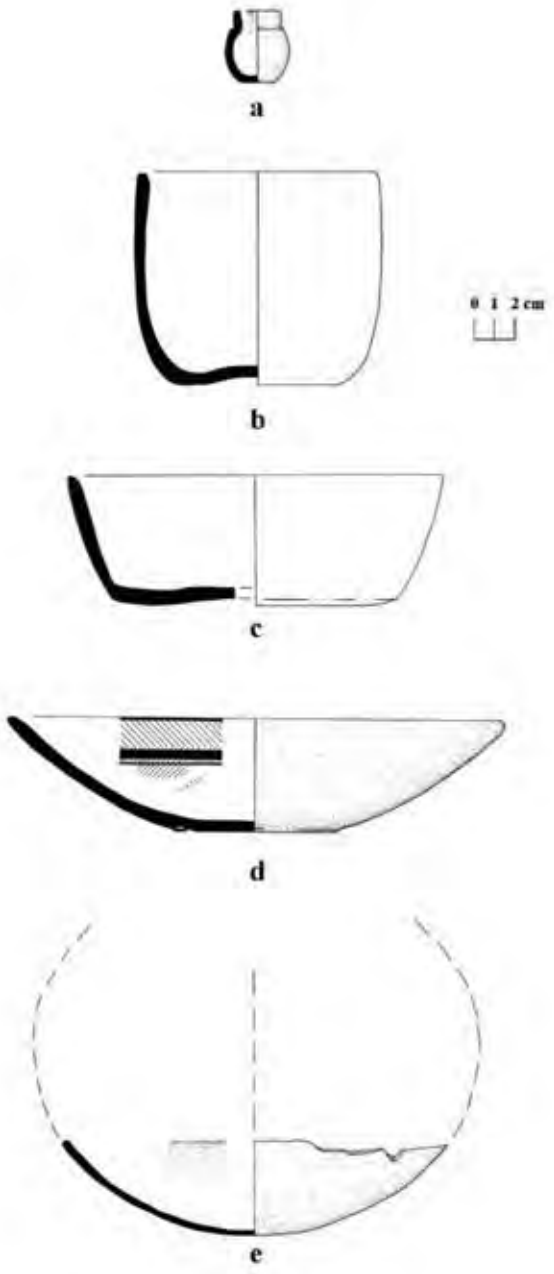

Figure 17. Pottery vessels associated with SD C229B-2: a. undesignated; b., c. probably Molino Black; d. Machete Orange-Polychrome; e. Valentin Unslipped.

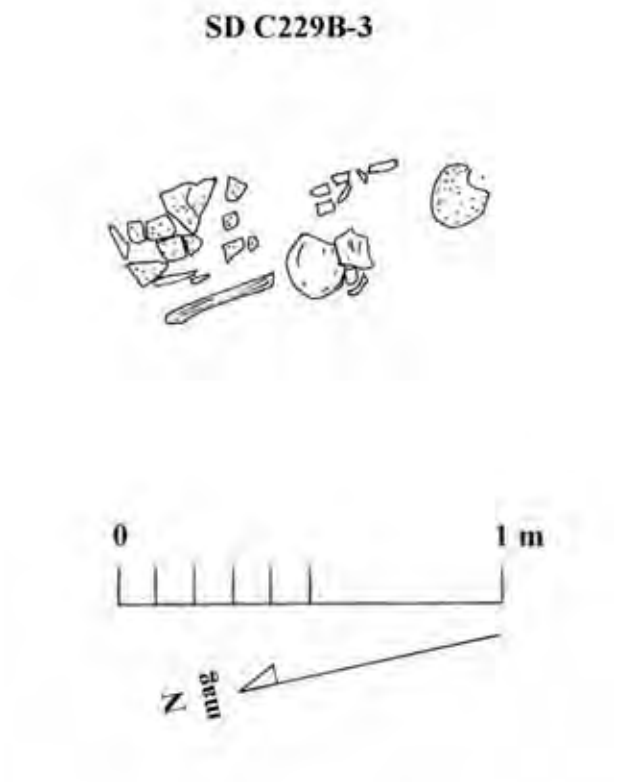

Figure 18. Detailed plan of SD C229B-3.

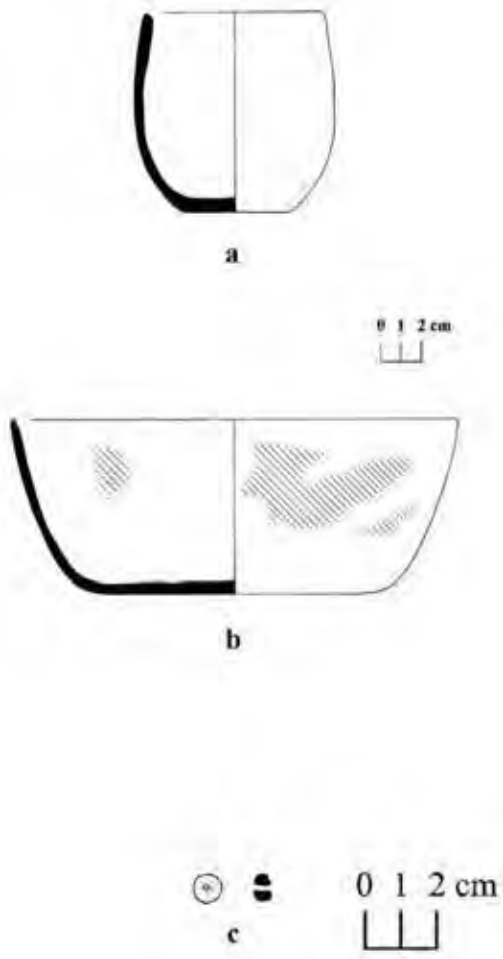

Figure 19. Pottery vessels and artifacts associated with SD C229B-3: a. possibly Molino Black; b. Nanzal Red; c. jadeite bead.

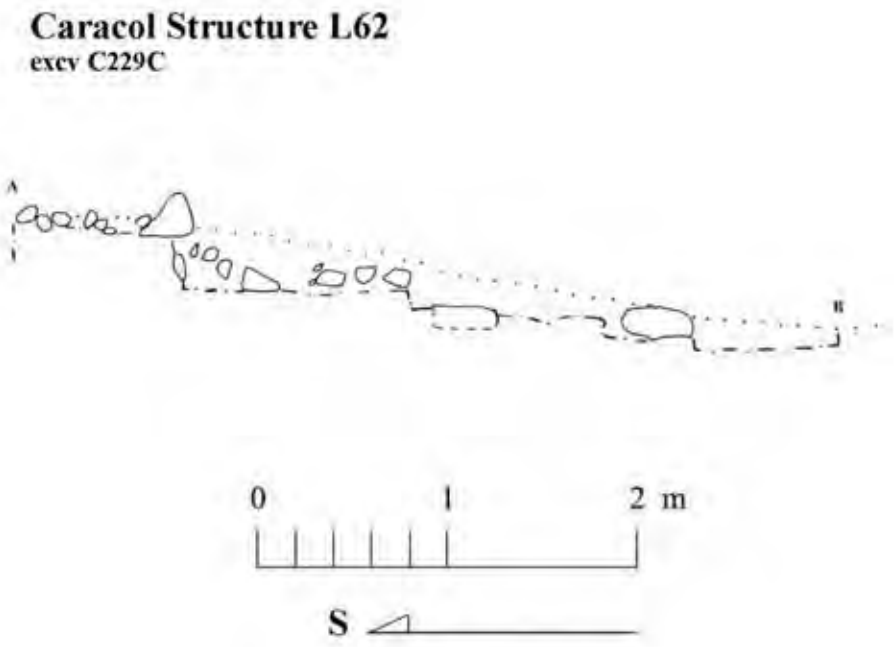

Figure 20. Section through Caracol Structure L62, as revealed by Operation C229C.

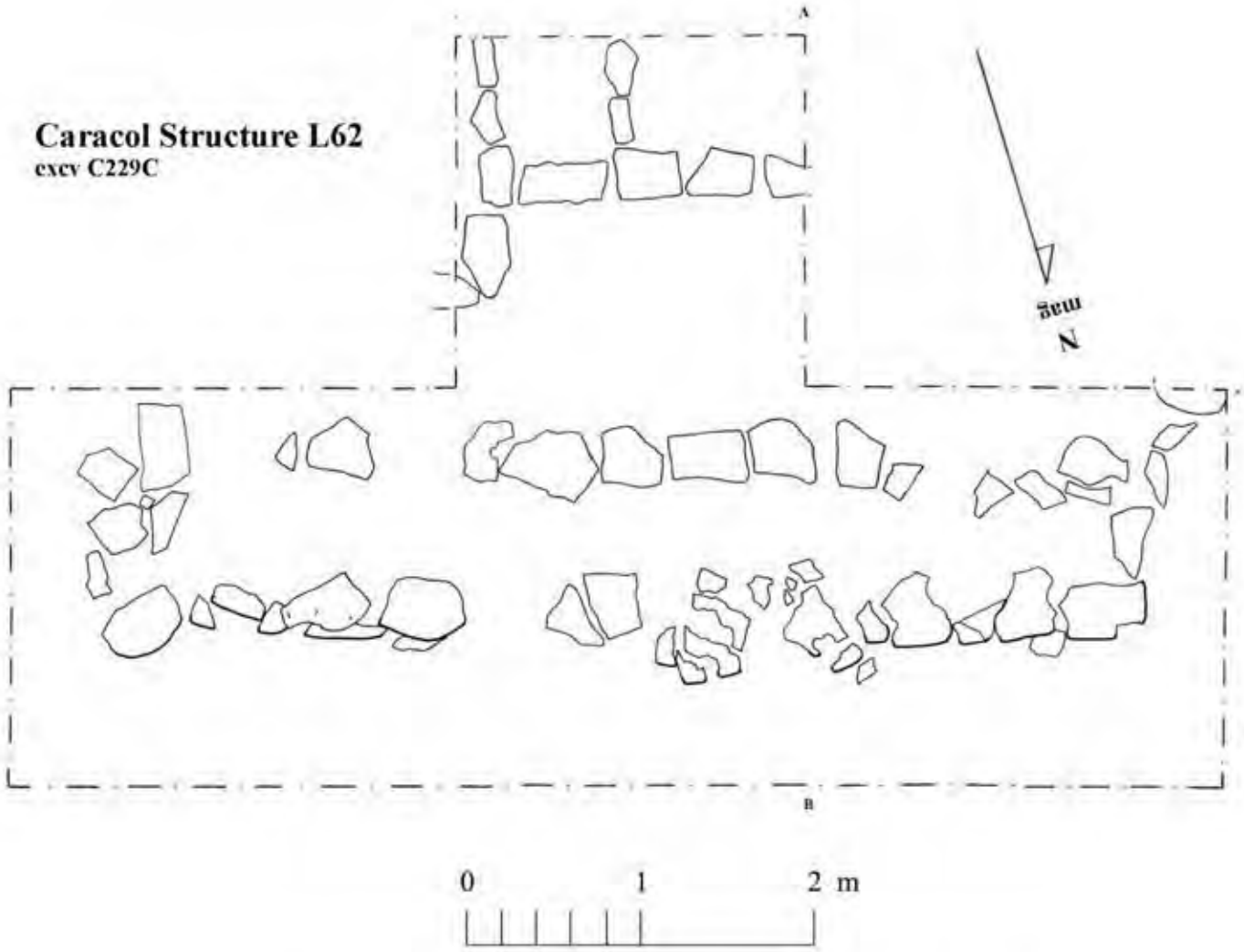

Figure 21.Plan of Caracol Structure L62, as revealed by Operation C229C.

Figure 22. Photographs of Caracol Structure L66 (upper) and capstones above antechamber and SD C230B-6 at the northern end of the double-tomb deposit (lower).

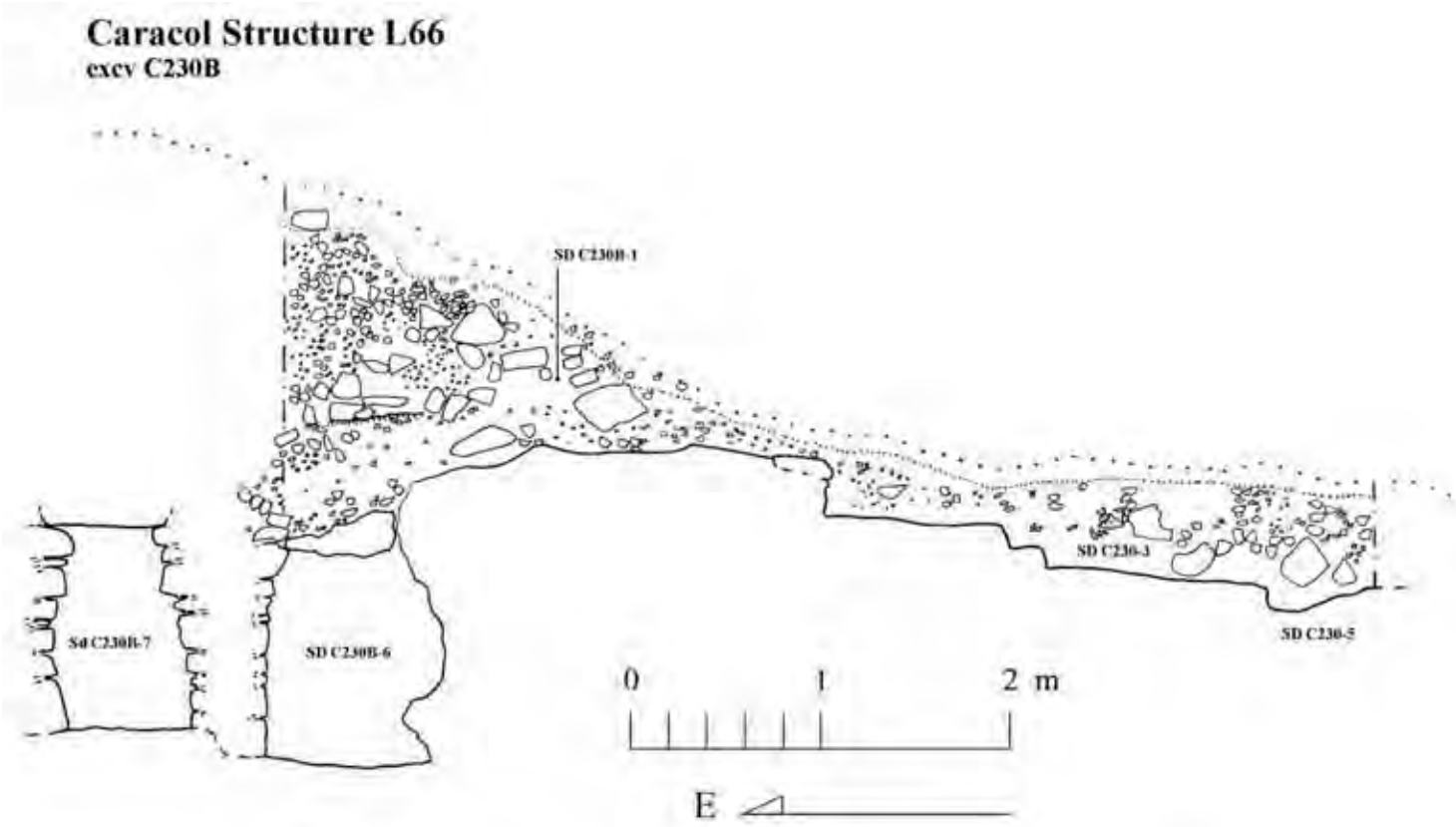

Figure 23.Section through Caracol Structure L66, as revealed by Operation C230B.

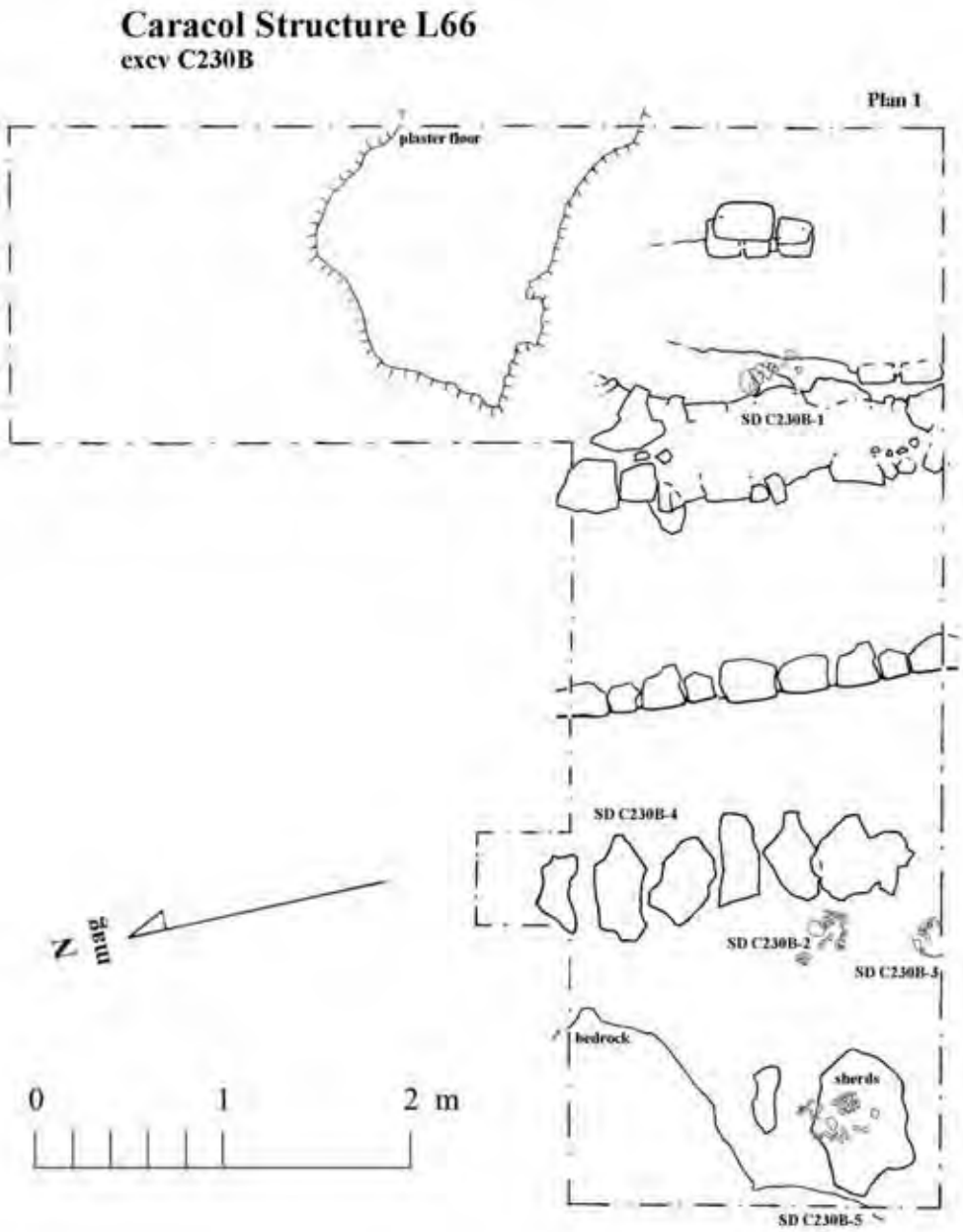

Figure 24. Plan of upper architectural features and deposits associated with Caracol Structure L66, including SDs C230B-1, C230B-2, and C230B-3; the capstones for SD C230B-4 and SD C230B-5 are also shown, as are steps and a plaster floor that was above the rear double tomb.

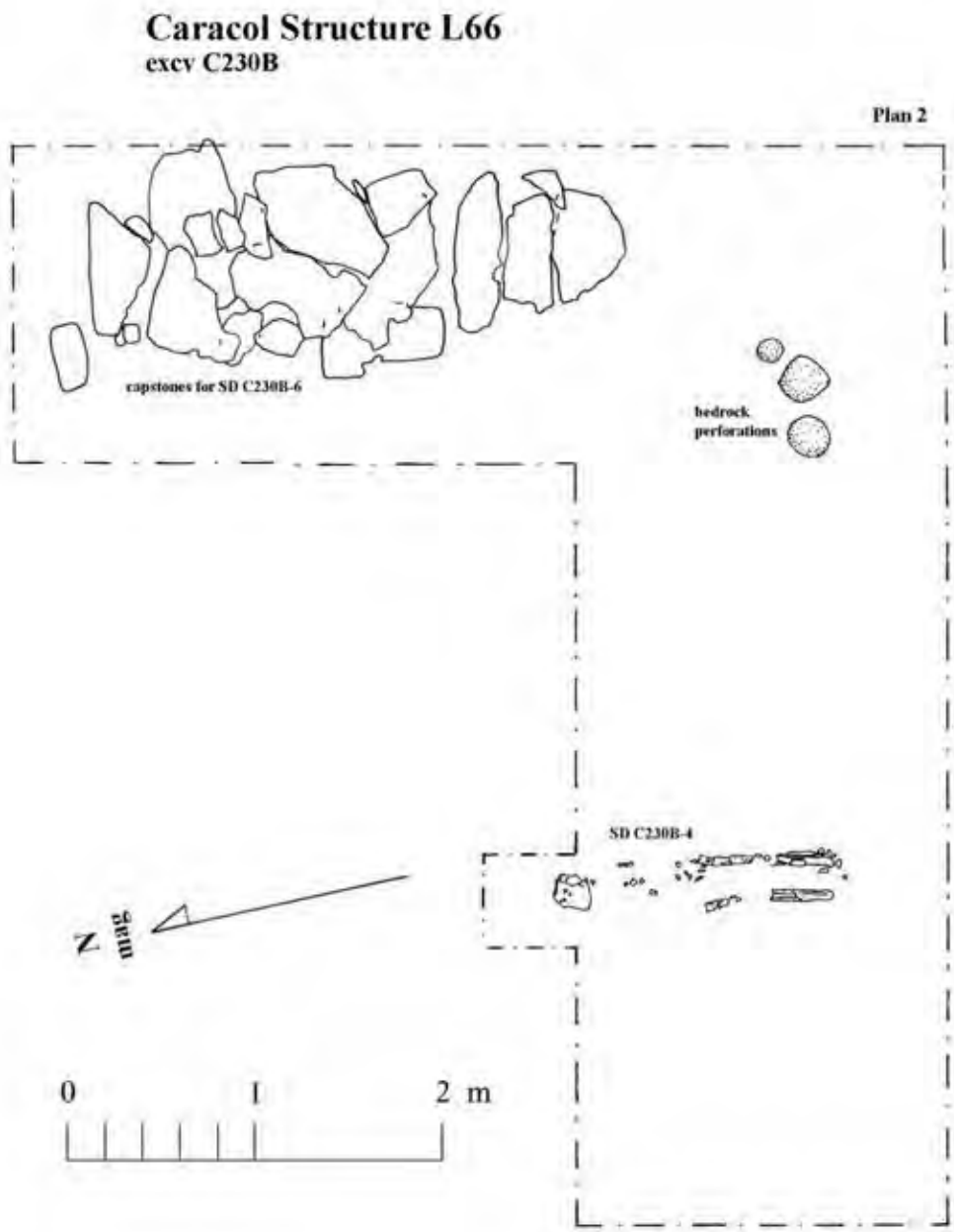

Figure 25. Lower plan of excv. C230B, showing capstones above entryway and SD C230B-6, the individual in SD C230B-4, and the location of three bedrock circular perforations.

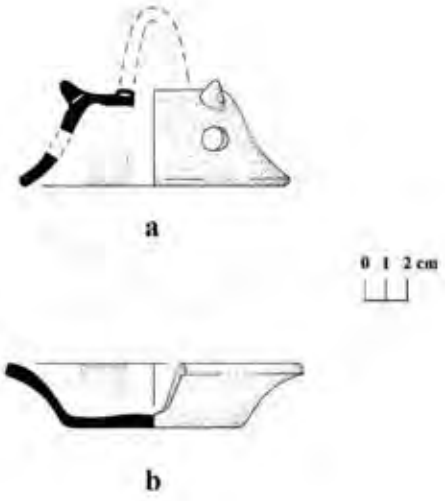

Figure 26. Ceramic vessels associated with excv C230B: a. Pedregal Modeled censer lid (SD C230B-1); b. Ceiba Unslipped.

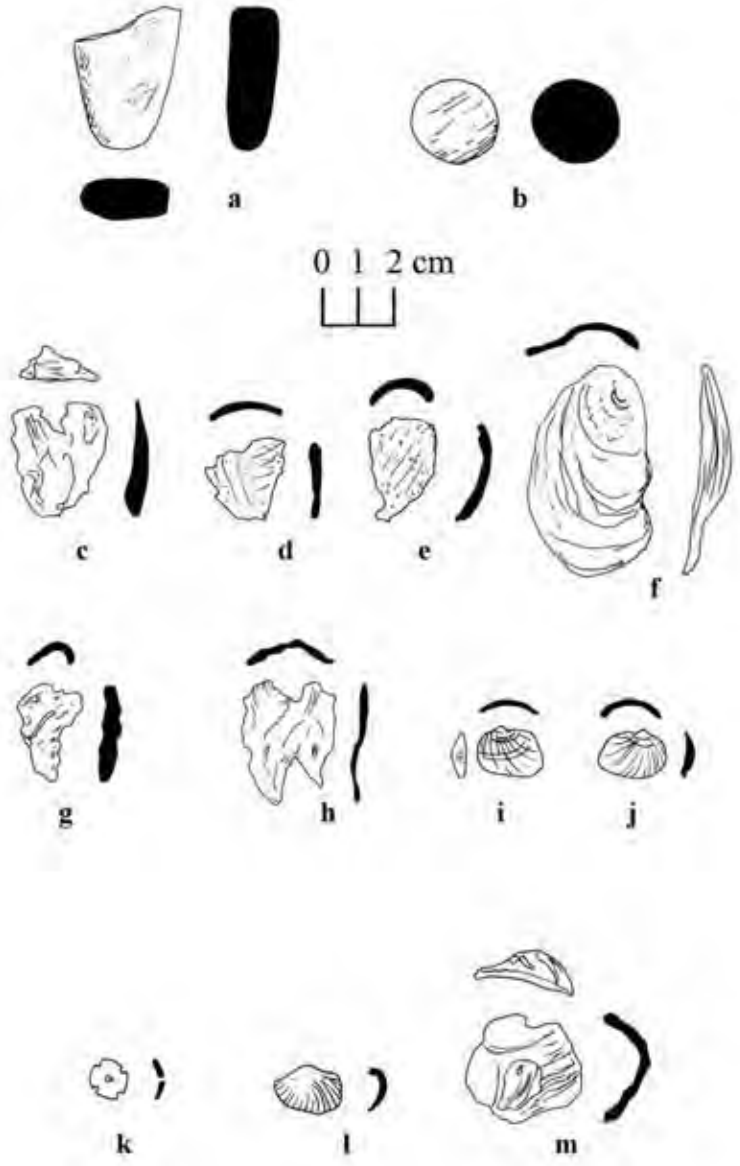

Figure 27. Artifacts associated with excv. C230B: a. quartzite adze; b. limestone ball; c.-h. oyster shell from S.D. C230B-3; i., j. clam shell from S.D. C 230B-3; k. carved marine shell from S.D. C230B-5; l. clam shell from S.D. C230B-4; m. worked marine shell.

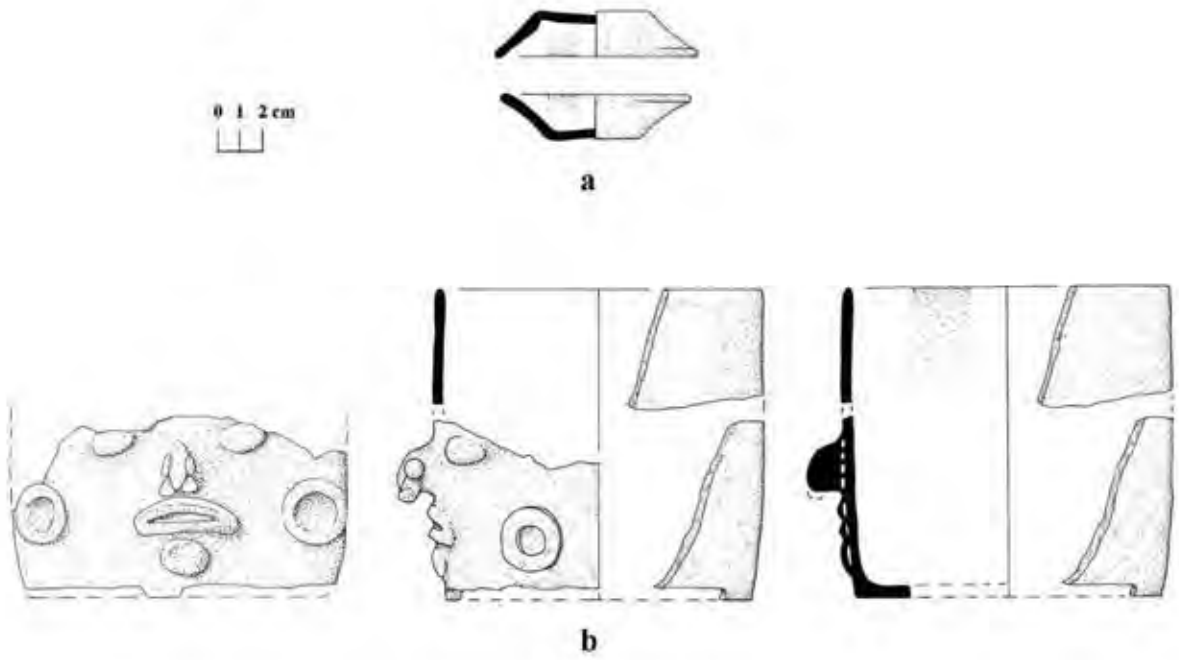

Figure 28.Vessels associated with SD C230B-2: a. Ceiba Unslipped; b. Hebe Modeled.

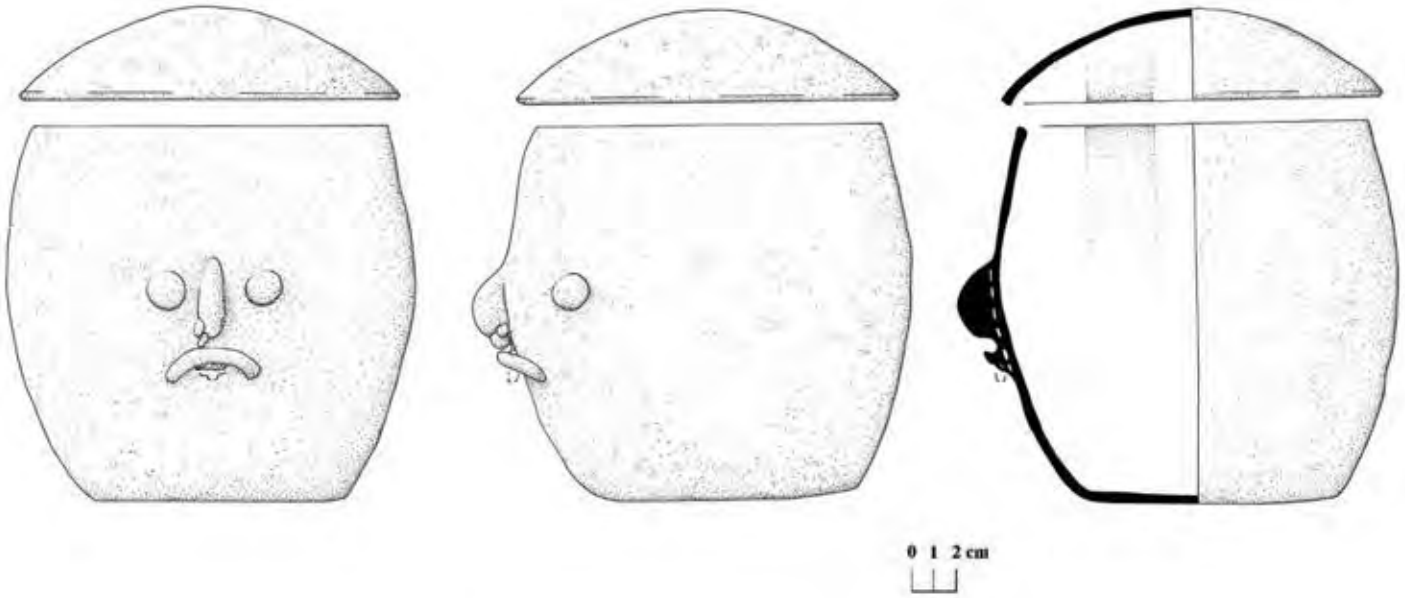

Figure 29. Vessel associated with SD C230B-3: Hebe Modeled.

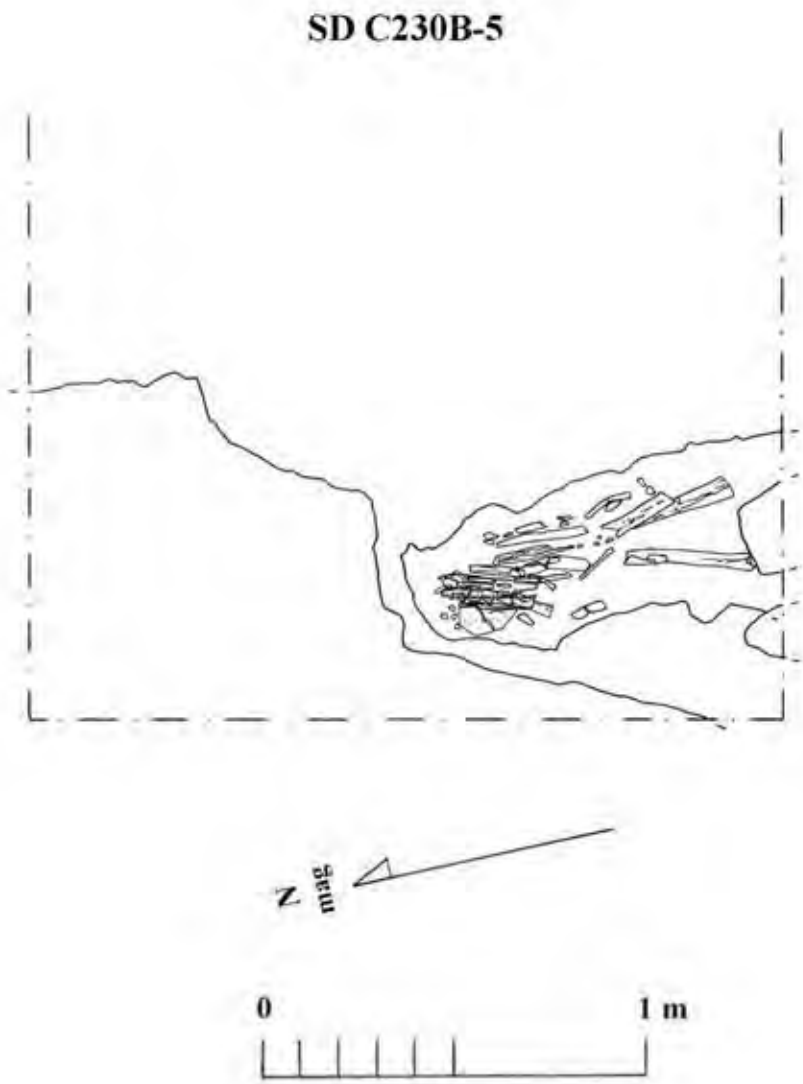

Figure 30. Detailed plan of SD C230B-5.

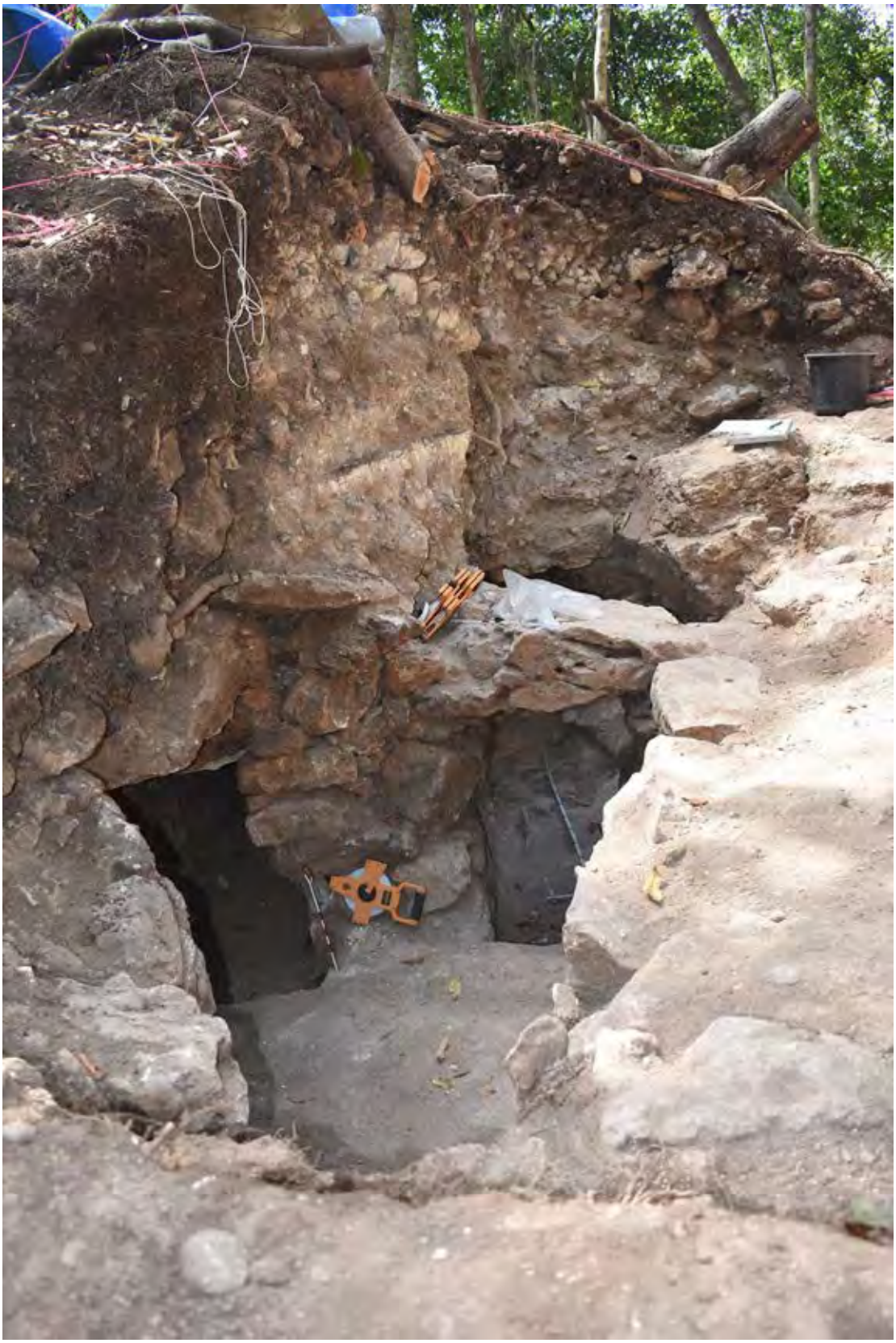

Figure 31. Photograph of double-chambered tomb in Structure L66, looking south.

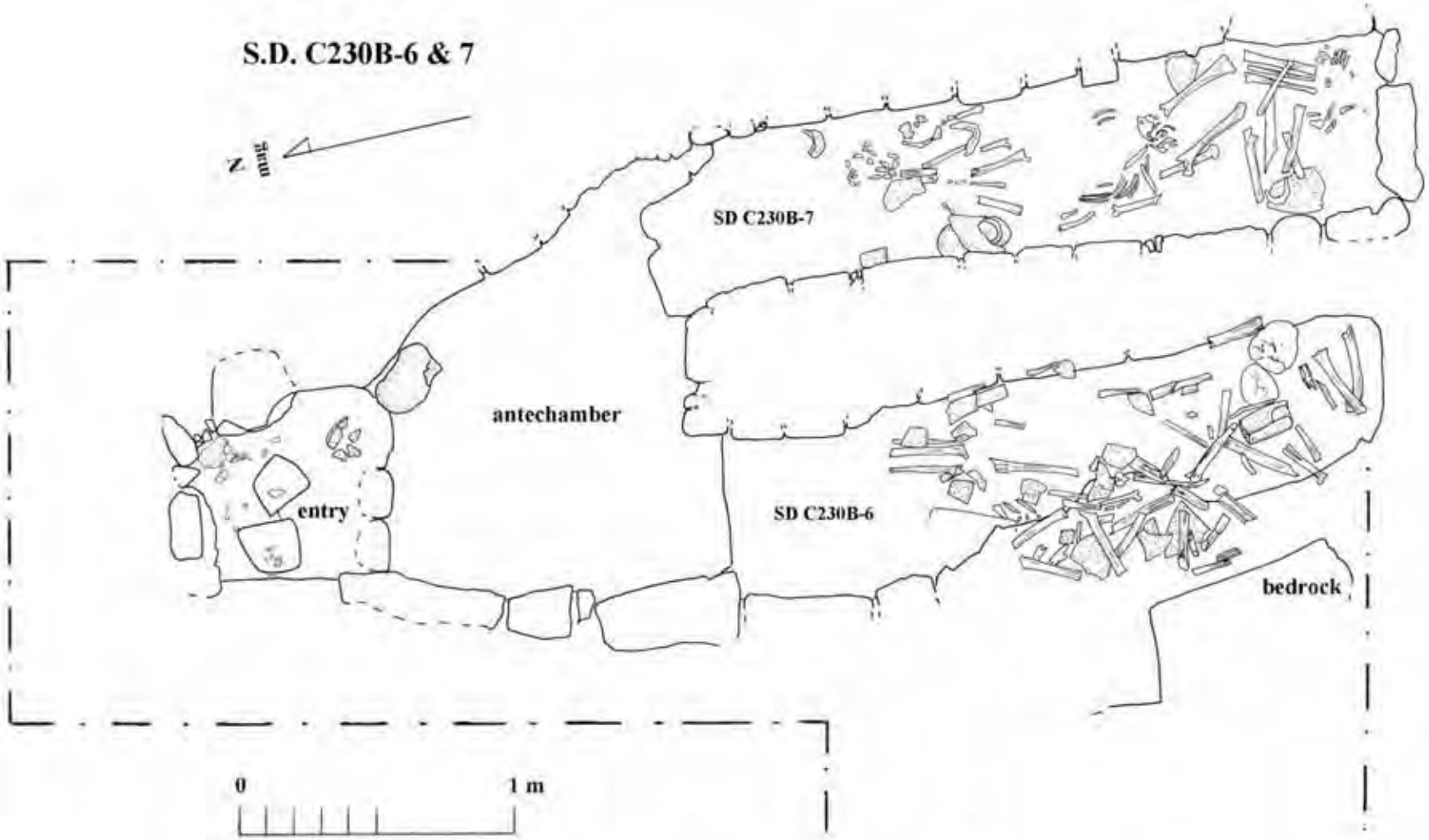

Figure 32.Detailed plan of double-chambered tomb containing SD C230B-6 and SD C230B-7.

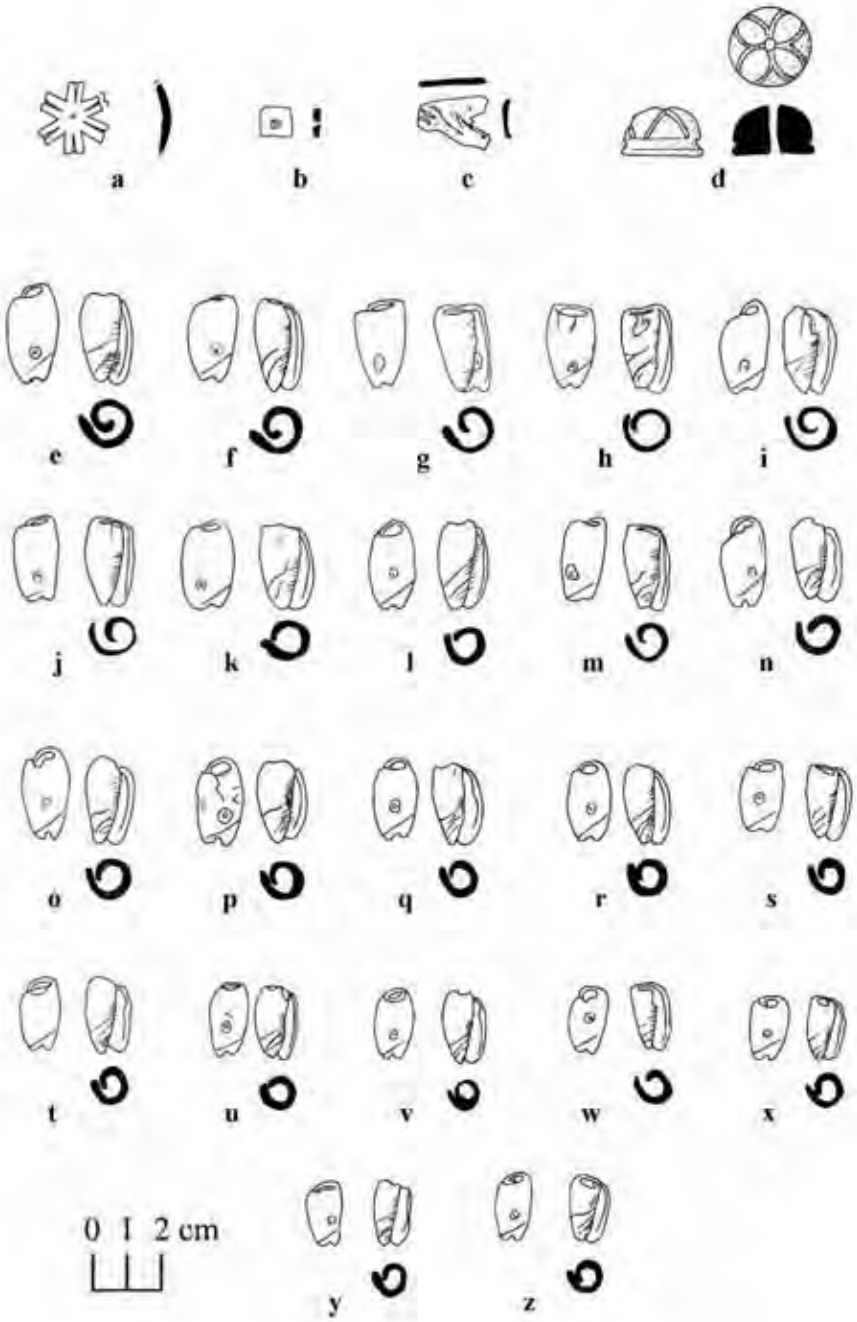

Figure 33. Artifactual material associated with the double-chambered tomb: a. carved marine shell (entrance); b. hematite bead (SD C230B-7); c. carved marine shell (SD C230B-7); d. limestone spindle whorl (SD C230B-6); e.-z. flamingo-tongue marine shells (SD C230B-7).

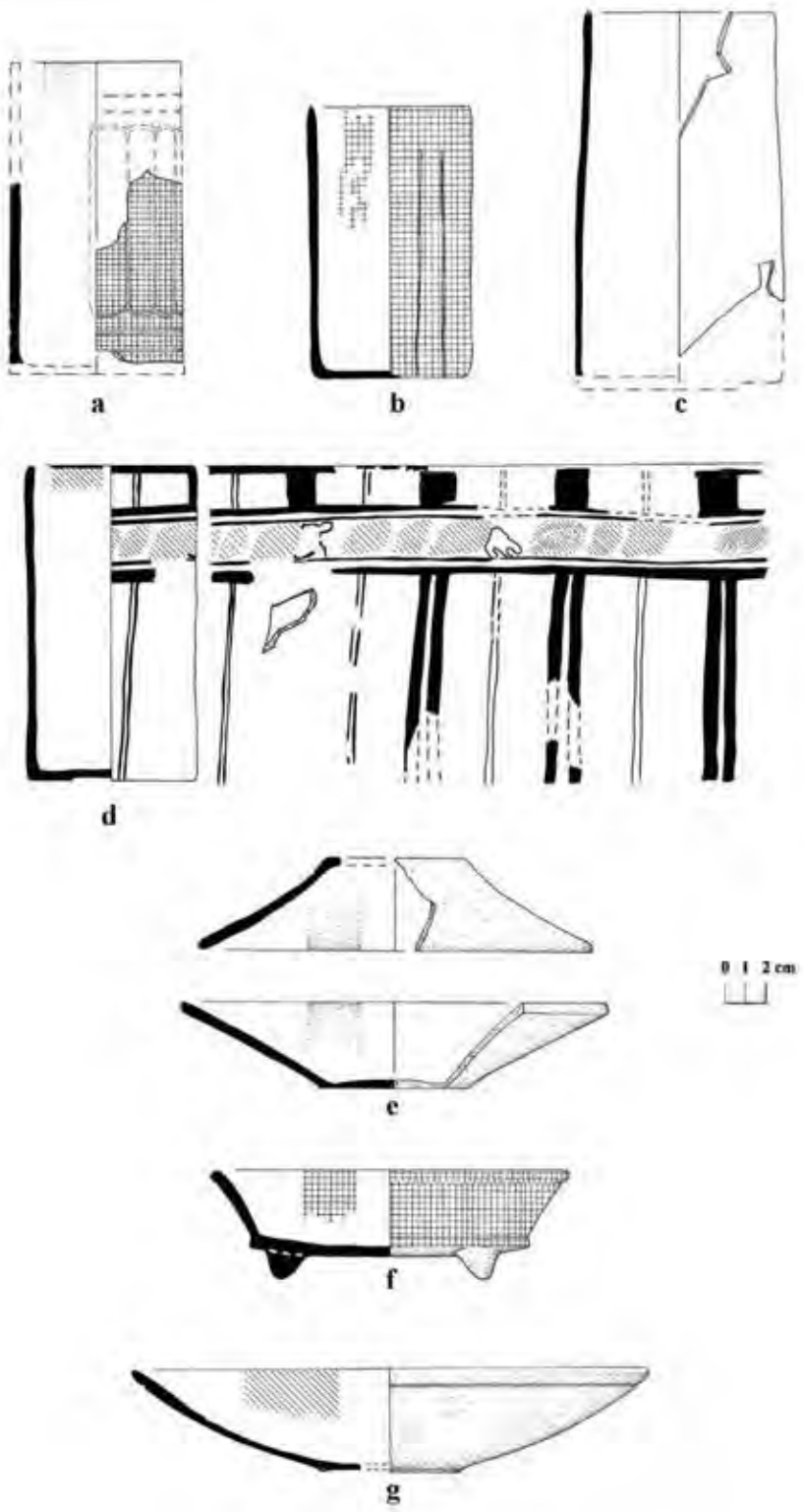

Figure 34. Pottery vessels associated with SD C230B-6: a. Tialipa Brown Fluted and Incised; b. Canoa Incised; c. Molino Black; d. Juleki Cream-Polychrome; e. probably Ceiba Unslipped; f. Tialipa Brown; g. Machete Orange-Polychrome.

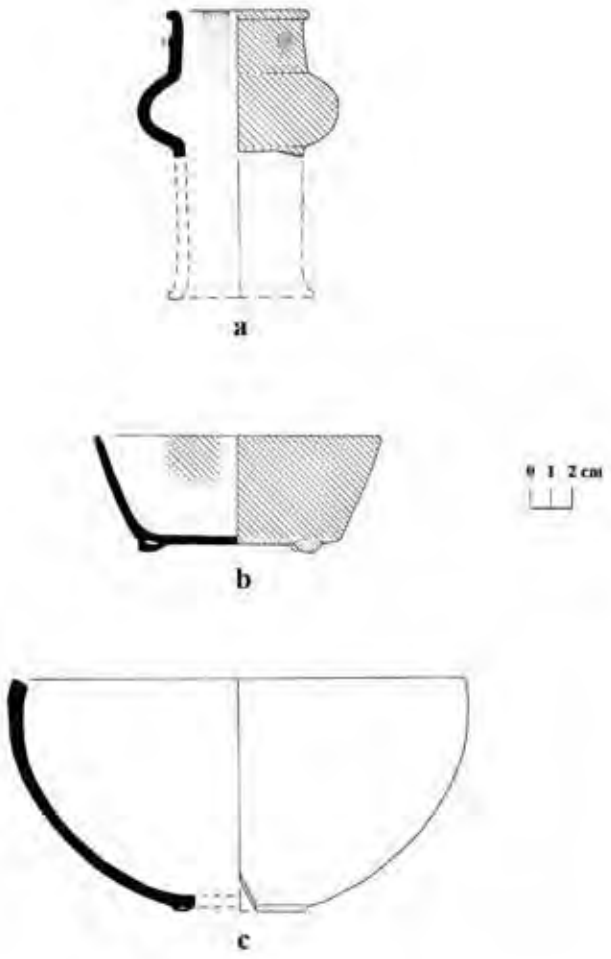

Figure 35. Pottery vessels associated with SD C230B-7: a. undesignated; b. Nanzal Red; j. Valentin Unslipped.

Figure 36. Photograph of pottery vessels from double-tomb chamber: a. Juleki Cream-Polychrome; b. Nanzal Red.

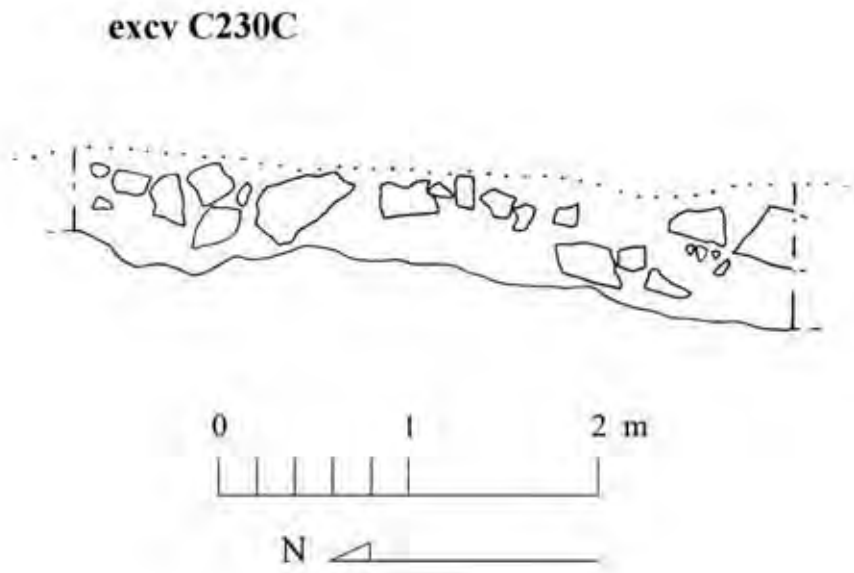

Figure 37. Section of test excavation on the western side of Houston residential group, labeled excv C230C.

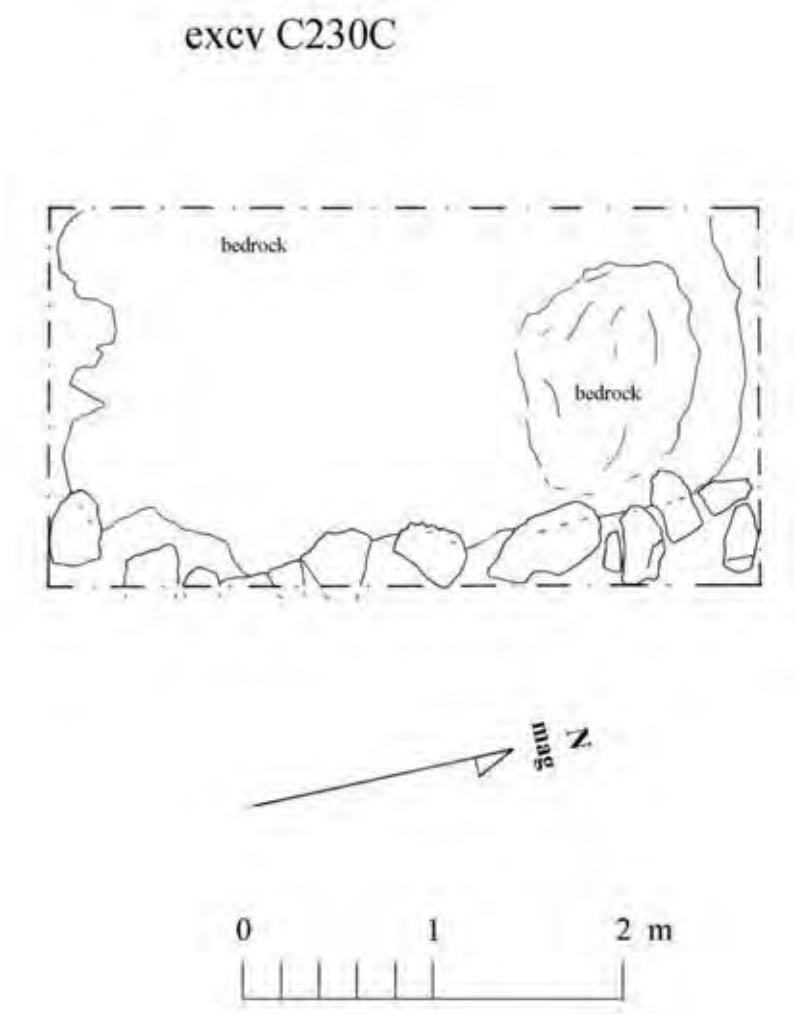

Figure 38. Plan of excv. C230C at bedrock level.

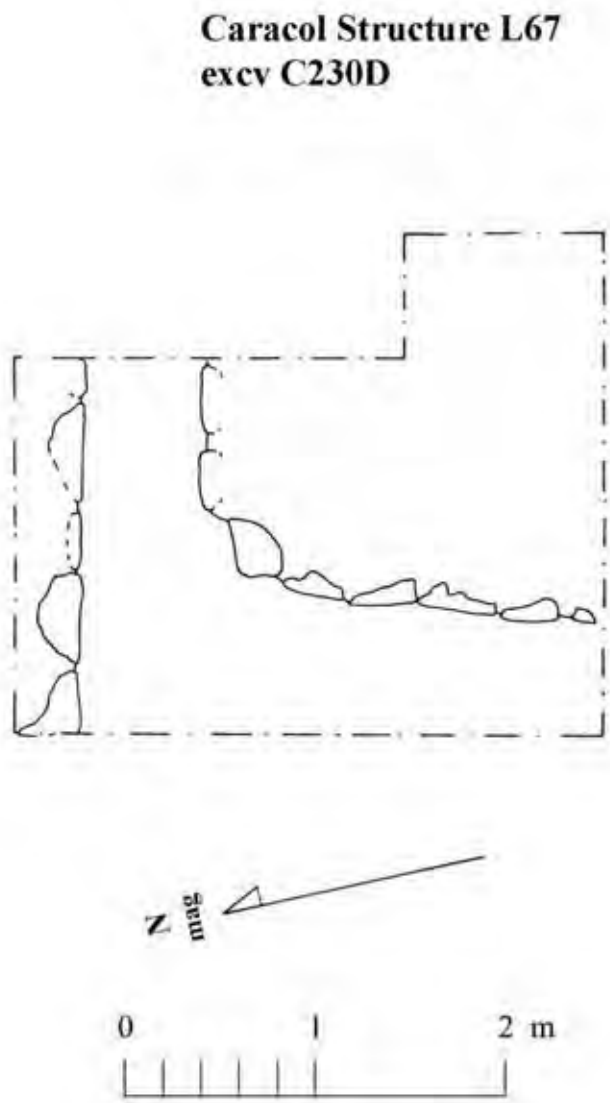

Figure 39. Plan of excv. C230D, showing relationship between Caracol Structures L66 and L67.

Figure 40. Photograph of excv. C231B in Nasa residential group (upper) and of excvs. C232B and C232C in Apollo residential group (lower).

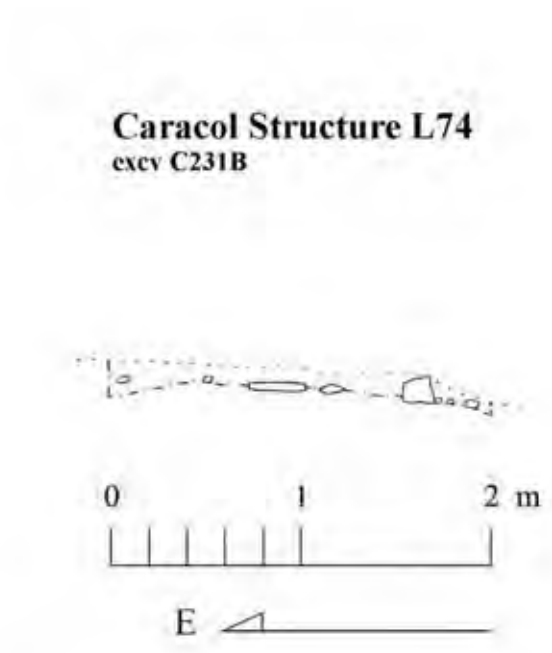

Figure 41. Section for excv. C231B into Caracol Structure L74 in the Nasa residential group.

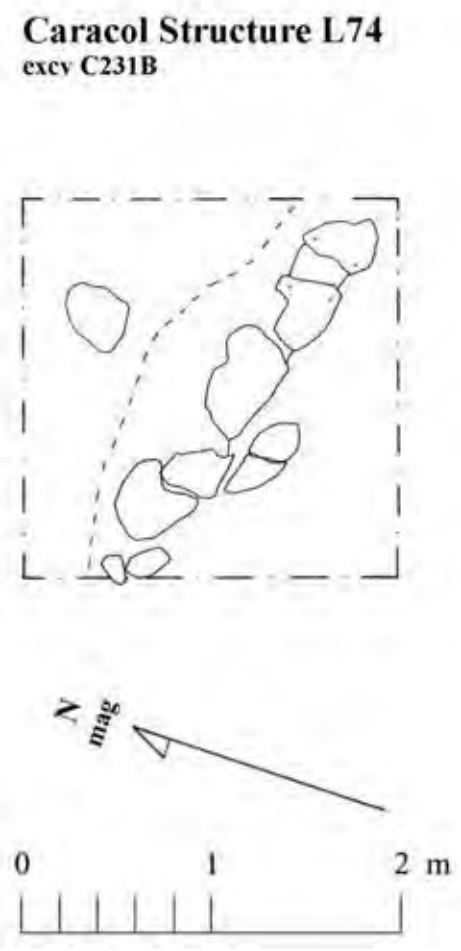

Figure 42. Plan for excv. C231B into Caracol Structure L74.

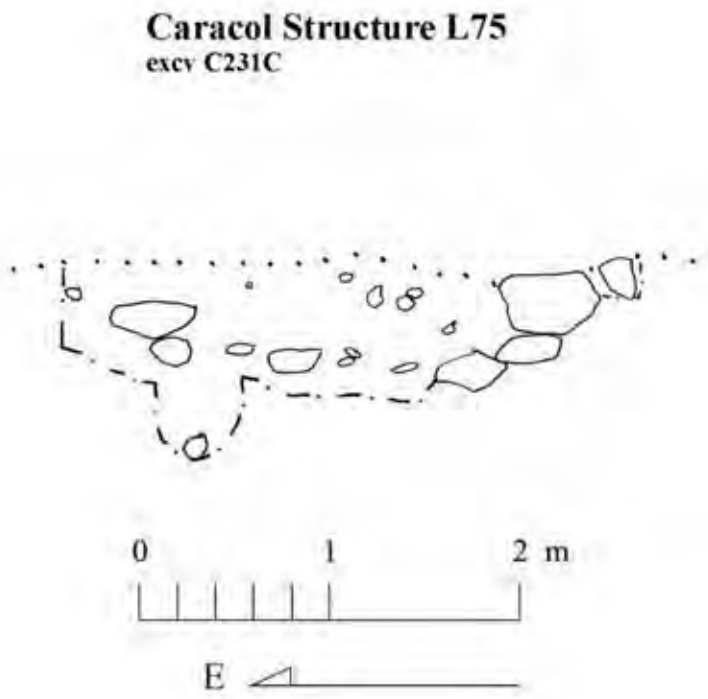

Figure 43. Section for excv. C231C into Caracol Structure L75 in the Nasa residential group.

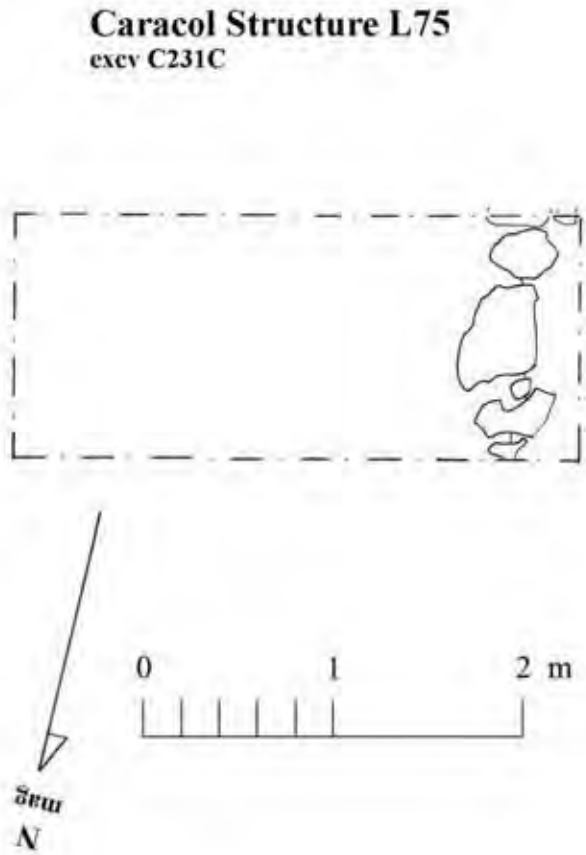

Figure 44. Plan for excv. C231C into Caracol Structure L75.

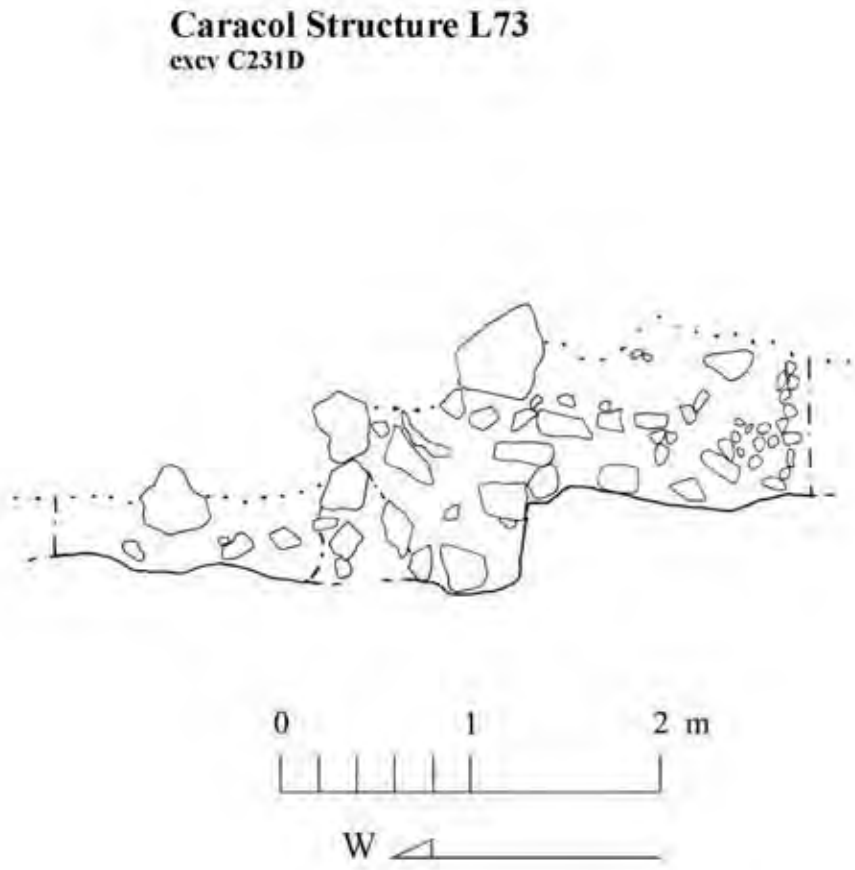

Figure 45. Section for excv. C231D into Caracol Structure L73 in the Nasa residential group.

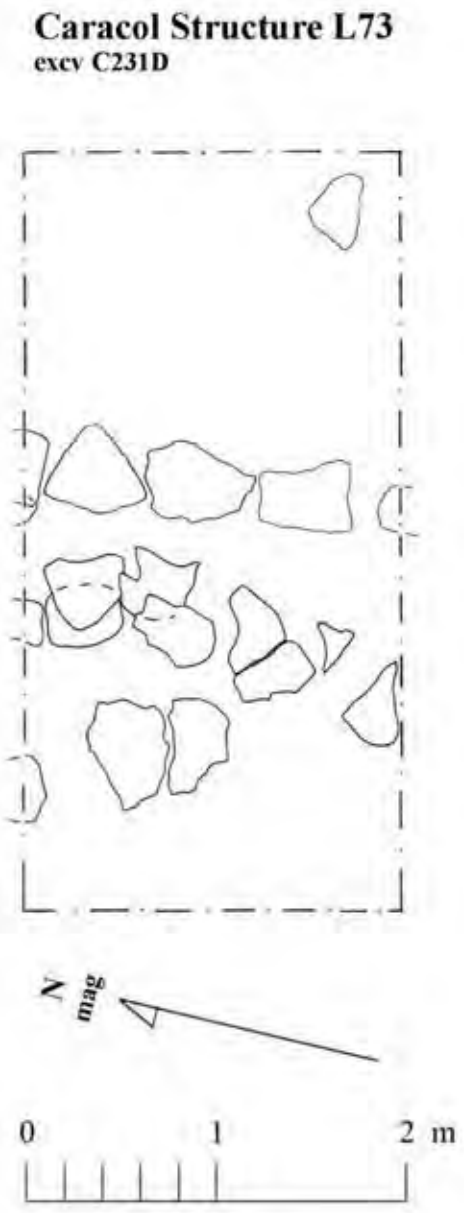

Figure 46. Plan for excv. C231D into Caracol Structure L73.

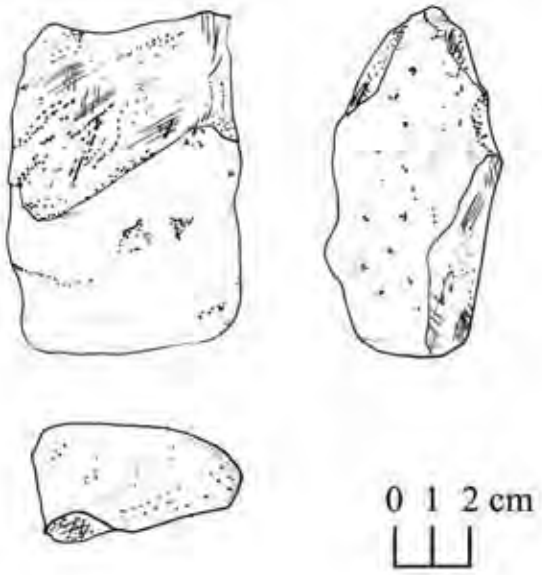

Figure 47. Battered granite mano recovered from within excv. C231D.

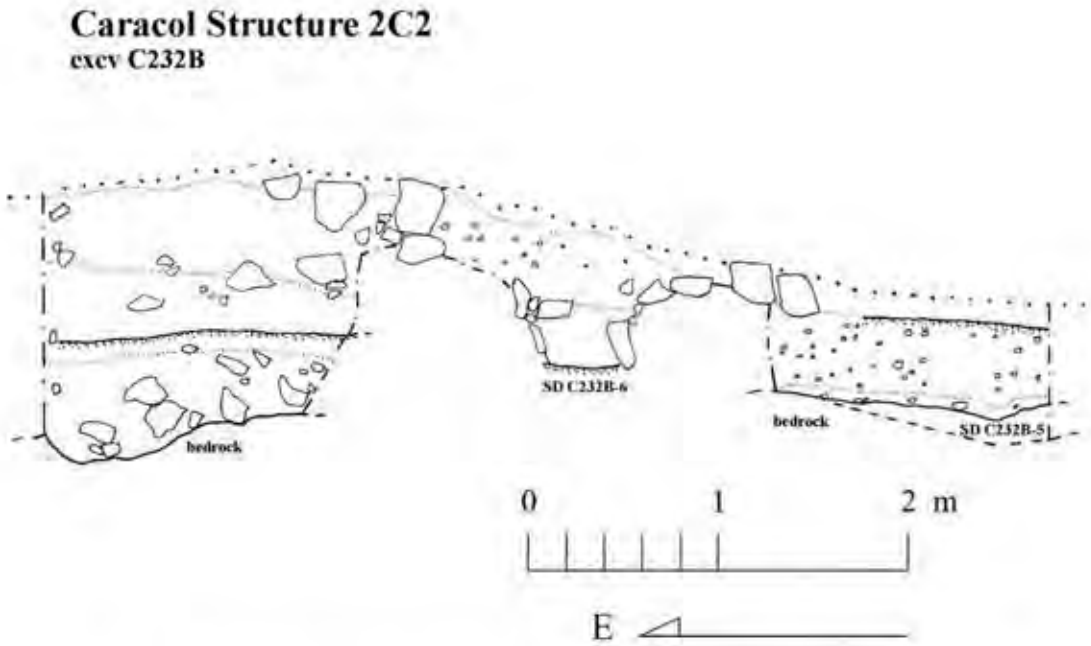

Figure 48. Section for Caracol Structure 2C2, as revealed through excv. C232B.

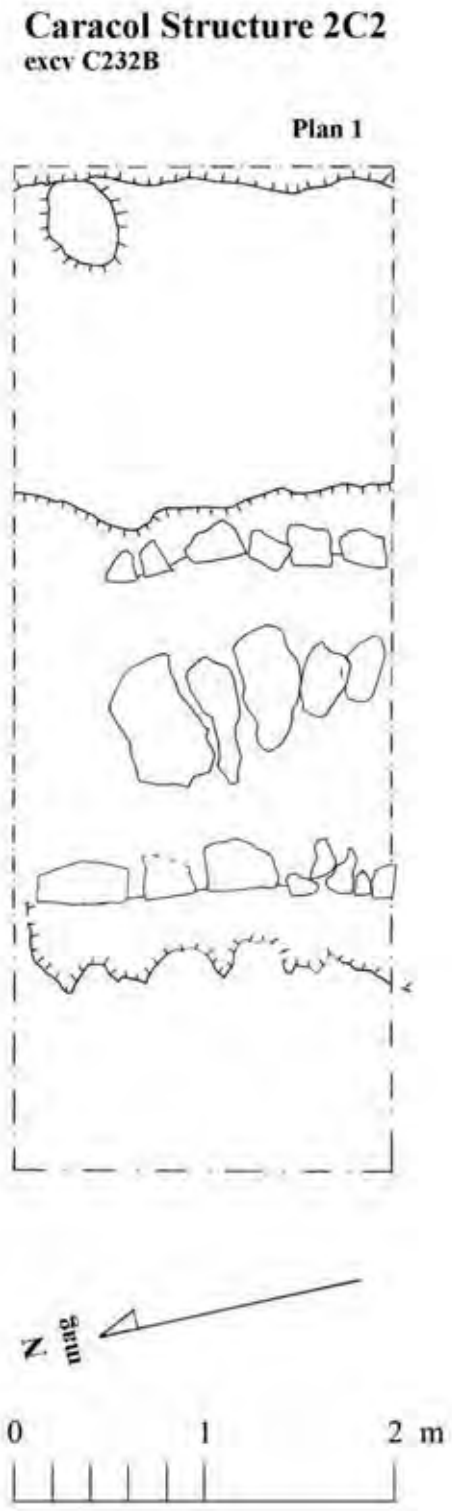

Figure 49. Plan of excv. C232B, showing architectural features and capstones for SD C232B-6.

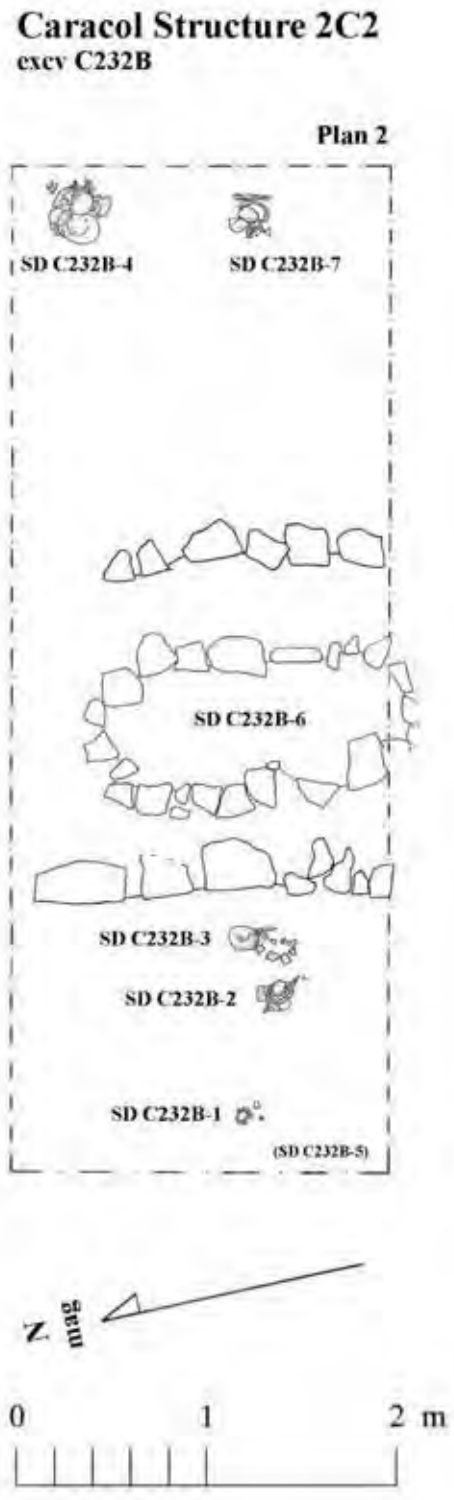

Figure 50. Plan of excv. C232B, showing locations of SD C232B-1, SD C232B-2, SD C232B-3, SD C232B-4, SD C232B-6, and SD C232B-7.

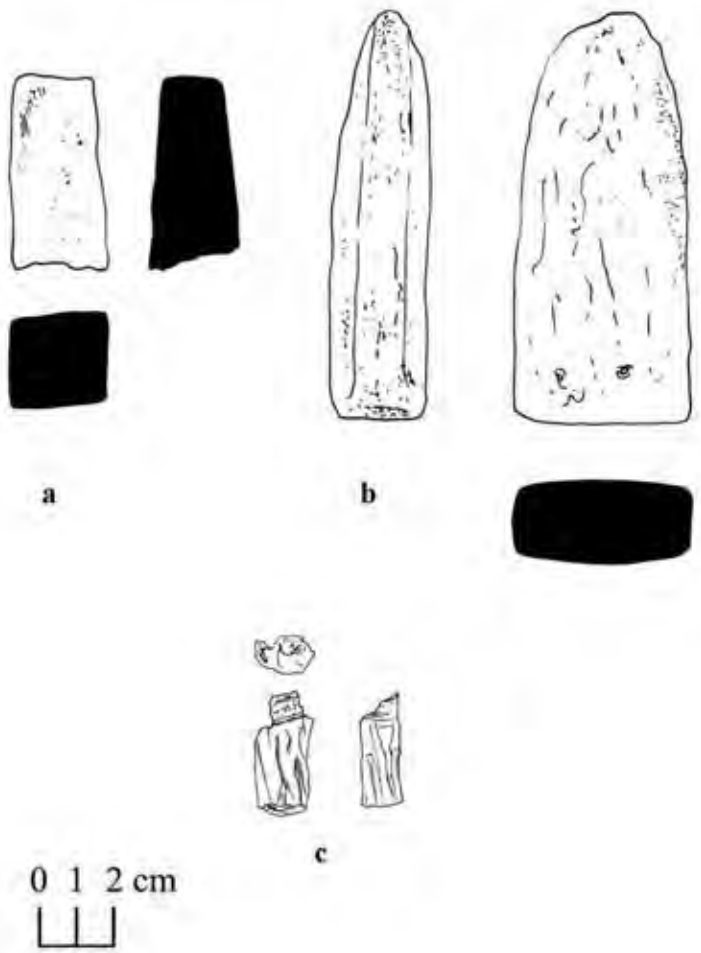

Figure 51. Artifacts recovered from excv. C232B: a., b. limestone bars; c. worked marine shell.

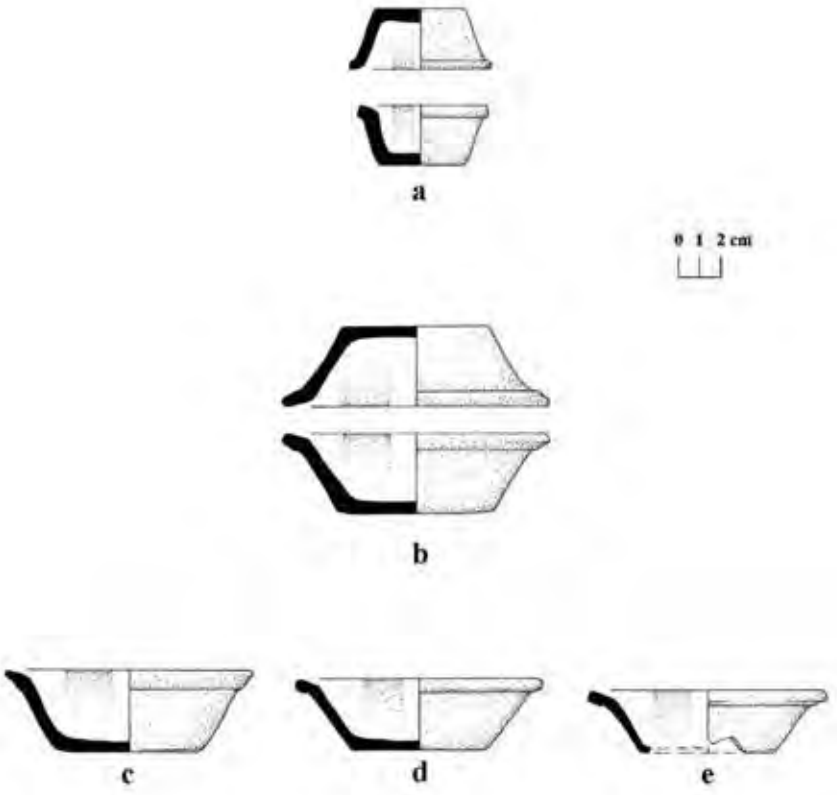

Figure 52. Cache vessels from three deposits in the front of Structure 2C2 (all Ceiba Unslipped). a. SD C232B-1; b. SD C232B-2; c.-e. SD C232B-3.

Figure 53. Photograph of lower part of SD C232B-2 showing blade under cache vessel (upper) and of SD C232B-6 showing pottery vessels in situ.

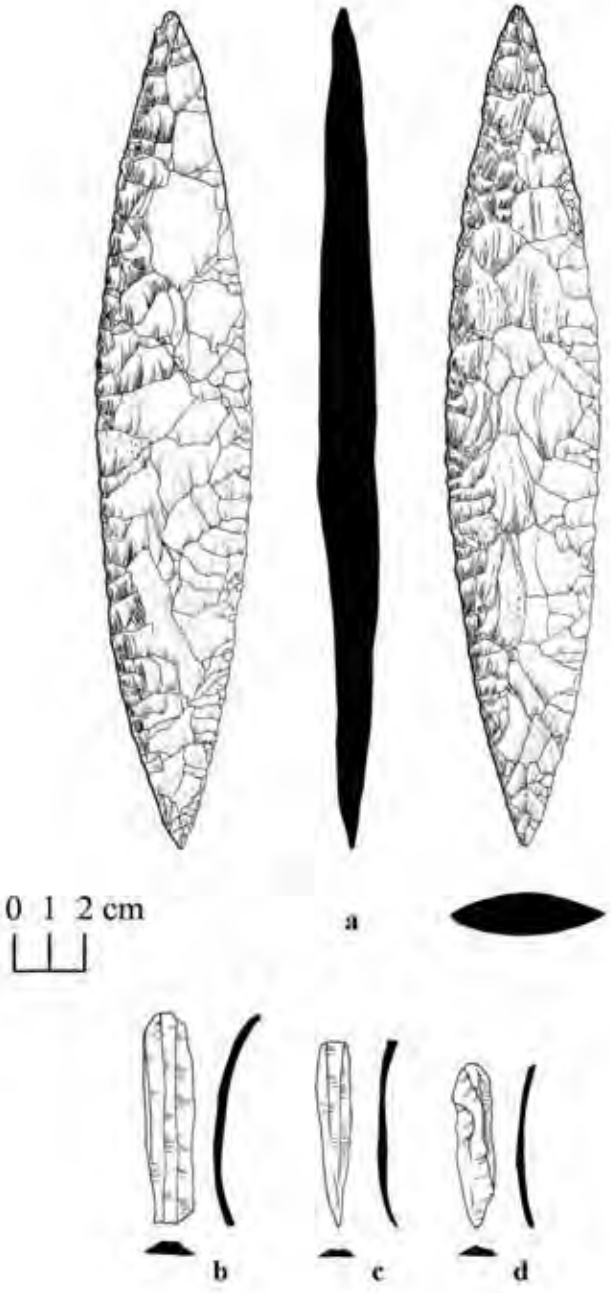

Figure 54. Artifactual material associated with SD C232B-2: a. chert biface; b.-d. obsidian lancets.

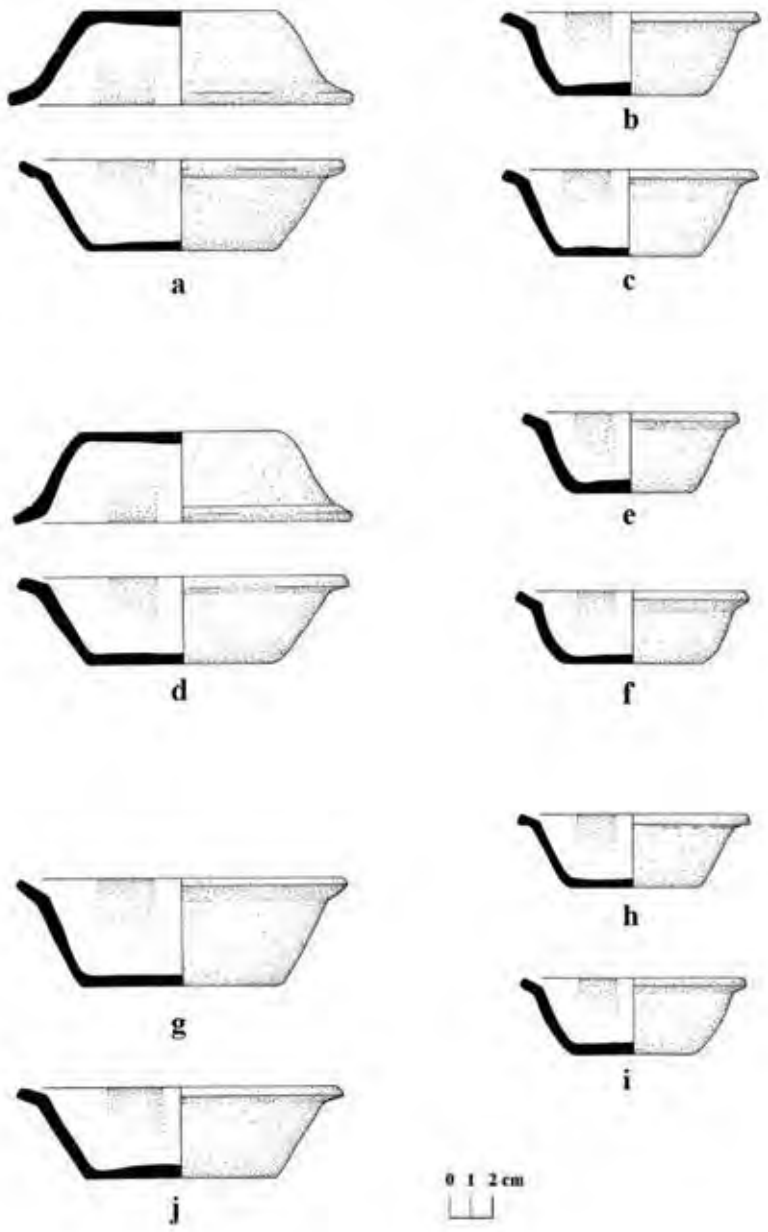

Figure 55. Cache vessels associated with SD C232B-4 (all Ceiba Unslipped).

Figure 56. Photographs of upper, middle, and lower parts of SD C232B-4.

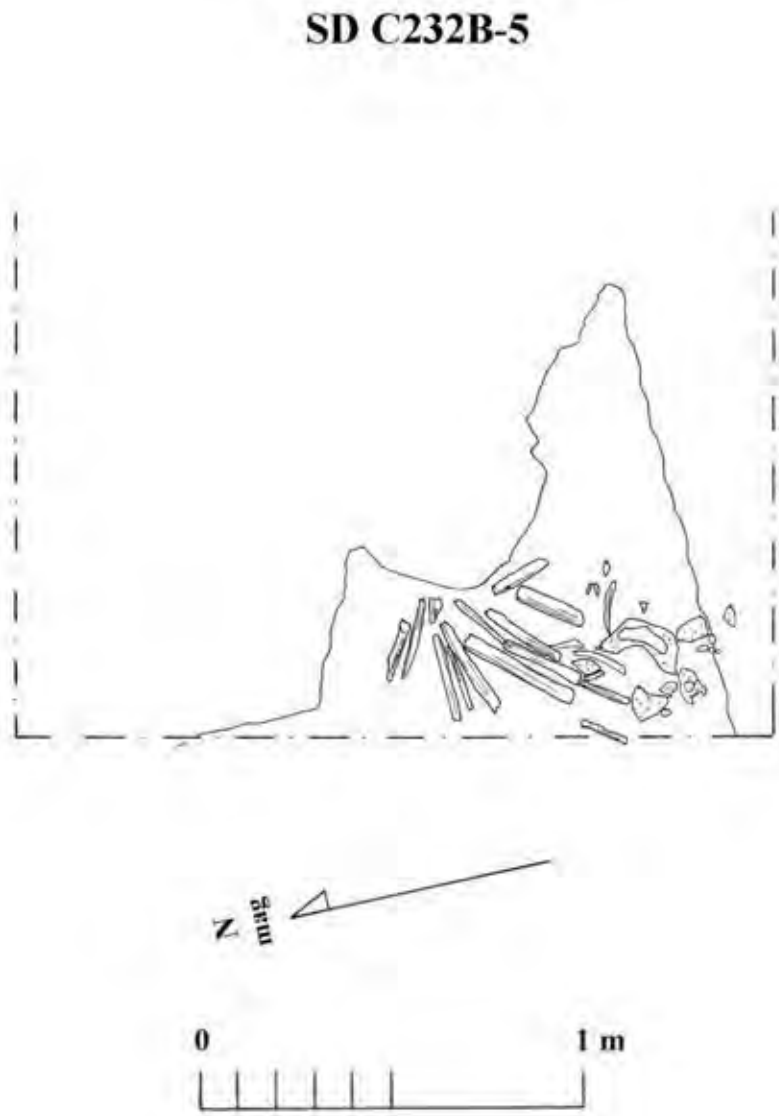

Figure 57. Detailed plan of SD C232B-5.

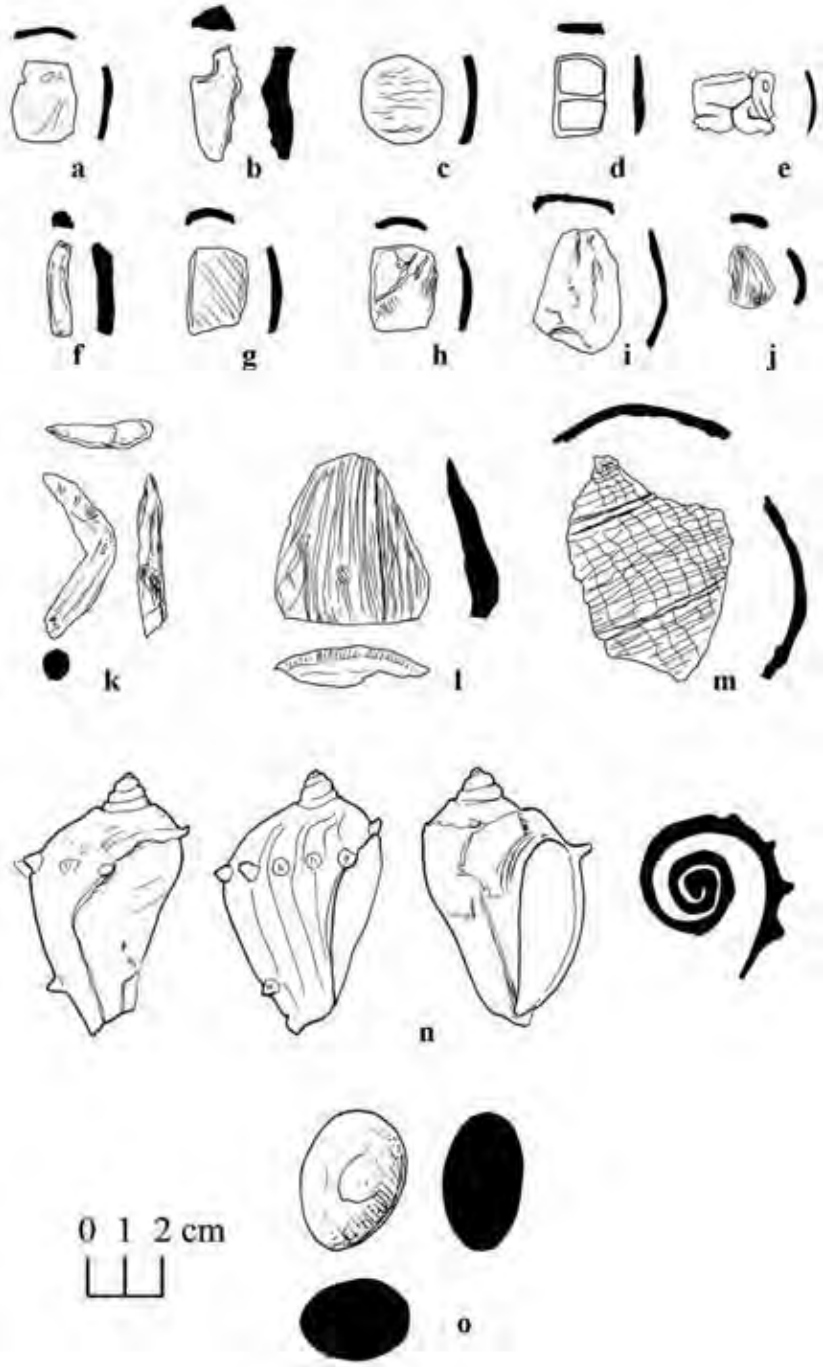

Figure 58. Artifactual material associated with SD C232B-5: a.-m. worked marine shell; n. unworked conch shell; o. smoothed river stone.

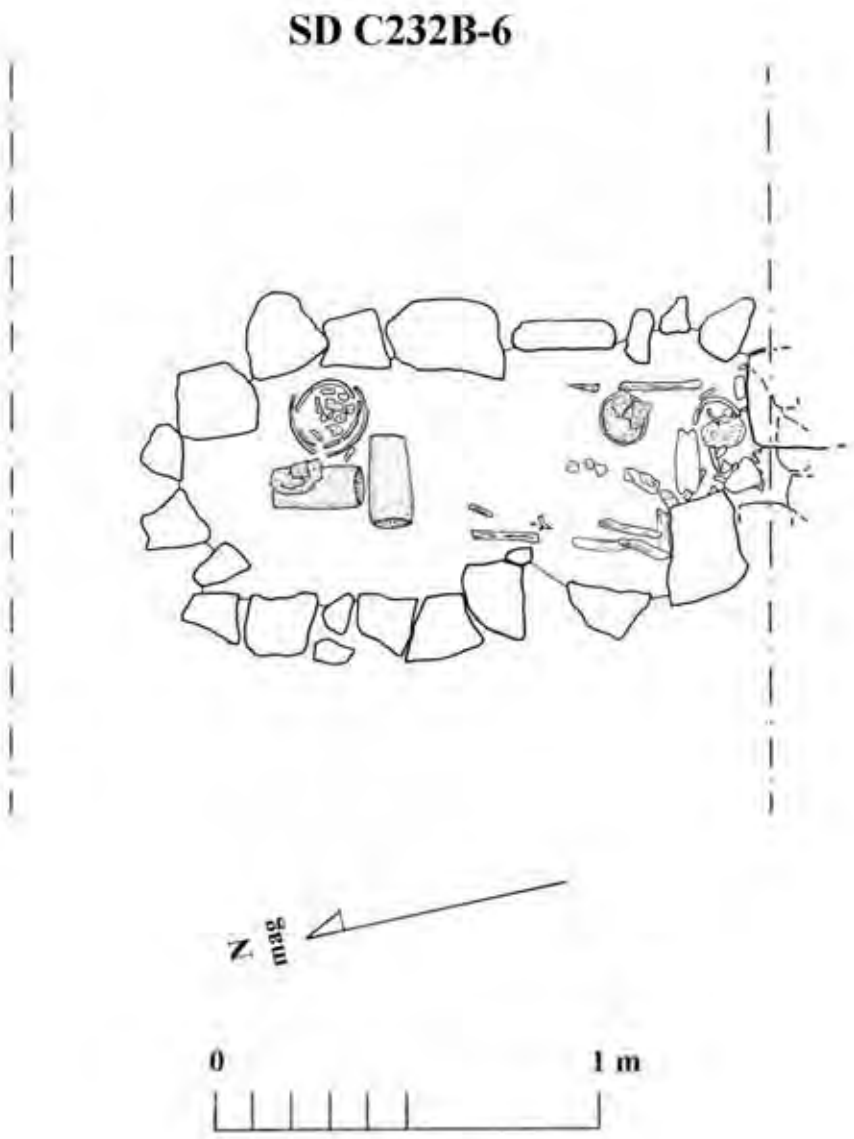

Figure 59. Detailed plan of SD C232B-6.

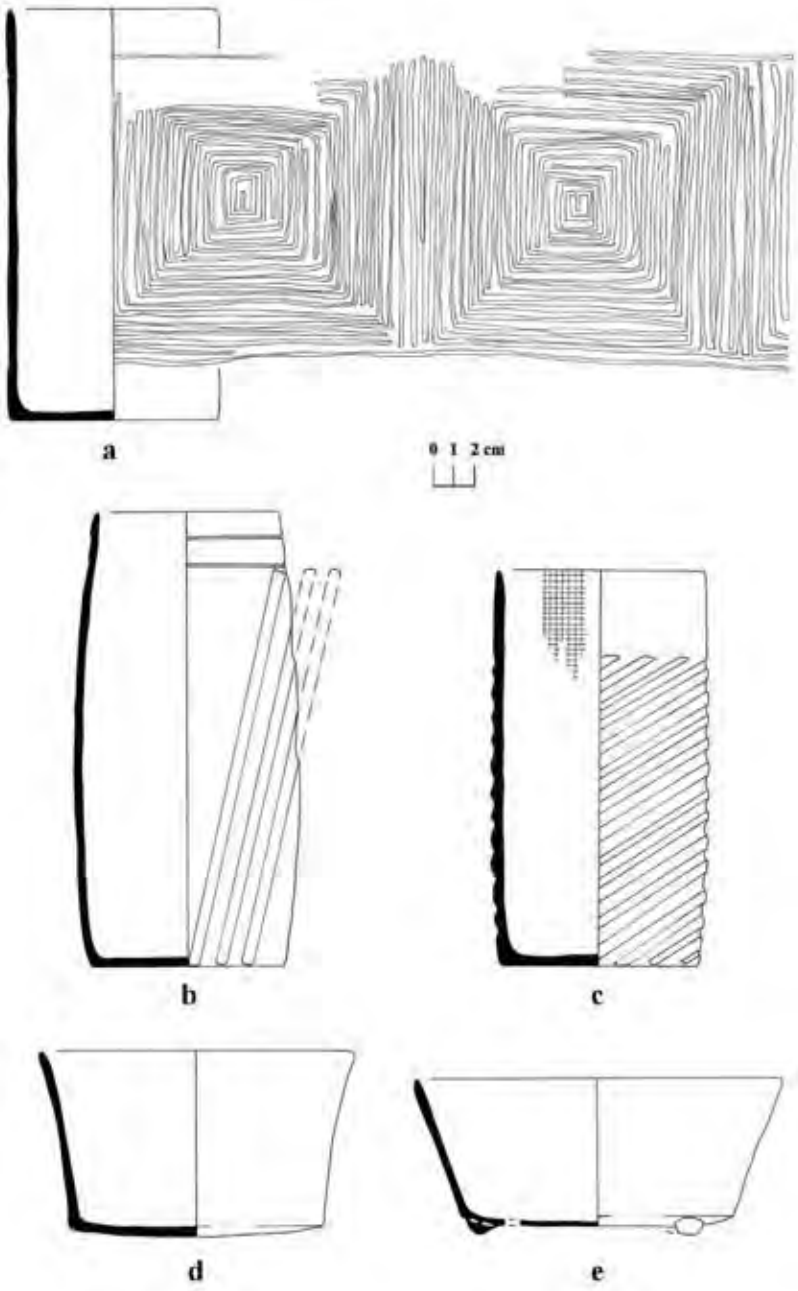

Figure 60. Ceramic vessels associated with SD C232B-6: a. Canoa Incised; b. Tialipa Brown Fluted and Incised; c. Galinero Fluted; d. eroded Palmar Orange-Polychrome; e. eroded Benque Viejo Polychrome.

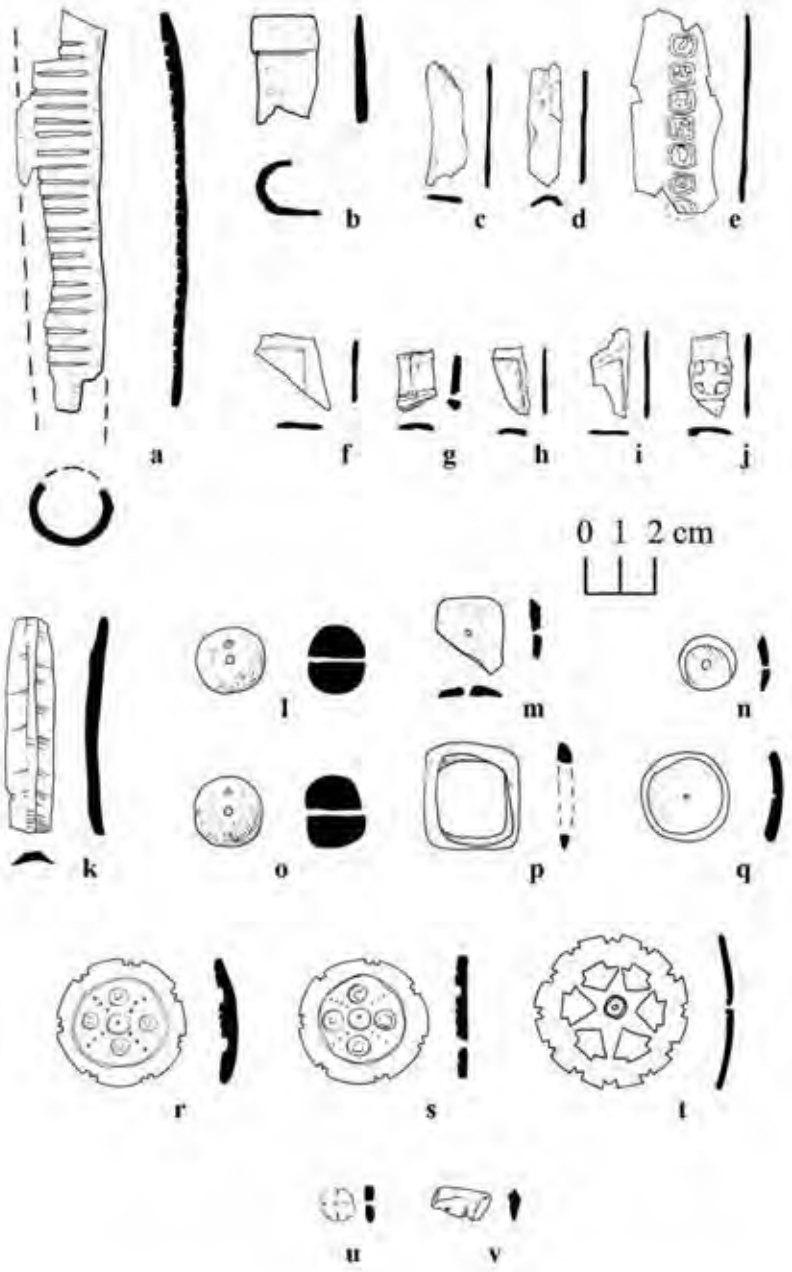

Figure 61. Artifactual material associated with SD C232B-6: a.-j. worked bone; k. obsidian blade; l., o. greenstone quartzite bead with hematite inlay; m. jadeite bead (fits in p.); n. carved shell disc; p. carved shell (outer frame for m.); q. carved shell disc; r., s. shell earflare set; t. possible single shell earflare; u. carved shell; v. piece of jadeite.

Figure 62. Photograph of artifactual materials from burials in excv. C232B: shell earflares from SD C232B-6 (upper); green quartzite beads with hematite inlay from SD C232B-6 (middle); carved marine shell from SD C232B-5 (lower).

Figure 63. Photograph of worked and carved bone from SD C232B-6 (upper) as well as a hieroglyphic text on a carved bone from SD C232B-6 (lower).

Figure 64. Cache vessels associated with SD C232B-7 (Ceiba Unslipped).

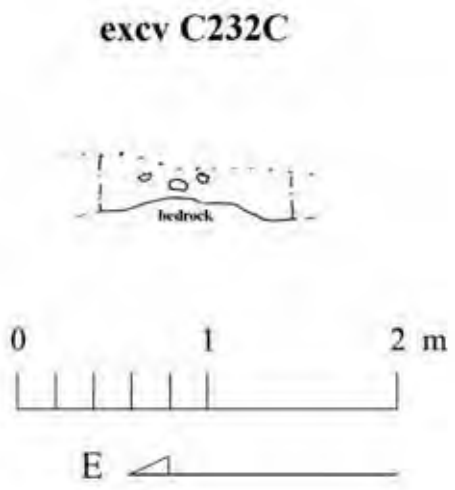

Figure 65. Section of plaza test pit in front of Caracol Structure 2C2, labeled excv. C232C.

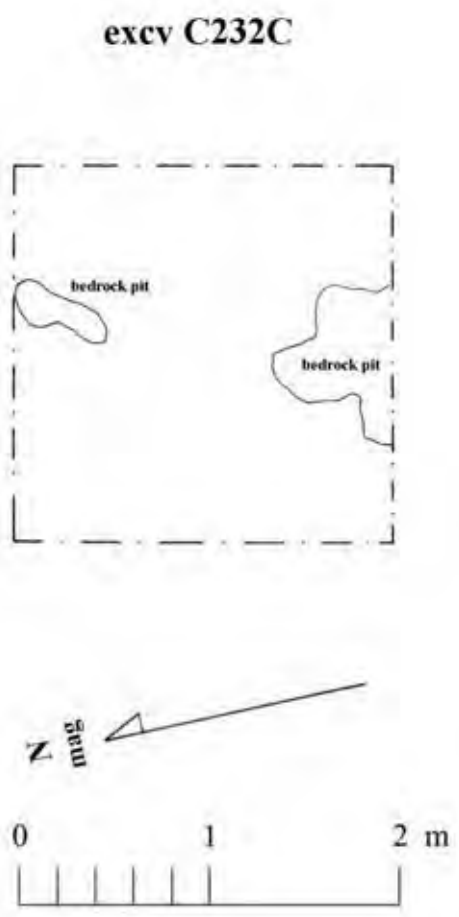

Figure 66. Plan of plaza test pit on bedrock (excv. C232C).

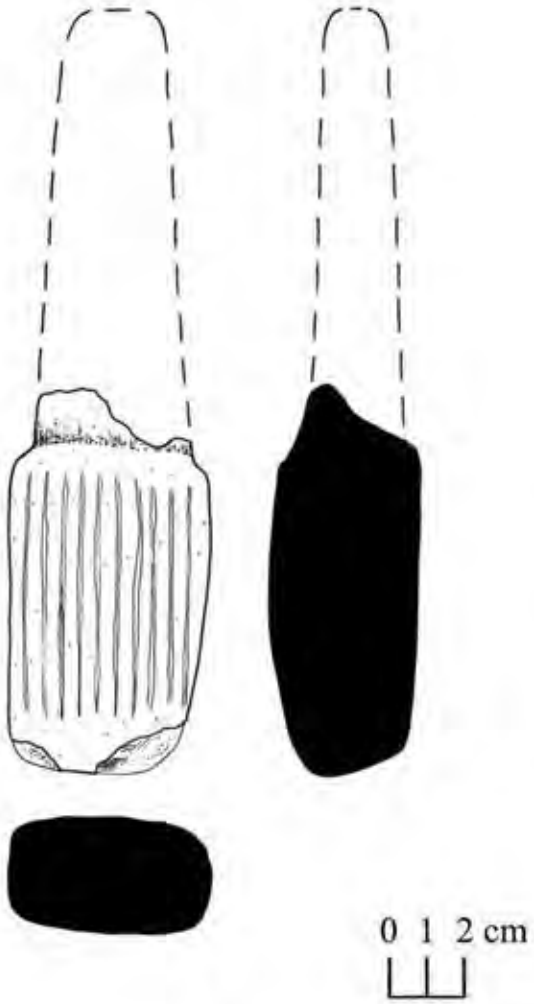

Figure 67. Barkbeater from excv. C232C.

Figure 68. Photograph of excv.. 233B in Caracol Structure L78 in the Jupiter residential group (upper) and of the open tomb north of Structure L81 in the Mars residential group.

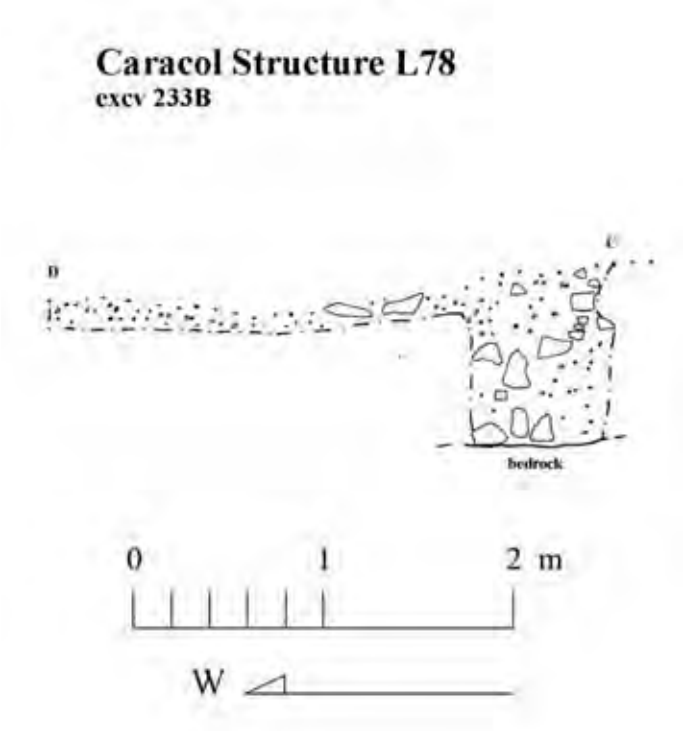

Figure 69. North section for test in excv. 233B in Caracol Structure L78.

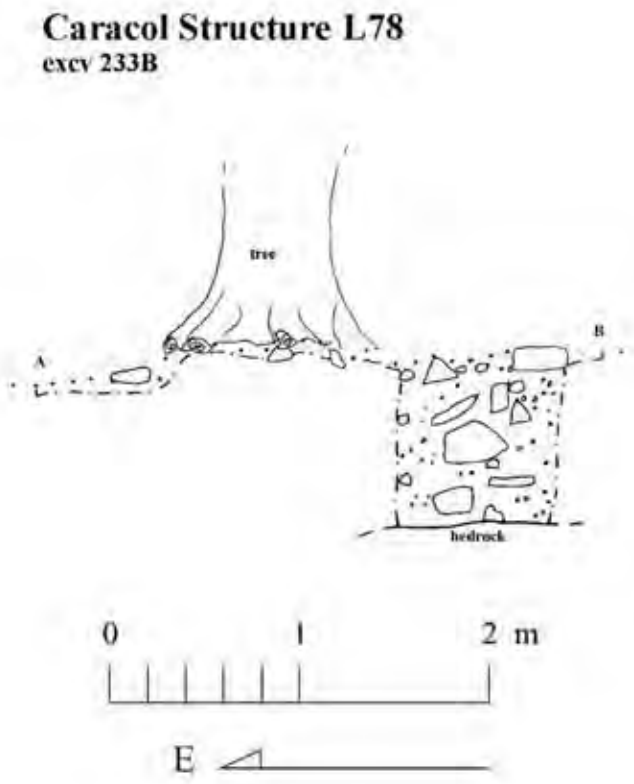

Figure 70. South section for text in excv. 233B in Caracol Structure L78.

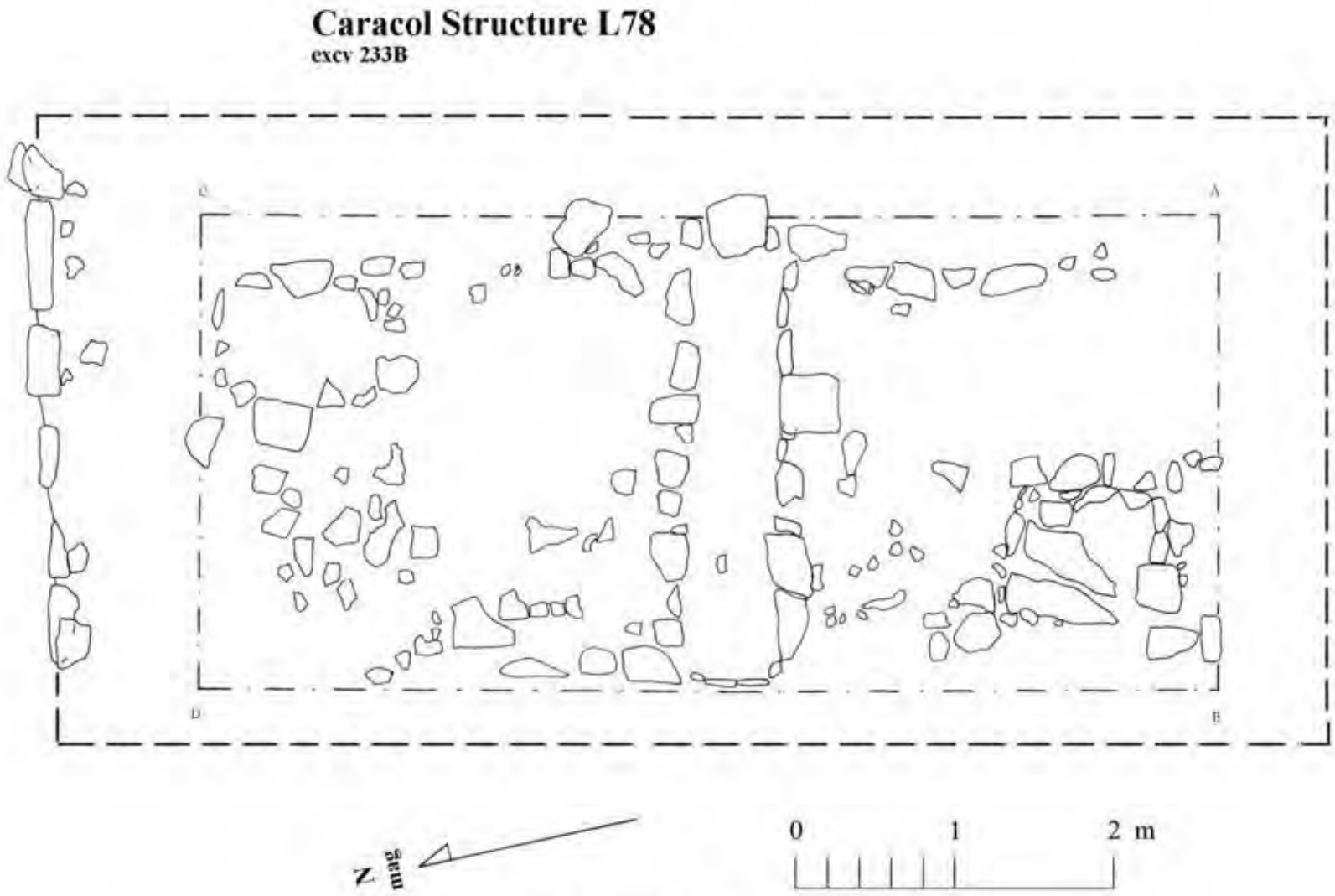

Figure 71.Plan of excv. 233B over Caracol Structure L78.

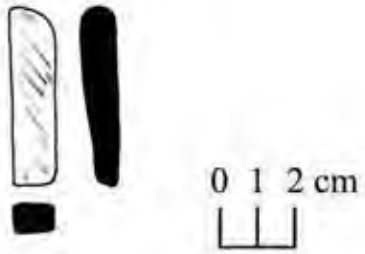

Figure 72. Slate bar associated with Caracol Structure L78.

Figure 73. Photograph of Caracol Structure L81 and excv. C234B looking east (upper) and S.D. C234B-4 (lower).

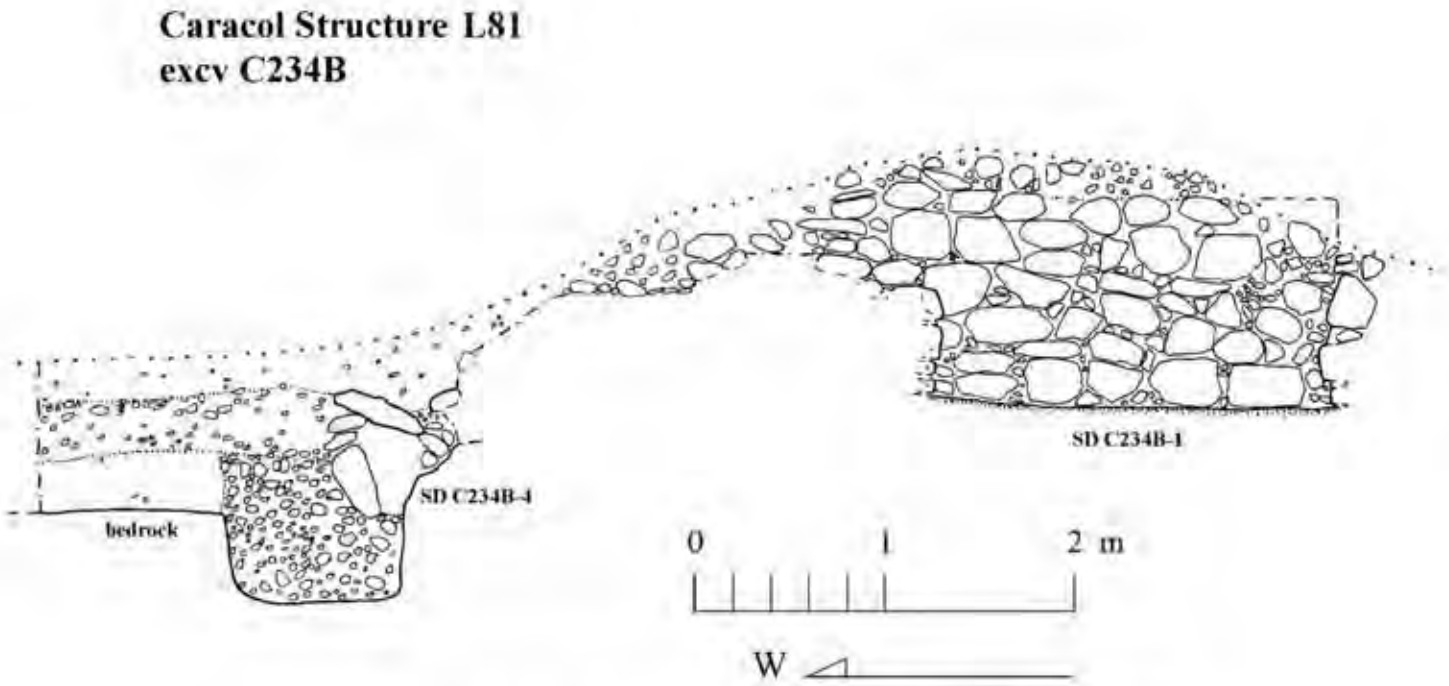

Figure 74. Section through Caracol Structure L81, as revealed by excv. C234B.

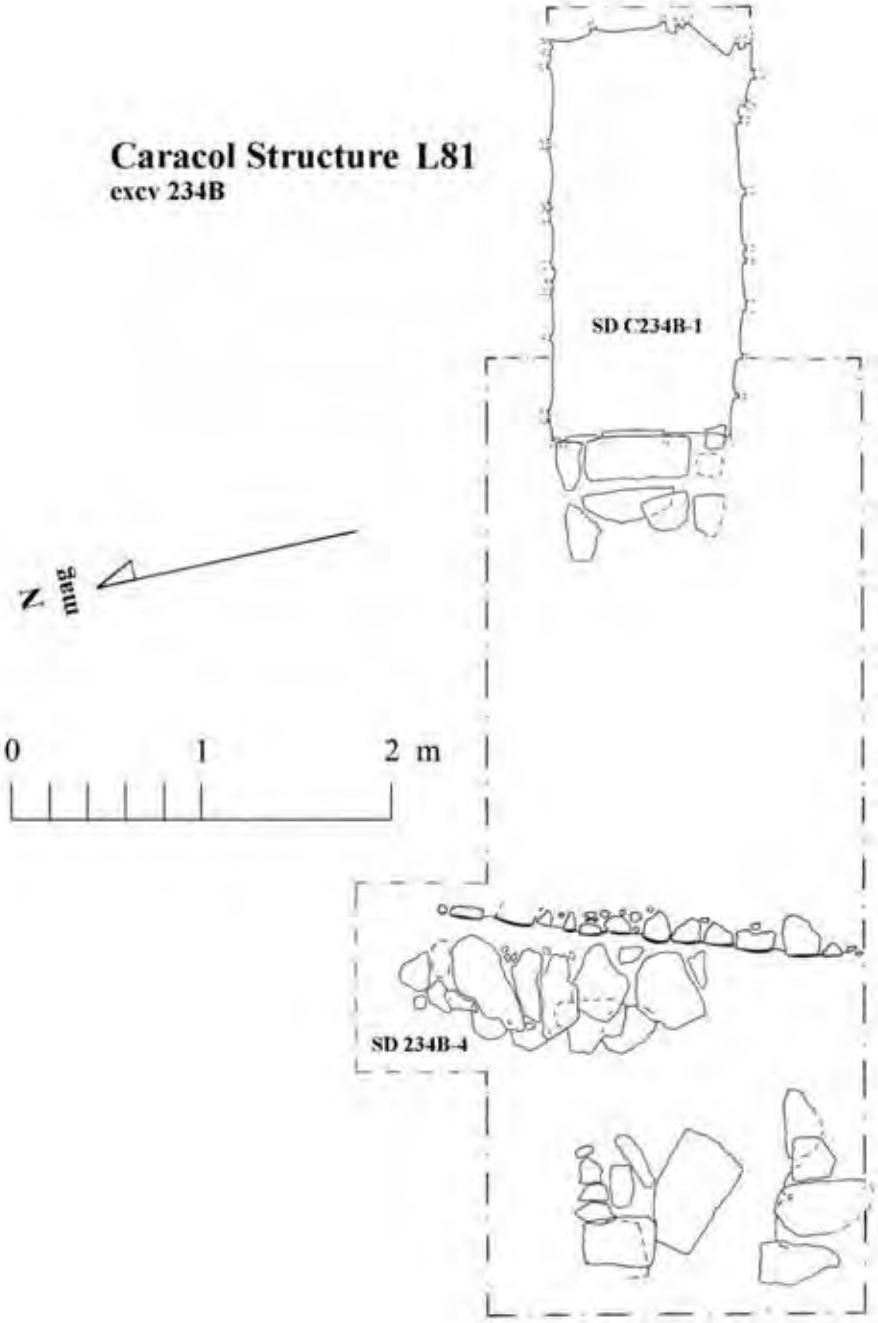

Figure 75. Plan of excv. C234B showing SD C234B-1 and the capstones for SD 234B-4.

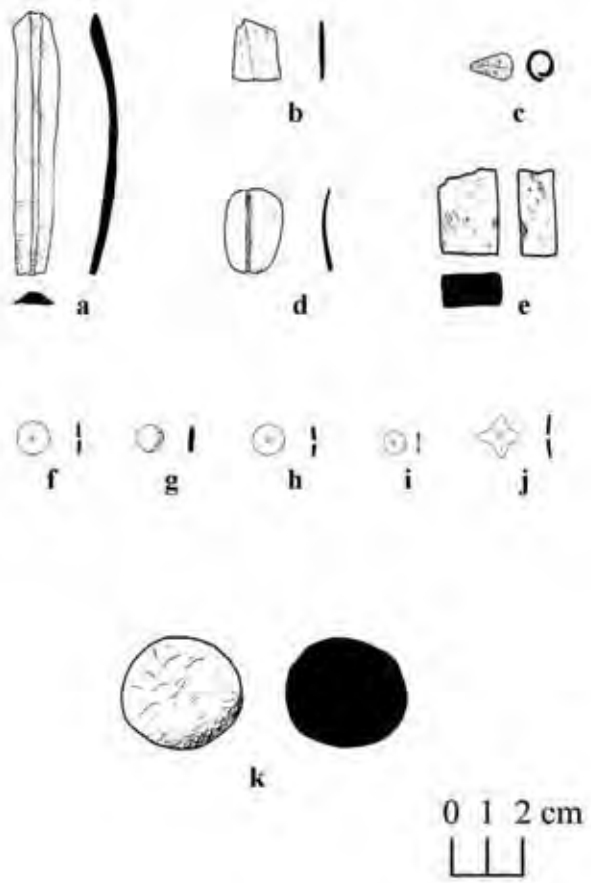

Figure 76. Artifactual material associated with excvs. 234B and 234C: a. obsidian lancet from SD C34B-1; b., d., f..-j. worked marine shell from SD C234B-1; c. marine

shell from plaza fill in excv. C234B; e. partial limestone bar from plaza fill in excv. C234B; limestone ball from bottom of chamber in excv. C234C.

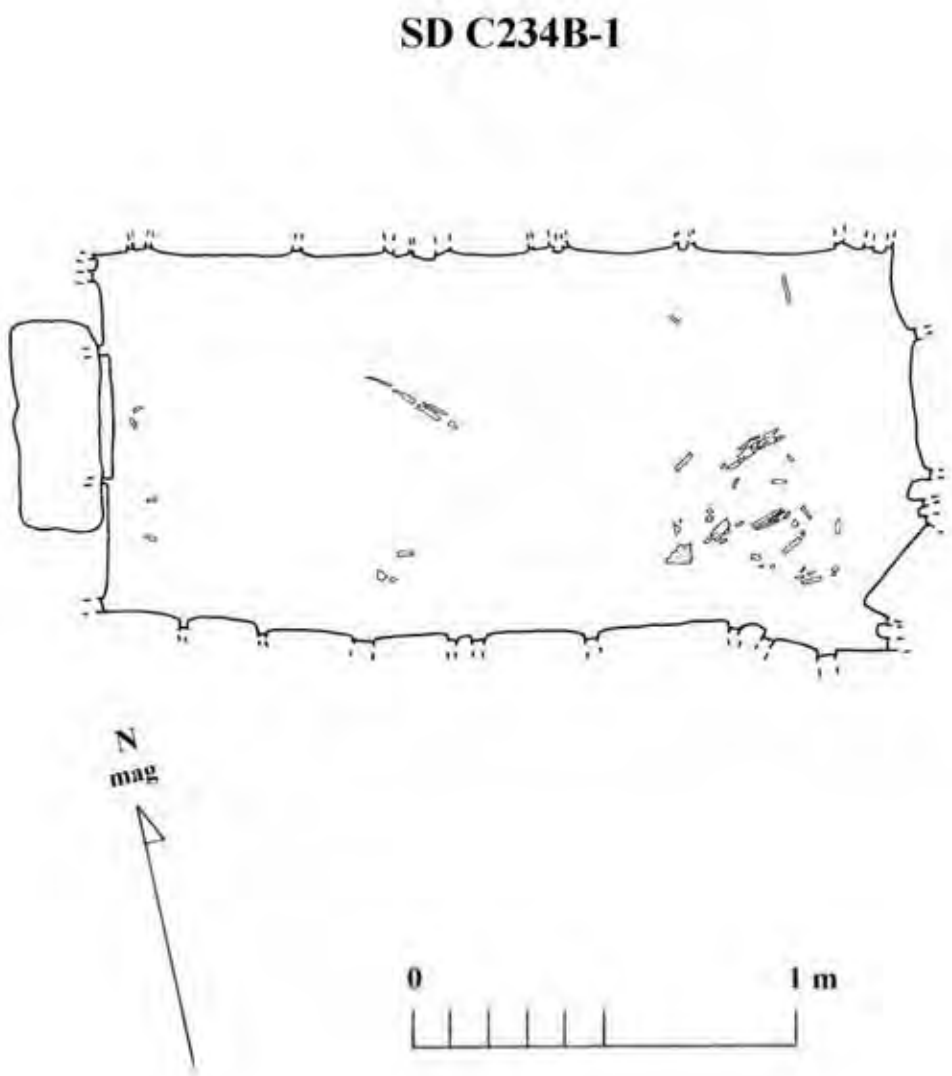

Figure 77. Detailed plan of SD C234B-1.

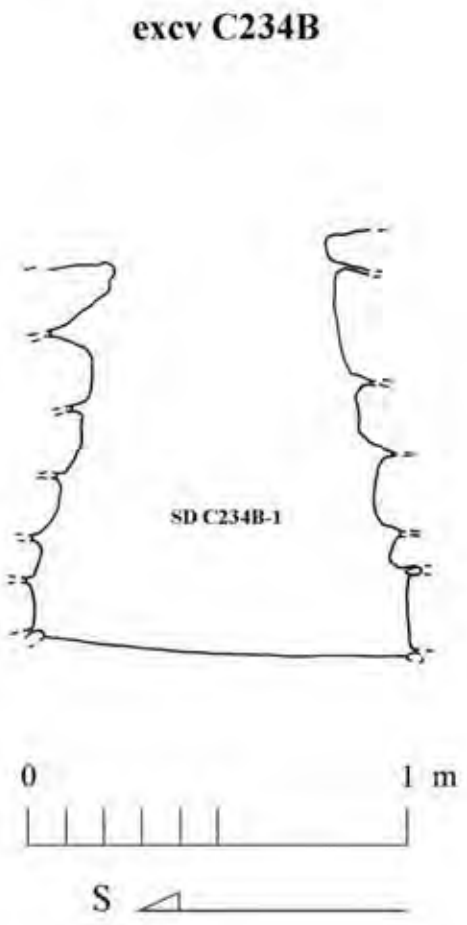

Figure 78. Cross-section through SD C234B-1.

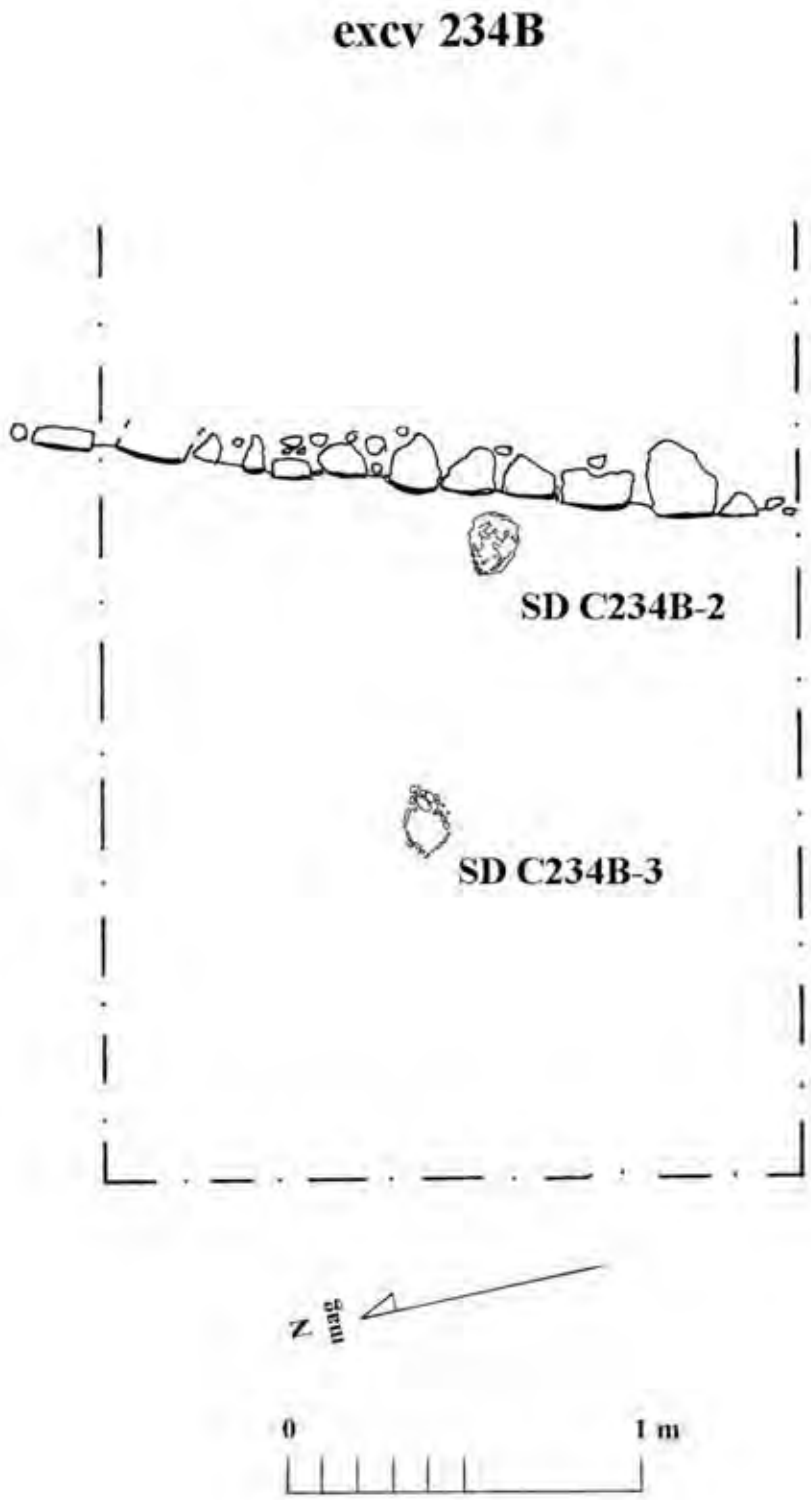

Figure 79. Detailed plan of front of Structure L81 showing locations of SD C234B-2 and SD C234B-3.

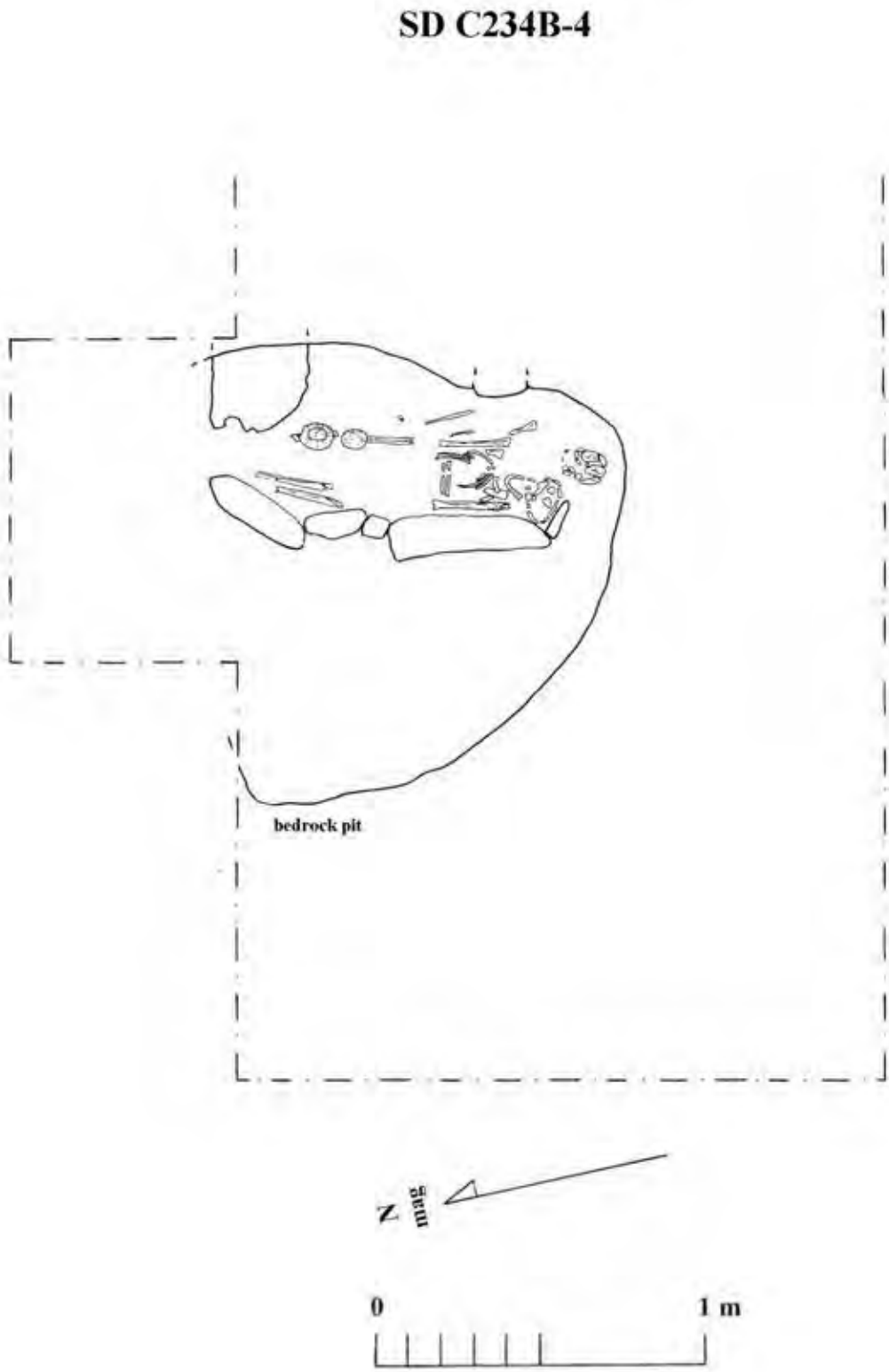

Figure 80. Vessels associated with excv. 234B: a. Ceiba Unslipped dish from S.D. C234B-4; b. Hebe Modeled face cache designated SD C234B-3.

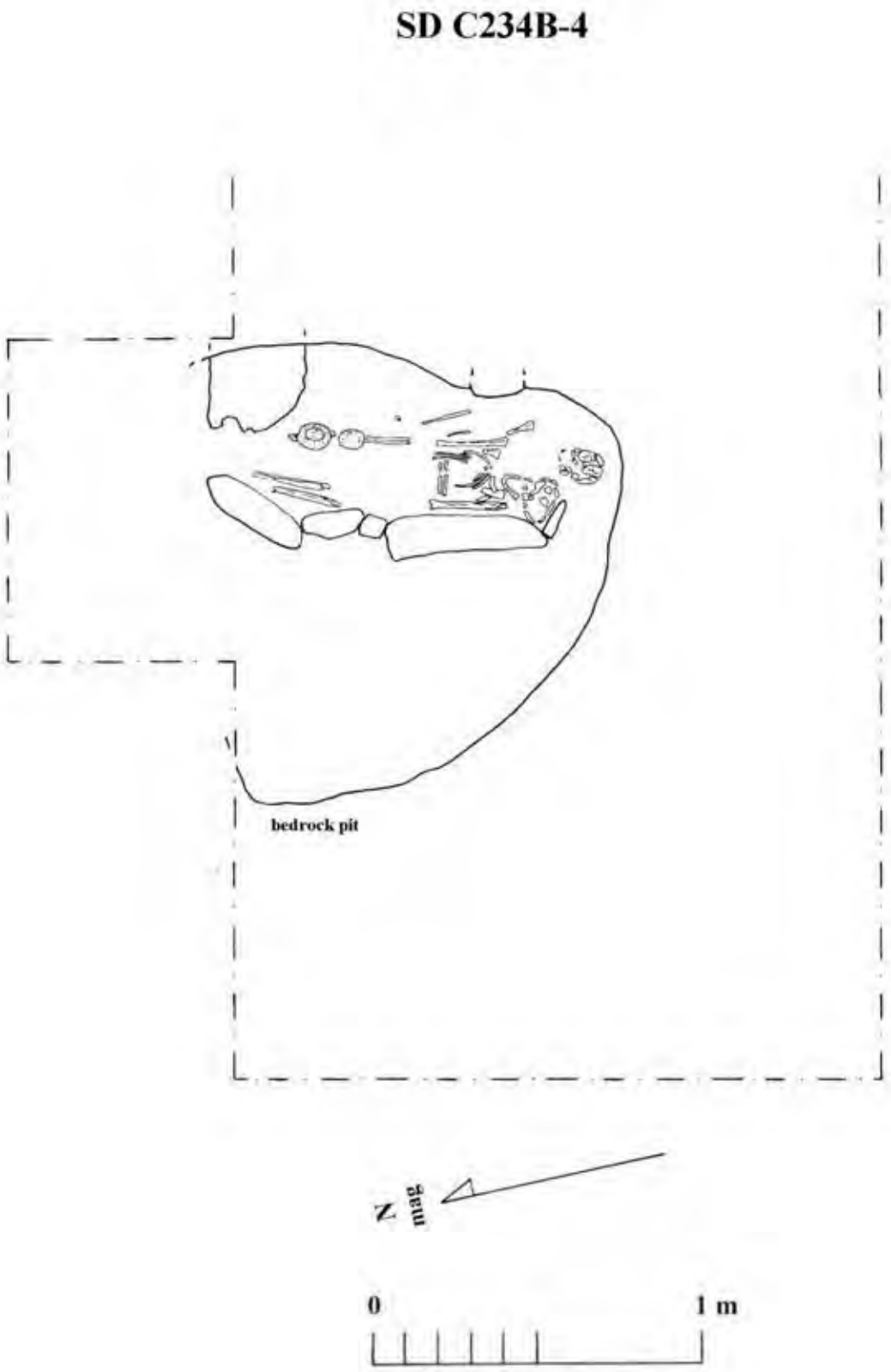

Figure 81. Detailed plan of SD C234B-4 and bedrock cut.

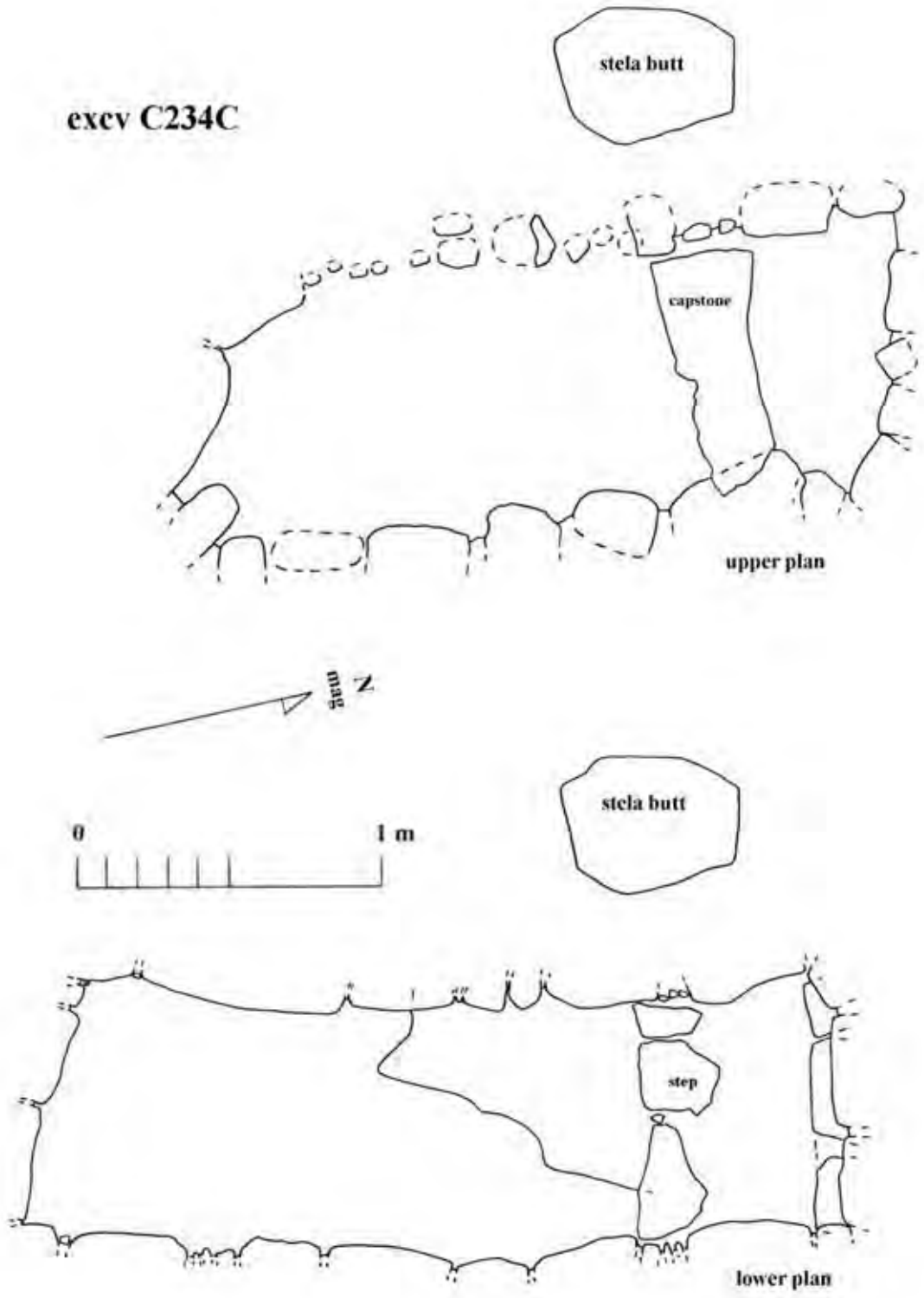

Figure 82. Upper and lower plans of SD C234C-1.

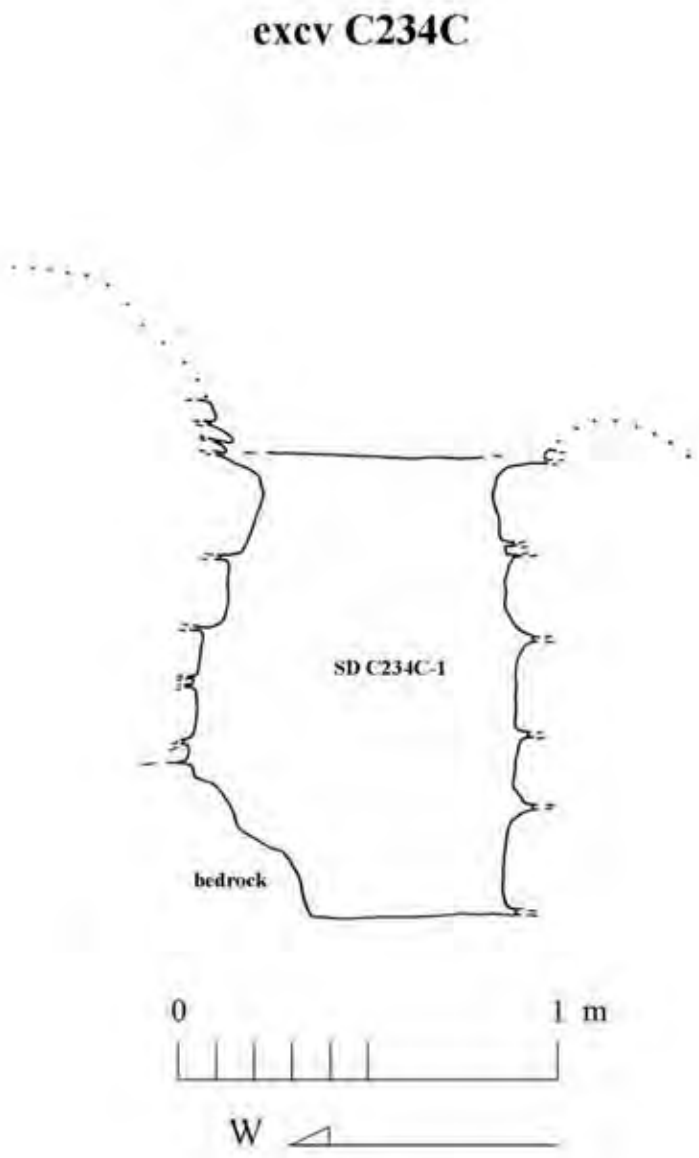

Figure 83. Cross-section of SD C234C-1.

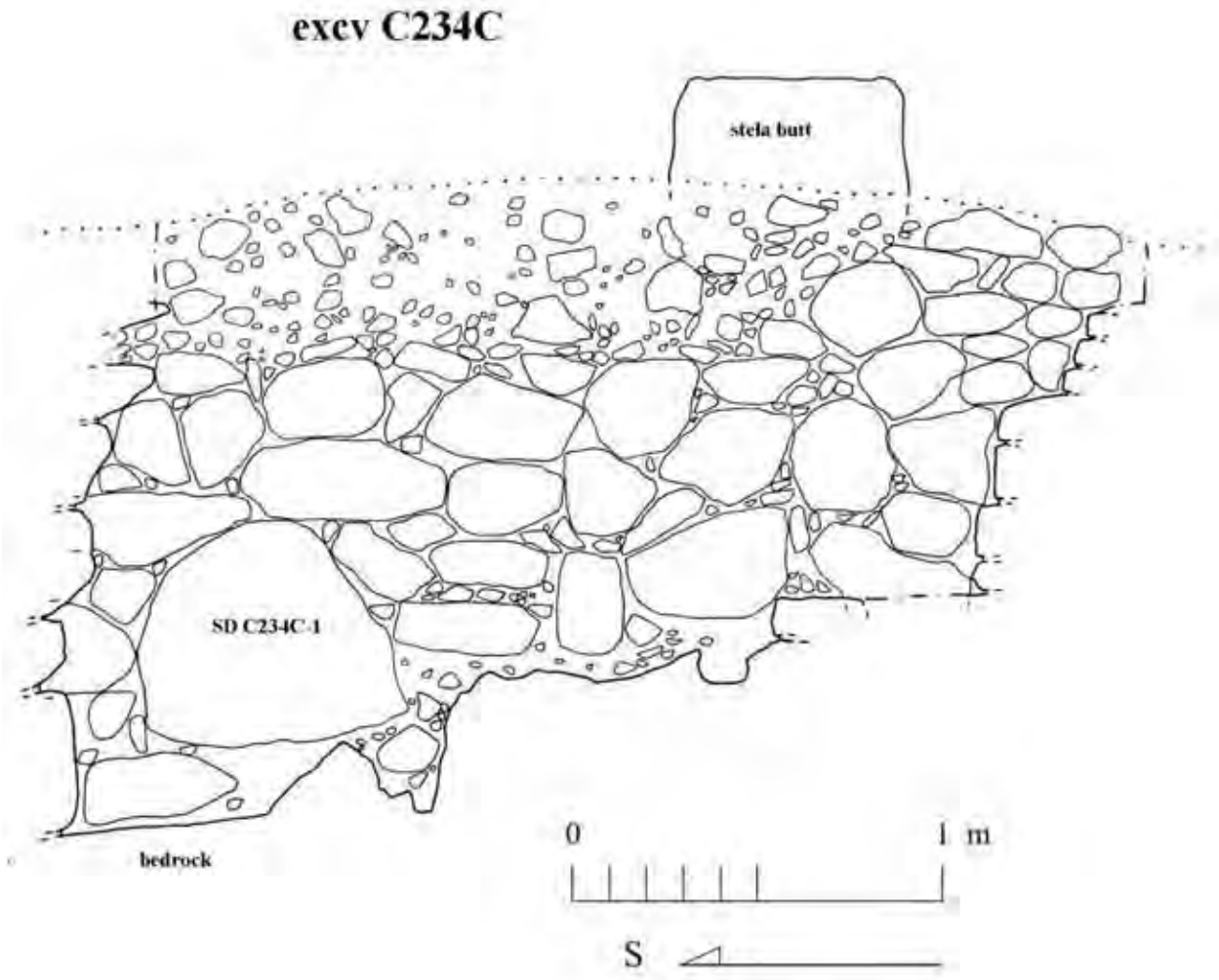

Figure 84. Elevation of west wall of SD C234C-1.

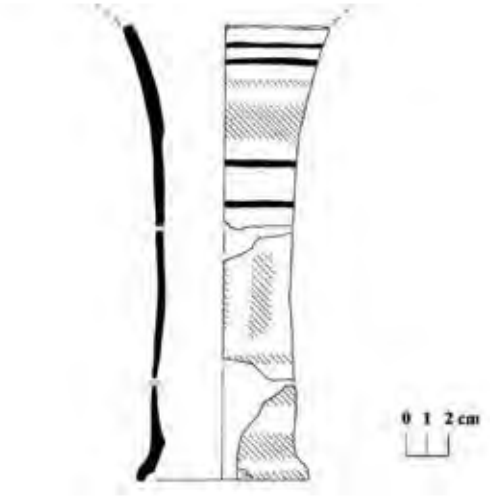

Figure 85. Pottery drum fragment recovered from within SD C234C-1: Palmar Orange Polychrome.