

INVESTIGATING TERMINAL PRECLASSIC AND CLASSIC PERIOD POWER
AND WEALTH AT K'O, GUATEMALA

By

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Dissertation

Submitted to the Faculty of the
Graduate School of Vanderbilt University

In partial fulfillment of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

In

Anthropology

May, 2009

Nashville, Tennessee

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To my wife, Erin

ACKNOWLEDGEMENTS

I would like to thank a number of people who contributed to the completion of this dissertation. First, I would like to thank Francisco Estrada-Belli for the opportunity to join the Holmul Project and to conduct dissertation research at K'o, and for his generous guidance and support during my graduate work. Thanks to Bill Fowler, John Janusek, Rob Rosenswig, and Tiffany Tung for their contributions to the research design and for valuable comments on the final draft of this dissertation.

Funding for this research was provided by the National Science Foundation (Grant #0813624), The Vanderbilt Center for the Americas, the Center for Latin American and Iberian Studies, the Graduate School, and the College of Arts and Science. Thanks to Vanderbilt's Spatial Analysis Research Lab for the use of its GIS software and computer laboratory. I would also like to thank IDAEH of Guatemala for granting permission for the Holmul Project to conduct archaeological research at K'o.

The field research would not have been possible without the help of a number of students from Vanderbilt University, SUNY Albany, Universidad de San Carlos, and Universidad del Valle who participated in the field research at K'o. In particular, I would like to thank Jason Paling, Martin Rangel, and Rodrigo Guzman for all of their hard work at K'o. I would also like to thank all of the members of the Holmul Project with whom I had the opportunity to work, especially Jeremy Bauer, Angel Castillo, Jenn Foley, Heather Hurst, Ryan Mongeluzzo, Nina Neivens de Estrada, Alex Tokovinine, and Antolin Velazquez.

The analysis of artifacts in the lab would not have been possible without the efforts of Mary Neivens in organizing the excavated materials in the field laboratory and at the project laboratory in Antigua. A special thanks to Mike Callaghan for his assistance in the analysis of the ceramic material from K'o, as well as for providing me with a place to stay in Antigua before the 2007 field season. I would also like to thank Zac Hruby for assisting me with the analysis of the K'o obsidian. Thanks to Justin Ebersole for generously sharing his K'o excavation notes, and for encouraging me to conduct my dissertation research at K'o. I would like to thank my parents, Nick and Karolyn Tomasic, for all of their support throughout my graduate career. Finally, I would like to thank my wife, Erin, for her understanding and encouragement during my field research and during the writing of this dissertation.

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CHAPTER I

INTRODUCTION

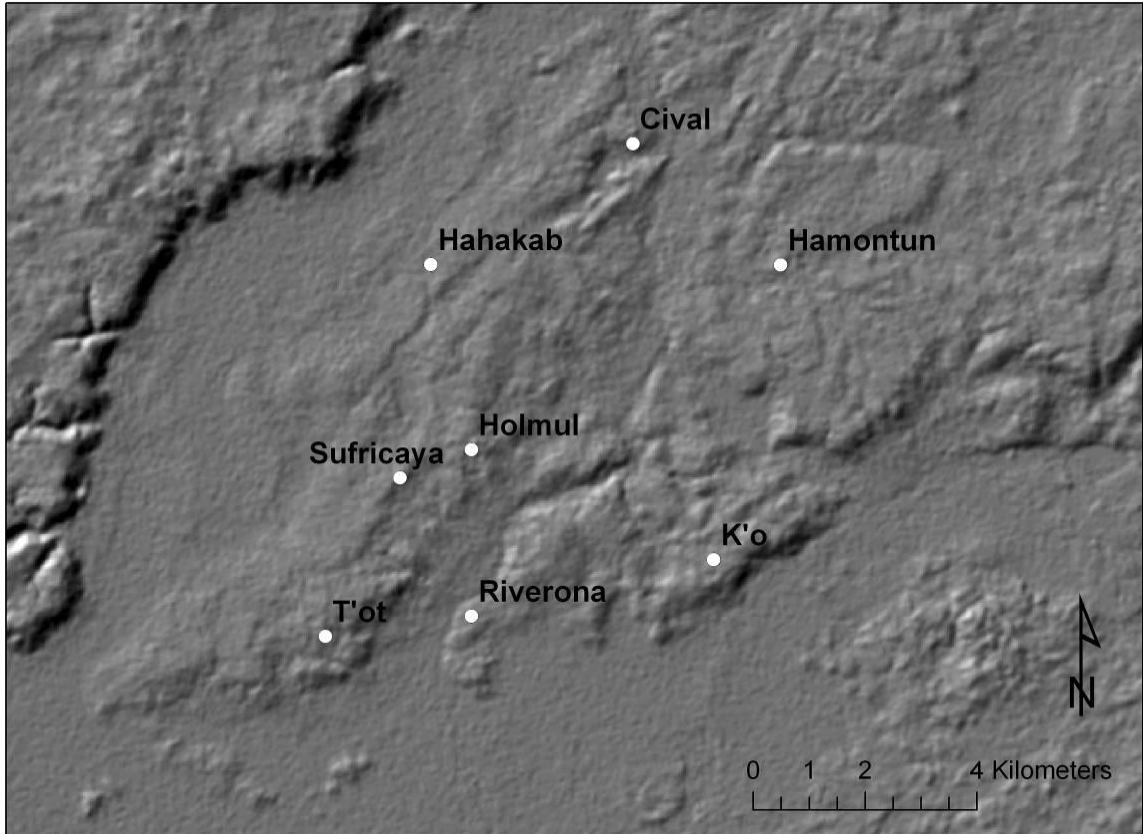
This dissertation investigates the relationship between power and wealth in past societies by examining the economic networks through which wealth was distributed at K'o, Guatemala. The archaeological site of K'o is located in the Peten region of northeast Guatemala, approximately 15 kilometers west of the Belize Border and 80 kilometers south of the Mexico border (Figure 1.1). K'o is located on an upland karst ridge overlooking a stretch of wetlands known as the *Bajo del Jobal*, within an archaeologically and geographically defined area known as the Holmul region (Estrada-Belli 2003). K'o is one of several sites within this region currently under investigation by the Holmul Archaeological Project (Figure 1.2).

During the Holmul Archaeological Project's initial field season in 2000, IDAEH inspector Francisco Moro reported the existence of K'o, then known as Lechugal, to members of the Holmul Project (Estrada-Belli 2000:21). In 2001, members of the Holmul Project conducted a brief reconnaissance of the site and recorded the site with Guatemala's *Instituto de Antropología e Historia (IDAEH)* (Estrada-Belli 2001:13-14). During the 2002 season, project members conducted salvage excavations of a looter's trench and vaulted chamber within one of the site's major structures (Estrada-Belli 2002b:12). In 2003, Holmul project members made a preliminary map of the site's major structures, and in 2004, a test excavation was completed around a stela base (Angel Chavez, Personal Communication 2005). Collectively, the Holmul Project's research at

K'o from 2000-2004 has generated valuable information regarding the occupational history, form, and layout of architecture within the site core.



Figure 1.1: Map of the Maya region, showing the location of K'o and major sites. Map created by the author in ArcGIS 9, using the ArcGlobe 9.2 World Image layer.



**Figure 1.2: Map of the Holmul region, with major sites indicated.
Map created in ArcGIS 9 by the author.¹**

Building upon this initial research, the Holmul Project's intensive mapping and excavations throughout the site in 2005, 2007, and 2008 have greatly clarified the settlement history of K'o. Recent research at K'o (Paling 2009; Rangel 2009; Tomasic 2006, 2009a, 2009b; Tomasic and Estrada-Belli 2008; Tomasic et al. 2008, 2009a, 2009b) demonstrates that the site was occupied for approximately 1,500 years (Table 1.1), from the Late Middle Preclassic (600-350 BC) to the Terminal Classic (AD 830-900). Despite this long sequence of occupation, it appears that the majority of the site's

¹ Hillshade surface is based on 30 meter cell size Shuttle Radar Topography Mission (SRTM) data and was created by the U.S. Geological Survey National Center for Earth Resources Observation and Science (EROS) using ArcView Spatial Analyst. Site locations were recorded by the author and Marc Wolf with 10 meter accuracy using a Garmin GPSmap 76S receiver.

public architecture was constructed during a relatively small period of time during the Terminal Preclassic (AD 150-250) and early facet of the Early Classic (AD 250-350). During the middle and later facets of the Early Classic (AD 350-550) and throughout the Late Classic (AD 550-830) and Terminal Classic (AD 830-900), construction of public architecture appears to have declined significantly. These long-term patterns in construction activity form the basis of long-term estimates of elite power at K'o. This dissertation addresses the following questions: Does this long-term decline in elite power correspond to an economic decline? To what degree was the long-term material well-being, or wealth, of the past inhabitants affected in a similar manner to the long-term levels of elite power?

Table 1.1 Current Holmul Region Ceramic Chronology.
Source: Callaghan 2008:114.

CERAMIC COMPLEX	DATE RANGE	TIME PERIOD
K'AWIL / EARLY EB	1000 – 850 BC	EARLY MIDDLE PRECLASSIC
IXIM / LATE EB	850 – 600 BC	MIDDLE MIDDLE PRECLASSIC
YAX TE / MAMOM	600 – 350 BC	LATE MIDDLE PRECLASSIC
ITZAMKANAK / CHICANEL	350 BC – AD 250	LATE PRECLASSIC
WAYAAB (SUB-COMPLEX)	AD 150 – 250	TERMINAL PRECLASSIC
K'AHK 1 / TZAKOL 1	AD 250 – 350	EARLY CLASSIC
K'AHK 2 / TZAKOL 2	AD 350 – 450	EARLY CLASSIC
K'AHK 3 / TZAKOL 3	AD 450 – 550	EARLY CLASSIC
CHAK / TEPEU 1	AD 550 – 650	LATE CLASSIC
IK-CHUAH / TEPEU 2	AD 650 – 830	LATE CLASSIC
KISIM / TEPEU 3	AD 830 – 900	TERMINAL CLASSIC

In order to better understand the degree to which long-term trends in power and wealth covary at K'o, this dissertation examines the networks through which wealth was distributed in this past society. This study adopts a definition of power as "the ability to direct the actions of others" (Urban et al. 2002:132), and wealth is defined as the total of valuable material goods possessed by a social unit. This research builds upon previous scholarship which demonstrates that wealth and power do not always covary (Chase and Chase 1992; McGuire 1989; Schortman and Urban 2003; Tainter 1977, 1978; Urban et al. 2002). Rather than assuming power and wealth covary, this research has examined long-term trends in wealth relative to power, and this dissertation will demonstrate that the degree to which wealth and power covary may be dependent upon the manners through which wealth was distributed within this past economy.

In an effort to identify the economic networks through which wealth was distributed at K'o, Hirth's (1998) distributional approach has been employed as part of an examination of the following wealth indicators in carefully selected domestic contexts: 1) jade artifacts, 2). shell artifacts, 3). obsidian artifacts, and 4). grinding stones (Haviland 1981; Moholy-Nagy 1985; Rathje 1983; Smith 1987; Stark and Hall 1993). This study has sought to determine the degree to which these wealth indicators were distributed through elite redistribution, reciprocal luxury gifting among elites, and/or informal barter and marketplace exchange (Polanyi 1957).

In addition to examining the distributional networks of jade artifacts, shell artifacts, obsidian artifacts, and grinding stones this study compares long-term patterns in the distribution of each of these wealth indicators with long-term patterns in power from the Terminal Preclassic to the Terminal Classic. I hypothesize that hierarchically

organized elite redistributive and reciprocal luxury goods exchange networks may have been sensitive to political fluctuations, while informal barter and marketplace exchanges may have been generally unaffected by larger political processes (Blanton 1983:60-61; Hirth 1998; LeCount 1999; Spence 1982). Similar long-term patterns are evident in ceramic and obsidian assemblages within the Maya region (Culbert 2003; Moholy-Nagy 2003a, 2003b), and are evident in Near Eastern assemblages as well (Wattenmaker 1994). Based on these patterns, I hypothesized that the quantity and quality of goods obtained at K'o through elite redistributive and reciprocal luxury goods networks would decline over time in a similar manner to the aforementioned decline in power, yet no decline would be evident in goods obtained through informal barter and/or marketplace exchange. Each archaeological correlate of wealth has been evaluated independently, and statistical procedures have been used to test the following hypothesis:

Jade artifacts, shell artifacts, obsidian artifacts, and grinding stones obtained through elite redistributive or luxury goods networks will decline quantitatively and qualitatively over time, and jade artifacts, shell artifacts, obsidian artifacts, and grinding stones obtained through informal barter and market exchange will not decline quantitatively or qualitatively over time.

Initially, I expected to be able to evaluate this hypothesis at the .05 level of significance, using a variety of non-parametric tests, including two tailed T-tests, ANOVA (analysis of variance), and Chi Square analysis. As discussed in Chapter VIII, the relatively small sample sizes of each of the wealth indicators have prevented the use of most of these non-parametric tests. Furthermore, even in cases in which these non-parametric tests could be used, small sample sizes have made it impossible to achieve the standard .05 level of significance. As a result, the majority of the statistical procedures employed in this chapter consist of descriptive statistics. Despite these data limitations,

the examination of multiple wealth indicators combined with the descriptive statistical methods employed in this study collectively reveal patterns in the distribution of wealth in domestic contexts which are suggestive of differential forms of acquisition, and long-term patterns in wealth relative to power.

Field research at K'o has proceeded in three phases: mapping and excavations in the site core (Phase 1), stratified random excavations in patio groups throughout the site (Phase 2), and intensive excavations in selected patio groups (Phase 3). The data generated from these excavations form the basis of a distributional study of wealth indicators in domestic contexts. The carefully selected nature of the dataset has allowed me to achieve the primary objectives of this research, which were to 1). examine the economic networks through which these wealth indicators were distributed among all residents throughout the occupational history of the site, and 2). test the hypothesis that a decline in wealth relative to power is dependent upon the networks through which wealth was distributed within this past economy.

Power and Wealth: Theoretical Background

This study has developed out of my own dissatisfaction with traditional methods of evaluating wealth and power. Power and wealth are variables commonly used by archaeologists to infer social status, yet unfortunately the relationship between these two variables remains poorly understood. Specifically, power and wealth are often assumed, rather than demonstrated, to covary (Chase and Chase 1992, McGuire 1989; Schortman and Urban 2004; Tainter 1977, 1978). According to Schortman and Urban (2003:135-136), there remains an implicit assumption in Maya archaeology of a functional

interdependence between the variables of wealth and power. However, recent research has made it very clear that these variables may not always coincide with one another, or change in tandem (Chase and Chase 1992; Urban et al. 2002; Zeleznik 2002). Recently, Schortman and Urban (2003:136) have called for scholars to examine power and wealth independently and examine these variables across space and time.

Building upon the work of these scholars, this dissertation examines the dynamic and, at times, divergent long-term relationship between power and wealth at the site of K'o. This examines power and wealth independently in order to determine the degree to which power and wealth covary. By examining power and wealth independently, I seek to generate a more nuanced interpretation of the relationship between power and wealth among the ancient Maya than has previously been achieved.

Defining Power

The definition of power adopted in this study is based upon Weber's notions of power, which focus on the use of power for political control and domination. Weber defines power as "the probability that one actor within a social relationship will be in a position to carry out his own will despite resistance" (Weber 1947:152). In this sense, power refers to the coercive ability to control others' actions, and power is treated as a possession of society's ruling elites.

Despite the Weberian basis of the definition of power employed in this study, I acknowledge that power is not simply a force which the powerful alone possess. This research is informed by recent scholarship which has reacted against the essentializing notions of traditional Weberian definitions of power (O'Donovan 2002:5). Increasingly,

archaeologists have employed the work of Foucault (1980) and Giddens (1979, 1984) in order to examine power relationships. Foucault's (1980) research focuses on power relationships, rather than traditional treatments of power as a possession, and emphasizes the forms of resistance which occur in power relationships. Giddens (1979, 1984) suggests that power is not solely a prerogative of the elite, and that all humans have power, albeit in different forms. Even members of subordinate groups of society have power, and in this sense, no one is powerless (Giddens 1984; Scott 1985). These relational approaches to power are rooted in Marx's writings on labor power and the dialectical process of historical social change (McGuire 1992:132; Marx 1906:197; Smelser 1973).

Foucault's (1978, 1980, 1988) writings on power are especially pertinent to the discussion of relational aspects of power at K'o. For Foucault, power is a force which permeates all social relationships; it is a lattice-like network of relations through which power flows (Foucault 1978). In *Power/Knowledge*, Foucault states "Power is employed and exercised through a netlike organization... Individuals are the vehicles of power, not its points of application." (Foucault 1980:98). In this sense, power is more than a Weberian ability to direct the actions of others, it is the ability to maintain and contest one's position in power relationships (Mills 2003:30).

Foucault's relational view of power opens up the possibility of examining the manners in which nonelites may have actively engaged in power relationships with the K'o ruling elite. For example, the long-term patterns in construction activity in the K'o site core could potentially be viewed as the product of power relationships between elites and nonelites as well as an indicator of long-term levels of elite power. There is general

agreement that lowland Maya public architecture was built using corvee labor (Sharer and Traxler 2006), and these construction projects could conceivably be seen as the product of power relationships between ruling elites and nonelites. However, these power relations are notoriously difficult to observe, especially in past societies.

According to Foucault “the relations of power are perhaps among the best hidden things in the social body.” (Foucault 1988:119).

Following Urban et al. (2002), I define power as “the ability to direct the actions of others” (Urban et al. 2002:132). While acknowledging the role of agency and alternate forms of power in social reproduction, the proposed research examines power primarily in a Weberian sense, examining what Miller and Tilley (1984) refer to as *power over*. This study examines power primarily in terms of elite *power over*, but this study also acknowledges the existence of relational aspects of power, including evidence of resistance to domination (Scott 1985) and the role of agency in power relationships (Giddens 1979, 1984; Shanks and Tilley 1987:123). Although relational aspects of power are not directly addressed in this study, it is through the examination of power in terms of elite *power over* that the decline in power evident in public architecture at K’o can best be viewed relative to aspects of wealth within the community. As discussed in Chapter V, the volumetric architectural data set obtained through the Phase 1 mapping and excavations in the K’o site core is ideally suited for assessing long-term trends in elite power. By examining power primarily in a Weberian sense, elite power can be readily assessed and quantified using archaeological data from K’o.

Defining Wealth

Often, archaeological approaches to wealth define wealth in terms of status reinforcing luxury goods (Brumfiel and Earle 1987; Foias 2002; Rathje 1970). For example, Brumfiel and Earle (1987) define wealth goods as “primitive valuables used in display, ritual, and exchange and special, rare and highly desired subsistence products” (1987:4). Although the definition is in many ways quite useful, it is of limited use in the current study because it could potentially eliminate a number of utilitarian items from consideration as wealth indicators, such as local grinding stones, or freshwater shell artifacts. Rathje (1970) defines wealth as “items only indirectly related to subsistence: temple and palace structures, carved stone monuments, decorated pottery, obsidian eccentrics and ‘ceremonial’ tools, musical instruments, jade and shell ornaments, and all items placed in burials” (1970:359). Despite the inclusion of all shell ornaments as wealth items, Rathje’s (1970) definition is of limited use because it omits obsidian blades and grinding stones from consideration as wealth indicators.

In the current study wealth is defined as the total of valuable material goods possessed by a social unit. The adoption of a more inclusive definition of wealth, one that includes wealth in the form of both utilitarian and luxury goods, permits a more accurate assessment of variation in wealth, regardless of social rank (Rathje 1983; Smith 1987). In addition, a more inclusive definition of wealth allows an assessment of the ways in which wealth distributed through elite redistribution, reciprocal luxury gifting among elites, and/or informal barter and marketplace exchange may have fluctuated over time.

Overview of Chapters

Chapter II begins with a review of the methods used in the classification of luxury and utilitarian goods, as well as the difficulties involved in distinguishing between luxury and utilitarian goods. In addition, I review the evidence for informal barter and market exchange in the Maya Lowlands, including the evidence generated as a result of the application of Hirth's (1998) distributional approach. Next, I discuss manner in which Hirth's (1998) model has been employed in the examination of the K'o dataset. Chapter II concludes with a discussion of the relationship between long-term political processes and their effects on forms of exchange.

Chapter III begins with an historical overview of political processes affecting Cival and Holmul, the largest sites in the region, and the involvement of K'o in these same regional political processes. Next, I describe how information from regional settlement patterns and evidence of solar alignments among sites in the region has clarified the historical relationship between K'o and the site of Holmul. The chapter concludes with a discussion of the effects of regional political processes on long-term levels of elite power at K'o.

Chapter IV begins with a brief overview of all research conducted at K'o prior to the start of intensive investigations at the site in 2005. Next, I describe the methods used in the survey and mapping of K'o and present the results of this research. Finally, I describe the manner in which patio group architecture has been used to estimate patio group status.

In Chapter V, I summarize the Phase 1 excavations in plaza areas and salvage excavations in looters' trenches in the site core. Furthermore, I present the volumetric

estimate of public architecture resulting from these excavations, and discuss the manner in which this volumetric assessment of architecture is used to estimate long-term levels of elite power.

Chapter VI describes the stratified random sampling methodology used to select areas to excavate during Phase 2, and presents the results of each of these excavations. Furthermore, I discuss the ways in which the data obtained from the Phase 2 excavations has been critical in identifying architectural variability, and in generating a preliminary sample of artifacts from domestic contexts throughout the site and throughout its occupational history.

In Chapter VII, I describe the results of Phase 3, the final phase of excavations. During the Phase 3 excavations, five previously investigated patio groups were selected for intensive excavations. Within each of these patio groups, individual structures and their surrounding areas were subjected to broad horizontal excavations. This chapter describes the factors involved in the selection of patio groups to intensively excavate, and presents the results of these excavations.

Chapter VIII presents the results of the statistical analysis of the long-term distribution of each of the wealth indicators in patio groups at K'o. I begin by describing the methodology used to identify wealth in domestic contexts at K'o, as well as defining key concepts employed in this study. Next, the long-term distribution of each of the wealth indicators used in this study is examined and evaluated independently with a discussion of the probable manners through which these wealth indicators were distributed at K'o.

Chapter IX consists of a general summary and synthesis of the data presented in previous chapters. Furthermore, I discuss the broader relevance of this research to debates as to the degree to which prehistoric economies relied upon informal barter and market exchange, as well as to debates regarding the relationship between power and wealth in prehistory.

CHAPTER II

THE DISTRIBUTION OF GOODS IN ANCIENT MAYA ECONOMIES, AND THE EFFECTS OF POLITICAL PROCESSES ON FORMS OF EXCHANGE

Within ancient Maya economies, a distinction is often made between luxury and utilitarian goods. In general, luxury goods can be items which are difficult to acquire, of foreign origin, labor intensive, valued for their color, texture, or durability, and are imbued with symbolic and ideological meaning (Blanton et al. 1996; Brumfiel and Earle 1987; Helms 1979; McAnany et al. 2002; Smith 2003). In general, utilitarian goods are found in both elite and nonelite domestic contexts, and luxury goods are usually limited to elite contexts. It is widely accepted that luxury items were exchanged primarily through reciprocal gifting between elites and through elite redistributive exchange, rather than through informal barter and market exchange. Elite management of the distribution of these luxury goods was a key element in reinforcing the status of ruling elites (Demarest 1992).

Despite its usefulness, the distinction between luxury and utilitarian goods is complicated by the fact that the symbolic and exchange values of goods changed over time and across regions (Graham 2002:403-407; Pauketat 1997; Rice 1987), and certain objects can be considered luxury or utilitarian goods depending on factors such as the raw material quality, skill of craftsmanship, and degree of elaboration. For example, although jade artifacts are usually considered luxury goods (Chase and Chase 1992, Freidel 1993; Garber et al. 1993), simple beads or axes made from inferior qualities of greenstone may not have been socially restricted luxury goods at some sites, and may have been

distributed through informal barter and market exchange (Kovacevich 2006:189-190; Masson 2002b; Sheets 2000). Obsidian is often considered a luxury good, especially when crafted in the form of eccentric effigies and encountered in association with elite burials and caches (Coe 1965; Kovacevich 2006:309; Rathje 1970; Rice 1987). However, obsidian blades are commonly encountered in non-elite domestic contexts at Lowland Maya sites (Kovacevich 2006:309; Moholy-Nagy 1975, 2003a; Palka 1995; Sheets 2000), and may have been obtained either through redistributive networks (Aoyama 2006; Hammond 1972; Rice 1987) or through informal barter and market exchange (Clark 2003; Kovacevich 2006:309; Moholy-Nagy 2003b:28). Marine shell, especially spondylus shell, is usually considered a luxury good throughout Mesoamerica (Freidel et al. 2002; Moholy-Nagy 1985), yet it is commonly encountered in non-elite contexts at sites in coastal Belize (Graham 2002). Furthermore, many varieties of marine shell appear to be widely available in the Maya Lowlands, regardless of household status (Isaza and McAnany 1999; Moholy-Nagy 1985). Finally, grinding stones at Lowland Maya sites are often made from exotic varieties of granite and basalt (Moholy-Nagy 2003b; Rathje 1972; Willey 1978), yet grinding stones are rarely considered luxury goods.

Clearly, luxury goods cannot be identified simply by estimating an item's labor value or identifying goods of exotic origin. Michael Smith (2003) argues that it is the social context of use, rather than the exotic origin or value based on labor investment which defines luxury goods. Following Smith (2003:122-123), each of wealth indicators employed at K'o has been evaluated as a potential luxury good based on the social context of its use. According to Smith "it is the social and political contexts of their use

that distinguish luxuries from other kinds of goods. These commodities had a high information content, and many of them required specialized knowledge for their appropriate consumption” (Smith 2003:123).

Based on Smith’s (2003:122-123) criteria for identifying luxury goods, the only artifacts recovered from the K’o excavations which can be classified as luxury goods are jade and spondylus shell artifacts. Both jade and spondylus shell artifacts are considered luxury goods because the raw material itself was ideologically charged. Much of the value of jade and spondylus seems to have been social and ideological in nature – both the blue/green color of jade and its durability and hardness gave jade its symbolic value (Freidel 1993; Garber et al. 1993; Taube 2005), and the red spondylus is symbolically associated with the rebirth of the Maize God (Freidel et al. 2002; Moholy-Nagy 1985).

Unlike jade and spondylus, all of the other artifacts examined as wealth indicators do not fit Smith’s (2003:122-123) criteria for consideration as luxury goods. For example, many of the other varieties of marine shell artifacts recovered at K’o lack the symbolically charged nature of spondylus shell. Although obsidian eccentrics would be considered luxury goods, no obsidian eccentrics were recovered at K’o, and obsidian blades lack the high information content necessary for classification as luxury goods. As for grinding stones, the vast majority of grinding stones recovered at K’o are made of exotic raw materials, yet they all lack the high information content necessary to classify them as luxury goods.

As luxury goods, I expect that jade artifacts and spondylus shell artifacts circulated primarily through reciprocal gifting between elites and through elite redistributive exchange, rather than through informal barter and market exchange.

However, the degree to which non-elites had access to non-spondylus marine shell ornaments, exotic grinding stones, and obsidian blades through elite redistribution or informal barter and marketplace exchange is unclear, and is a matter of debate (Aoyama 2006; Clark 2003; Kovacevich 2006:309; Masson 2002b; Palka 1995:400-401; Rice 1987; Sheets 2000). The following section provides a brief overview of the evidence for informal barter and market exchange in the Maya Lowlands, and describes the methods used at K'o to attempt to discriminate between goods distributed through elite redistribution versus informal barter and market exchange.

Informal Barter and Market Exchange in the Maya Lowlands

The subject of market exchange among the Preclassic and Classic period Lowland Maya is, in some ways, a controversial one. Based on ethnographic and ethnohistoric evidence of marketplaces in Mesoamerica (Diaz del Castillo 1928; Landa 1978 [1566]), it is generally accepted that marketplaces were an important feature of ancient Maya economies (Blanton et al. 1993:216; Demarest 2004:150; Sharer and Traxler 2006:634). For example, a wide variety of goods were distributed through the Aztec marketplace in Tlatelolco, including gold, silver, and precious stones (Diaz del Castillo 1928). According to Diego de Landa, the Colonial-era marketplaces of Yucatan distributed a wide variety of goods as well (Landa 1978 [1566]).

During the Classic period, some have suggested that large plazas at Maya centers were market locales (Freidel 1981; Jones 1996). Jones' (1996) research at Tikal suggests the East Plaza of Tikal may have been the location of the city's permanent market (Jones 1996), and a plaza at Seibal (Tourtellot 1988:292) has been interpreted as a probable

market locale. Freidel's pilgrimage-fair model (1981) suggests that large plazas at most Maya centers may have functioned as both ritual and market locales. At Caracol, it has been suggested that minor centers in the greater Caracol region may have served administrative as well as market functions, distributing both locally produced and exotic trade items throughout the Caracol community (Chase 1998; Chase and Chase 2001).

Unfortunately, the general lack of material remains of open-air markets and the perishable nature of most of the goods exchanged in markets has made it difficult to conclusively identify actual market locales. Ethnographic and ethnoarchaeological data suggest markets leave virtually no traces of evidence in the archaeological record (Gormsen 1978; Hirth 2000), which suggests that the markets will not be identified simply by excavating in likely market locations.

Despite these difficulties in identifying actual market locales, Bruce Dahlin and colleagues (Dahlin et al. 2007) have presented compelling evidence for the existence of a marketplace at the site of Chunchucmil, Mexico based on the analysis of soil chemical residues. Specifically, Dahlin and his colleagues compared the chemical signatures of soil from a large plaza at Chunchucmil with the chemical signatures of soil from the modern-day public market in Antigua, Guatemala. Both samples have high concentrations of phosphorous and zinc, and these high chemical concentrations are attributed to marketplace activities, such as food preparation and vegetable sales (Dahlin et al. 2007).

Hirth's Distributional Approach

In an attempt to identify evidence of the networks through which goods were distributed at K'o, I have employed Hirth's (1998) distributional approach. Rather than identifying market exchange through the identification of actual market locales, Hirth's approach examines the distribution of non-local goods in domestic contexts to determine whether the non-local goods were acquired through informal barter and market exchange, or by other means, such as elite redistributive or reciprocal luxury goods networks (Hirth 1998).

According to Hirth (1998), items exchanged reciprocally as luxury goods will replicate the sociopolitical hierarchy in their distribution and will be limited to elite contexts. Elite redistributive networks move goods along hierarchical lines, which result in a more widely distributed, yet apical concentration of goods. Unlike elite redistributive or luxury goods networks of exchange, informal barter and market exchange results in a relatively homogenous distribution of resources among all households, regardless of social rank. Although certain households may have greater quantities of goods due to increased purchasing power, informal barter and marketplace exchange results in more homogeneity than either elite reciprocal or redistributive exchanges (Hirth 1998).

Hirth's (1998) model was originally used to examine the distribution of imported goods at Xochicalco. Hirth examined the distribution of two non-local goods, imported ceramics and obsidian, to ensure that the distribution of artifacts would be reflective of consumption patterns, rather than production patterns of locally available goods. For example, locally produced ceramics could have been obtained through direct

procurement, and could reflect procurement through non-marketplace means. However, with imported ceramics direct procurement is not an option, and their occurrence in households should reflect their value and availability in the marketplace. Hirth identified homogeneity in the distribution of both obsidian and imported ceramics at Xochicalco, supporting his conclusion that these goods were acquired primarily through informal barter and/or market exchange, rather than through elite reciprocal luxury goods networks or elite redistribution (Hirth 1998).

Despite its potential utility, Hirth's (1998) model must be applied with caution at K'o. Perhaps the greatest challenge in the application of this model is that different exchange mechanisms may result in identical patterns (Hodder 1982). Hirth (1998) cautions that discriminating between forms of exchange based on domestic artifact distributions can be difficult due to the fact that households may have provisioned themselves through multiple, overlapping forms of reciprocal, redistributive, and market type exchange. In addition, a variety of natural and cultural processes (Schiffer 1976) can affect artifact distribution. For example, recycling of material can affect the distribution of artifacts in domestic contexts (Plunket 1998:468-469), and mechanisms such as theft which do not fit neatly into Polanyi's (1957) triad of exchange processes may also contribute to the movement of goods (Smith 2004:84; Spence 1982). Another complicating factor is that the distributional networks of goods, as well as the exchange and symbolic values of goods, may have changed over time (Masson 2002a; Rice 1987; Zeleznik 2002). Finally, certain goods that were prohibitively expensive in market settings may also be distributed heterogeneously in domestic contexts (Hirth 1998; Smith 1999).

Based on these aforementioned problems of equifinality, it must be acknowledged that Hirth's (1998) model can be used to provide data which is consistent with the expectations of different forms of exchange, but to suggest that Hirth's (1998) model can be used to conclusively demonstrate the manners through which goods were distributed runs the risk of affirming the consequent. For example, at the Early Formative (1550-850 BC) site of Paso de la Amada, Chiapas, Mexico, the homogenous distribution of luxury goods in high and low status households is consistent with Hirth's (1998) expectations for informal barter and market exchange, yet there is no supporting evidence for the informal barter and market exchange of luxury goods in the Early Formative (Lesure and Blake 2002). Based on the homogenous distribution of these luxury goods, the Early Formative at Paso de la Amada has been interpreted as evidence of a period when emergent elites lacked the differentiation in luxury goods compared to later periods (Lesure and Blake 2002).

Despite the limitations of Hirth's (1998) distributional approach for modeling prehistoric exchange processes, it should be mentioned that no single line of evidence has yet been developed which can conclusively demonstrate the manners through which goods were distributed within prehistoric Maya economies. According to Dahlin and colleagues "Demonstration of the existence of an ancient Maya market economy requires the conjunction of many lines of evidence. Taken separately, each line of evidence is a blunt instrument as each may have alternative interpretations" (Dahlin et al. 2007:368). Hirth's (1998) distributional approach is but one of several methods for examining the degree to which Ancient Maya economies relied upon informal barter and market exchange. Hirth's (1998) distributional approach has been employed at K'o to provide a

single line of evidence, and despite its limitations Hirth's (1998) model provides valuable information regarding the probable manners through which goods were acquired at K'o.

In order to employ Hirth's (1998) distributional approach at a site like K'o, and to minimize the effects of these aforementioned problems of equifinality, Hirth (1998) advocates the use of multiple indicators. Following Hirth (1998), I have examined the distribution of four wealth indicators - jade, obsidian, shell, and grinding stones, and I have examined these indicators by using DeMontmollin's (1989) concept of *bundled continua of variation* (DeMontmollin 1989). Originally developed as an alternative to societal typologies which tend to mask variability, the concept of *bundled continua of variation* can be used to examine variables along several thematically related continua (DeMontmollin 1989). In choosing to examine multiple wealth indicators as *bundled continua of variation*, I have attempted to trace the general outlines of the manners in which these wealth indicators were distributed within this economy, and the degree to which the long term distribution of these wealth indicators may have declined in a similar manner to the purported decline in power. By examining these wealth indicators as *bundled continua of variation*, the reliability of the conclusions of this study are greatly enhanced because variations in wealth are viewed along several thematically-related continua, rather than a single line of evidence, and the risk of affirming the consequent is minimized.

Hirth (1998) suggests his approach can be applied at any site where it is possible to obtain a representative artifact sample from domestic contexts. As described in Chapter VI, the stratified random excavation strategy employed at K'o has maximized the probability that a representative sample of artifacts have been obtained from the

excavations in domestic contexts. In addition, this research has employed the methods of household archaeology (Robin 2003; Webster and Gonlin 1988; Wilk and Ashmore 1988) to examine the social context of artifacts (Hodder 1982) and to examine their distribution in domestic contexts.

Recent Applications of the Distributional Approach

Despite the aforementioned caveats and refinements made to Hirth's model, a number of scholars have employed Hirth's (1998) distributional approach in the Maya Lowlands (Chase 2008; Kovacevich 2006:309; Masson 2002b; Sheets 2000). For example, Sheets' (2000) research at Ceren has demonstrated that every household at Ceren contained obsidian blades, jade axes, and imported polychrome ceramics, which is consistent with the distributional expectations for informal barter and market exchange. Sheets (2000) suggests Ceren households exchanged their surplus of locally produced commodities (agrarian or craft) for imported items such as obsidian blades, jade axes, and polychrome serving ware made available by the elites at regional centers through marketplace exchange (Sheets 2000). Masson (2002b) has applied Hirth's distributional approach in her research at the Postclassic sites of Laguna de On and Caye Coco. In general, exotic beads and greenstone axes were not limited to elite contexts, and few differences are seen in the frequencies of these items in elite and non-elite contexts, which is consistent with Hirth's (1998) expectations for distribution through informal barter and market exchange. At Cancuen, Kovacevich (2006:309) has demonstrated that the distribution of obsidian is equal across households of high and low status. The homogenous distribution of obsidian suggests it may have been distributed at Cancuen

through informal barter or marketplace exchange as opposed to elite redistribution (Kovacevich 2006). At Caracol, Chase (2008) has applied Hirth's distributional approach. The uniform distribution of obsidian and polychrome ceramics in Caracol households indicates these goods were distributed through informal barter and market exchange (Chase 2008). Finally, Smith (1999) has applied Hirth's (1998) model to household data from Aztec sites in Central Mexico. Smith's (1999) research suggests that the distribution of goods obtained through informal barter and market exchange may be more heterogeneous than Hirth's (1998) model suggests. However, Smith's research does support Hirth's (1998) assertion that goods obtained through informal barter and market exchange are distributed among all households, regardless of status (Smith 1999).

The Expectations of Hirth's (1998) Distributional Approach at K'o

Building upon these studies, Hirth's (1998) distributional approach is employed at K'o in order to discriminate between goods distributed primarily through informal barter and market exchange versus goods distributed primarily through elite redistributive and luxury gift exchange. I assume that jade and spondylus shell as luxury goods were distributed primarily through reciprocal gifting among elites. The distribution of these goods is expected to be heterogeneous, resulting in a differential distribution of goods and a concentration of these goods in high status contexts. However, I also expect that exotic grinding stones, obsidian blades, and non-spondylus shell artifacts were distributed primarily either through elite redistribution or through informal barter and market exchange. I expect that goods distributed primarily through elite redistributive networks will be less socially restricted than goods distributed through luxury goods networks, yet

there will still be an apical concentration of goods in high status contexts. Finally, goods distributed primarily through informal barter and market exchange will be homogenously distributed across high and low status contexts, with some variation due to purchasing power (Smith 1999).

The Effects of Political Disruptions on Forms of Exchange

In addition to an examination of the distributional networks of each of these wealth indicators, this research has examined the degree to which long-term patterns in the distribution of wealth correspond to long-term patterns of power. As discussed in Chapter V, previous research at K'o suggests a long-term decline in elite power occurred, and I attribute this decline in power to political processes involving Cival and Holmul, the two largest sites in the region. As discussed in Chapter III, Cival appears to have been the politically dominant site in the region during the Late Preclassic, and Holmul appears to have been the politically dominant site during the Classic Period (Estrada-Belli 2004b), and the Late Classic expansion of the Holmul Polity appears to have undermined the autonomy and power base of K'o elites. The primary objective of this study is the examination of the degree to which aspects of wealth were affected in a similar manner, and I have hypothesized that wealth distributed primarily through elite redistributive and luxury goods networks will decline over time in a similar manner to the decline in power, yet no decline will be evident in wealth distributed primarily through informal barter and market exchange.

The expectation of a differential long-term decline in wealth is based upon research (Berdan et al. 2003; Blanton 1983:60-61; Hirth 1998; Spence 1982) which

suggests that hierarchically organized elite redistributive and luxury goods exchange networks are sensitive to political fluctuations, while informal barter and market exchange is relatively unaffected by larger political processes. According to Hirth (1998) and Blanton (1983:60-61), one of the key characteristics of informal barter and market exchange is that the distribution of goods is largely unaffected by larger sociopolitical processes (Blanton 1983:60-61; Hirth 1998). For example, although markets may have been elite administered, markets seem to have operated independently of political control during the conquest and throughout the Colonial period in the Valley of Mexico (Hirth 1998). This same pattern appears to have existed throughout Mesoamerica during the Postclassic period as well (Berdan et al. 2003).

According to Blanton (1983:60-61), informal barter and market exchange is resilient primarily because it provides both commoners and elites with a wide variety of necessary goods, and since goods are distributed through multiple suppliers operating independently, the supplies of goods are less affected by political disruptions. As a result, markets are able to outlive regional cycles of political centralization and decentralization, and markets often continue to operate following the collapse of powerful governments (Blanton 1983:60-61; Hirth 1998; Spence 1982).

Given the resiliency of informal barter and market exchange to political disturbances, it seems plausible that those goods at K'o which were distributed through informal barter or market exchange would have been largely unaffected by the political processes responsible for the long-term decline in elite power at K'o. However, hierarchically organized forms of redistributive and luxury goods exchange, which are

sensitive to political fluctuations, should be affected in a similar manner to the long-term decline in elite power at K'o.

Supporting evidence for the differential effects of political disruptions on the distribution of goods is evident in Lowland Maya artifact assemblages. During the Tikal Hiatus (AD 562-692), the political processes responsible for the cessation in monument construction and public architectural construction at Tikal seem to have had a differential effect on ceramic and lithic artifact assemblages. According to Moholy-Nagy (2003a), obsidian was widely available to all residents throughout the Tikal Hiatus, as seen in domestic middens, and was probably distributed through marketplace exchange (Moholy-Nagy 2003b:28). Apparently, household access to obsidian was not affected by the political processes responsible for the hiatus (Moholy-Nagy 2003a). On the other hand, Culbert's (2003) research at Tikal suggests that these political disruptions affected the quantity and diversity of polychrome ceramics as elite grave goods. Compared to elite burials before and after the Tikal Hiatus, elite burials during this period are impoverished in terms of the number and variety of polychrome vessels included in elite tombs (Culbert 2003:80-81).

During the Terminal Classic at Xunantunich, political processes appear to have affected the distribution of polychrome ceramics in household contexts. LeCount (1999) examines the household distribution of luxury goods at Xunantunich, and suggests a shift in political strategy occurred during the center's history. During the Late Classic, elites had greater quantities of decorated pottery than non-elites, yet during the Terminal Classic, the distribution of decorated pottery appears to have been more equally distributed. In this case, the elites appear to have modified the reciprocal luxury gift

exchange of decorated pottery and abandoned the rival displays of luxury goods. LeCount (1999) suggests members of the elite class redistributed decorated pottery down the social hierarchy to non-elites in order to strengthen their position and to solidify their support base. As a result of this elite strategy of using luxury goods as political currency, the distribution of these goods is closely tied to the political fortunes of elites (LeCount 1999).

These patterns are not limited to the Maya region; rather, supporting evidence for the differential effects of political disruptions on the distribution of goods is evident in artifact assemblages from the Near East as well. Excavations at the site of Kurban Höyük in Southeast Turkey suggest that periods of political disruption are not reflected in all domestic artifact assemblages (Wattenmaker 1994). Wattenmaker (1994) finds that political collapse at the end of the 3rd millennium B.C. (Kurban period 3) had a variable effect on the consumption patterns of elite and non-elite households. Following the collapse of the regional political hierarchy, craft production by independent specialists and consumption of ceramic serving ware continued to be important aspects of the local economy, and were unaffected by the collapse of the regional hierarchy of power. Aspects of the economy which were administered by elites, such as the movement of textiles and metals, were affected by this decline, but the production and exchange of ceramics was not administered by elites and, as a result, was unaffected by these political disruptions (Wattenmaker 1994).

CHAPTER III

SETTLEMENT AND POLITICAL PROCESSES IN THE HOLMUL REGION

The past eight years of research by the Holmul project have demonstrated that this region has an uninterrupted 1,900 year sequence of human occupation from the Early Middle Preclassic (1000 BC) to the Terminal Classic (AD 900) with several centers occupied at any one time. Research at the site of Holmul has revealed evidence of continuous occupation throughout this period, with major episodes of construction during the Late and Terminal Preclassic (350 BC-AD 250) and Late Classic (AD 550-830). In addition to research at Holmul, the Holmul project has investigated the nearby center of Cival, now known to be a major center during the Late Preclassic (350 BC-AD 250). Following its Late Preclassic florescence, the site of Cival was largely abandoned, and Holmul became the politically dominant site in the region during the Classic period (Estrada-Belli 2004b, 2006).

Based on this data, it has been hypothesized that this region was the seat of an ancient kingdom whose regional seat of power shifted from Cival to Holmul at the end of the Preclassic (Estrada-Belli 2003). More recently, it has been suggested (Estrada-Belli 2004b:13-14) that rather than a direct regional power shift from Cival to Holmul, these sites were each composed of rival factions during the Terminal Preclassic (AD 150-250), replicating on a smaller scale pan-Lowland processes of competition and factionalization recently described by Reese-Taylor and Walker (2002). According to Reese-Taylor and Walker (2002), the Terminal Preclassic period (AD 150-250) was

characterized by political turbulence and competition over control of long-distance trade routes following the decline and eventual abandonment of the major Late Preclassic site of El Mirador. Before its decline, El Mirador was the capital of a large, state-level polity in the Maya Lowlands (Hansen 2001). Estrada-Belli (2004b:13-14) has suggested that Cival may have been part of El Mirador's trading alliance, and Cival's Late Preclassic florescence appears to be tied to El Mirador's attempts to control trade networks in the region. According to this historical reconstruction, the decline of Cival during the Terminal Preclassic is directly tied to the decline of El Mirador during the Terminal Preclassic. Ultimately, Holmul appears to have become the politically dominant site in the region during the Classic period, and Cival appears to have been largely abandoned during the Classic period (Estrada-Belli 2004b:13-14).

Whether the Preclassic-Classic transition in the Holmul region is best characterized in terms of shifting capitals or factional rivals, it is clear that the Terminal Preclassic was characterized by a decentralization of power and widespread economic and political disturbances throughout the Maya Lowlands, as evidenced by the decline and abandonment of El Mirador and many other major Late Preclassic sites, and the appearance of more than a dozen new polity capitals at this time (Sharer and Traxler 2006:279-286). The Terminal Preclassic was a time of shifting political and military alliances following El Mirador's decline (Reese-Taylor and Walker 2002), and the Holmul region appears to have been directly impacted by this reorganization of power centers in the Maya Lowlands. As discussed in detail in Chapter V, the evidence from K'o suggests that the majority of public architectural construction at K'o occurred during this volatile and factionalized period.

The Role of K'o in Regional Political Processes

As discussed in Chapter V, it appears that elite power as evidenced in public architectural construction peaked at K'o during the Terminal Preclassic and early facet of the Early Classic (AD 150-350), and subsequently declined during the middle and late facets of the Early Classic and the Late/Terminal Classic (AD 350-900). This early peak in power and subsequent decline in power as evidenced in public architectural construction at K'o could be due to a variety of factors, yet it appears that this developmental trajectory is most likely tied to regional political processes. The Terminal Preclassic and early facet Early Classic peak in construction activity occurs during a period which is generally considered to be a volatile and factionalized period of regional decentralization (Sharer and Traxler 2006:279-286), and coincides with the Terminal Preclassic decline of Cival (Estrada-Belli 2006b). Furthermore, the middle to late facet Early Classic and Late/Terminal Classic decline in public architectural construction at K'o coincides with the Late Classic (AD 550-830) architectural florescence at Holmul (Estrada-Belli 2004b), but with a more general escalation of warfare across the Maya Lowlands (Martin and Grube 2008).

Initially, I speculated that K'o may have been one of several newly established centers in the Holmul region during the Terminal Preclassic which jockeyed for power in the wake of the decline of the Late Preclassic center of Cival. Furthermore, I speculated that if K'o was an independent center in the Holmul region during the Terminal Preclassic and early facet Early Classic, any political independence would have been short-lived. The expansion of the Holmul polity appeared to have eventually undermined

the autonomy and power base of K'o elites, subsuming the smaller site within its regional hierarchical network. By the Late Classic, K'o would have been incorporated into the Holmul polity's regional hierarchy (Estrada-Belli 2003), acting perhaps as an administrative node in a regional hierarchy of settlement in a manner similar to that proposed for Caracol (D. Chase and A. Chase 2004). In the case of Caracol, the neighboring centers of Retiro, Ceiba, and Hatzcap Ceel were preexisting centers which were engulfed by Caracol's expansion. These centers were spatially distinct yet functionally integrated into Caracol's administrative hierarchy during the Late Classic. Subsequently, these centers acted as administrative nodes within the Caracol polity at a distance of 5-8 km. from the epicenter (D. Chase and A. Chase 2004).

Recent research casts doubt on two elements of this scenario. First of all, rather than being a newly established center during the Terminal Preclassic, it is now clear that settlement at K'o dates to as early as the Late Middle Preclassic (600-350 BC), more than 500 years earlier than previously thought. Secondly, the investigation of regional settlement patterns (described below) indicates a close political relationship may have existed between Holmul and K'o during the Late Middle Preclassic.

Settlement Patterns in the Holmul Region

The examination of regional settlement patterns has shed light on the factors involved in the establishment of K'o in its specific location, and clarified the historical relationship between K'o and other centers in the region. The location of settlement in the Holmul Region has been shown to be a result of several factors, including elevated soils, defensibility, and proximity to water sources, and control of overland routes

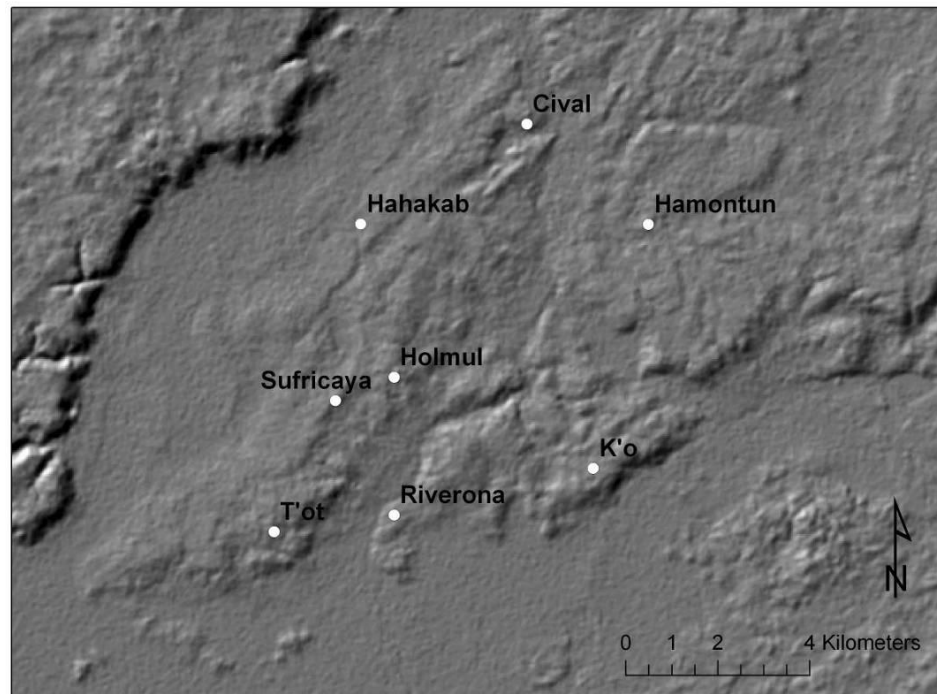
(Estrada-Belli 2002a, 2003). In addition, the distribution of sites in the Holmul Region is similar to the expectations of Central Place Theory (Christaller 1933) as applied by Marcus (1973) in the Maya Lowlands; K'o is one of several medium-sized sites forming a lattice of equidistantly spaced sites around the larger site of Holmul (Estrada-Belli 2004b). However, this interpretation neither assumes a functional redundancy between centers nor denies the existence of heterarchical relationships between centers in the Holmul region (Estrada-Belli 2003). Furthermore, it is important to remember that settlement patterns in the Holmul region are assumed to reflect settlement hierarchies rather than political or economic hierarchies. This distinction between settlement hierarchies versus political and economic hierarchies is based on Crumley's (2003) important distinction between hierarchies of *scale* and hierarchies of *control*.

Solar Alignments in the Holmul Region

Although settlement in the Holmul region is assumed to be a hierarchy of scale, rather than control, recent research (Tomasic and Estrada-Belli 2008) suggests the regional scalar hierarchy described by Estrada-Belli (2004b) may also correspond, at least in part, to a control hierarchy. It appears that astronomical considerations and concepts of sacred geography played a role in the establishment of K'o and other sites on the regional landscape. Furthermore, this evidence suggests a close political relationship may have existed between Holmul and K'o at the time of the establishment of K'o, at least as early as the Late Middle Preclassic.

As can be observed on the regional map (Figure 3.1), K'o is located slightly southeast of Holmul. Given the approximate location of K'o relative to Holmul, and

given that Holmul was established during the Early Middle Preclassic (Estrada-Belli 2007), several centuries earlier than K'o, I speculated that the location of K'o was selected to coincide with the location of sunrise on the December solstice at Holmul. The December solstice, also called the southern solstice, occurs each year around December 21st. Based on the latitude of Holmul, sunrise on the December solstice can be observed on the eastern horizon at approximately 24.5° south of true east (Broda 1982:87). In order to test this hypothesis, a straight line was drawn from the Holmul site core and heading in the direction of exactly 24.5 degrees south of true east, the position of sunrise on the horizon at Holmul on the winter solstice. As can be seen in Figure 3.2, this line passes directly through the K'o site core.



**Figure 3.1: Map of major sites in the Holmul Region.
Map created in ArcGIS 9 by the author.²**

² Hillshade surface is based on 30 meter cell size Shuttle Radar Topography Mission (SRTM) data and was created by the U.S. Geological Survey National Center for Earth Resources Observation and Science

Although the alignment between the location of K'o relative to Holmul and the position of sunrise at Holmul on the December solstice are both 24.5 degrees south of true east, the question remained – “could an observer actually see the sunrise above K'o on the December solstice? In order to answer this question, a viewshed was generated in ArcGIS 9 of the Holmul region viewed from a single point originating at Holmul. In Figure 3.3, the areas visible from the Holmul site core are shown in yellow, and the K'o site core is clearly within Holmul's viewshed. The viewshed data, combined with the solar alignment of the sites on the December solstice, leaves little doubt that a viewer standing atop one of the largest structures at Holmul would be able to look out across the

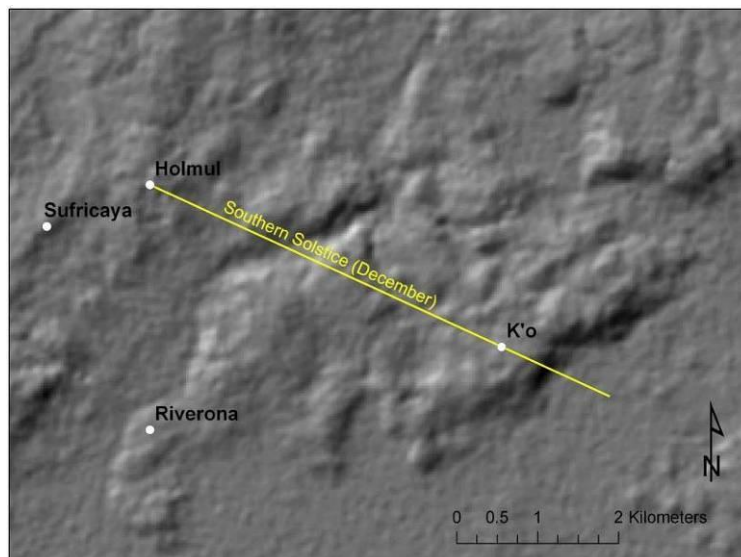


Figure 3.2: Regional map showing Holmul's sunrise sightline on the December solstice, created by the author in ArcGIS 9.³

(EROS) using ArcView Spatial Analyst. Site locations were recorded by the author and Marc Wolf with 10 meter accuracy using a Garmin GPSmap 76S receiver.

³ Hillshade surface is based on 30 meter cell size Shuttle Radar Topography Mission (SRTM) data and was created by the U.S. Geological Survey National Center for Earth Resources Observation and Science (EROS) using ArcView Spatial Analyst. Site locations were recorded by the author and Marc Wolf with 10 meter accuracy using a Garmin GPSmap 76S receiver.

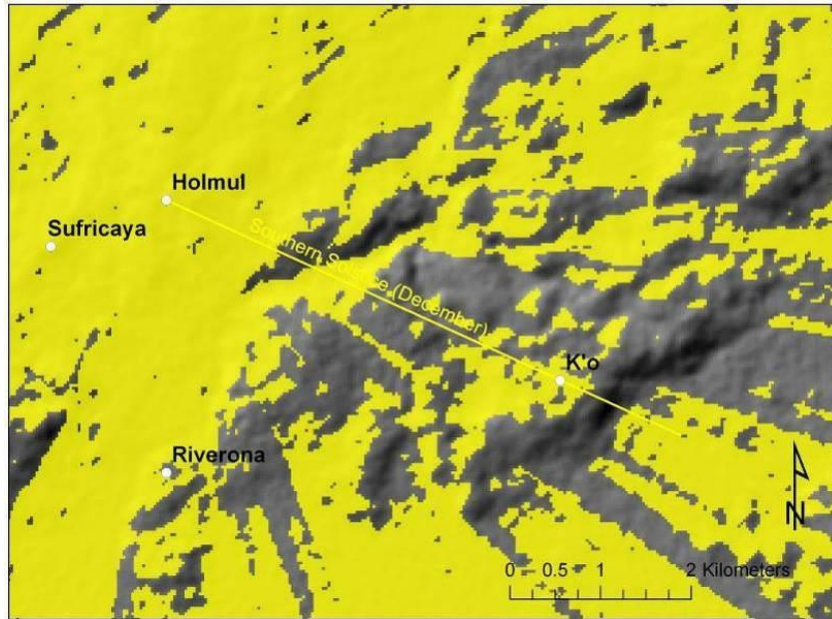


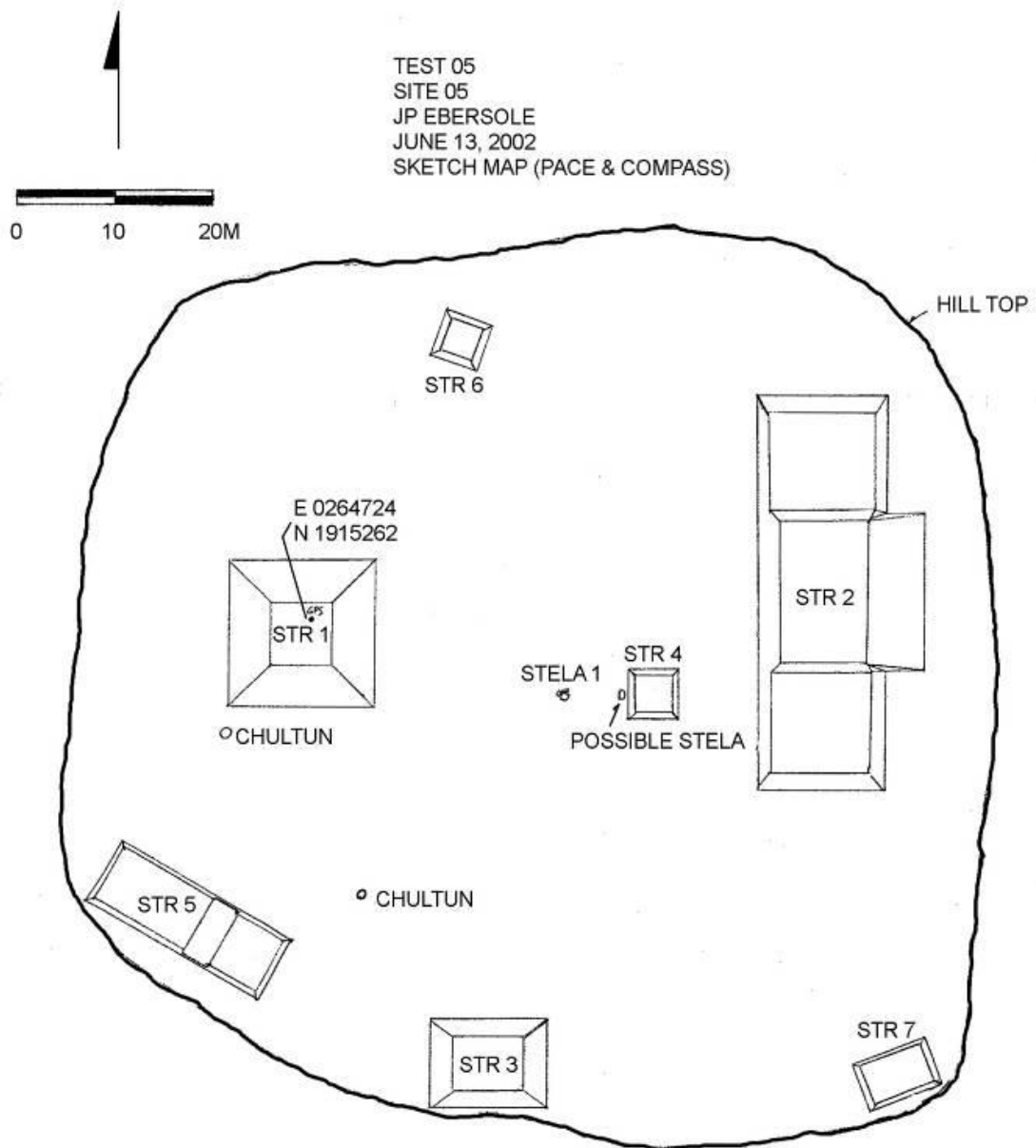
Figure 3.3: Viewshed image showing K'o within Holmul's viewshed, created by the author in ArcGIS 9.⁴

eastern horizon and observe the sunrise on the December solstice directly over the K'o site core.

Additional support for this hypothesis comes from the recent survey of two transects to the east and northeast of Holmul, to determine if any sites might exist on the Holmul equinox sunrise sightline and the June solstice sunrise sightlines (Tomasich 2009a). The first of these transects was six kilometers in length, and was located due east of Holmul along Holmul's equinox sunrise sightline. The second of these transects was four kilometers in length, and was located east-northeast of Holmul along Holmul's June solstice sunrise sightline. The survey of the first of these transects resulted in the rediscovery of Site 5, a site which was reported by Justin Ebersole in 2002

⁴ Hillshade surface is based on 30 meter cell size Shuttle Radar Topography Mission (SRTM) data and was created by the U.S. Geological Survey National Center for Earth Resources Observation and Science (EROS) using ArcView Spatial Analyst. Site locations were recorded by the author and Marc Wolf with 10 meter accuracy using a Garmin GPSmap 76S receiver.

(Estrada-Belli 2002b) and is located 5 kilometers due east of Holmul. Although a detailed map of the site was created in 2002 (Figure 3.4), an accurate GPS location of the site was not obtained until our 2008 visit to the site, and the site's location relative to Holmul's equinox sunrise sightline, and location within Holmul's viewshed was not previously realized (Figure 3.5). The site contains at least one stela, and its two largest structures are arranged in the form of an E-Group. Although there is some debate as to the architectural function of E-groups in the Maya Lowlands (Aveni and Hartung 1989; Ruppert 1940), there is little doubt that these architectural groups, most of which date to the Late Preclassic, were constructed based on concepts of sacred geography and landscape (Aimers and Rice 2006). Given the location of Site 5 on Holmul's equinox sunrise sightline and within Holmul's viewshed, and given that Site 5 is an E-Group, it seems likely that concepts of sacred geography and landscape also played a role in establishing the location of Site 5 in relation to Holmul.



**Figure 3.4: Map of Site 5. Map created by Justin Ebersole.
 Source: Estrada-Belli 2002b:30**

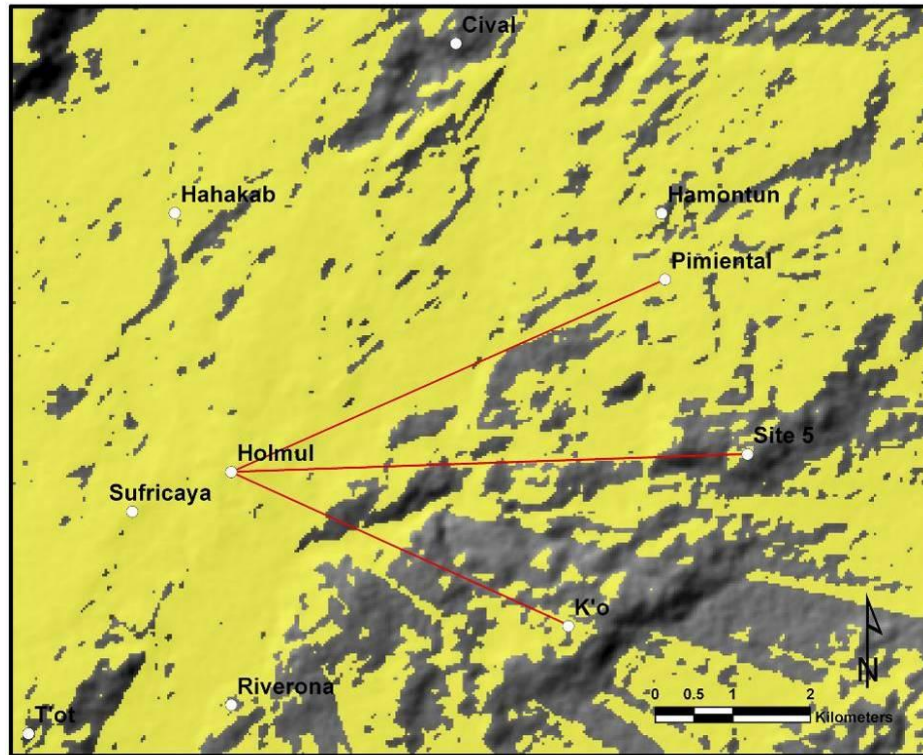


Figure 3.5: Regional site map showing Holmul’s viewshed in yellow, and Holmul’s sunrise solstice and equinox sightlines shown in red.⁵ Map created by the author in ArcGIS 9.

In addition to the relocation of Site 5, survey of the second transect to the northeast of Holmul resulted in the discovery of a large, elite residential group located precisely on Holmul’s June solstice sunrise sightline, and within Holmul’s viewshed (Figure 3.5). The elite residential group, nicknamed Pimiental, is located approximately 1 kilometer south of the site of Hamontun, and contains several structures measuring

⁵ Hillshade surface is based on 30 meter cell size Shuttle Radar Topography Mission (SRTM) data and was created by the U.S. Geological Survey National Center for Earth Resources Observation and Science (EROS) using ArcView Spatial Analyst. Site locations were recorded by the author and Marc Wolf with 10 meter accuracy using a Garmin GPSmap 76S receiver.

approximately five meters in height and forming an enclosed patio group within an approximately 40 x 100 meter area (Figure 3.6). Based on comparisons with the mapped settlement along transects beyond the Holmul site core, Pimiental appears to be among the largest residential groups known in the Holmul region. Based on its proximity to Hamontun, Pimiental may be an elite residential group associated with the nearby site of Hamontun. Nevertheless, its precise location on Holmul's northern solstice sunrise sightline suggests Pimiental's location was chosen based upon concepts of sacred geography centered upon the site of Holmul.

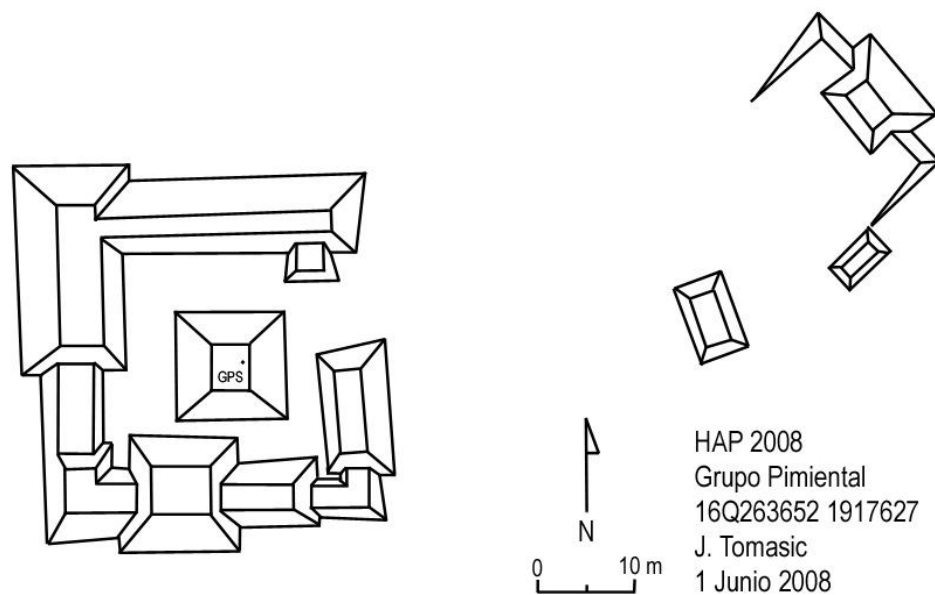


Figure 3.6: Map of Pimiental. Tape and compass survey and map by the author. Pimiental's GPS location was recorded by the author with 10 meter accuracy using a Garmin GPSmap 76S receiver.

The examination of solstice and equinox sightlines and the examination of Holmul's regional viewshed, combined with reconnaissances and mapping to the northeast and east of Holmul provide strong support for the idea that astronomical

considerations and concepts of sacred geography played a role in the establishment of K'o and other sites on the regional landscape. Furthermore, since the location of K'o appears to have been selected based on astronomical considerations at Holmul, it supports the idea that the regional settlement hierarchies in the Holmul region may have been hierarchies of both scale and control.

Reinterpreting Political Relationships in the Holmul Region

Originally, I speculated that K'o was established as an independent polity during the Terminal Preclassic and early facet Early Classic period. Recent research casts doubt on this scenario, because it is now clear that settlement at K'o dates to as early as the Late Middle Preclassic, more than 500 years earlier than previously thought. In addition to chronological refinements, it now appears that astronomical considerations and concepts of sacred geography played a role in the establishment of K'o and other sites on the regional landscape. This evidence suggests K'o was established as part of Holmul's regional hierarchy of scale and control, at least as early as the Late Middle Preclassic. K'o may have been established as an extension of the Holmul polity during the Late Middle Preclassic, rather than establishing itself as an independent center following the decline of Cival during the Terminal Preclassic. Although Cival appears to have been the politically dominant site in the region during the Late Middle Preclassic, and Holmul was almost certainly a dependency of Cival at this time, K'o may have been established in order to mark the frontier of Holmul's immediate territory, effectively marking the threshold of Holmul's political control during the Late Middle Preclassic.

Extra-Urban Sanctuaries in Early Greek City States

A parallel to the aforementioned scenario can be seen in the early establishment of extra-urban sanctuaries along the territorial edges of Greek city states. Toward the end of the Geometric period and at the beginning of the Archaic period (800-600 BC), a large number of Greek sanctuaries were established outside the main population centers. The establishment of these extra-urban sanctuaries coincides precisely with the establishment of Greek cities themselves. Rather than extending outward over time from center to periphery, the settlement of the cities and the settlement of extra-urban sanctuaries both date to the Late Geometric/Archaic period (800-600 BC) (de Polignac 1995).

There are both ritual and practical reasons for the presence of these early extra-urban sanctuaries. Many of these sanctuaries were located on the thresholds of territories, and on the edges of plains on which a city is located. Nonurban sanctuaries are located at the frontiers, symbolically dividing the wild and the civilized, marking civilized space. Nonurban sanctuaries divide political frontiers, marking boundaries between human groups. These shrines integrated people into society, and religious space helped to define civic space. Finally, the extra-urban sanctuaries mapped the extent of the territory belonging to the city, and defined the relationship of the territory's citizens to the city (de Polignac 1995).

In many ways, the parallels between the establishment of extra-urban sanctuaries in Greece and the establishment of K'o are clear. Yet, despite the fact that the alignment of K'o relative to Holmul supports the interpretation that K'o was allied with Holmul at its inception, it should be mentioned that K'o was probably not located at the edge of the larger territory controlled by Cival during the Late Middle Preclassic. Holmul and K'o

were both almost certainly dependencies of Cival at this time, and the full extent of the territory controlled by Cival during the Late Middle Preclassic may have extended beyond K'o, encompassing sites to the south across the *Bajo del Jobal* (Francisco Estrada-Belli, Personal Communication 2008).

Conclusion

Despite the changing interpretation of the timing and the nature of initial political relationships in the Holmul region, the peaks and declines in power evident in public architecture at K'o can still most likely be attributed to regional political processes involving the larger sites of Cival and Holmul. As described in Chapter V, K'o underwent an intense period of construction activity during the Terminal Preclassic and early facet of the Early Classic, during a widespread period of political and economic disturbances in the Maya Lowlands (Sharer and Traxler 2006:279-286). K'o was not established in the Terminal Preclassic, yet the peak in power evident in public architectural construction at K'o clearly occurs during the Terminal Preclassic and early facet of the Early Classic. K'o still appears to have been one of dozens of sites throughout the Maya Lowlands which flourished during this factionalized and decentralized period (Sharer and Traxler 2006:279-286). It still appears that the Late Classic period expansion of the Holmul polity may have eventually undermined the autonomy and power base of K'o elites, based on the decline in power evident in public architectural construction occurs at K'o during the middle to late facet Early Classic and Late/Terminal Classic. However, rather than Holmul subsuming a previously independent site within its regional hierarchical network, in a manner similar to Caracol's

Late Classic expansion (D. Chase and A. Chase 2004), the evidence suggests Holmul reincorporated a site with which its ties clearly extend back to the Late Middle Preclassic.

CHAPTER IV

PREVIOUS RESEARCH AT K'O, CREATION OF THE SITE MAP, AND THE ASSESSMENT OF RELATIVE PATIO GROUP STATUS

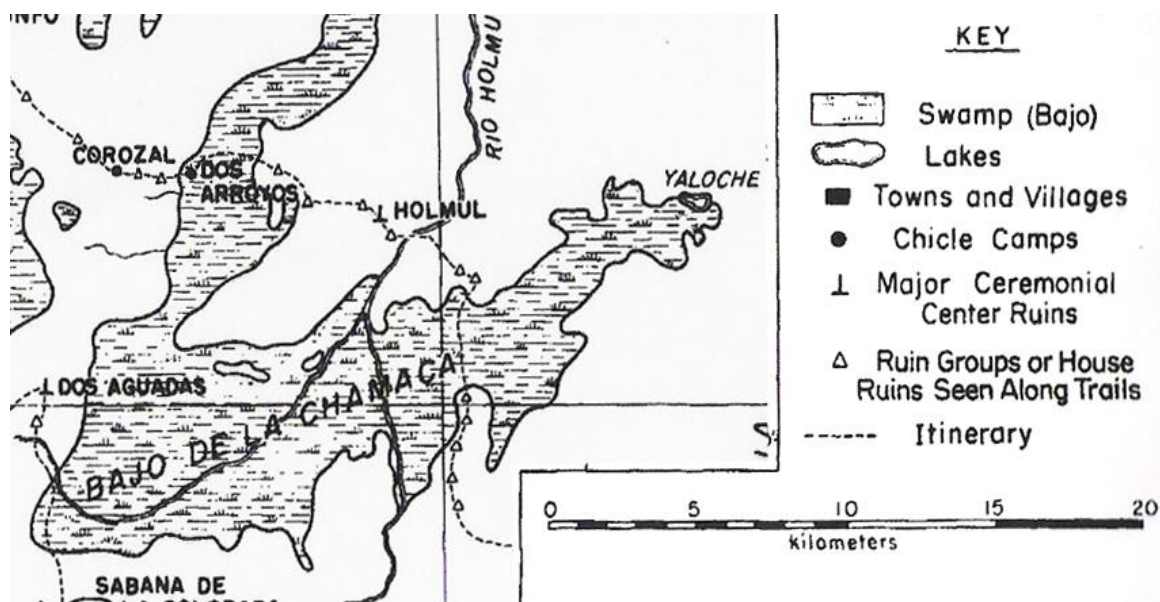
This chapter begins with a brief overview of research conducted at K'o prior to the start of intensive investigations at the site in 2005. Next, I describe the methods used in the survey and mapping of K'o and present the results of this research. Finally, I discuss the manner in which patio group architecture has been employed in the assessment of relative patio group status.

Previous Research at K'o

As a result of Raymond Merwin's research at Holmul between 1909 and 1913 (Merwin and Vaillant 1932), Holmul has been well known to the scientific community for nearly a century. However, relatively little has been known until recently regarding the many other sites in this region, including K'o. Since its inception in 2000, a primary focus of the Holmul Archaeological Project has been the investigation of regional settlement patterns through a program of mapping and excavation at newly discovered sites throughout the Holmul region. In the following paragraphs, I provide a brief overview of research conducted at K'o from the earliest archaeological research at the site up through the 2004 field season.

The earliest report of K'o may come from Bullard's 1958 settlement survey in the northeast Peten region of Guatemala (Bullard 1960). Bullard conducted a preliminary survey of settlement in the region, and his efforts were largely focused on recording the

relative locations of minor and major centers along the survey route. During Bullard's survey, Bullard traveled through the Holmul region, and documented the location of Holmul, as well as several minor centers along the survey route. Although no site names are indicated on Bullard's map (Figure 4.1), two clusters of "ruins" are indicated to the southeast of Holmul. Based upon their location, it is possible that one or both of these clusters of ruins are structures at what is now known to be the site of K'o.



**Figure 4.1: Close-Up view of the Holmul region from Bullard's (1960) map of settlement in the Northeast Peten, Guatemala.
Modified from Bullard 1960:356**

During the Holmul Archaeological Project's initial field season in 2000, IDAEH inspector Francisco Moro reported the existence of a nearby site known as Lechugal to members of the Holmul Project (Estrada-Belli 2000:21). During the 2001 field season, members of the Holmul Project conducted a brief reconnaissance of the site, located approximately three kilometers southeast of the Holmul Project's camp. During their

brief visit, project members recorded basic information, including the site's GPS location and the layout and form of major structures in the site core (Estrada-Belli 2001:13-14). Based on the preliminary data obtained in 2001, Lechugal was formally recorded and reported to IDAEH and renamed as K'o to avoid confusion with existing archaeological sites in the Peten (Estrada-Belli 2002b:12). The name K'o is based on a translation of the word Lechugal into Yucatec Mayan.

The site's original name, Lechugal, is taken from the name of a nearby water hole, or *aguada* used by *chicleros* and other non-timber traditional harvesters of the Maya forest. The Lechugal Aguada is located less than one kilometer west-southwest of the K'o site core, and is approximately 50 meters in diameter. Incidentally, the Lechugal Aguada is known by local *chicleros* as having some of the best drinking water in the region, due to the cooling and purifying effects of a blanket of green vegetation which grows on the surface of the water.

During the 2002 season, archaeological research at K'o was conducted by Justin Ebersole over a period of six days (Estrada-Belli 2002b:12). Ebersole visited the site and conducted a brief survey of the site's major structures and looters' trenches, and eventually focused his efforts on the salvage excavation of a looter's trench on the western side of Structure 1 (Figure 4.2). This salvage excavation was aimed at documenting a vaulted chamber exposed by looters within Structure 1. Ebersole excavated and screened all of the soil within the exposed chamber, and removed backdirt from within the looter's trench (Figure 4.3). The vaulted chamber within Structure 1 measured seventy-three centimeters in width, 233 centimeters in length, and 137 centimeters in height. The walls of the chamber were covered with white plaster. The

floor of the chamber was black, and detailed inspection of the floor suggested that it had been blackened by burning (Figure 4.4). In addition to blackening, the floor also bore a red stain approximately 20 cm. in diameter in the northern end of the chamber which appears to have been hematite pigment. Although no human remains were found during these excavations, this vaulted chamber is consistent with the characteristics of a Lowland Maya elite burial (Ebersole 2002).

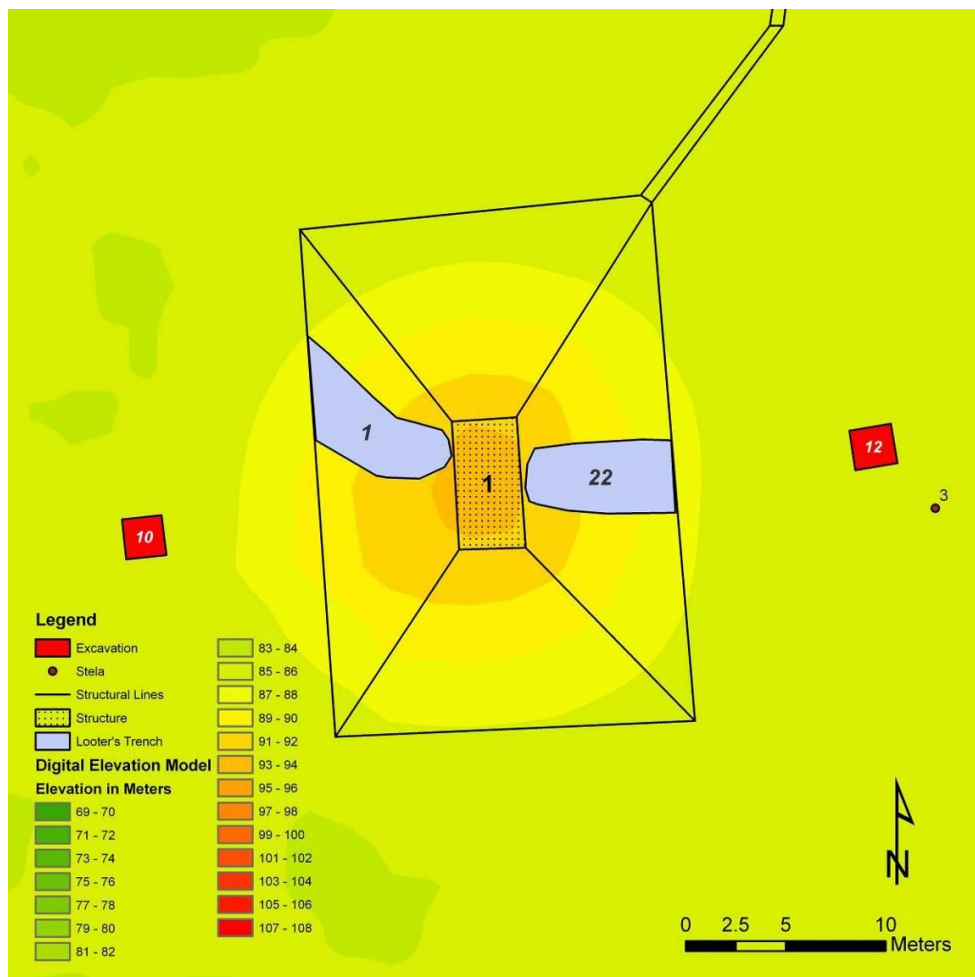


Figure 4.2: Map of K'o Structure 1, showing the location of the 2002 salvage excavations in Looter's Trench 1. Map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

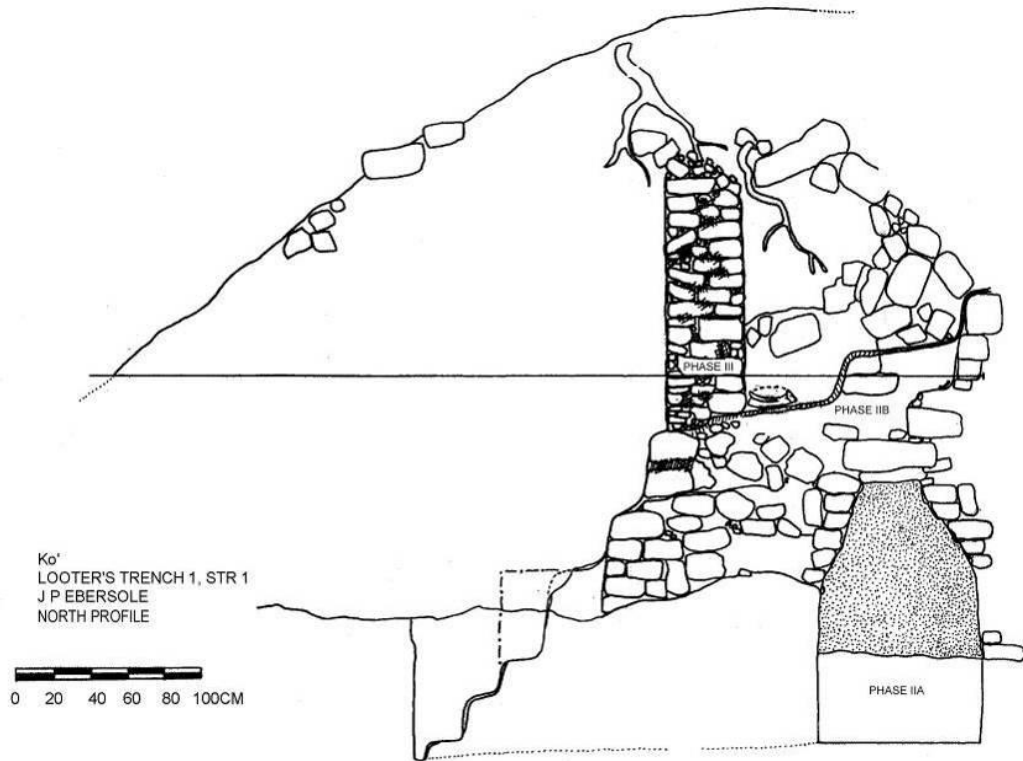


Figure 4.3: North profile of Looters' Trench 1, west side of K'o Structure 1.



**Figure 4.4: Photograph of interior of vaulted chamber within Structure 1
Note the blackening upon the chamber floor.
Photograph by Justin Ebersole.**

In addition to salvage excavations within the vaulted chamber, Ebersole excavated a 2 x 3 meter unit to the west of the vaulted chamber, along the northern wall of the looter's trench (Looter's Trench 1). As a result of this excavation, Ebersole was able to clarify the construction phases of Structure 1, and better understand the location of the chamber within the building's construction sequence. These excavations revealed at least three and possibly four phases of construction. The wall visible in the northern profile of the excavation was designated Phase III, and is the latest construction phase associated with the structure. This wall sits directly atop a series of plastered stairs and red painted molding associated with an earlier phase of construction, designated Phase IIB. The vaulted chamber itself was designated Phase IIA. To the east of the vaulted chamber, an earlier phase of construction may have existed, and this phase was tentatively designated as Phase I (Ebersole 2002).

During removal of construction fill between Phase IIB and Phase III, three ceramic vessels deposited as a cache were encountered (Figure 4.5). It is not clear whether these vessels were deposited as a dedicatory cache associated with Phase III or a termination cache associated with Phase IIB, but clearly these vessels were deposited after the construction of Phases IIA and IIB. Vessel 1 was deposited upside down, and is an Early Classic Lucha Incised basal flanged vessel (Figure 4.6). Vessel 2 was found adjacent to Vessel 1, and is an Early Classic Balanza Black bowl with a spout on the rim of the bowl (Figures 4.7, 4.8). Vessel 3, which was found upside-down beneath Vessel 1, is an Early Classic Balanza Black bowl with appliqué elements on the exterior (Figures 4.9-4.11). Based on the stylistic dating of these vessels, Phase II of Structure 1 can be

dated to the Early Classic, and Phase IIB of Structure 1 and its vaulted chamber (Phase IIA) can be dated to no later than the Early Classic (Ebersole 2002).



Figure 4.5: Photograph of Vessel 1 (foreground) and Vessel 2 (background) in-situ. Photograph by Justin Ebersole.



**Figure 4.6: Photograph of Vessel 1 reconstructed.
Lucha Incised: Lucha Variety (Callaghan 2008:723).
Photograph by the author.**



**Figure 4.7: Photograph of Vessel 2 reconstructed.
Balanza Black: Balanza Variety (Callaghan 2008:719).
Photograph by the author.**



**Figure 4.8: Drawing by Fernando Alvarez of Vessel 2.
Used with permission of the Holmul Archaeological Project.
Balanza Black: Balanza Variety (Callaghan 2008: 719).**



**Figure 4.9: Photograph of Vessel 3 in-situ.
Photograph by Justin Ebersole.
Lucha Incised: Lucha Variety (Callaghan 2008:721).**



**Figure 4.10: Photograph of Vessel 3 reconstructed.
Photograph by the author.
Lucha Incised: Lucha Variety (Callaghan 2008:721).**



**Figure 4.11: Drawing by Fernando Alvarez of Vessel 3. Used with permission of the
Holmul Archaeological Project.
Lucha Incised: Lucha Variety (Callaghan 2008:721).**

During the 2003 season, members of the Holmul Project led by Marc Wolf returned to K'o to survey and map the central portion of the site. During the survey and mapping of K'o, Wolf and his assistants cleared the site core of low-lying vegetation and surveyed and mapped the site's major structures in preliminary fashion. In addition, a series of brechas radiating outward from the site core were cleared and mapped, in order to define the spatial extent of the site core and record general topography beyond the site core. Based on Wolf's research, a preliminary map of major features within the site core was created, which aided the detailed mapping of the site core in 2005.

During the 2004 season (Estrada-Belli 2004a, 2004c), Angel Chavez excavated a test pit (KOL.T.01) in the K'o site core. This 2x4 meter test pit investigated a plain stela (Stela 4) and possible altar located directly west of a circular structure (Structure 20) in the site's north plaza (Angel Chavez, Personal Communication 2005). Chavez recovered large quantities of highly eroded ceramics, and these ceramics date almost entirely to the Late Classic, based on visual inspection of these ceramics by project ceramicist Michael Callaghan (Michael Callaghan, Personal Communication 2006).

Creation of the K'o site map

At the beginning of the 2005 field season, one of the primary objectives of field research was the creation of a detailed and accurate map of the K'o site core. During the 2005 field season, the site core and several patio groups in the immediate vicinity of the site core were surveyed and mapped. Survey and mapping operations in 2007 were focused on the patio groups in areas of the site outside the site core. Detailed mapping of all patio groups was an essential first step in the implementation of the Phase 2 stratified

random excavations and the Phase 3 intensive excavations. In addition, a variety of architectural measurements obtained from the detailed mapping of patio groups were essential to the assessment of relative status. What follows is a detailed description of the methods used in the creation of the K'o site map, and a detailed description of the manner in which patio group architecture has been used to assess relative patio group status at K'o.

During the summer of 2005, mapping operations at K'o lasted approximately five weeks. As a first step, a nearly three kilometer long transect was cleared and surveyed between the eastern end of the Holmul site's east transect (Estrada-Belli 2003) and the site of K'o in order to continue using the same coordinate system used in the survey and mapping of Holmul. Following the mapping of the Holmul-K'o transect, the survey and mapping of K'o began based on the coordinates transferred to K'o from Holmul. Within an area measuring 500m² and centered upon the K'o site core, survey data was collected using a TopCon GTS 220 EDM. In order to accurately represent the natural topography of the site, points were recorded every 25 meters along transects spaced 25 meters apart, resulting in a 25m² grid of points across the site. In addition to points placed along a 25 m² grid, a large number of opportunistic points were recorded in order to more accurately represent the forms of structures and the form of the overall landscape. Following the survey of the 500m² area, the site map was created using ArcGIS 9 (Figure 4.12).

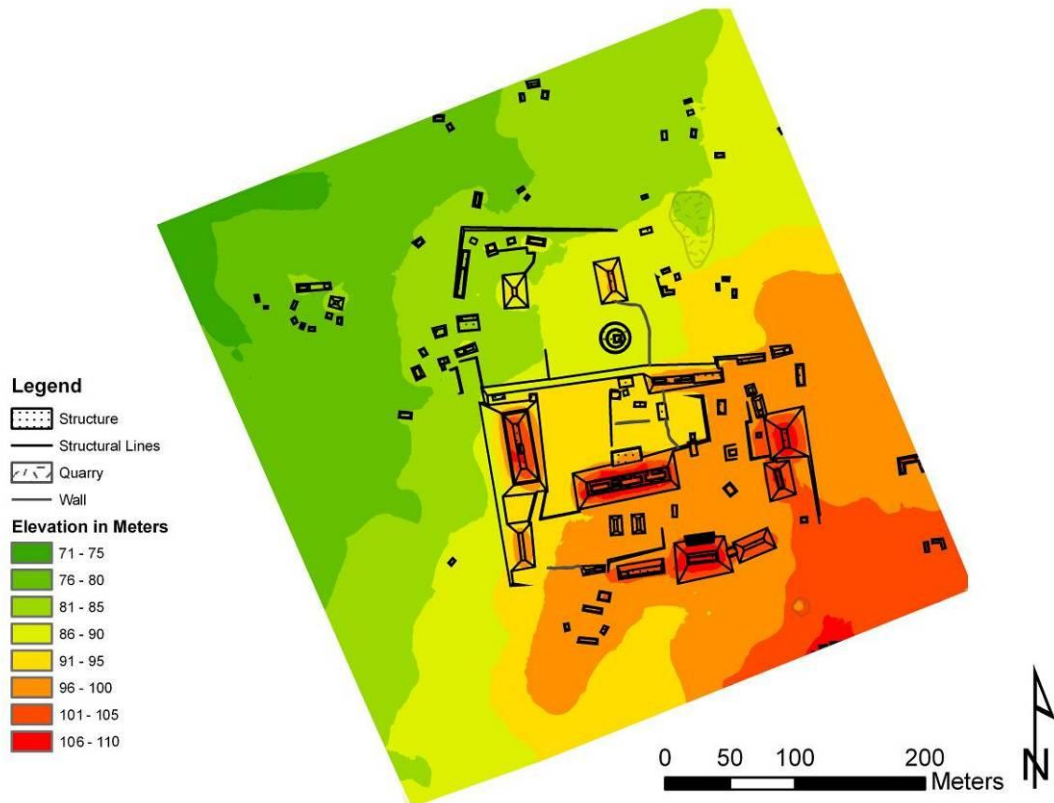


Figure 4.12: 2005 mapped extent of K'o.
Survey by the author, map created in ArcGIS 9 by the author. Digital Elevation Model created using Kriging interpolation.

The K'o site core consists of several large pyramidal structures atop platforms and arranged around a series of plazas (Figure 4.13). In the southern portion of the site, one of the largest structures is Structure 69, a 60 meter long and eleven meter high range structure topped by a series of what appear to be vaulted rooms forming three distinct courtyards. The form and layout of the architecture of Structure 69 suggests the building functioned as a palace (Ball and Taschek 2001:168-169). A ball court is located to the south of the palace, and both the ball court and palace are surrounded by pyramidal and range structures to the west, south, and east. The northern plaza is dominated by two pyramidal structures, Structure 1 and Structure 16. The site's four plain stelae are all located in the northern plaza – three stelae are located in a line between these two

structures, and one stela is located to the west of Structure 20, a recently investigated circular structure (Tomasic et al. 2009a) whose form is unique in the Holmul region. Structure 20 is composed of two parts, a small inner structure measuring 1 meter in height, and an outer ring measuring 20 meters in diameter and 50 centimeters in height. One of the features within the K'o site core which was mapped in 2005 is a low wall surrounding all three plazas on the North, East, and South sides of the site core. Excavations suggest the entire wall may have been a Terminal Classic (AD 830-900) defensive feature (Tomasic 2006), similar to the hastily constructed defensive walls recorded at Dos Pilas (Demarest et al. 1997).

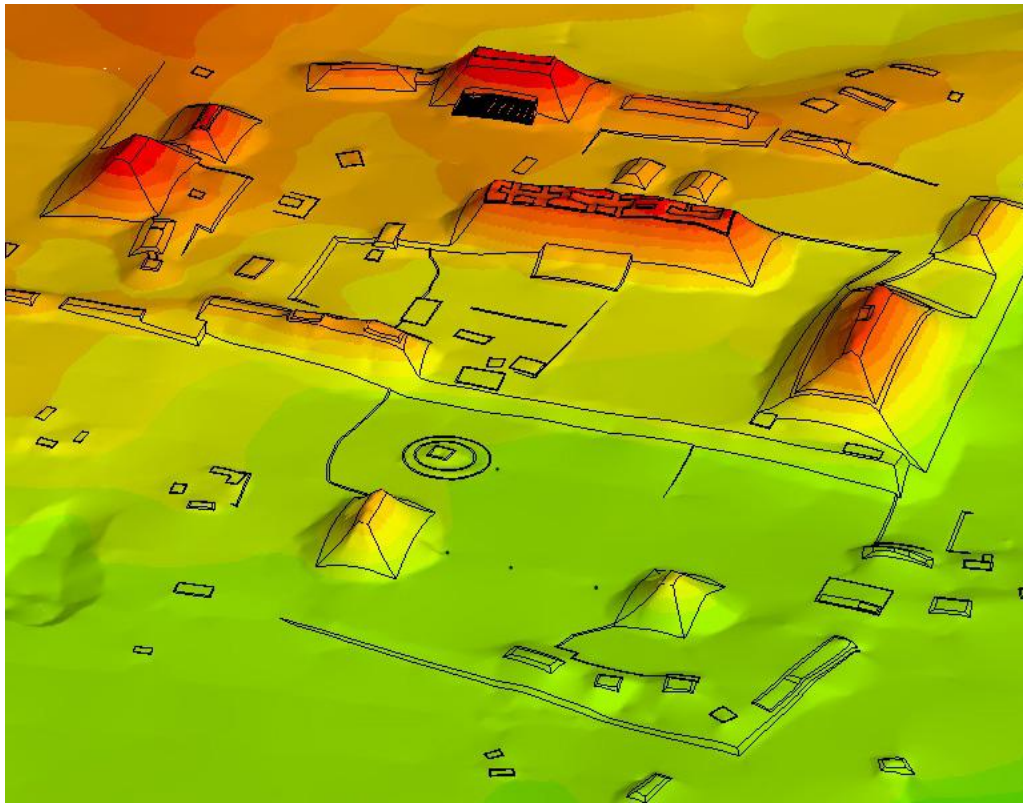


Figure 4.13: Three-Dimensional Digital Elevation Model of the K'o site core, looking south. Survey by the author, Three-Dimensional Digital Elevation Model using Natural Neighbors interpolation created in ArcGIS 9 by the author.

During the 2007 season, survey and mapping operations at K'o were aimed at expanding the mapped extent of the site (Tomasic et al. 2008). However, the first step in the 2007 survey and mapping at K'o was the correction of an error committed during the 2005 surveying of K'o. Following the completion of the 2005 field season it was discovered that the K'o site map, although internally consistent, was rotated several degrees east of its correct orientation, and was located nearly a kilometer southwest of its correct location. Obviously, an error had been made in surveying one of the points along the Holmul-K'o transect, and in order to correct this error and obtain the correct coordinates necessary to display the areas mapped in 2005 in their correct location and orientation it was necessary to remap the Holmul-K'o transect in 2007.

The first week of fieldwork during the 2007 season was dedicated to the remapping of the Holmul-K'o transect and the correction of the 2005 site coordinates. Beginning with the final two stakes at the eastern edge of Holmul's east transect, I carefully re-mapped the Holmul-K'o transect (Figure 4.14). After correcting the error in the site's coordinate system and remapping datums along the perimeter of the site, I was then able to use this data to correct the orientation and location of the 2005 site map using the *spatial adjustment* tool in ArcGIS 9. As a result, the area of the site mapped in 2005 was adjusted to its correct orientation and location (Figure 4.15).

Having corrected the site's coordinate system, the focus shifted to the survey and mapping of extensive areas of the site beyond the areas mapped in 2005. As a result of the 2007 mapping at K'o, the mapped extent of the site was more than doubled, from 500m² to 800m². A total of one hundred sixty domestic structures clustered into 39 patio group domestic architectural units (Ashmore 1981) were identified and mapped within an

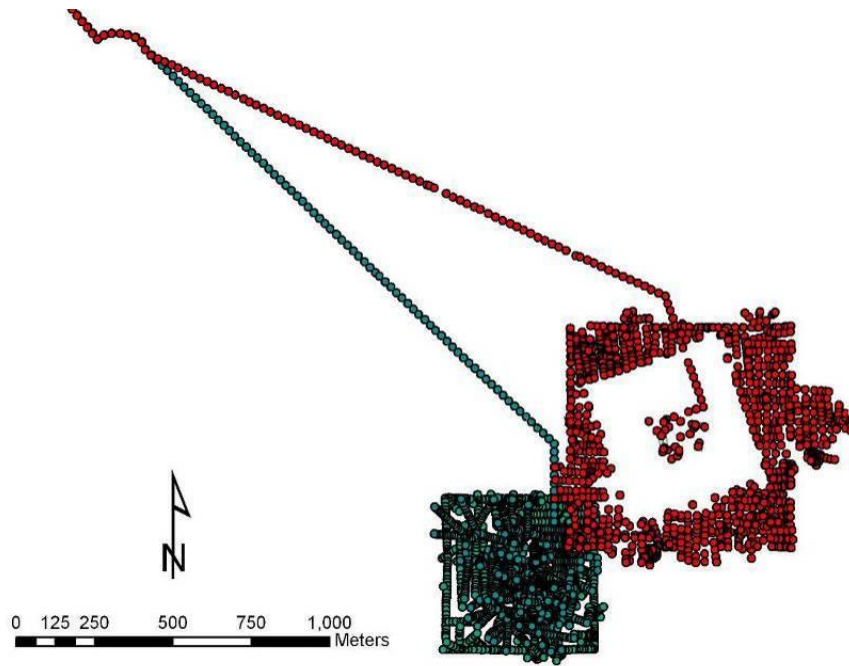


Figure 4.14: 2005 survey points along the Holmul-K'o transect and at K'o (blue), along with the corrected points recorded in 2007 (red). Survey by the author, points displayed by the author in ArcGIS 9.

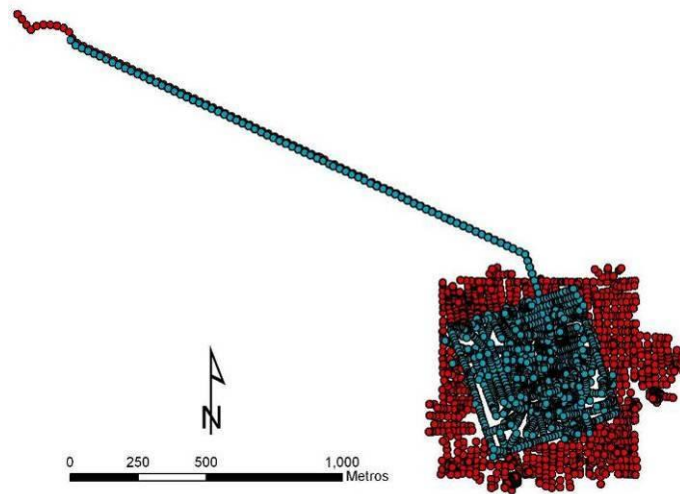


Figure 4.15: corrected coordinates of 2005 topographic points along the Holmul-K'o transect and at K'o (blue), along with the points recorded in 2007 (red). Survey by the author, points displayed by the author in ArcGIS 9.

800m² area of the site (Figure 4.16). I adopt a traditional classification of patio groups and individual structures within patio groups as domestic based on the principal of abundance (Willey et al. 1965). However, I realize that not all structures within each patio group may have been actual dwellings, nor did they all have a necessarily domestic function (Becker 2003:258-259). The distribution of these probable domestic structures throughout the site can be seen in the quadrant maps of the site (Figures 4.17-4.20).

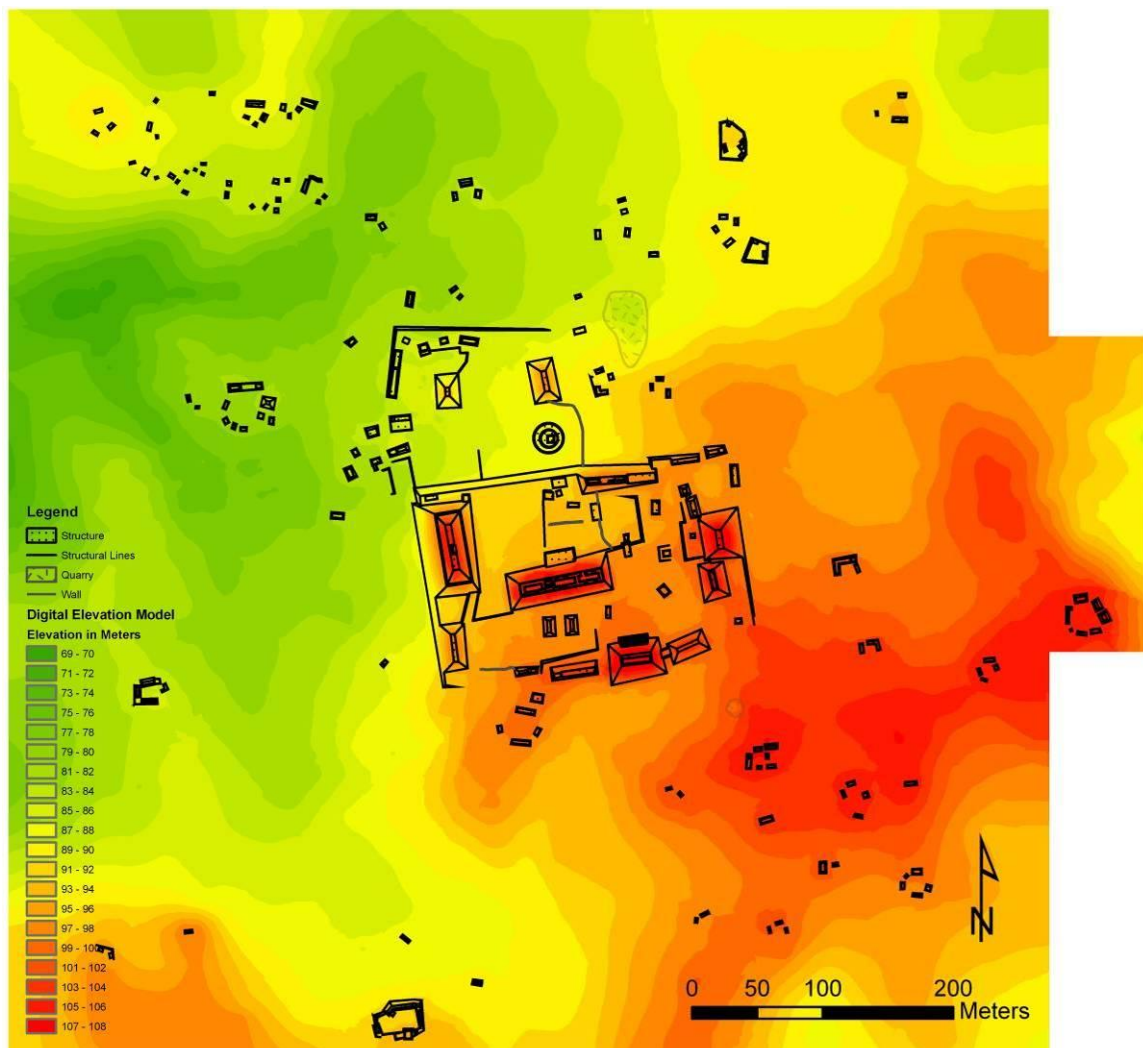


Figure 4.16: General map of K'o, based on 2005 and 2007 survey points. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

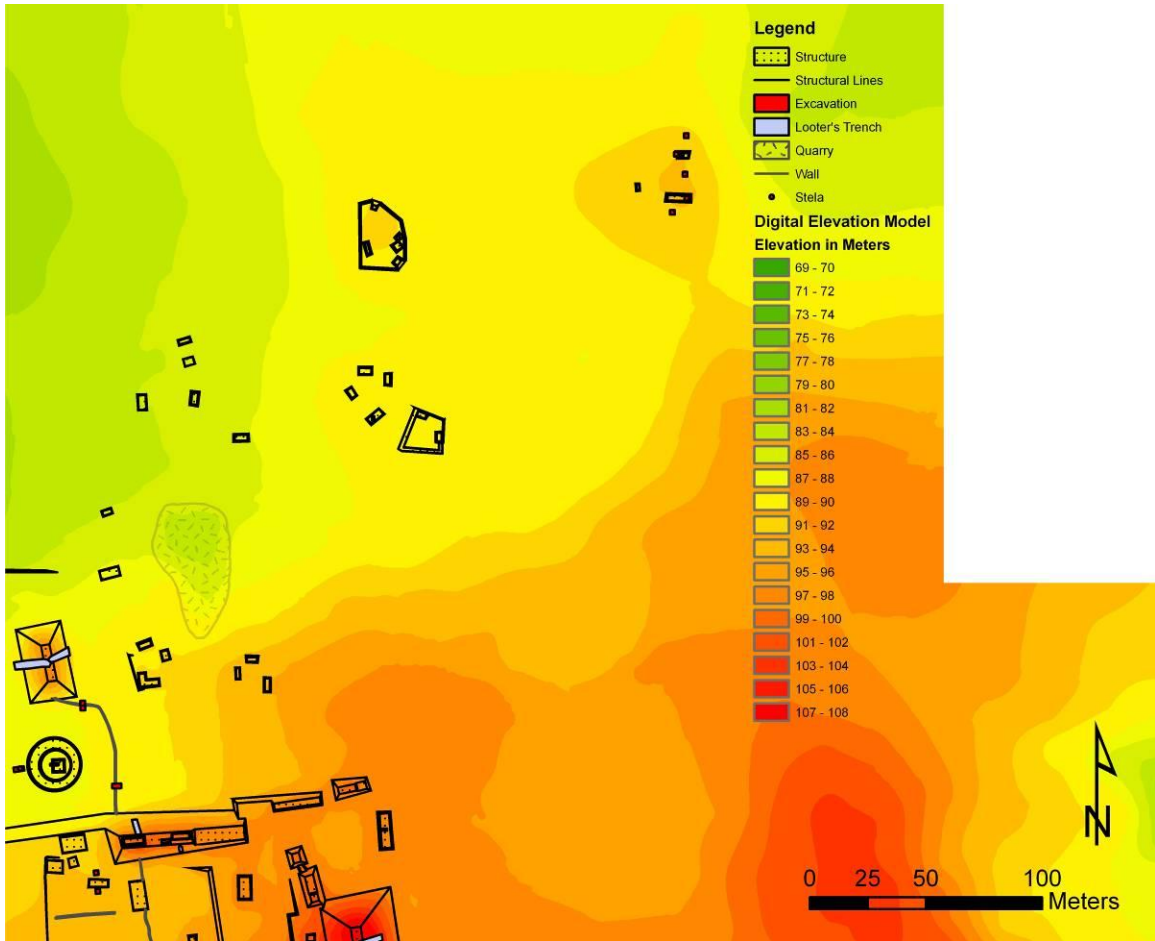


Figure 4.17: Map of the northeast quadrant of K'o.
Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

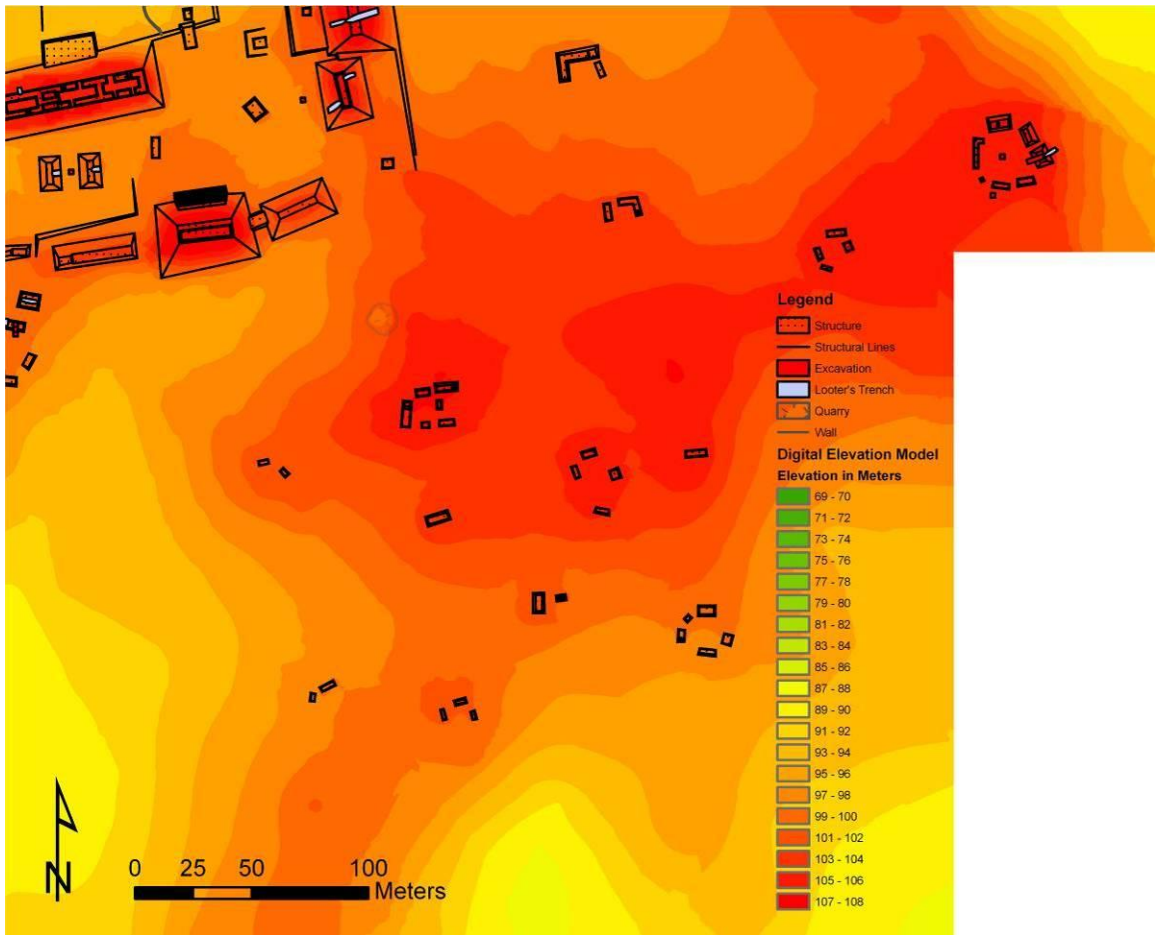


Figure 4.18: Map of the southeast quadrant of K'o. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

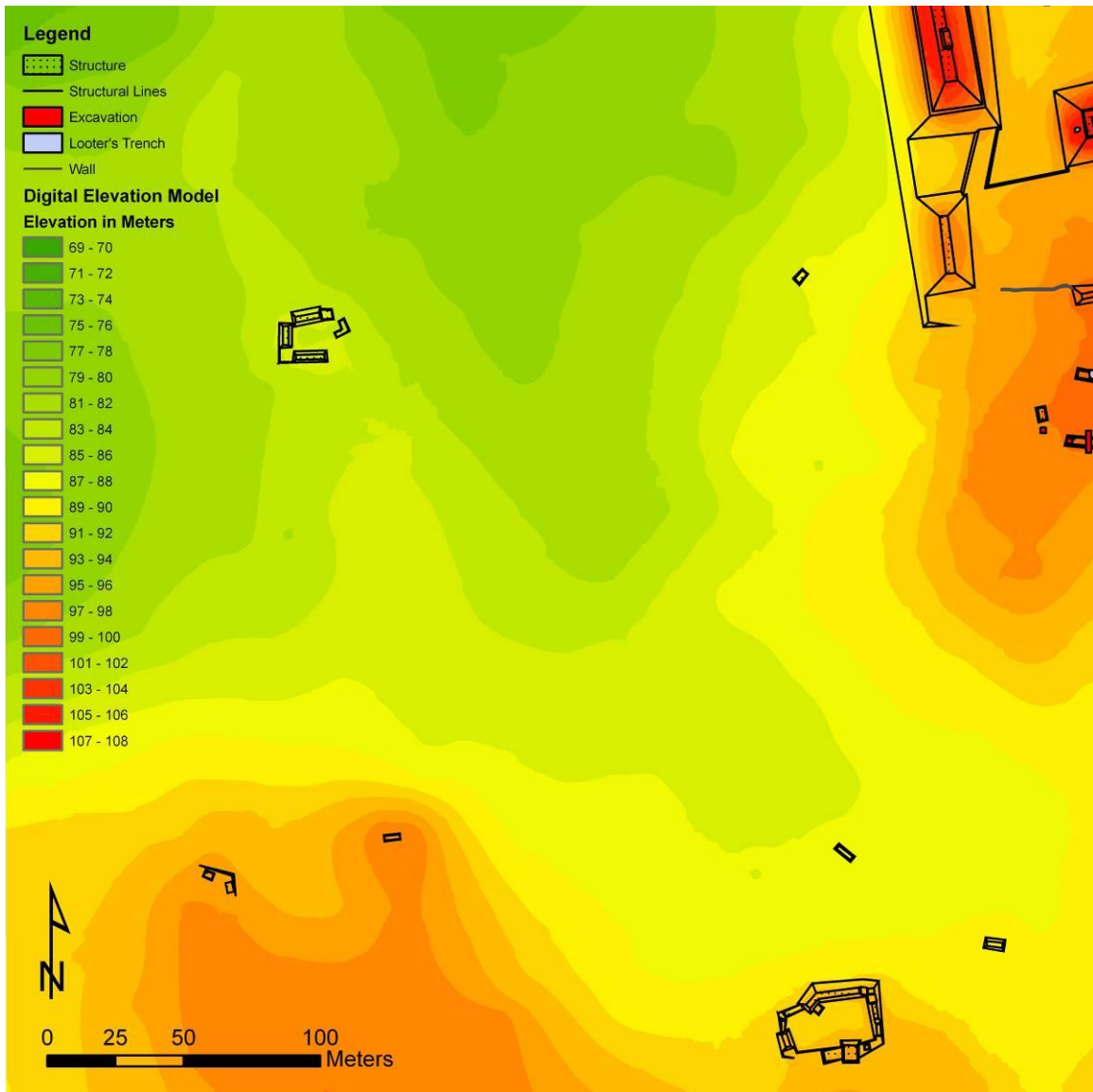


Figure 4.19: Map of the southwest quadrant of K'o. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

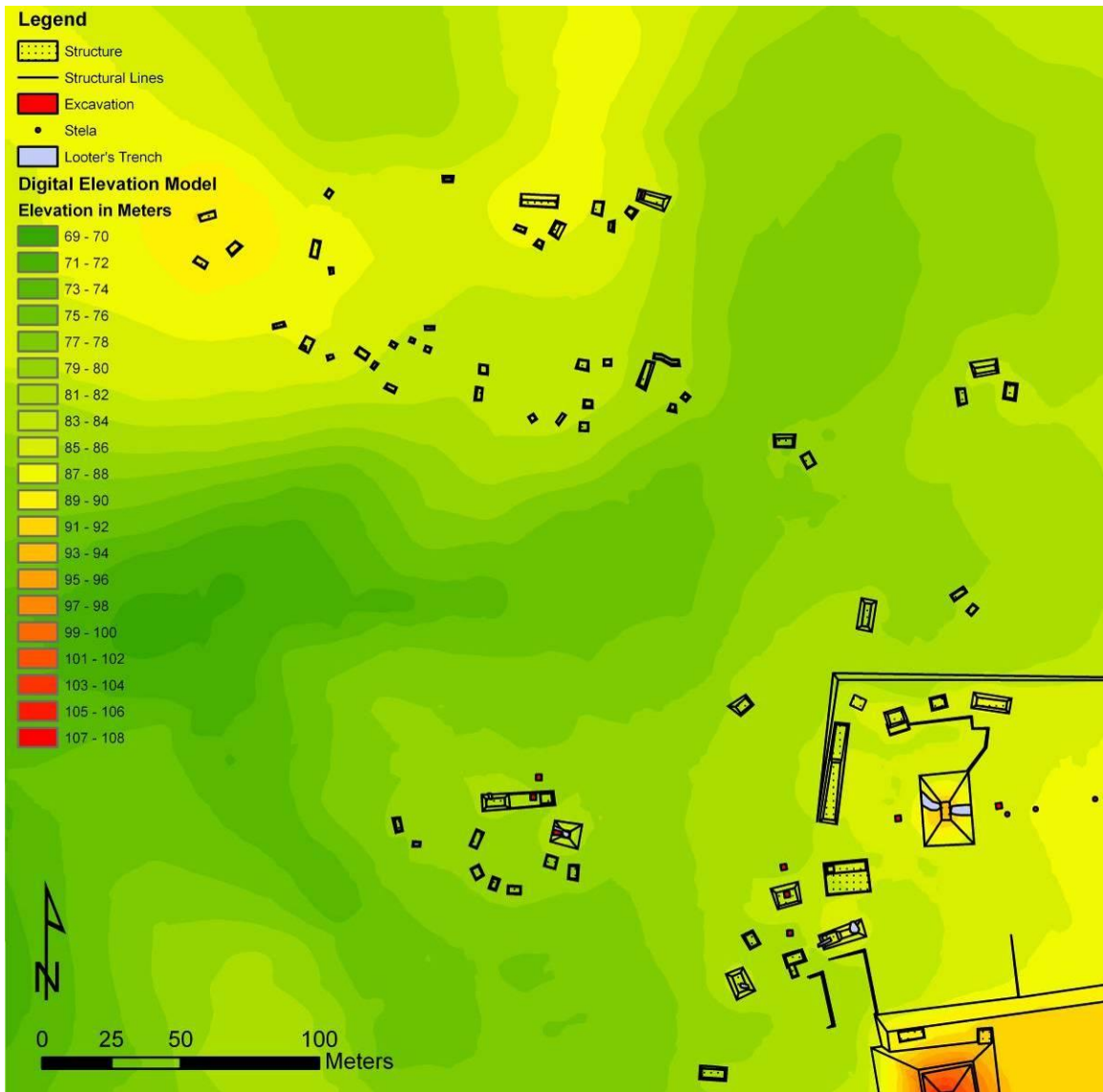


Figure 4.20: Map of the northwest quadrant of K'o. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

In 2007, in addition to mapping and within an 800m² area of the site, settlement was surveyed and mapped along a transect 200 meters wide and over 1 kilometer in length, extending eastward from the mapped extent of the site (Figure 4.21). This transect has been useful in estimating the density, form, and timing of settlement beyond the mapped extent of K'o (Puleston 1983). In particular, the survey and mapping of this transect resulted in the discovery of Group 15, a large residential group located along the eastern edge of the escarpment above the Bajo del Jobal which was investigated as part of the Phase 3 intensive excavations at K'o. Beyond this escarpment, settlement drops off dramatically, and the terrain is extremely steep and characterized by a series of deep arroyos leading into the Bajo del Jobal.

Although no major survey and mapping took place at K'o in 2008, steps were taken in order to ensure that all future mapping operations at K'o could proceed using the system of datums established by the Holmul Project (Tomasic 2009a). Four wooden datums were replaced with solid plastic pipe datums set in concrete, with the datum number inscribed into the datum's concrete base while the cement was still wet. Two of these datums are located in the north plaza of the site core, and two datums are located near the western edge of the mapped extent of the site (Figure 4.22). The two datums in the site core were selected based on their proximity to the site's major structures, and can potentially be used to anchor the site's coordinate system to any future mapping operations at K'o. The two western datums were selected because the two datums are aligned precisely along the map's east-west axis, and can be used to calibrate compasses in the future.

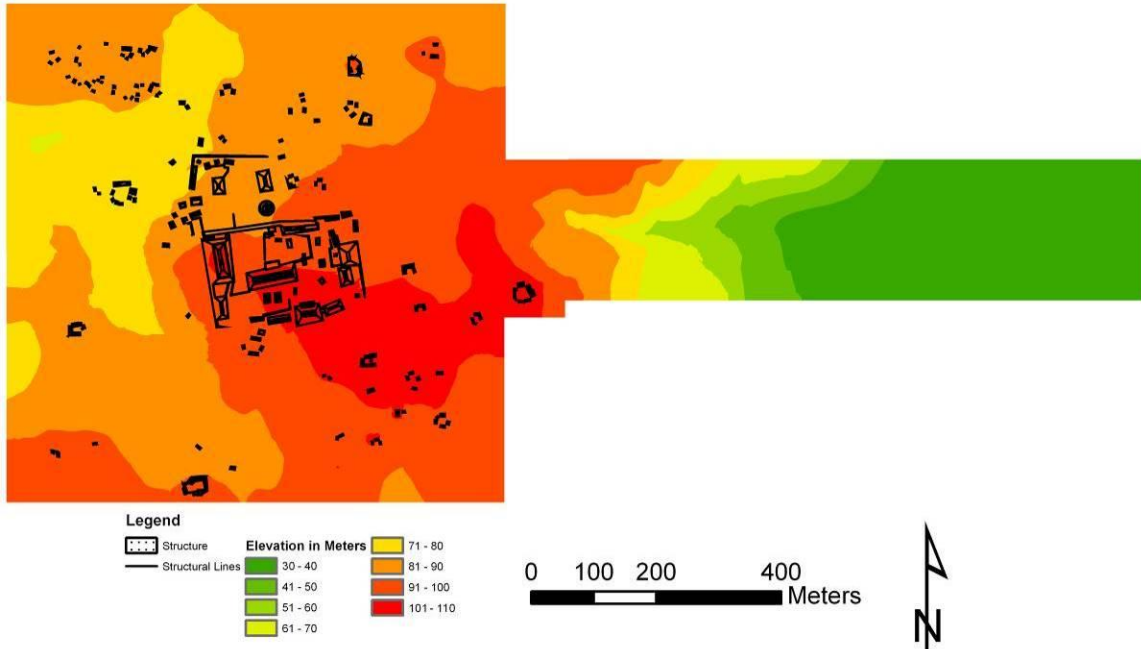


Figure 4.21: Map of K'o and the east transect Survey by the author and Melvin Rodrigo Guzman, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

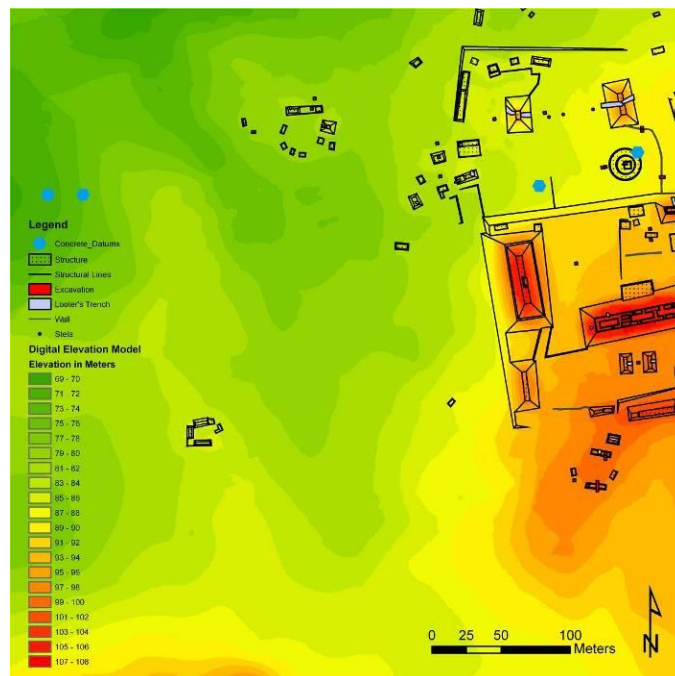


Figure 4.22: Map showing the locations of concrete datums (in blue). Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

Assessment of Relative Status

Although the primary goal of this research has been to examine the relationship between power and wealth by examining the economic networks through which wealth was distributed, the identification of status distinctions was fundamental to this study. Identification of relative patio group status has permitted an assessment of wealth within households of high and low status, and forms the background against which wealth in domestic contexts has been assessed. In addition, the identification of patio groups of varying status was an important step in the selection of areas to be intensively excavated during the Phase 3 of excavations at K'o. As described in Chapter VII, following the completion of the Phase 2 stratified random sampling and excavation in selected patio groups, five patio groups were selected for Phase 3 intensive excavation based on a number of factors, including relative status, in order to ensure that intensive excavations took place in household contexts of high and low status.

The identification of status distinctions based on archaeological data can be difficult, but perhaps the clearest and most common status distinction which has been inferred from the archaeological record is the distinction between elite and non-elite (Chase and Chase 1992). However, a number of studies have used archaeological data in demonstrating that the status distinctions among the Classic period Maya may have been more complex than a simple elite-commoner distinction (Carmean 1991; Chase 1992; Hendon 1991; Palka 1995, 1997; Tourtellot 1988).

In the Maya Lowlands, household architectural data is commonly used to assess household status. Variation in the size, complexity, and location of residential architecture has been clearly demonstrated to correlate with status at other sites (Chase

and Chase 1992; Haviland 1981; Haviland and Moholy-Nagy 1992; Hirth 1993; Palka 1995, 1997; Rathje 1983; Smith 1994; Tourtellot 1988; Tourtellot et al. 2003; Willey and Leventhal 1979; Zeleznik 2002). However, archaeological correlates of status are site specific, and should be evaluated based on the characteristics of residential architecture at each site (Tourtellot et al. 1992). Therefore, before describing the status indicators used at K'o, it is necessary to review of some of the major architecturally-based assessments of status employed at sites in the Maya Lowlands, with a discussion of the applicability of these methods to the data from K'o.

Architectural elaboration/quality of construction

Excavations in domestic contexts at K'o demonstrate that domestic architecture varies from isolated, low earthen platforms, to large multistructure groups with stone platforms and vaulted superstructures of cut and dressed stone blocks. According to Haviland and Moholy-Nagy (1992), quality of construction can be an effective status indicator, since elite residences are often made of higher quality materials, such as finely cut stone architecture, rather than earthen platforms with perishable superstructures. In addition, elite structures usually exhibit a greater amount of architectural elaboration; stone sculpture, stucco decoration, and other decorative elements are commonly found in association with high status residences (Hendon 1991; Tourtellot et al. 1992).

Architectural elaboration has been used as a status indicator at sites like Dos Pilas (Palka 1995) and Seibal (Tourtellot 1988), where architectural features are clearly discernable on the surface. Tourtellot (1988) attributes the high visibility of architectural features at Seibal to the thin post-abandonment humus layers which developed, the

absence of stone-walled superstructures in most cases, and the absence of major renovations which complicate the overall form of the structure (Tourtellot 1988). Unfortunately, surface visibility of detailed architectural features is minimal at K'o, and our excavations have shown that many of the buildings at K'o are covered by a thick humus layer and by debris from collapsed stone superstructures. Due to this large amount of overburden, detailed evidence regarding architectural elaboration is lacking in areas which have not been excavated. Therefore, status assessments based on architectural elaboration and quality of construction are presently of limited use at K'o.

Domestic Architectural Size

A number of measurements of domestic architectural size have been successfully employed as archaeological correlates of status (Haviland 1981; Hirth 1993; Rathje 1993; Smith 1994; Tourtellot 1988). For example, Tourtellot (1988) used measurements of structure height, structure volume, and structure area to assess status at Seibal, classifying architecture on both the structure and the group level (Tourtellot 1988). Measurements of architectural size are much more useful because of the technology employed in the mapping of the site. All structures and topography at K'o were mapped using a Topcon GTS 220 EDM, and the attributes of structures were recorded in GIS database created using ArcGIS 9. As a result, precise assessment of variables such as structure height, area, volume, and patio group plaza area can be easily obtained.

Number of Structures and Height of Tallest Structure

The configuration of individual patio groups in terms of the number of structures and height of structures may be indicative of status distinctions. Willey and Leventhal (1979) suggest status distinctions can be inferred based on a ranking of structure groups according to both the number of structures and the height of the tallest structure within each group. Although this approach may be useful at K'o, inferring status based on the number of structures within a patio group can potentially be problematic. Number of structures has been shown to be less indicative of status at Seibal, primarily because the number of structures within a group seems to be a result of accretion over time, rather than part of a single construction episode (Tourtellot 1988). Structural height has been employed as an objective measurement of status at Seibal (Tourtellot 1988), yet structural height can be a problematic measurement of status as well, since structural height can be a result of multiple construction phases over an extended period of time, rather than a single construction effort.

Within the current mapped extent of the site, domestic structures at K'o are organized into thirty-nine distinct patio group units. These patio groups display variability in the number of structures per group, as well as in the height of structures within each group. Although the size and number of structures does appear to be a result of multiple, successive construction phases, the Phase 3 intensive excavations within patio groups suggest that most structures within patio groups were contemporaneous (see Chapter VII). Furthermore, the largest structures in these groups are known to be the result of major construction episodes, rather than simple accretion over time. Therefore,

status assessments based on the number of structures per patio group, and the height of the tallest structure can be considered as indicators of status at K'o.

Terrain Elevation/Hilltop Location of Patio Groups

A number of studies have demonstrated that elite residences are consistently located on higher ground relative to commoner residences (Estrada-Belli 2003a; Palka 1995; Tourtellot et al. 2003; Willey and Leventhal 1979). For example, Tourtellot et al. (2003) have demonstrated that elite patio groups at La Milpa are consistently located on hilltops and upper slopes, and non-elite patio groups are consistently located in areas between hilltops. At K'o, the precise terrain elevation of each patio group has been recorded in the GIS database, and hilltop location can be considered as a variable in the assessment of status.

Relative Location of Patio Groups

In addition to topography and elevation, distance of residential architecture from site core has been shown to be an effective indicator of status (Kurjack 1974; Pendergast 1992), yet at other sites the distance from site core alone is not an effective measurement of status (Chase 1992). In the Holmul region, a higher mean distance between elite residential groups and neighboring residential groups has been correlated with elite status (Estrada-Belli 2003). Precise measurements of intra-group distance and distance to the site core have been recorded in the GIS database, and both the distance of structural groups from the site core and the mean distances between neighboring groups can be considered as indicators of status.

Assessing Status at K'o

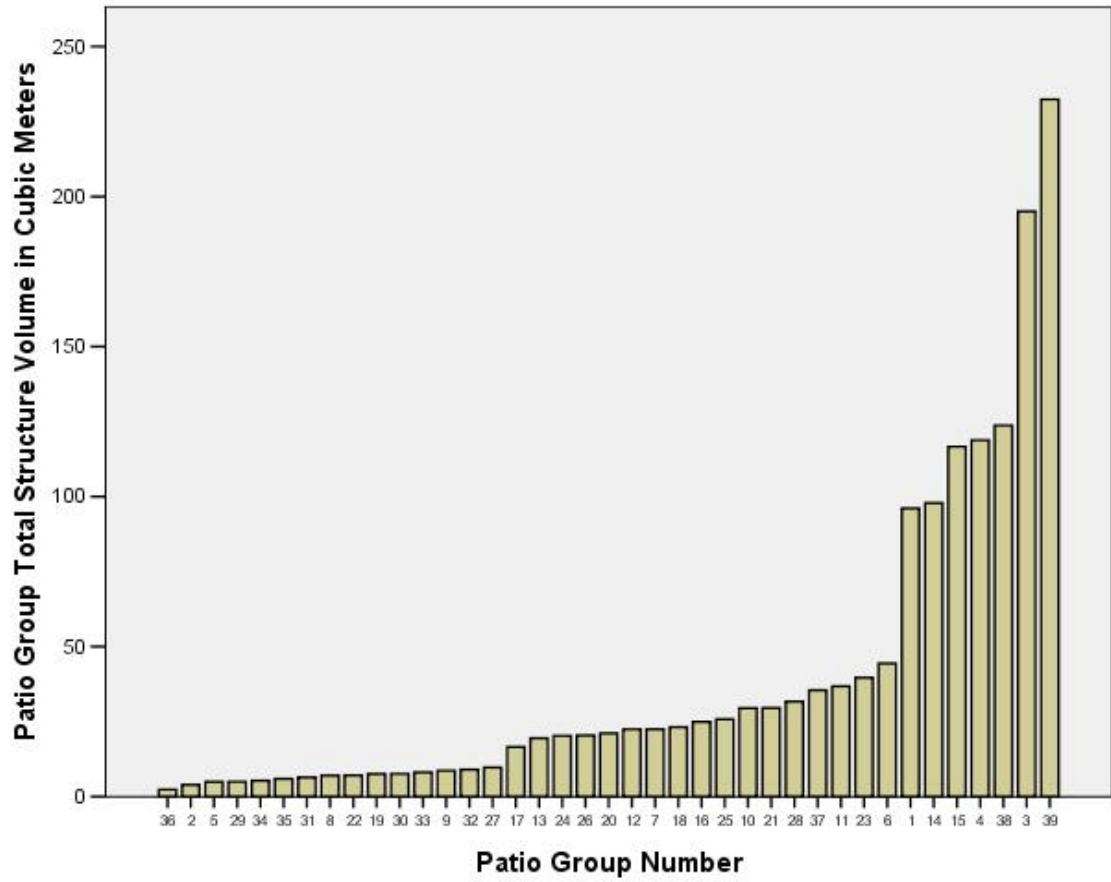
The current study builds upon many of the strengths of the aforementioned assessments of status, and attempts to arrive at a precise and accurate assessment of relative status based on household architecture. Building upon these studies, I have assessed status through the consideration of a variety of well-established architectural correlates at the patio group level. I have employed measurements at the patio group level rather than the structure level, because patio groups more closely approximate the spatial extent of households than individual structures (Wilk and Ashmore 1988). Each of the following eight variables has been evaluated as a potential status indicator at K'o:

- 1) *Number of Structures in Group*
- 2) *Total Structure Area*
- 3) *Total Structure Volume*
- 4) *Height of Tallest Structure in Group*
- 5) *Distance from Main Plaza*
- 6) *Patio Group Plaza Area*
- 7) *Distance to Nearest Group*
- 8) *Hilltop Location (Yes or No)*

In assessing status, as a first step I examined the distribution of each variable using bar graphs created in SPSS 13.0, in order to get a visual understanding of their distribution. As a second step, I performed a bivariate correlation among each pair of variables, which produced a series of scores that show the degree to which the eight variables are related to each other, based on a scale of 0 to 1. Using this procedure, I was able to determine which variables were correlated, and I was able to eliminate unrelated variables from further statistical analysis. This bivariate correlation indicated that five of the eight variables were strongly correlated. *Terrain Elevation, Distance from Main*

Plaza, and *Distance to Nearest Group* were not strongly associated with the correlated variables of *Number of Structures in Group*, *Total Structure Area*, *Total Structure Volume*, *Height of Tallest Structure in the Group*, and *Patio Group Plaza Area*. The strong correlation between these five variables is almost certainly a result of these variables all being measurements of the scale and complexity of patio group architecture. As a result, rather than taking the unnecessary step of considering all five of these related variables, I have assessed relative status using the total structure volume of patio groups, because it most accurately represents variation in the scale and complexity of patio group architecture which is assumed to be reflective of differential status. The ranking of patio groups based on total structure volume is visually represented in the bar graph in Figure 4.23, and the variability in the total structure volume of patio groups is assumed to reflect variability in status.

The assessment of the relative status of all thirty-nine patio groups based on patio group volume was essential in evaluating the representativeness of the stratified random sample obtained during the Phase 2 excavations. Furthermore, the assessment of relative patio group status was essential to the selection of areas to intensively excavate as part of the Phase 3 excavations. Finally, the assessment of patio group status based on patio group volume has been critical to the evaluation of the distribution of goods in high and low status contexts.



**Figure 4.23: Bar graph of patio group total structure volume.
Bar graph created in SPSS 13.0.**

CHAPTER V

PHASE 1 EXCAVATIONS IN THE K'O SITE CORE

Despite the important research conducted by Holmul Project members' at K'o from 2001-2004 (Estrada-Belli 2001, 2002b, 2004a, 2004c), much of the occupational history of K'o was still unclear prior to the 2005 field season. Consequently, research at K'o in 2005 was aimed at generating baseline chronological data regarding the occupational history of the site through excavations in plaza areas within the site core (Figure 5.1) and salvage excavations of looters trenches within the site core (Tomasic 2006, Tomasic et al. 2009a). In addition to clarifying the chronology of occupation, the data from these excavations have been used to create a long-term volumetric estimate of construction activity in the site core. This chapter presents the results of these excavations, and describes the manner in which the volumetric assessment of construction activity is used as an estimate of power.

KOL.T.02

This 2x2 meter unit is located between ball court Structures 67 and 68, at the intersection of the north-south axis and east-west axis of the ball court (Figure 5.2). Context 01 consists of a layer of humus and looters backdirt associated with Looter's Trench 16 in Structure 67, the western ball court structure (Figure 5.3). Ceramics from Context 01 date to the Terminal Preclassic and Early Classic. Context 02 consists of a layer of large rocks and gravel fill from both ball court structures, and the ceramics from

this context are highly eroded. Context 03 consists of a claylike layer with no large rocks or gravel fill, and contains Late Preclassic ceramics. Context 04 is the latest discernable

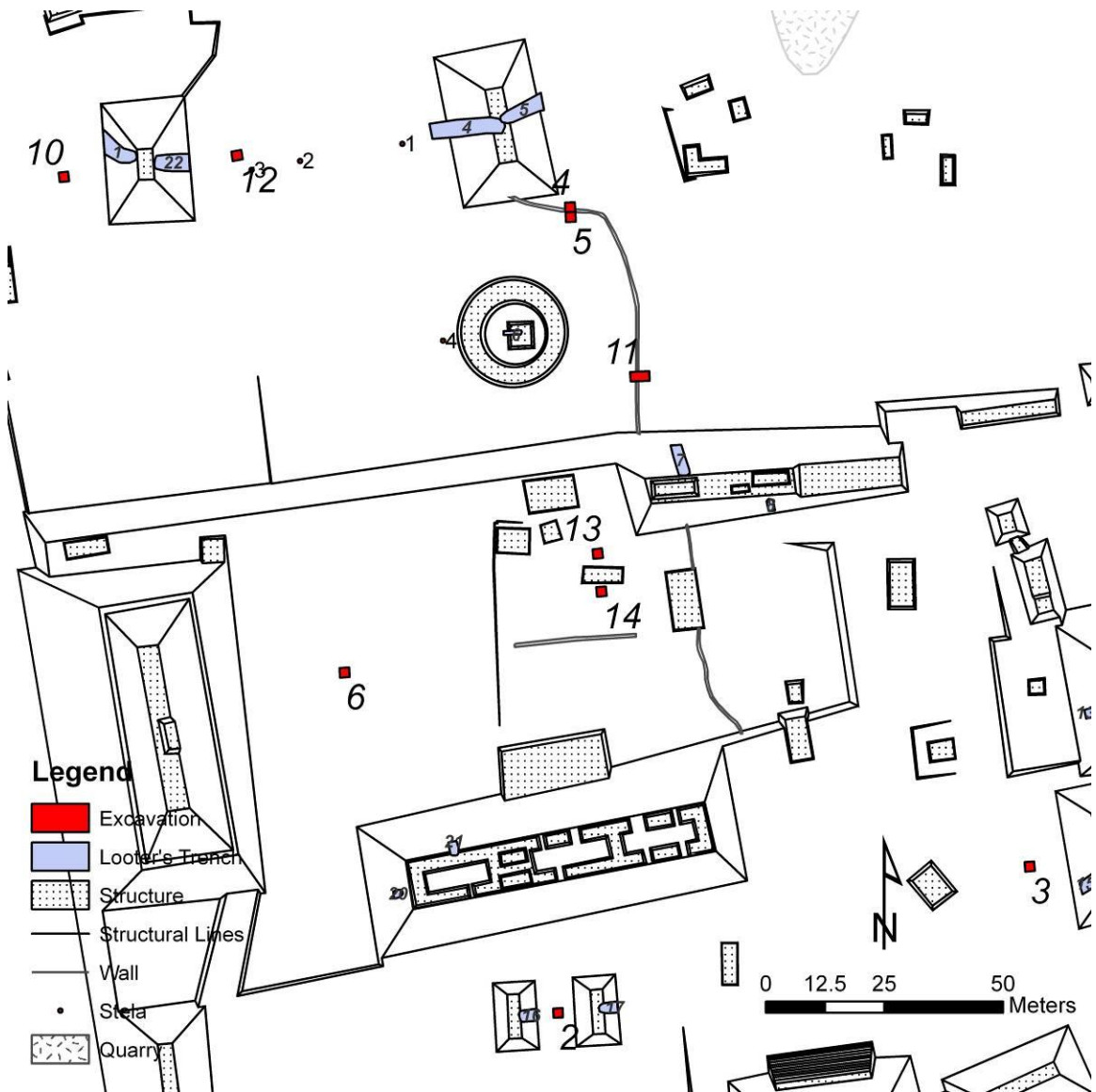


Figure 5.1: Map of the K'o site core with plaza excavations in red. Survey by the author, map created by the author in ArcGIS 9.

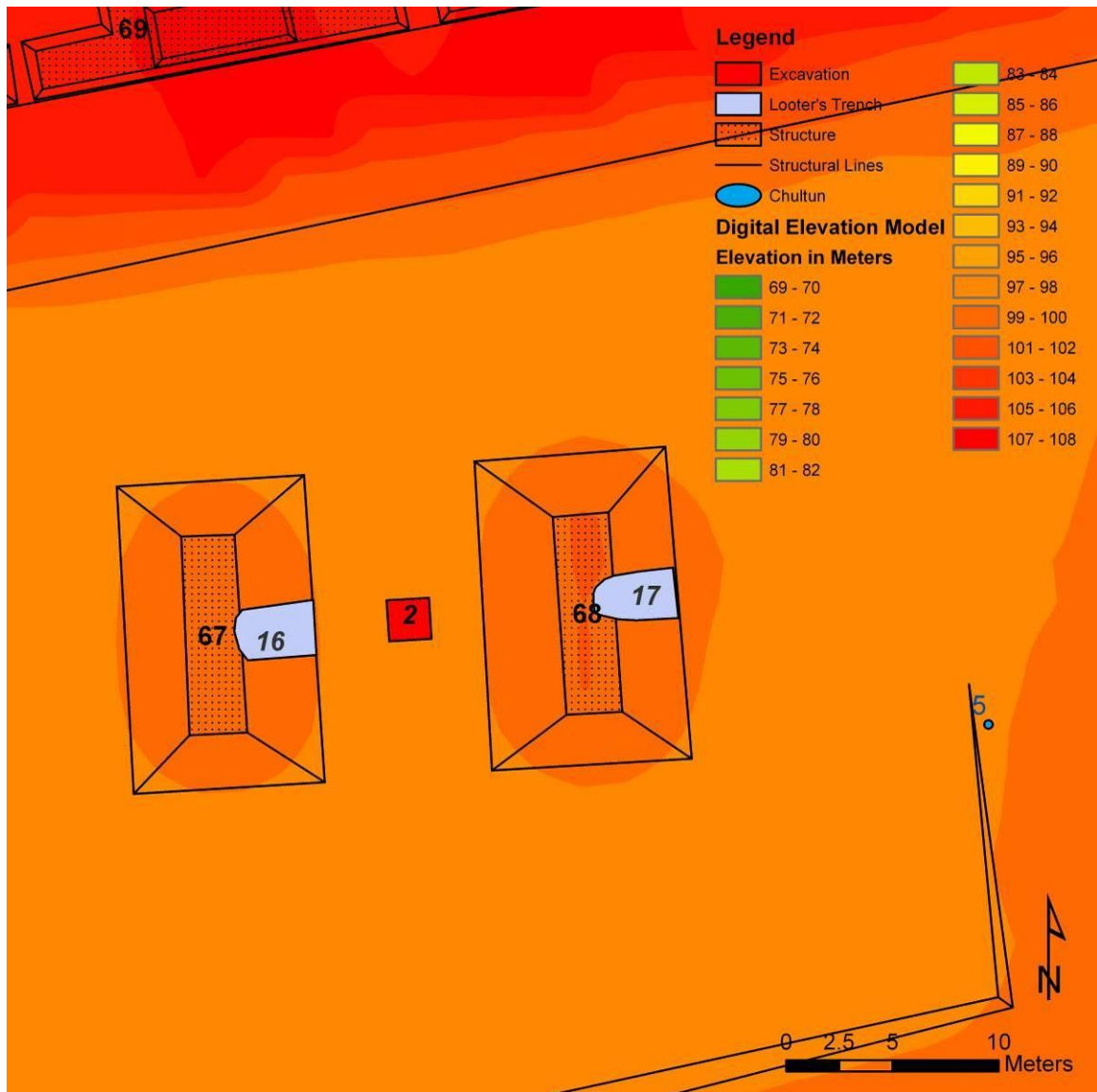


Figure 5.2: Map showing the location of KOL.T.02
Survey by the author, map created by the author in ArcGIS 9. Digital Elevation
Model created using Kriging interpolation.

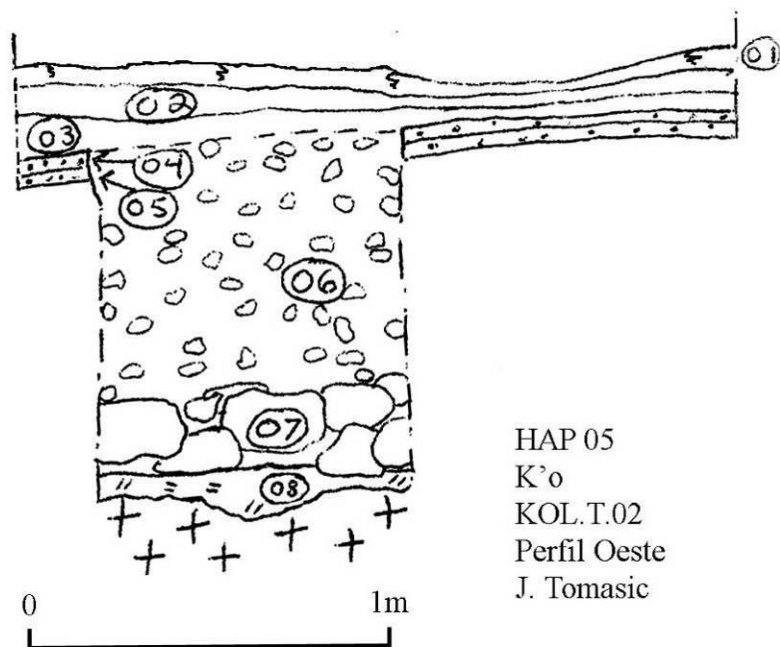


Figure 5.3: KOL.T.02 west profile.

surface of a plaster floor, which is best preserved in the northeastern quadrant of the excavation. Context 05 is a plaster floor directly beneath the floor assigned to Context 04. Both Contexts 04 and 05 contain Late Preclassic ceramics. The floor in Context 04 appears to have been a new surface applied to the floor encountered in Context 05, and these are the only plaster floors of the ball court playing alley. Both plaster floors have been disturbed in the southwest quadrant of the excavation unit by a circular cut approximately 80 centimeters in diameter. Given that Contexts 02 and 03 do not appear to have been disturbed by recent looting activity, it seems that this cut was created in antiquity. Additionally, given that this cut is located at the precise junction of the north-south axis of the ball court alley and the east-west axis of the ball court structures, it seems probable that this cut originally held a ball court marker of some sort, perhaps a perishable one or perhaps a stone one which had been removed in antiquity. The actual

cut, which has been assigned to Context 09, is only twenty centimeters in depth. The contents of the cut, which contained Late Preclassic ceramics, were assigned to Context 06. The excavations were extended through the floor of the cut until arriving at bedrock. Context 07 is a layer of large, loose rocks and loosely compacted soil which lie directly beneath the ball court floor, and the ceramics from this context date the context to the Terminal Preclassic. Context 08 is a thin layer of dark, tightly compacted paleosol which lies directly atop bedrock.

Summary of Results:

As a result of this excavation, it appears that the earliest levels of the ball court playing alley date to the Terminal Preclassic. Interestingly, none of the later contexts contain Late Classic, or Terminal Classic ceramics, which suggests that no major modifications to the ball court playing alley occurred during the Late Classic and Terminal Classic. Although speculative, the lack of later renovations to the playing alley is consistent with the interpretation of the circular cut discovered within this excavation as a cut for a ball court marker removed from the playing alley, perhaps during the during the Late Classic or Terminal Classic.

KOL.T.03

This 2x2 meter trench is located approximately 10 meters west of structure 94, along the approximate centerline of the building (Figure 5.4). Context 01 consists of a humus layer which contained a large quantity of large chert flakes, and the ceramics from this context date to the middle to late facets of the Early Classic and Late Classic

(Figure 5.5). Context 02 consists of a layer of gravel and silt beneath the humus layer, and the ceramics from this context also date to the middle to late facets of the Early Classic and Late Classic. Context 03 is a well-preserved plaster floor, and the ceramics from this context date to the Terminal Preclassic and early facet of the Early Classic. Context 04 consists of large rocks and loose gravel fill beneath the floor and subfloor, and the ceramics from this context date to the Late Preclassic and early facet of the Early Classic. Context 05 consists of a thin layer of dark, tightly compacted claylike soil located above bedrock, and the ceramics from Context 05 date to the Late Preclassic.

Summary of Results:

As a result of this excavation, it appears that the bulk of construction activity in this plaza area of the site core dates to the Terminal Preclassic and early facet of the Early Classic. The well preserved plaster floor in Context 03, as well as the subfloor fill (Context 04), date to the early facet of the Early Classic, and the earliest contexts beneath the subfloor fill date to the Late Preclassic.

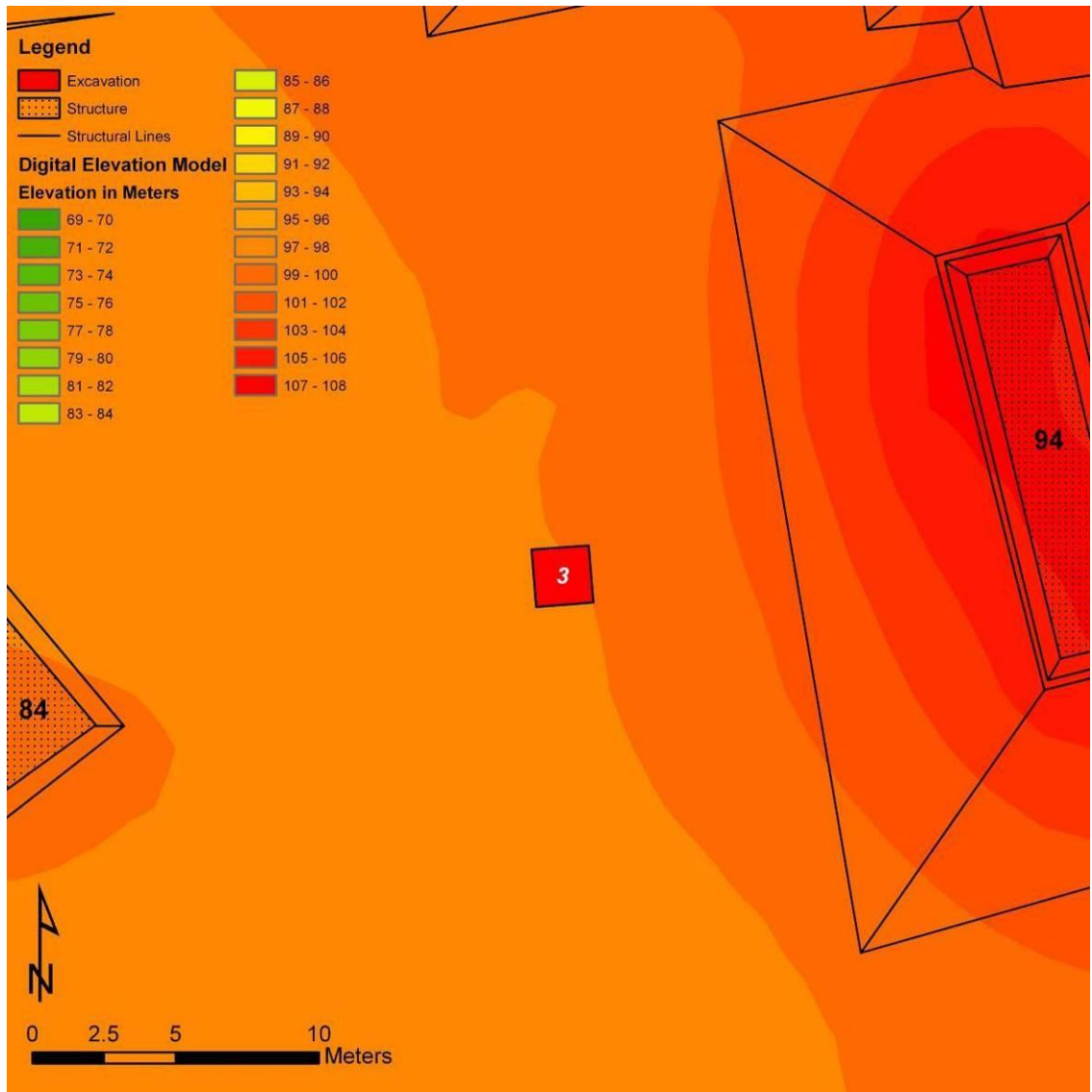


Figure 5.4: Map showing location of KOL.T.03. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

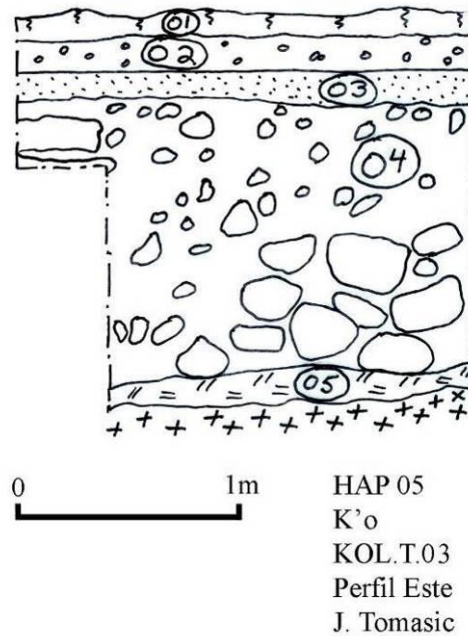


Figure 5.5: KOL.T.03 east profile.

KOL.T.04, KOL.T.05

In order to investigate a wall which had been identified during the survey and mapping of the site, KOL.T.04 was placed on northern side of the wall, and KOL.T.05 was placed on the southern side of the wall (Figure 5.6). Context 01 of each of these trenches consists of the humus layer atop the wall and to the north and south of the wall, and both contexts contained highly eroded ceramics (Figures 5.7, 5.8). Context 02 in each of these trenches consists of the actual wall, as well as the material to the north and south of the wall, and the ceramics from these contexts date to the Late Preclassic and the Classic period. The wall consists of large and small roughly cut stones, and the stones are not joined by mortar or laid in any sort of formal pattern. The discovery of a spear point in KOL.T.04.02 lends some support to the hypothesis that the wall is defensive in nature.

Upon removal of Context 02 in KOL.T.04, a well preserved plaster floor was found beneath the wall and to the north of the wall. However, this plaster floor was not found to the south along the southern edge of KOL.T.05 in Context 02, and it appears

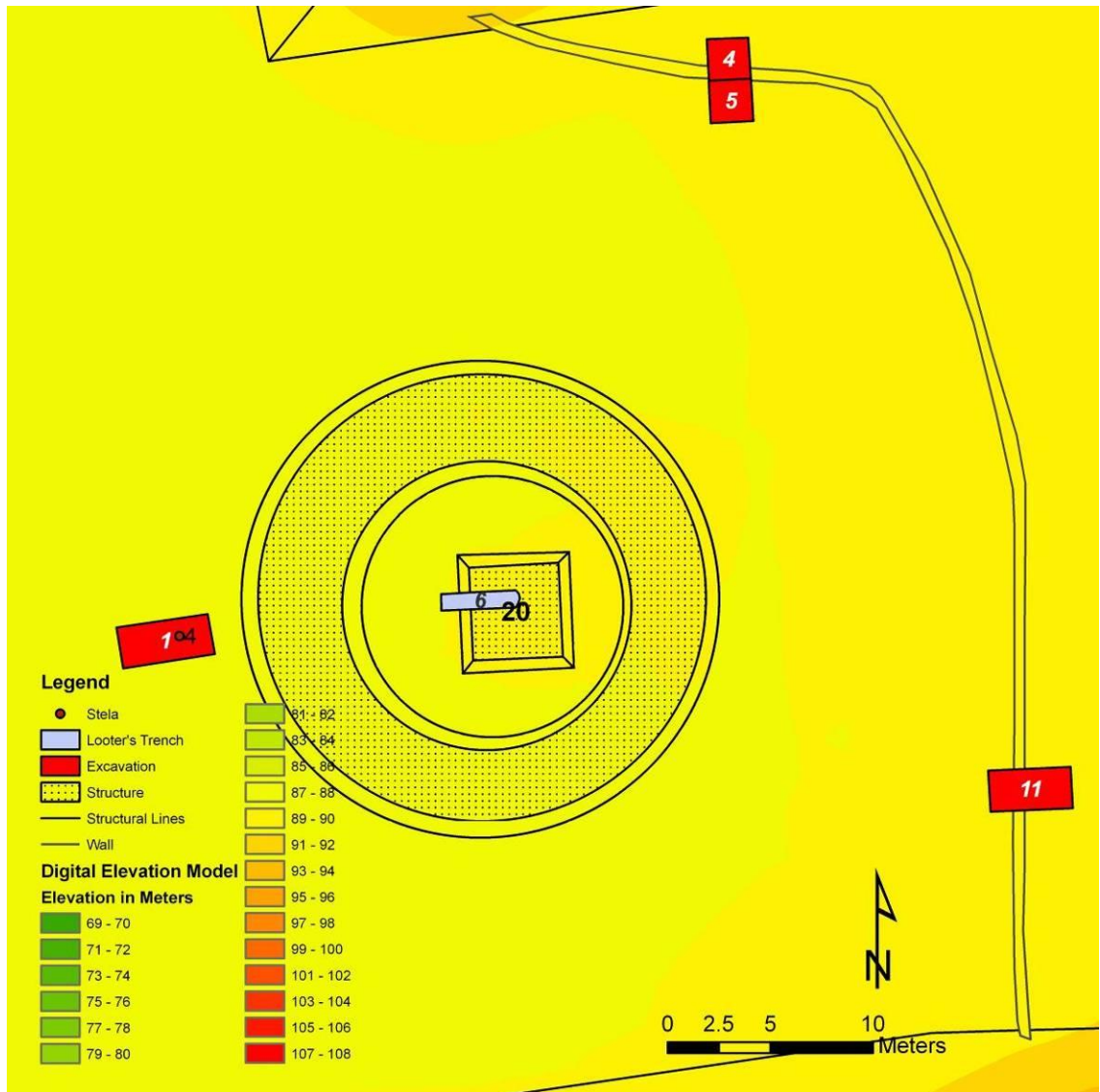


Figure 5.6: Map showing the locations of KOL.T.04, KOL.T.05 Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

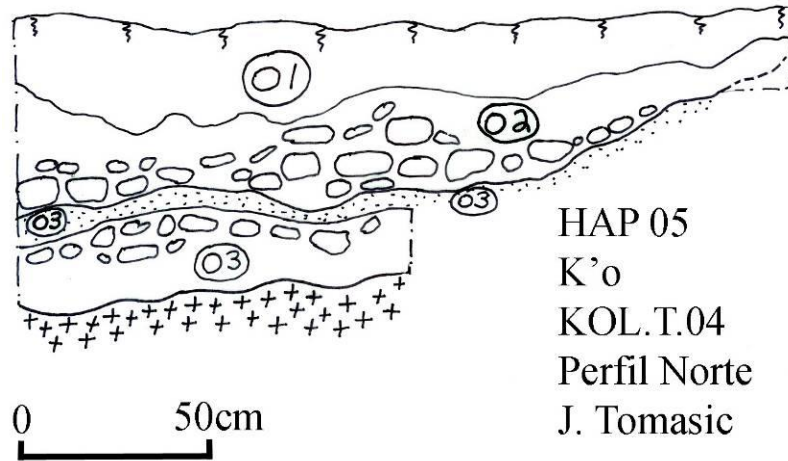


Figure 5.7: North profile of KOL.T.04.

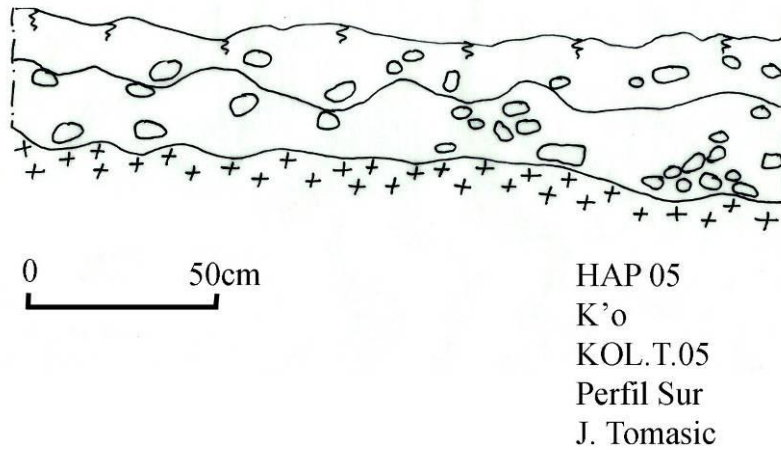


Figure 5.8: South profile of KOL.T.05.

that the floor in this area was destroyed by root action. Context 03 is a 1-x-1 meter area of the floor and subfloor in the northwest quadrant of KOL.T.04, and consists of 20 centimeters of construction directly atop bedrock. Context 03 in KOL.T.04 contains Late Preclassic and Late Classic ceramics.

Summary of Results:

Based on the stratigraphic relationship of the wall to the plaster floor, the wall was clearly constructed after the plaster floor, yet the time elapsed between the construction of the floor and the construction of the wall is uncertain, perhaps a number of years or perhaps a number of centuries. However, it is clear that the construction of the wall, whenever it may have occurred, was one of the final construction activities in this area of the site. Based on the excavations along another portion of the wall (KOL.T.11), construction of the entire wall most likely dates to the Late Classic or Terminal Classic.

KOL.T.06

This 2x2 meter excavation is located approximately 20 meters east of Structure 56 (Figure 5.9). The initial humus layer, assigned to Context 00, is approximately 15 centimeters in depth (Figure 5.10). Context 01 is approximately 1 meter in depth, and is composed of gravel and small stones. This context contained significant quantities of ceramics and chert, as well as a limestone barkbeater which may have been used in the manufacture of paper. Although no plaster floors were encountered in either Context 00 or Context 01, it seems likely that a plaster floor once existed between the two contexts and was destroyed by natural processes due to its proximity to the surface. Ceramics from Context 01 date from the Late Preclassic to the Terminal Classic, suggesting that this context may contain ceramics from different construction episodes, probably having been disturbed by tree roots. Context 02 is composed of an extremely well preserved 20 centimeter thick plaster floor which is located 110 centimeters below ground surface.

Ceramics from this context are eroded, and most likely date to the Late Preclassic. Beneath this plaster floor, Context 03 is a subfloor layer of gravel and small stones mixed with loosely compacted white sandy soil, and the ceramics from Context 03 date this context to the early facet of the Early Classic. Context 04 is a plaster construction layer and layer of large stones and loosely compacted white sandy soil beneath the construction layer which contained a large quantity of ceramics relative to the other contexts in this unit, and all of these ceramics date to the Late Preclassic. Context 05 is an area of tightly compacted claylike soil located in the eastern portion of the unit containing Late Preclassic ceramics, and the stratigraphic relationship between contexts 04 and 05 is unclear. Context 06 is an approximately 20 centimeter thick layer of dark, tightly compacted soil directly atop bedrock. No diagnostic sherds were recovered from this context.

Summary of Results:

As a result of this excavation, it appears that the bulk of the construction activity in this plaza area of the site core dates to the Late Preclassic and early facet of the Early Classic. Context 01 is problematic due to the fact that it is almost certainly a mixed context. However, the well dated subfloor fill in Context 03 can be used to date the construction of the plaster floor (Context 02), and the subfloor fill in Context 04 to the early facet of the Early Classic. Although the earliest datable context (Context 05) dates to the Late Preclassic, comparison with the securely dated early contexts within a nearby excavation (KOL.T.13) suggests this Late Preclassic context could possibly date to the early facet of the Early Classic.

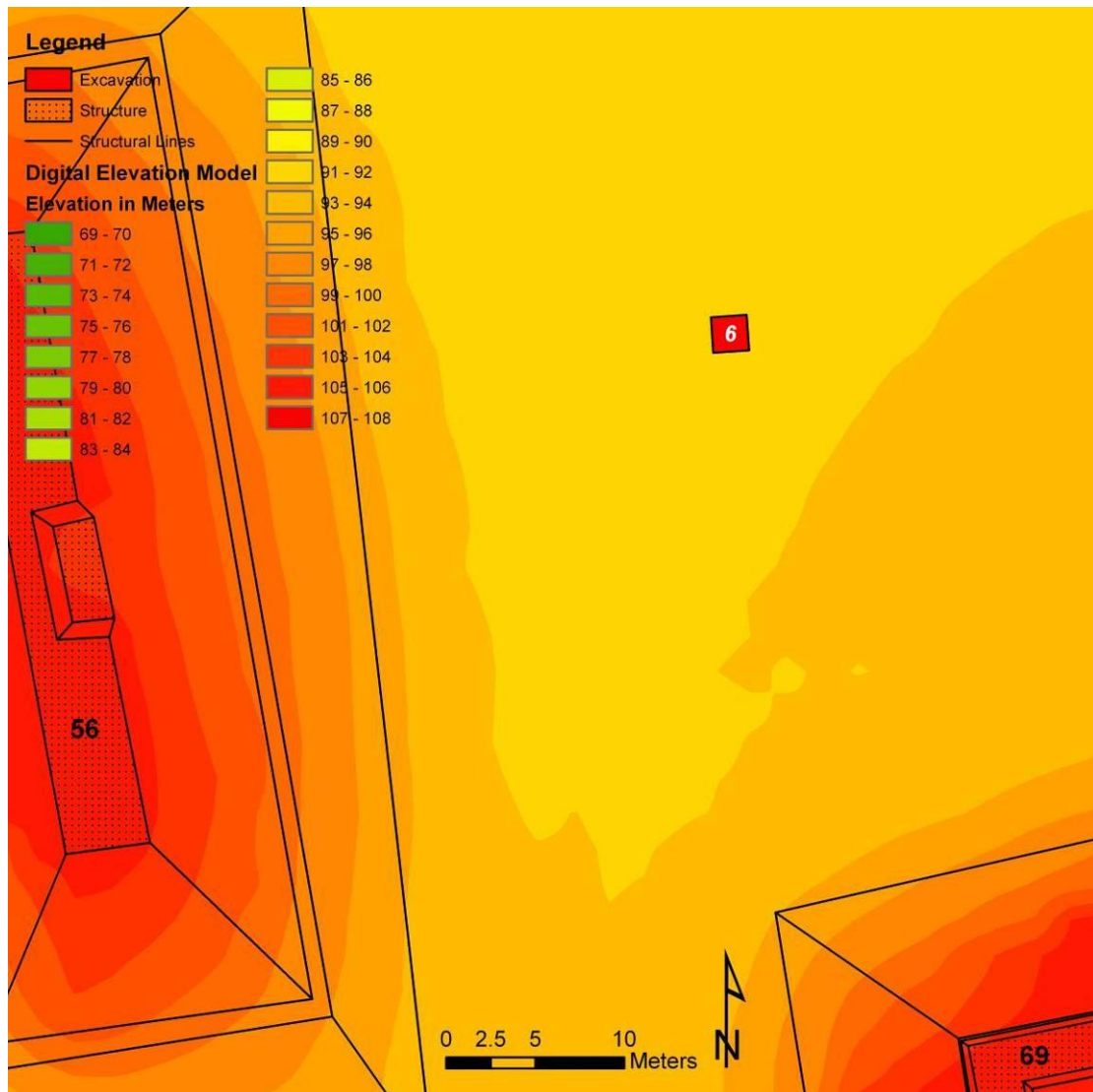
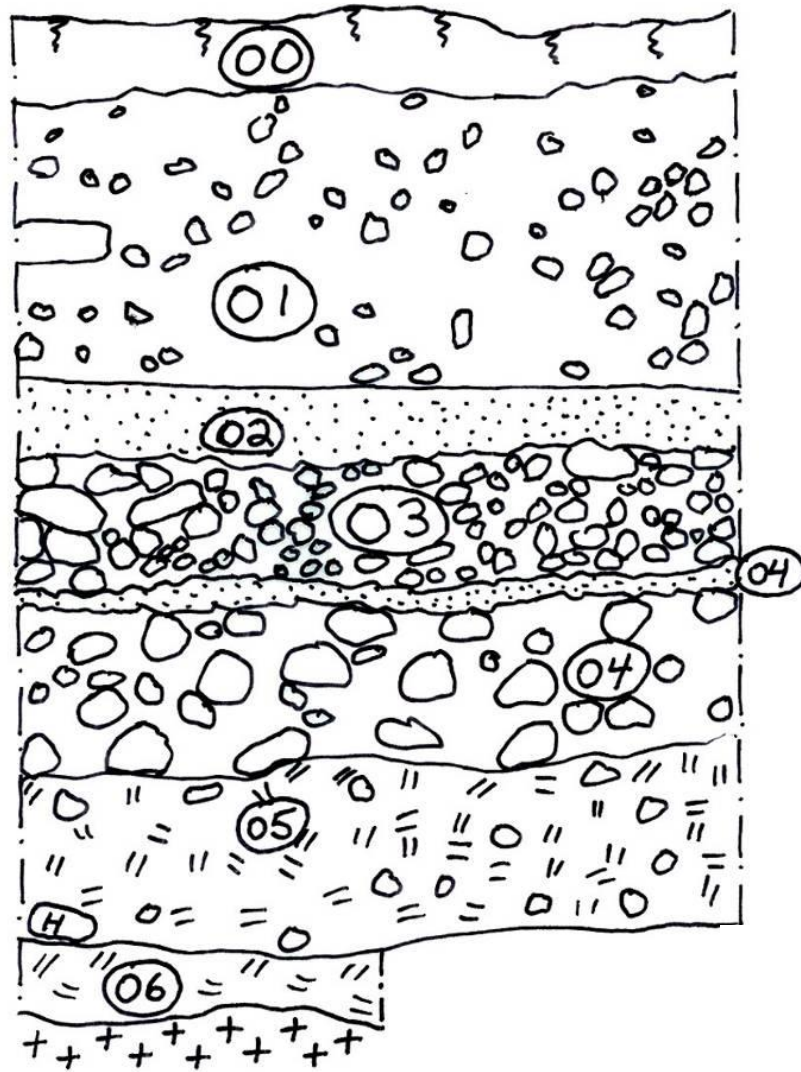


Figure 5.9: Map showing the location of KOL.T.06 Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.



0 1m

HAP 05
 K'o
 KOL.T.06
 Perfil Este
 J. Tomasic

Figure 5.10: East profile of KOL.T.06.

KOL.T.10

This 2x2 meter unit is located approximately 6 meters west of Structure 1 and Looters' Trench 1 (Figure 5.11). Context 01 consists of a 20 centimeter thick layer of humus and Context 02 is a layer of gravel fill and grayish brown sandy soil (Figure 5.12). The ceramics from Context 01 date from the Terminal Preclassic to the Late Classic. Context 02 most likely represents either a subfloor to a now destroyed plaster floor or a rustic floor of *piedrín*, and the ceramics from this context date this Context 02 to the Terminal Preclassic. Context 03 is a layer of construction fill of small and large stones mixed with grayish sandy soil containing Late Preclassic ceramics. Context 04, which contained Late Preclassic and Terminal Preclassic ceramics, is a layer of dark, tightly compacted claylike soil directly atop a layer of marl and bedrock.

Summary of Results:

As a result of this excavation, it appears that the bulk of construction activity in this plaza area of the site core dates to the Terminal Preclassic. The *piedrín* floor (Context 02) and the subfloor fill (Context 03) date to the Terminal Preclassic, and the latest ceramics recovered from Context 04 date this early context to the Terminal Preclassic.

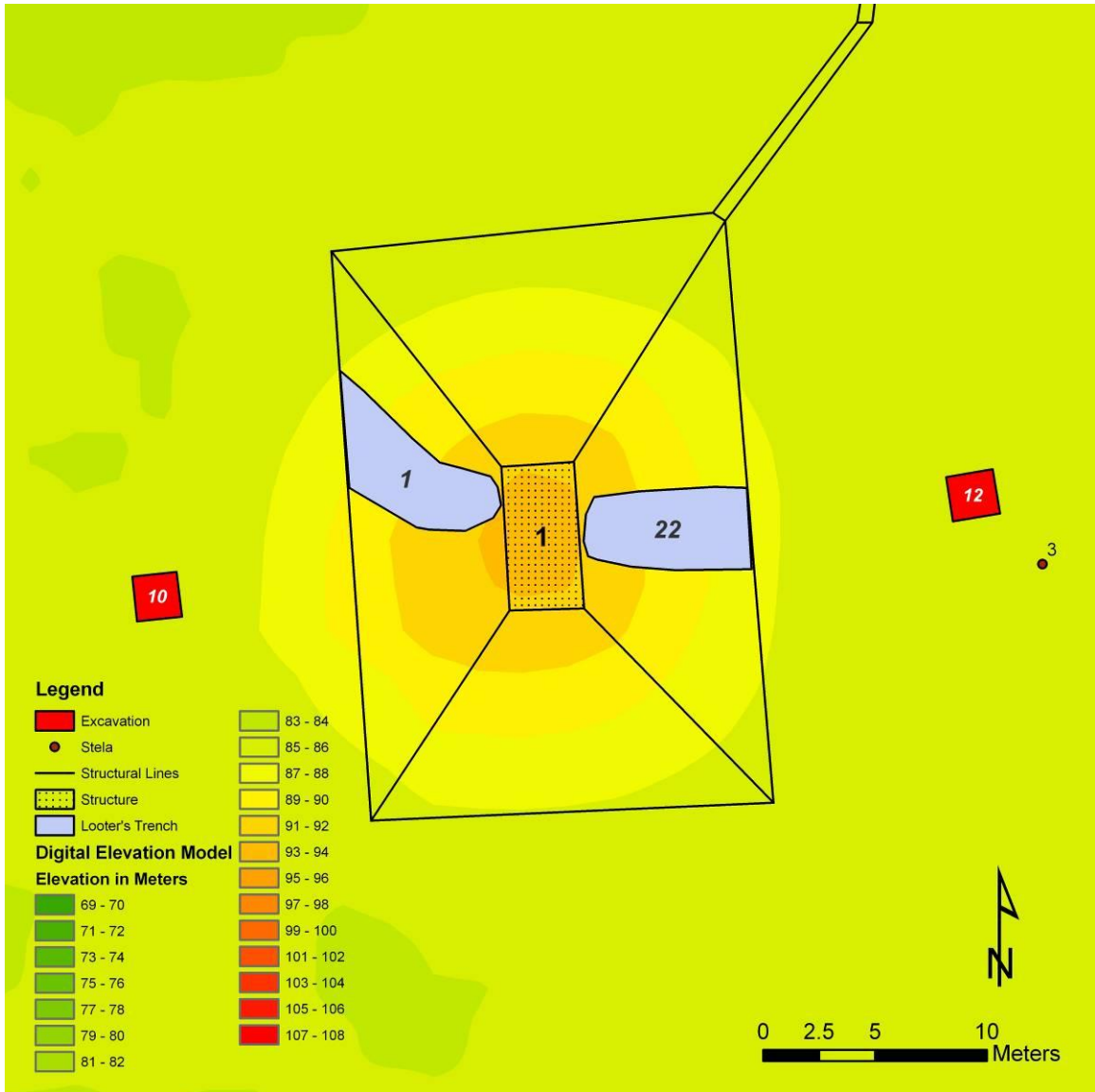


Figure 5.11: Map showing the location of KOL.T.10 and KOL.T.12 Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

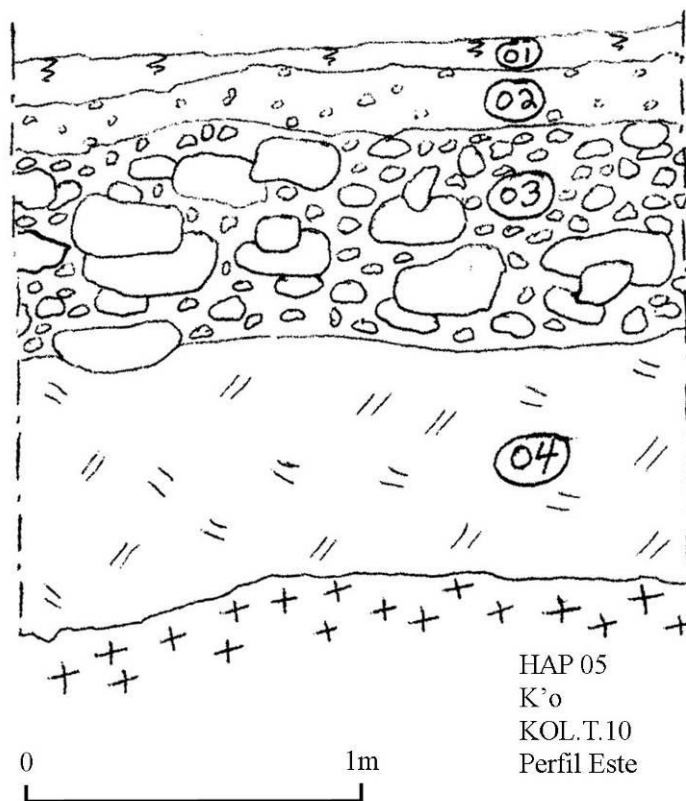


Figure 5.12: KOL.T.10 east profile.

KOL.T.11

KOL.T.11 is a 2x4 meter unit located across the eastern portion of a crude wall in the northeast corner of the K'o northern plaza, and is located approximately 20 meters east-southeast of Structure 20 (Figure 5.13). Context 01 consists of the humus layer atop the wall as well as the humus layer to the east and west of the wall (Figure 5.14). No large stones were removed within this context, and ceramics recovered from this context date to the Late Preclassic and the Late Classic. Context 02 consists of the stones from the wall itself, as well as all soil to the east and west of the wall. The wall consists of large and small roughly cut stones, and the stones are not joined by mortar or laid in any sort of formal pattern. Upon excavation, it became clear in the profile that Context 02

contained a lens of gravel fill which could have been a floor or subfloor, and the wall itself is most likely associated with this floor. Ceramics recovered from Context 02 date from the Late Preclassic to the Late Classic. Context 03 represents an earlier, well preserved plaster floor and gravel subfloor which was excavated in an area of 2x3 meters. Ceramics from Context 03 date to the Late and Terminal Preclassic. Context 04 is a 1x2 meter area consisting of a plaster construction layer and gravel fill, and the ceramics from this context date to the Terminal Preclassic and early facet of the Early Classic. Context 05 is a 1x2 meter area as well, and consists of a layer of highly compacted dark gray silty soil directly atop bedrock. The ceramics recovered from Context 05 date to the Late Preclassic and early facet of the Early Classic.

Summary of Results:

As a result of this excavation, it appears that the bulk of construction activity in this plaza area of the site core dates to the early facet of the Early Classic. The stratigraphic position of the wall in Context 02, combined with the ceramics recovered from this context, can be used to solidly date the construction of the wall to no earlier than the Late Classic.

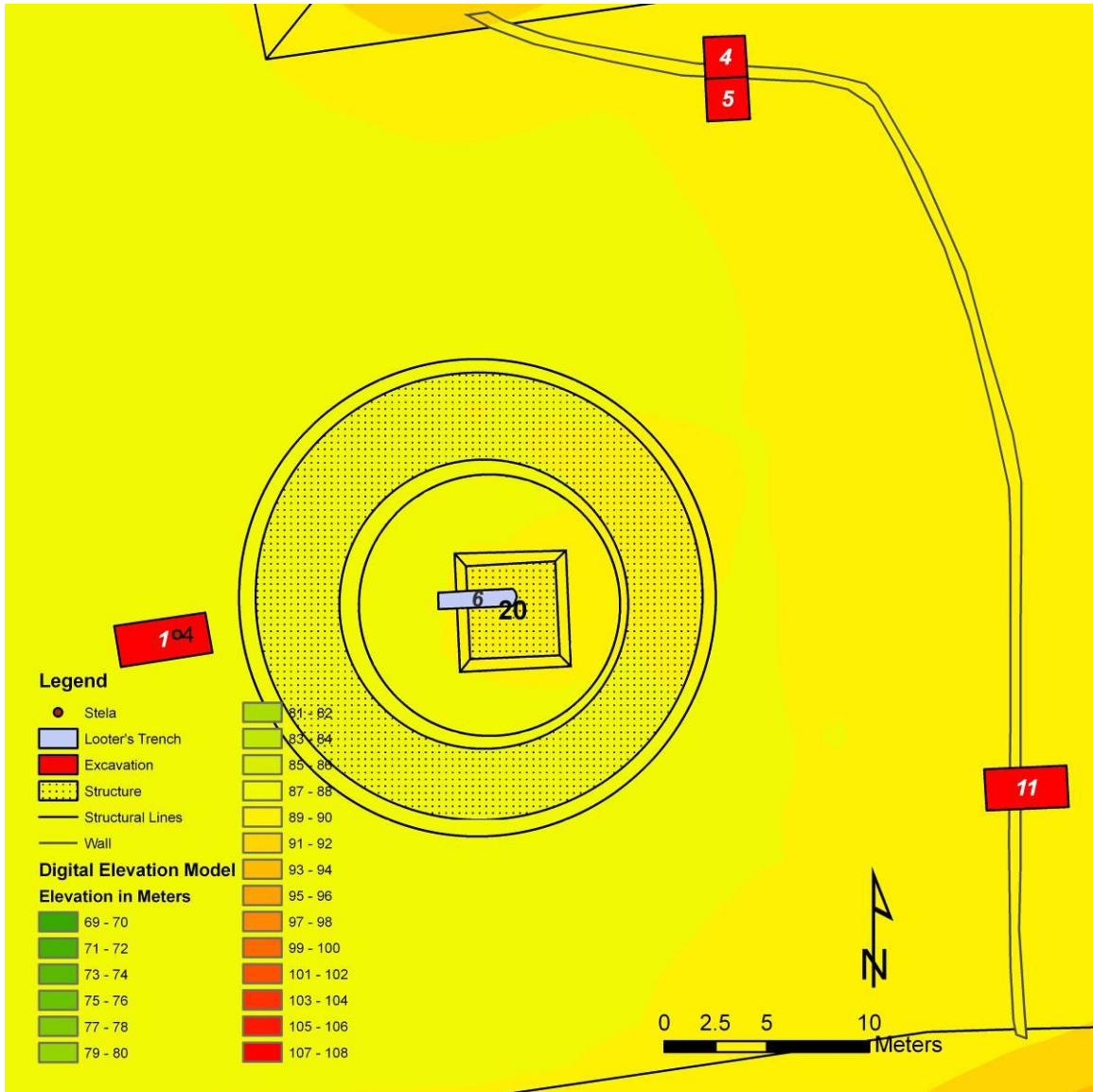


Figure 5.13: Map showing the location of KOL.T.11 Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

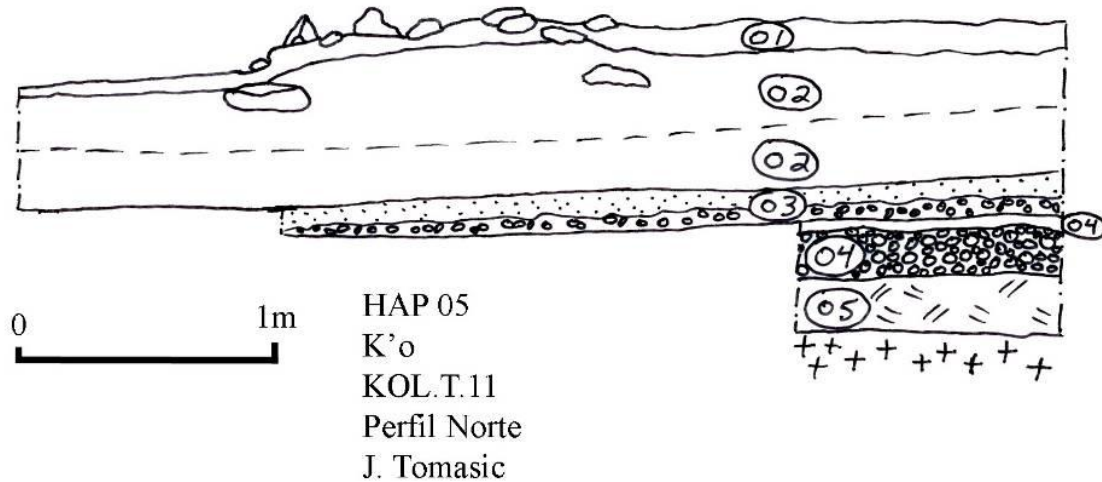


Figure 5.14: KOL.T.11 north profile.

KOL.T.12

This 2x2 meter unit is located approximately 10 meters east of Structure 1 (Figure 5.11). Context 01 consists of a relatively thin, 10 centimeter layer of humus with highly eroded ceramics (Figure 5.15). Context 02 consists of medium sized stones and bits of plaster which appear to represent stones and structural fill fallen from Structure 1 to the west. Ceramics within Context 02 are highly eroded, but may date to the Terminal Preclassic. Context 03 represents a thin layer of grayish brown silty soil atop a well preserved plaster floor, and the ceramics from this context are highly eroded. Context 04 represents the plaster floor as well as its gravel subfloor, and the ceramics from this context date to the Terminal Preclassic. Context 05 is a layer of dark gray silty soil directly atop bedrock, and the ceramics from Context 05 date to the Terminal Preclassic and early facet of the Early Classic.

Summary of Results:

As a result of this excavation, it appears that the approximately half of construction activity in this plaza area of the site core dates to the early facet of the Early Classic. The ceramics recovered from the earliest context date the construction of the plaster floor in Context 04 to the early facet of the Early Classic. Although the ceramics recovered from Context 02 contained what appear to be Terminal Preclassic ceramics, due to their poor preservation and the stratigraphic relationship between Contexts 01 and 02, these later contexts are dated to the Late Classic.

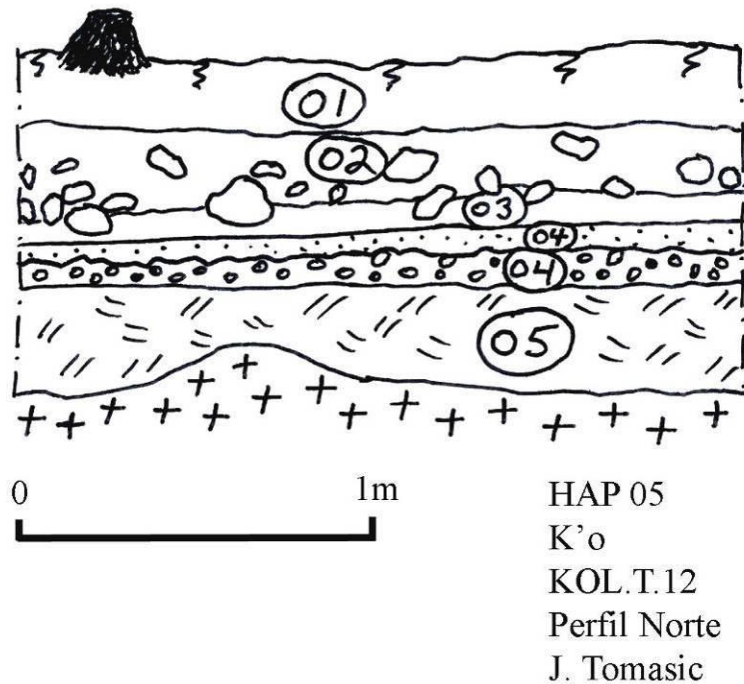


Figure 5.15: KOL.T.12 north profile

KOL.T.13

Unit 13 measures 2x2 meters, and is located 2 meters north of Structure 73 (Figure 5.16). Context 01 consists of the humus layer as well as a layer of brownish silty soil atop a plaster floor (Figures 5.17, 5.18). Ceramics from Context 01 date to the Early Classic and early facet of the Late Classic. Context 02 consists of a plaster floor as well as its gravel subfloor, and the ceramics from Context 02 date this context to the late facet of the Early Classic. Context 03 consists of a second plaster floor, thicker and better preserved than the floor in Context 02, as well as a loose gravel subfloor. Ceramics from Context 03 date to the Terminal Preclassic and the early facet of the Early Classic. Context 04 consists of a third plaster floor and subfloor, slightly thinner than but equally as well-preserved as the floor in Context 03, and the ceramics from this context date to the Terminal Preclassic and early facet of the Early Classic. Context 05 consists of two plaster construction layers and the layers of loose gravel fill between them the ceramics from this context also date to the Terminal Preclassic and early facet of the Early Classic. Context 06, excavated in a 1x2 meter area, is a layer of gray, tightly compacted silty soil directly atop bedrock, and the ceramics from this context also date to the Terminal Preclassic and early facet Early Classic. Unlike the layers of dark soil encountered in other Phase 1 excavations, the soil within Context 06 contained a number of large stones, and the context continued for more than a meter in depth before encountering bedrock.

Summary of Results:

As a result of this excavation, it appears that the bulk of construction activity in this plaza area of the site core dates to the early facet of the Early Classic. The ceramics

recovered beneath each of the plaster floors date the two earliest floors to the early facet of the Early Classic, and the latest floor dates to the late facet of the Early Classic.

Although the earliest contexts within this excavation contain Late Preclassic ceramics, the presence of ceramics dating to the early facet of the Early Classic must date these early contexts to the early facet of the Early Classic as well.

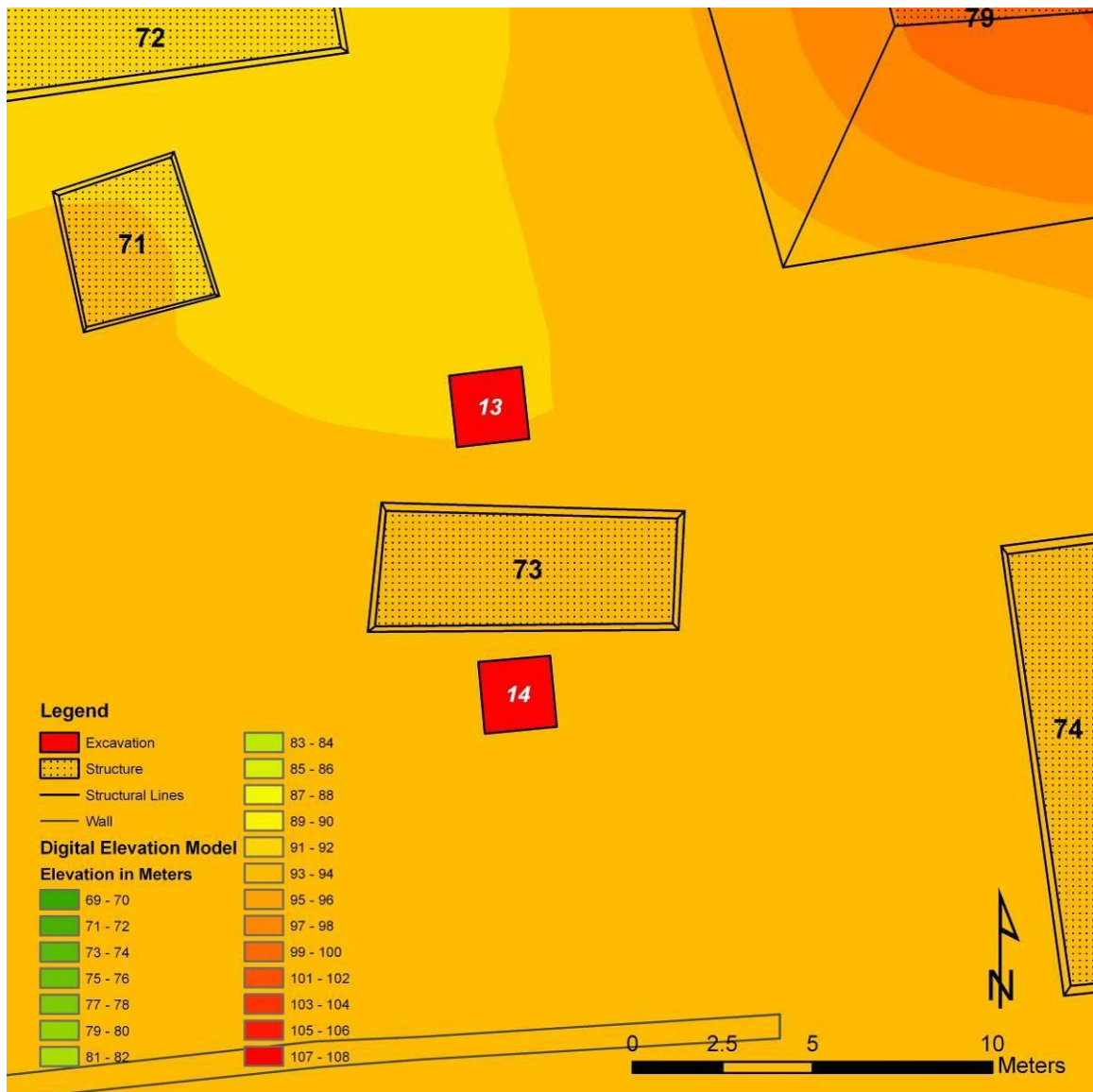


Figure 5.16: Map showing the locations of KOL.T.13 and KOL.T.14 Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

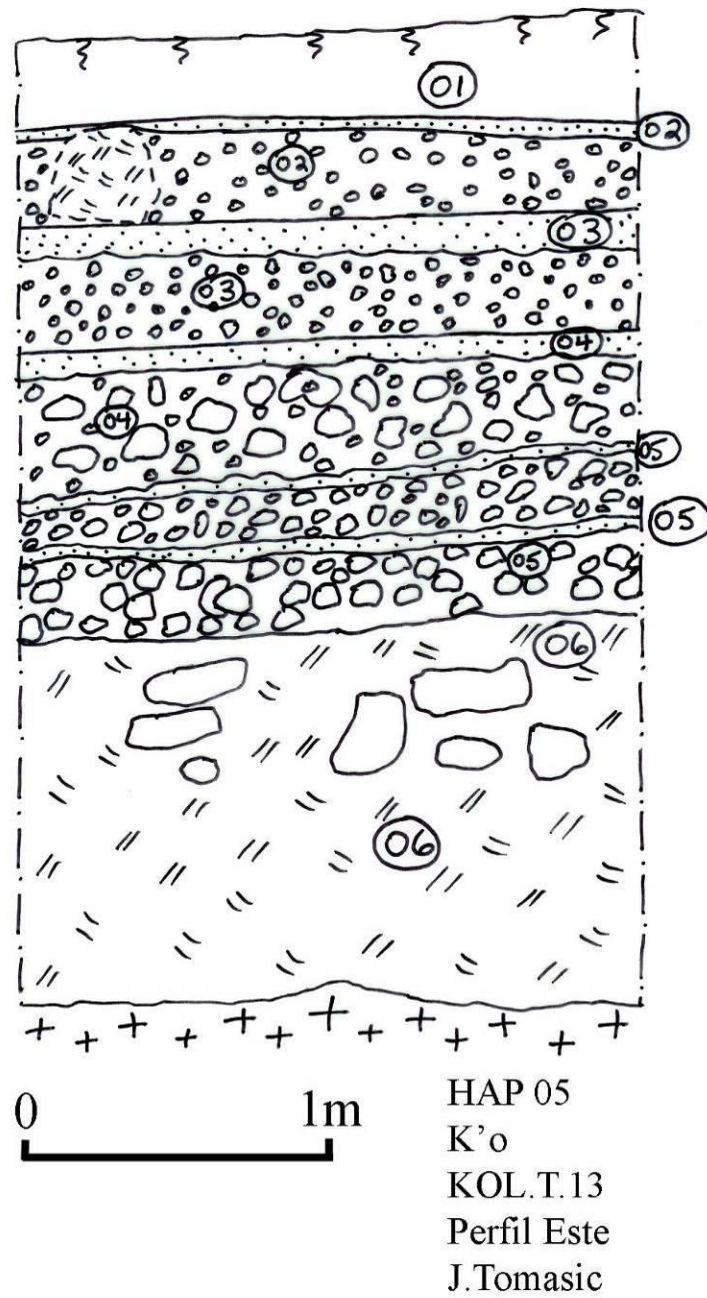


Figure 5.17: KOL.T.13 east profile.

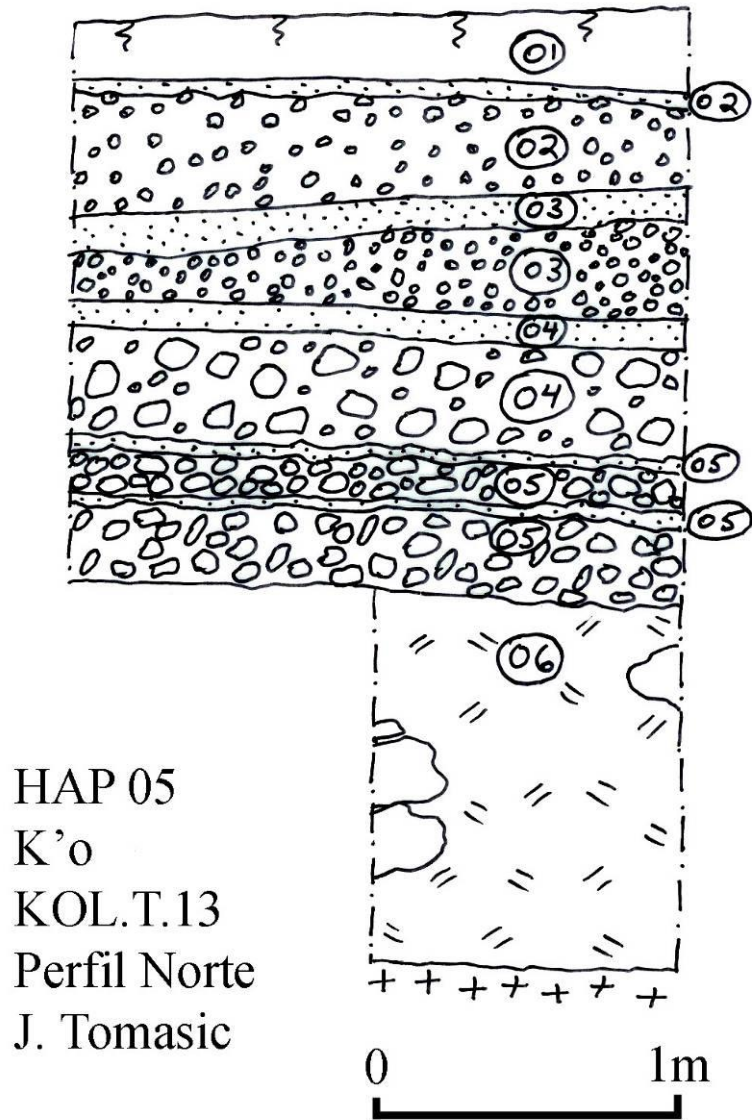


Figure 5.18: KOL.T.13 north profile.

KOL.T.14

This 2x2 meter unit is located 1 meter south of Structure 73 (Figure 5.16). Context 01, the only context assigned to KOL.T.14, is a layer of humus and brownish silty soil atop a plaster floor (Figure 5.19). Interestingly, the artifacts recovered in this context include a large quantity of chert debitage and microdebitage, which could suggest that this area was associated with the manufacture of stone tools. Ceramics recovered from Context 01 date to the Late Classic. Due to the fact that excavations did not continue beyond Context 01, little can be said regarding earlier phases of construction beneath Context 01.

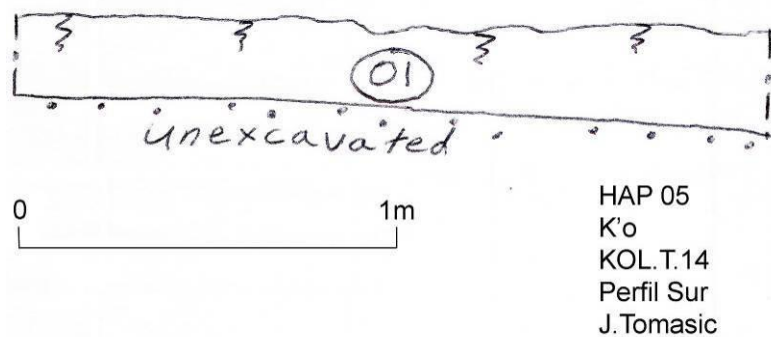


Figure 5.19: KOL.T.14 south profile.

Salvage Excavations in Looters' Trenches

KOLL.03

This looter's trench is located on the eastern side of Structure 94, approximately five meters to the north of the building's east-west axis (Figure 5.4). No formal excavations were conducted in association with this looter's trench, but our investigations of the profiles of this trench allowed us to document the construction phases of Structure 94 (Figure 5.20). For example, Context 01 is a layer of structural fill within an earlier room, the walls of which are assigned Context 02. Context 03 is a well preserved plaster floor upon which the wall in Context 02 is placed. Contexts 05, 07 and 09 are plaster construction layers within the structure, and Context 11 appears to be a plaster floor associated with an earlier phase of construction. Finally, Context 13 and Context 15 are plaster construction layers, similar in form to those found in Context 05, Context 07, and Context 09.

KOLL.04

KOLL.04 investigated Looter's Trench 6, the axial trench into Structure 20, the circular structure in the site's northern plaza (Figure 5.21). Based on the ceramics obtained from a 2003 excavation of a plain stela and altar in front of Structure 20, the structure appeared to have been in use during the Late Classic and Terminal Classic periods. The looter's trench was cleaned and documented in order to clarify the timing of construction of this building.

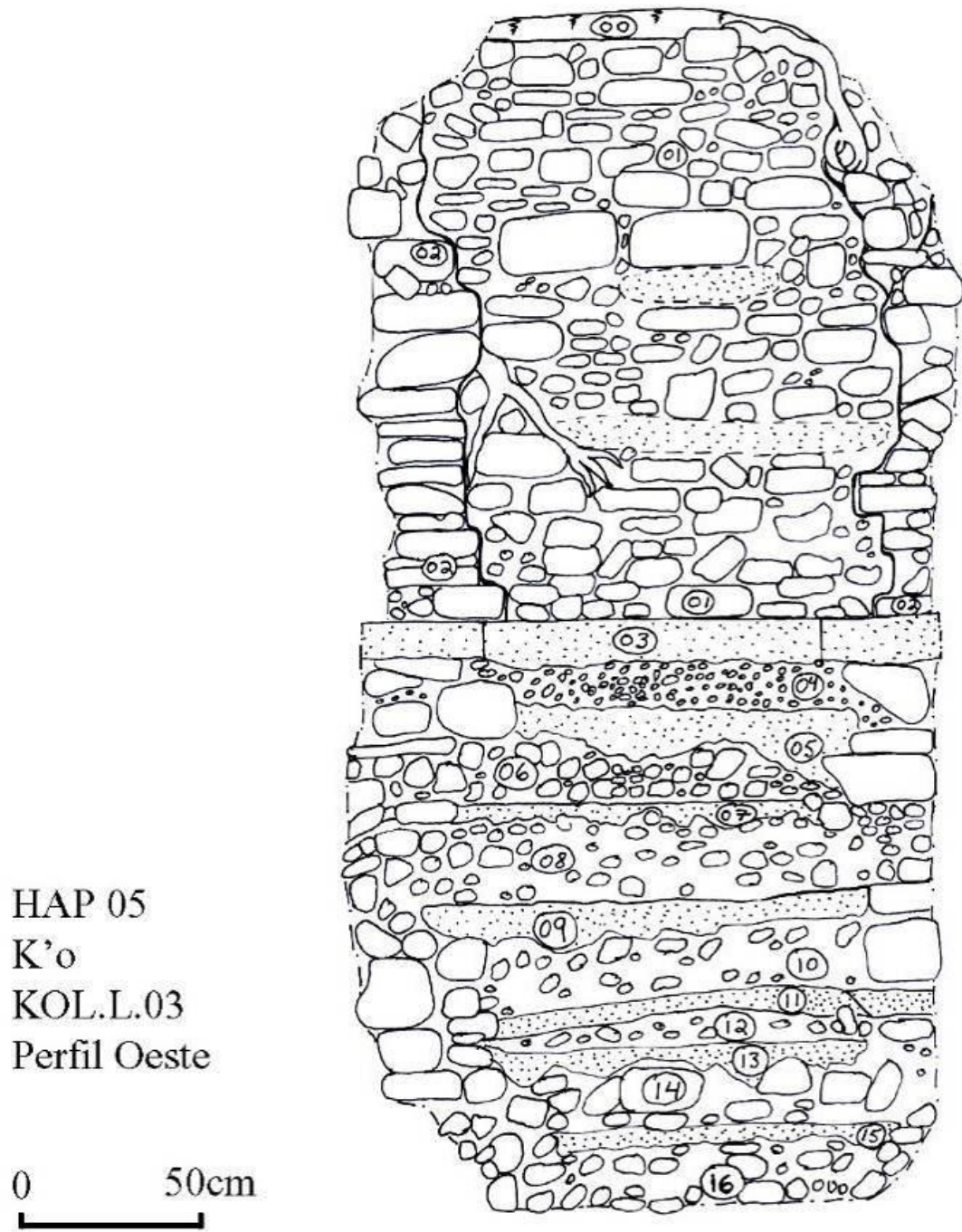


Figure 5.20: West profile of KOL.L.03.

Although the form of this structure (Figure 5.22) is unique in the Holmul Region, it is similar to Terminal Classic structures found at a number of sites in the Maya Lowlands. For example, Terminal Classic circular shrines are fairly common in the Sibun River Valley of Belize, and stone altars and stelae are usually associated with these structures (Harrison-Buck 2004). Specifically, at the Sibun River Valley site called the Oshon Site, a similar structure was recently excavated, and it has been dated to the Terminal Classic (Harrison 2003). In fact, the vast majority of circular structures reported in the Maya Lowlands have been dated to the Terminal Classic (Chase and Chase 1982; Pollock 1936; Ringle et al. 1998).

In addition to similarities in form, Structure 20's location in the northern plaza of K'o is similar to the locations of Terminal Classic structures in sites throughout the Maya lowlands. Bey et al. (1997) have argued that Terminal Classic structures were placed in previously open plaza areas, transforming the focus of public spaces, and furthermore that "*the canons covering the traditional use of space were breaking down*" (1997: 250) during the Terminal Classic. In this context, the somewhat haphazard placement of K'o Structure 20 in the site's northern plaza (Figure 5.1) suggests Structure 20 is similar in location to the Terminal Classic structures described by Bey et al. (1997).

As a first step in the excavation of the Structure 20 looter's trench, all of the looter's backdirt within the trench was removed and screened. During the removal of the looter's backdirt from the cut of the looter's trench (Context 00), an extremely large amount of ceramics were recovered (Figures 5.23, 5.24). These ceramics date almost exclusively to the Late and Terminal Classic period. Following the removal of the looter's backdirt and the exposure of contexts undisturbed by looters, a 1.5 meter x 70

cm. area within the looters trench was excavated to bedrock. Context 01 is a layer of gray sandy soil with pebble inclusions, and the ceramics from this context date to the Late Classic. Context 02 is a layer of dark brown sandy soil containing an extremely large quantity of Late Classic ceramics. These ceramics are located atop Context 03, a plaster floor. Context 04 is a cut in the plaster floor, and it is unclear whether the cut is a result of some ancient activity or a modern looting activity. Context 05 is a layer of brown sandy subfloor fill, and the ceramics from this context date to the Late Preclassic and Late Classic. Context 06 is a layer of dark brown clay atop bedrock, and the ceramics from this context date to the Late Classic.

Results of Excavation:

As a result of this excavation, at least two Late Classic period construction phases are evident, and the building appears to have been in use through the Late and Terminal Classic periods. The thick midden of ceramics atop the plaster floor is interpreted as evidence of a Late Classic termination ritual associated with the penultimate phase of construction (Context 03).

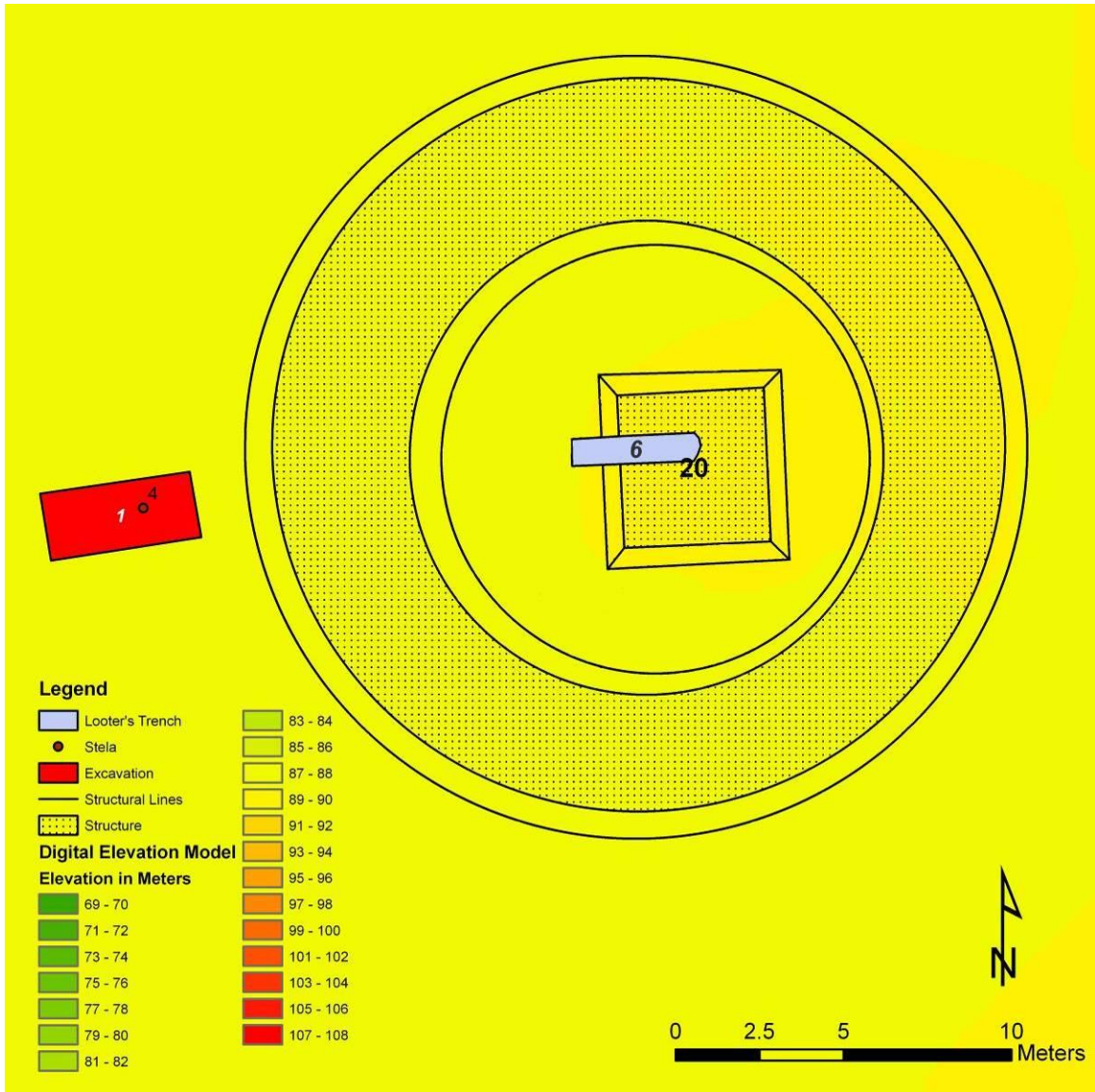


Figure 5.21: Map showing the location of KOL.L.04 - Looter's Trench 6 Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

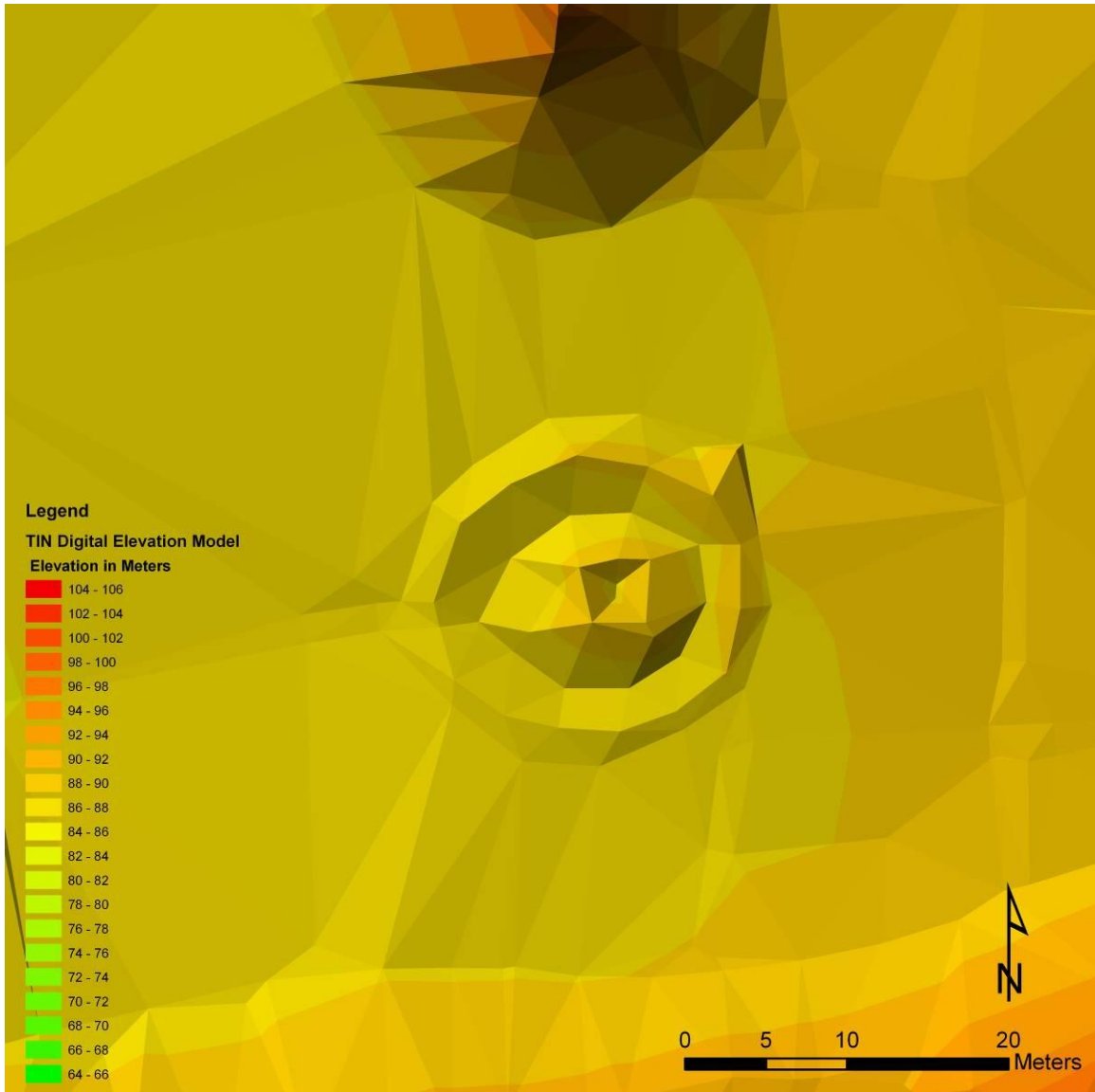


Figure 5.22: Triangulated Irregular Network Digital Elevation Model of Structure 20. Survey by the author, map created by the author in ArcGIS 9.



Figure 5.23: North profile of KOL.L.04 - Looter's Trench 6.

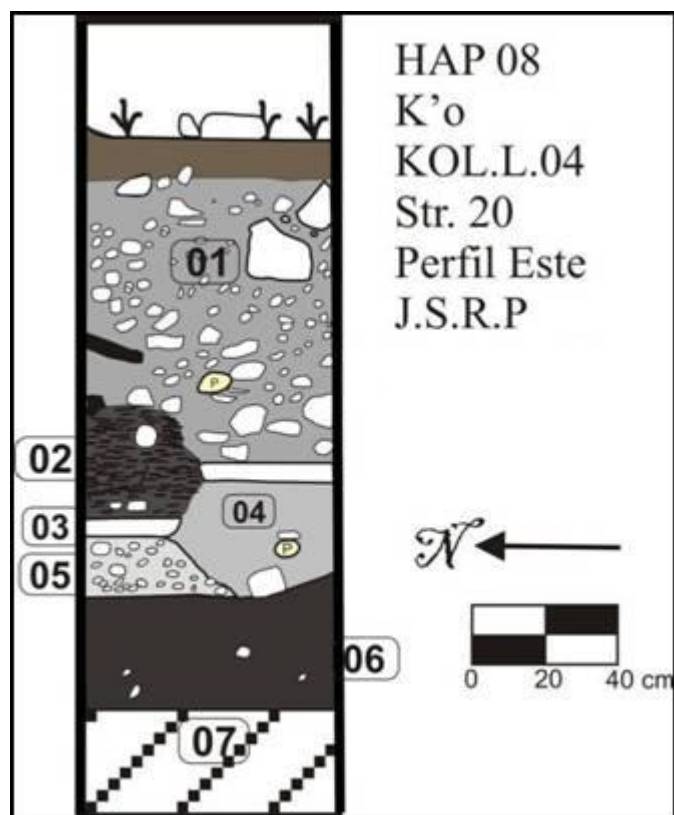


Figure 5.24: East profile of KOL.L.04 – Looter’s Trench 6.

KOL.L.10

KOL.L.04 investigated Looter’s Trench 20, located on the western end of Structure 69 (Figure 5.25). Structure 69 is composed a long, ten meter high range structure topped by a series of what appear to be vaulted rooms forming three distinct courtyards. The form and layout of the architecture of Structure 69 suggests the building functioned as a palace (Ball and Taschek 2001:168-169). The looter’s trench on the west side of the palace was cleaned and documented in order to clarify the timing of construction of this building, and to document potential evidence of multiple construction phases.

Context 00 is composed of looters' backdirt within the confines of the trench. Following the removal of Context 00, excavations were continued within an area measuring 1.6 meters by 60 centimeters in the eastern end of the looter's trench (Figure 5.26). Context 01 is composed of construction fill and plaster construction layers, and the ceramics from Context 01 date to the Terminal Preclassic and early facet of the Early Classic. Context 02 is a thick layer of plaster which appears to have been an especially thick plaster construction layer. Context 03 is a layer of construction fill beneath Context 02, and the ceramics from this context date to the Early Classic.

Summary of Results:

Based on the ceramics recovered from this looter's trench, it appears that the final phase of the K'o palace was built no earlier than the Early Classic. No Late Classic ceramics were recovered from this excavation, suggesting that the final phase of the palace's construction most likely dates to the Early Classic. This date is consistent with the data obtained from the Phase 1 excavations in plaza areas, supporting the interpretations made regarding the early peak in construction activity and a subsequent decline in construction activity during the Late and Terminal Classic (described below).

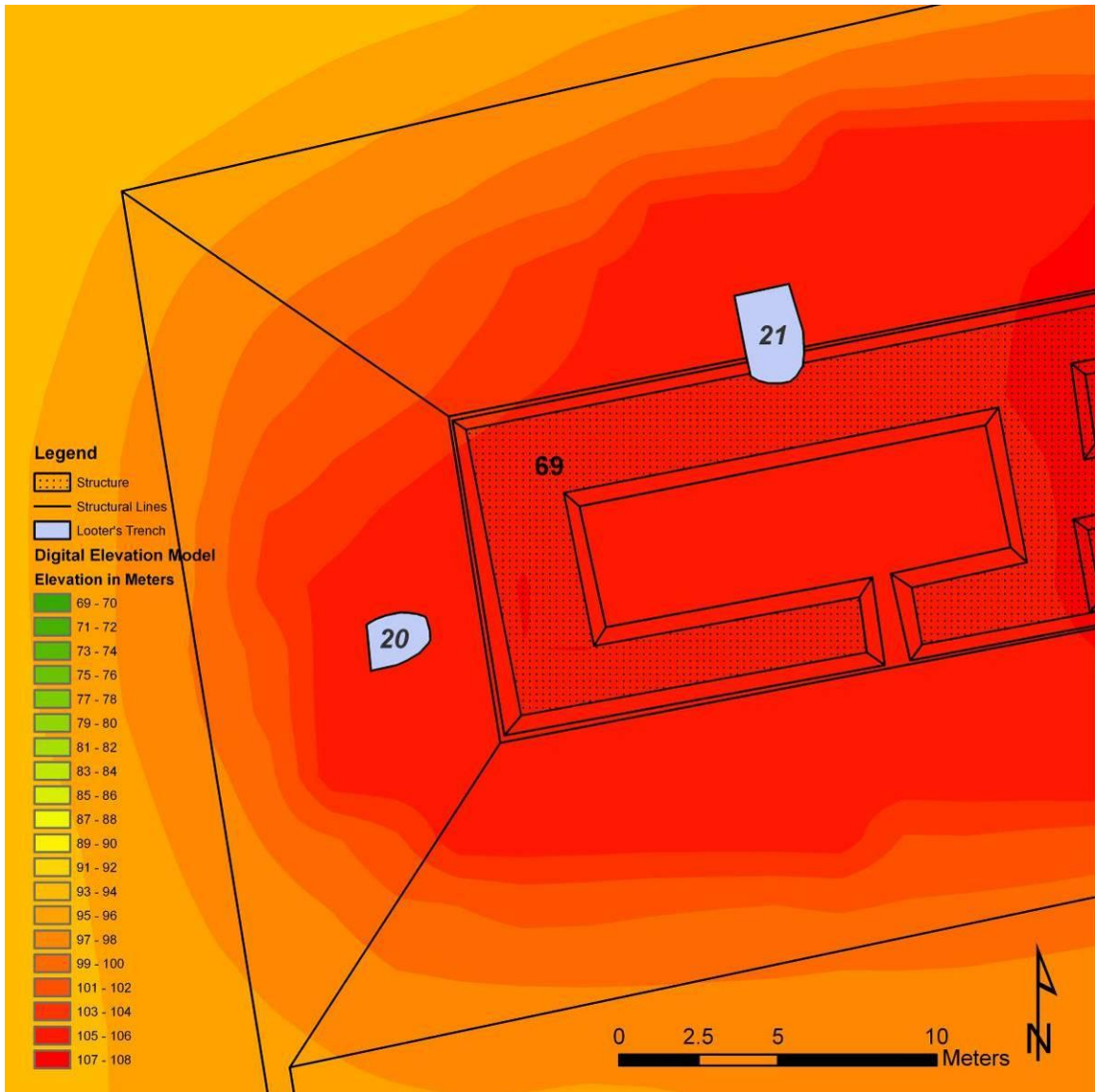


Figure 5.25: Map showing the location of KOL.L.10 - Looter's Trench 20 Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

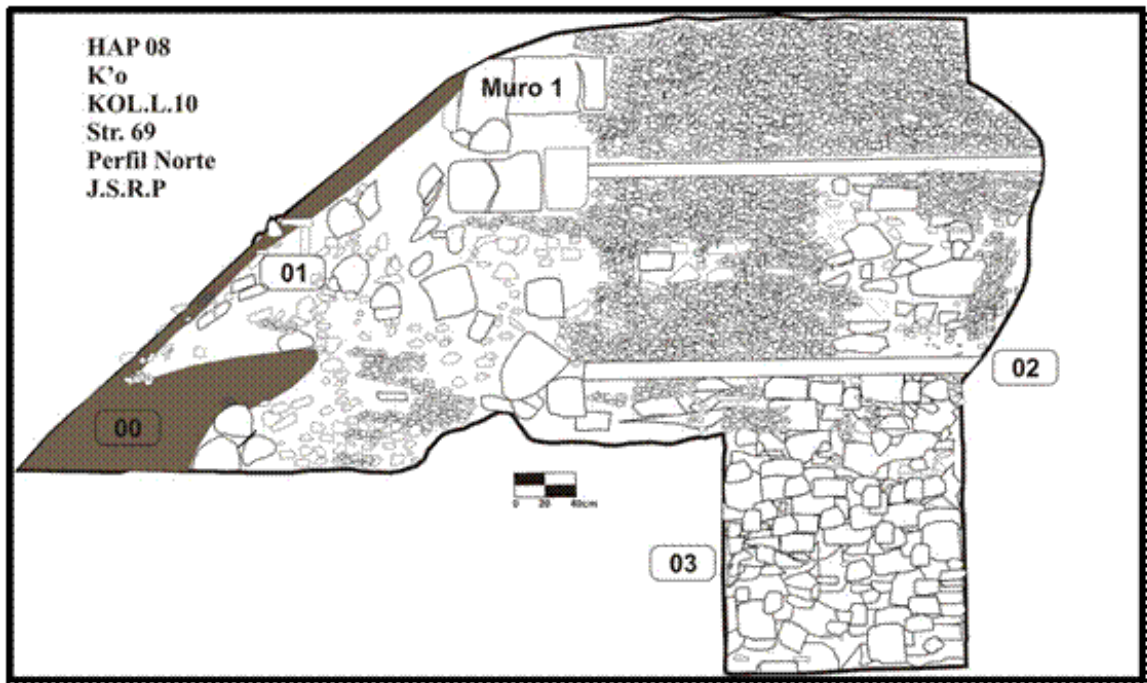


Figure 5.26: North Profile of KOL.L.10 – Looter’s Trench 20

General Summary of Phase 1 Excavations

The Phase 1 excavations in plaza areas of the site core, combined with the salvage excavation of looters trenches in the site core, have greatly clarified the occupational history of the site and the construction history of the site’s public architecture. The data generated from these excavations demonstrates that K’o was occupied at least as early as the Late Preclassic through the Terminal Classic. Furthermore, it is clear that the majority of construction activity occurred relatively early in the history of the site. Finally, the excellent stratigraphic control of the artifacts recovered during the Phase 1 excavations has allowed me to employ the data generated from the Phase 1 excavations as a long-term estimation of elite power.

Estimating Power

This research employs a definition of power as “*the ability to direct the actions of others (Urban et al. 2002:132)*”. Following Trigger (1990), I view monumental public architecture as “the most enduring statement of power that a ruler could hope to make (126).” Monumental public architecture is a physical expression of elite power (Abrams 1994; Carelli 2004; Loten 2003; Payne 2002), a tangible representation of *power over* (Miller and Tilley 1984) and a demonstration of the size of the leader’s following and the number of workers the leader can mobilize (Rathje 2002).

Throughout Mesoamerica, increases in the overall volume of monumental architecture have been associated with general increases in power (Abrams 1994; Loten 2003; Schortman and Urban 2004; Sugiyama and Castro 2007; Tourtellot 1988; Turner et al. 1981), and periods of decreased building activity have been correlated with declines in power, such as during the Classic period “Hiatus” at Tikal (Martin and Grube 2008; Moholy-Nagy 2003a).

Clearly, estimating power based on the timing of construction of public architecture could be problematic when considering public architecture in the United States. For example, Washington, DC contains many buildings whose construction dates to the nineteenth century, and it would be inaccurate to suggest that the nineteenth century was a peak period of power in the United States. However, unlike the United States as well as most ancient civilizations, lowland Maya architecture tended to grow vertically, rather than horizontally, through historical accretion (Webster 1998:21). In general, lowland Maya public buildings were characterized by relatively short life-spans, and the construction history of lowland Maya sites is quite different from the construction

history of modern cities like Washington, DC. In general, Maya architecture shows a preference for regularly remodeling major buildings by destroying and burying older buildings beneath new construction episodes. As a result, these successive construction phases can create a long-term, stratigraphic record of the construction history of a site (Webster 1998:15-16).

Volumetric Assessment of Power at K'o

As a result of the Phase 1 excavations and the salvage excavation of looters trenches, it is clear that the site's occupation began during the Preclassic period and continued through the Terminal Classic. In addition, it is equally clear that the bulk of construction activity occurred relatively early in the history of the site. In order to arrive at a more precise estimate of construction activities over time, a volumetric approach has been used to quantify the volume of excavated materials from each excavation.

Volumetric assessments of architecture have been successfully employed in Mesoamerica as an objective, quantitative method of estimating levels of elite power (Smith 1994; Tourtellot 1988; Turner, Turner, and Adams 1981), and within the Maya Lowlands a variety of energetic and volumetric studies have demonstrated a correspondence between construction episodes of public architecture and estimates of elite power (Abrams 1994; Carelli 2004; Tourtellot 1988; Turner, Turner, and Adams 1981).

In addition to volumetric assessments, a number of scholars have employed the method of architectural energetics in estimating elite power. Archaeological energetics quantifies construction cost by translating a measurement of architectural volume into a

measurement of the labor cost involved in construction (Abrams 1994; Carelli 2004; Rosenswig and Masson 2002). For example, Carelli (2004) arrives at a quantified assessment of royal power at Copan through the study of energetics in public architecture, quantifying the amount of labor invested in building the acropolis architecture at various times in the history of the Copan polity. Although energetics is in some ways preferred over volumetrics, energetic assessments of architecture at Copan are aided by more than a decade of intensive research and tunneling operations in the Copan acropolis (Fash 2001). In the end, the choice of energetic vs. volumetric assessments is dependent upon two factors - the quality of the data as well as the research questions to be addressed (Abrams 1994). Based on both of these factors, a volumetric assessment is preferred as a method of providing a general estimation of power at K'o in an objective and quantifiable manner.

As can be seen in Table 5.1, I have volumetrically assessed a series of excavations within each of the major plazas at K'o. Furthermore, the volume of excavated materials within each excavation has been subdivided according to Late Preclassic (350 BC-AD 250), Terminal Preclassic (AD 150-250), early facet Early Classic (AD 250-350), middle and late facet Early Classic (AD 350-550), and Late/Terminal Classic (AD 550-900) chronological periods, based on the Holmul Region ceramic chronology established by Callaghan (2008). This volumetric assessment demonstrates that, on average, 19 percent of the volume of excavated materials can be securely dated to the Terminal Preclassic (AD 150-250), and 49 percent of the volume of excavated materials can be securely dated to the early facet of the Early Classic (AD 250-350). Together, 68 percent of the volume of excavated materials can be securely dated to a roughly 200 year period of time during

the Terminal Preclassic and early facet of the Early Classic (AD 150-350). Only 26 percent of the volume of excavated materials date to the subsequent 550 years during the middle and late facet Early Classic and the Late and Terminal Classic (AD 350-900).

Despite the obvious peak in construction activity during the Terminal Preclassic and early facet of the Early Classic, it should be mentioned that the volumetric assessment employed at K'o is a general one. The excavations upon which the volumetric assessment is based are located within plaza areas, and it is extremely difficult to make more precise estimates of power without controlled excavations of construction fill within actual public buildings. Despite the evidence from looter's trenches in the site core which supports the evidence of a Terminal Preclassic and early facet of the Early Classic peak in construction activity, it must be admitted that future tunneling excavations within public buildings could potentially reveal major construction activity dating to the Late Classic and Terminal Classic periods (AD 550-900). This would be unlikely because it would be wholly inconsistent with the plaza floor sequence at K'o, yet this would be consistent with the construction histories of most other sites in the Lowlands which exhibit a large Late Classic buildup.

Based on this volumetric estimate, it is both reasonable and accurate to say that public architectural construction at K'o began during the Late Preclassic (350 BC-AD 250) and that construction activity peaked during the Terminal Preclassic (AD 150-250) and early facet of the Early Classic (AD 250-350). During subsequent periods (AD 350-900) the site was occupied and enlarged, yet to a lesser degree compared to during the Terminal Preclassic and early facet of the Early Classic

(AD 150-350). This general volumetric assessment of public architectural construction activity serves as a general estimate of long-term levels of elite power, and serves as a basis for comparison with long-term assessments of wealth.

Table 5.1: Volumetric assessment of plaza area excavations. Ceramic determinations by Holmul Project ceramicist Michael Callaghan (Michael Callaghan, Personal Communication 2005), and ceramic phases are based on Callaghan's ceramic chronology for the Holmul region (Callaghan 2008:114).

Excavation Number	Late Preclassic 350BC-AD 250 <i>Itzamkanak</i>	Terminal Preclassic AD 150-250 <i>Wayaab (Subcomplex)</i>	early facet Early Classic AD 250-350 <i>K'ahk 1</i>	middle and late facet Early Classic AD 350-550 <i>K'ahk 2-3</i>	Late/Terminal Classic AD 550-900 <i>Chak, Ik-Chuah, Kisim</i>
02		4m ³ (87%)		.60m ³ (13%)	
03	.6m ³ (9%)		5.1 m ³ (77%)		.9 m ³ (14%)
06	2.56 m ³ (23%)		4.6 m ³ (41%)		4.08 m ³ (36%)
10		6.40 m ³ (94%)			.40 m ³ (6%)
11			4.96 m ³ (53%)		4.48 m ³ (47%)
12			2 m ³ (51%)		1.92 m ³ (49%)
13			10.40 m ³ (80%)	1.16 m ³ (9%)	1.4 m ³ (11%)
Total Volume and Percent	3.16 m ³ (6%)	10.4m ³ (19%)	27.06m ³ (49%)	1.76m ³ (3%)	13.18m ³ (23%)

CHAPTER VI

PHASE II STRATIFIED RANDOM SAMPLE OF EXCAVATION UNITS

During the 2007 season, the stratified random sample of excavation units provided critical information related to settlement, chronology, and long-term patterns in the distribution of wealth at K'o (Tomasic et al. 2008). One hundred sixty domestic structures clustered into 39 patio group domestic architectural units (Ashmore 1981) were identified and mapped, and a number of these domestic structures were excavated as part of a stratified random sampling strategy (Shennan 1997). This chapter describes the methodology used to select areas to excavate during Phase 2, and presents the results of each of these excavations.

Stratified Random Selection Methodology

Although a simple random sample of blocks could have potentially been used at K'o, one drawback to this method is that there would be no guarantee the selected blocks would be distributed throughout all portions of the site. For this reason, the stratified random selection of sampling blocks was preferred over simple random sampling, since it ensures that sampling blocks are distributed proportionately across the mapped extent of the site (Shennan 1997). Furthermore, the stratified random sampling strategy maximizes the probability that a representative sample of domestic architecture and associated artifacts from throughout the site and from all periods of occupation would be obtained. As a result of this random selection procedure, even with a small sample size statistical

procedures could be used to elucidate patterns in the data which would otherwise be impossible to discern.

As a first step in the stratified random excavation program, the 800m² mapped extent of the site was divided into 100m² sampling blocks, resulting in a total of 64 sampling blocks (Figure 6.1). Each of these sampling blocks constituted a sampling unit, and each block was given a unique five digit number, created by combining the first three digits of the easting and the first two digits of the northing coordinates of the sampling block's southwestern corner. Next, the mapped extent of the site was stratified into four quadrants, and each sampling block's unique five digit number was used to randomly select between four sampling blocks within each quadrant, using a table of 4000 random numbers. In total, 16 of 64 potential sampling blocks (25 percent) were randomly selected. If structures were present in the selected sampling blocks, one structure within the survey block was randomly selected for excavation using a table of random numbers. This stratified random sampling of domestic architecture resulted in the random selection of ten structures for excavation.

Excavations in association with randomly selected structures consisted of an excavation unit located within the confines of the structure along its central axis in order to identify domestic refuse, successive construction phases, buried middens, and potentially burials. In the following sections, each of these excavations is described in detail.

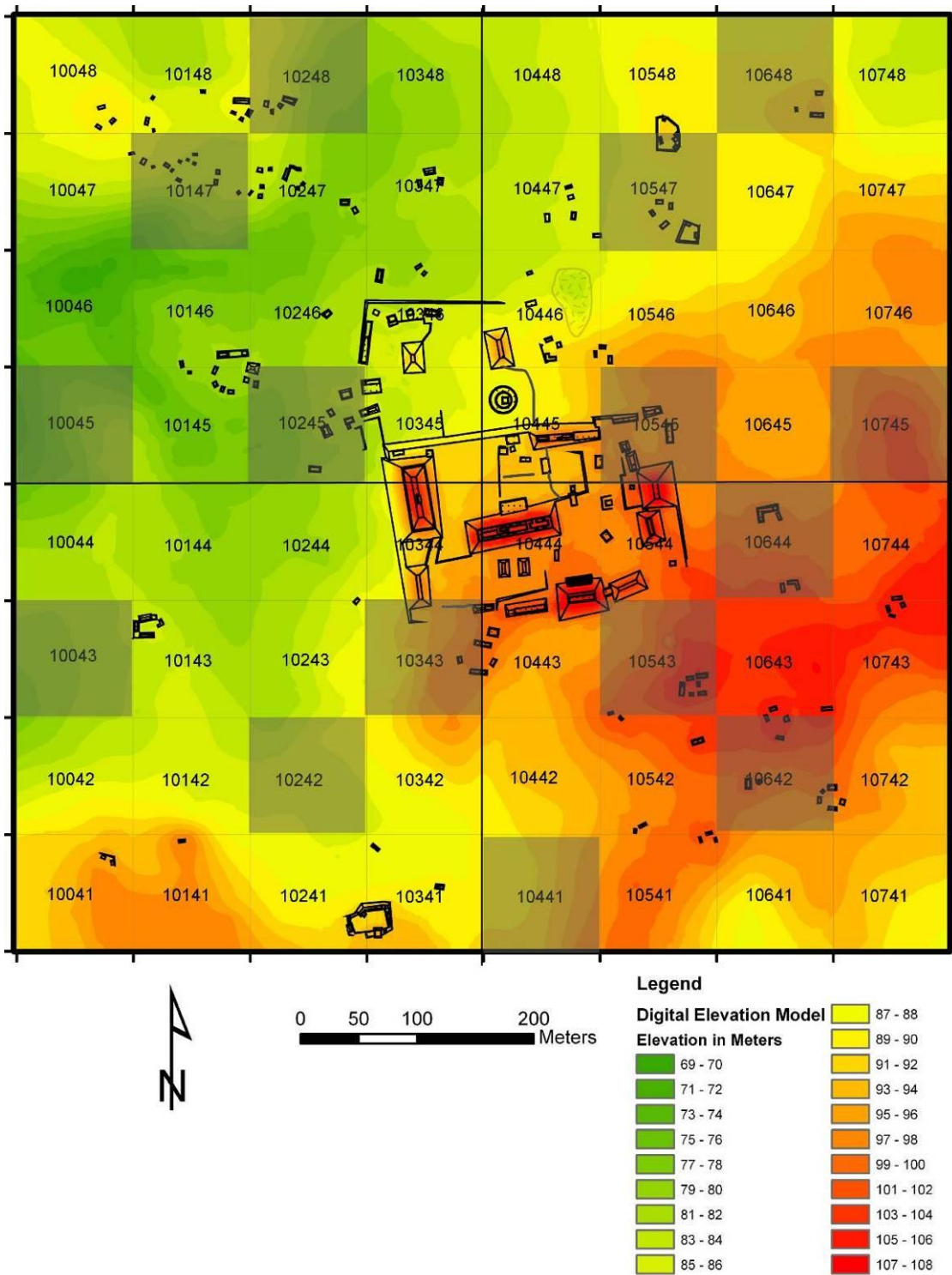


Figure 6.1: Stratified random selection of sampling blocks. Each block was given a unique five digit number, created by combining the first three digits of the easting and the first two digits of the northing coordinates of the sampling block's southwestern corner. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

KOL.T.15

KOL.T.15 investigated Structure 60, the southernmost structure within Patio Group 4, located atop a narrow peninsula of high ground southwest of the K'o site core (Figure 6.1). Patio Group 4 is considered a high status group, based on the assessment of the relative status of patio groups based on architectural volume described in Chapter IV. Structure 60 is one of the largest of the five structures within this plaza group, and it is associated with three well-preserved chultuns located to the south of this structure (Figure 6.2). KOL.T.15 measured 2x8 meters, and was oriented north-south, and approximately two meters west of the building's central axis. The principal objectives of this excavation were to determine the periods when Structure 60 was constructed and occupied, and to determine whether Structure 60 contained sealed artifact deposits within successive construction phases.

Context 01 consists of a cap of sandy, dark brown humus (Figures 6.3, 6.4). Context 01 contained a large quantity of chert debitage and chert tools, including a hammerstone (KOL.T.15.01.04.01). Ceramics, although highly eroded, suggest the materials within this context date to the Late and Terminal Classic. Contexts 02 and 03 are similar contexts divided by a line of stones which is designated Context 04. Ceramics from Contexts 02 and 03 date to the Late and Terminal Classic, while the ceramics from Context 04 dates to the Late Preclassic and Early Classic.

Burial 30 (KOL.T.15.05) was discovered within Context 03 and above a portion of Context 04 in the southwest corner of the unit. Burial 30 was found to be in an extremely poor state of preservation, consisting of four teeth and several bone fragments. The burial was surrounded by a small ring of stones approximately twenty centimeters in

diameter. In addition, a limestone barkbeater (KOL.T.15.04-1.07.01), a single chert flake, and several ceramic sherds were found near Burial 30, and may have been grave goods associated with this burial.

Context 06 is located beneath Context 04, and is the latest plaster floor associated with this structure. Context 07 is a row of stones oriented east-west through the unit, that abuts the north-south row of stones within context 04. Ceramics recovered from within Context 07 date to the Early Classic and Terminal Classic. To the east of Context 04 and beneath Context 02 is a row of cut stone blocks (Context 08) oriented north-south through the unit. The ceramics from Context 08 date to the Early Classic.

Directly beneath this building's latest plaster floor (Context 06) is Context 09, a white and brown sandy gravel fill. A small amount of chert debitage was recovered from Context 09. Context 10 is located beneath Context 08 and Context 02. Context 10 is a compact plaster floor, approximately two centimeters thick. Context 11 is a sandy gravel fill beneath the plaster floor in Context 10. Artifacts recovered from within Context 11 include a single obsidian blade (KOL.T.15.11.05.01).

Context 12 is directly beneath Context 11, and is the third plaster floor associated with this structure. Beneath Context 12 is a layer of compact gravel fill (Context 13). Context 13 contains polychrome sherds which date to the Early Classic (small find KOL.T.15.13.01.01). Within Context 13 a row of large blocks (Context 16) is oriented southwest-northeast through the unit, and Context 16 directly abuts the row of stones within Context 07. Beneath Context 13 and Context 16 is the fourth floor discovered (Context 14). This is the earliest floor associated with Structure 60, and is located on the south side of Context 07

Context 15 is a layer of moderately-sized gravel fill, and is located west of Context 16 and beneath Context 13. Ceramics from Context 15 date to the Early Classic. Although this layer of gravel fill was given its own context number, a polychrome sherd recovered from this context (KOL.T.15.15.01.01) appears to be from a similar vessel, or possibly the same vessel, from which a sherd was recovered in Context 13 (KOL.T.15.13.01.01). This most likely indicates that Context 13 and Context 15 are contemporaneous.

Context 17 is a layer of compact fill, and is located beneath a plaster floor (Context 14). Ceramics from Context 17 date to the Early Classic. In addition, a complete obsidian blade (KOL.T.15.17.05.01) and a metate fragment were recovered within Context 17. It should be mentioned that the earliest floor associated with this structure (Context 14) was accidentally recorded as Context 18 in the excavation field notes. To avoid further confusion, Context 18 was omitted from the sequence of Context numbers.

Context 19 consists of a layer of construction fill composed of moderately-sized stones. Materials recovered within this context include a carbon sample (KOL.T.15.19.13.01), an obsidian blade (KOL.T.15.19.05.01), and Late Preclassic ceramics. Context 20 consists of a layer of black-brown sandy gravel. This context contained a large quantity of artifacts, including chert debitage, an obsidian blade fragment (KOL.T.15.20.05.01), and a shell artifact (KOL.T.15.20.10.01). A soil sample was also taken within this context (KOL.T.15.20.13.01). The ceramics from Context 20 date to the Late Preclassic and early facet of the Early Classic. The final context (Context 21) is a layer of sandy gray gravel directly atop bedrock (Context 22).

Summary of Results:

This excavation revealed that Structure 60 has evidence of continuous occupation from the Late Preclassic through the Terminal Classic. In addition, this excavation revealed four well-preserved plaster floors associated with the interior space of the building, and these floors have created excellent stratigraphic control for the artifacts recovered from within this excavation. The bulk of construction activity appears to date to the Early Classic, but there is evidence of earlier occupation, and there does appear to have been a significant occupation during the Late Classic and Terminal Classic, but the proximity of these contexts to the ground surface has destroyed the stratigraphic relationship between these later contexts. Finally, there is no evidence that Structure 60 supported any sort of masonry building; rather, Structure 60 most likely supported a perishable superstructure.

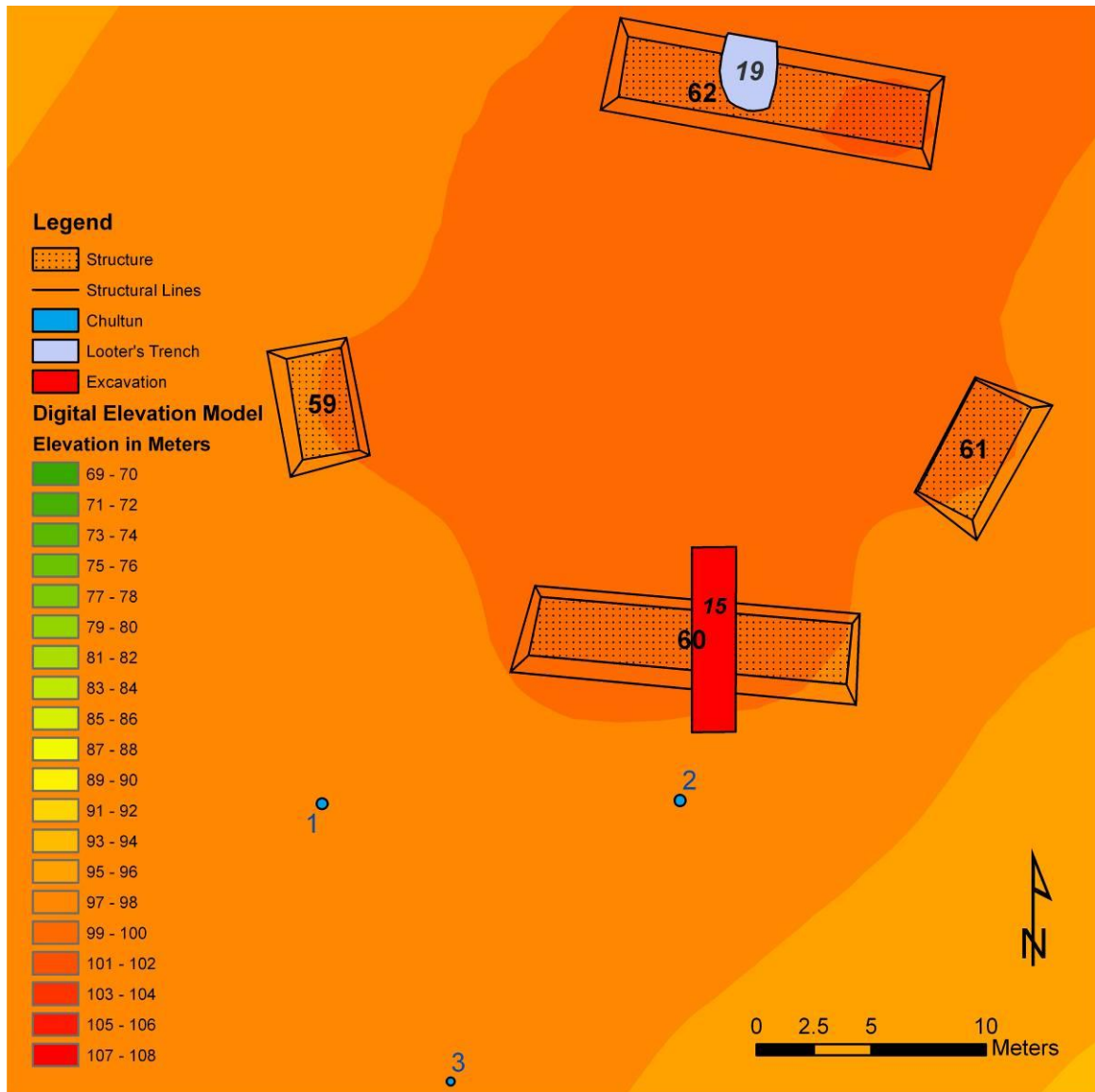
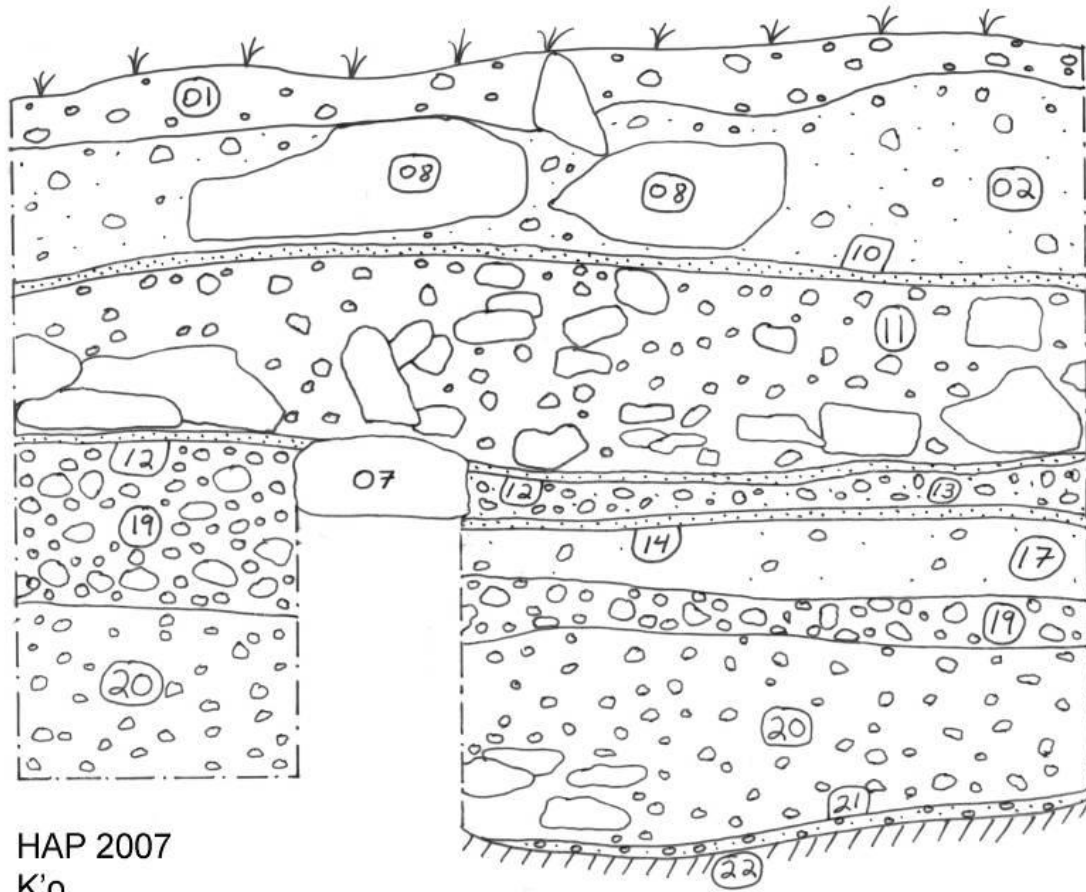


Figure 6.2: Map showing the location of KOL.T.15, Patio Group 4. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.



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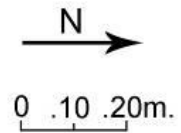


Figure 6.3: KOL.T.15 east profile. Structure 60, Patio Group 4.

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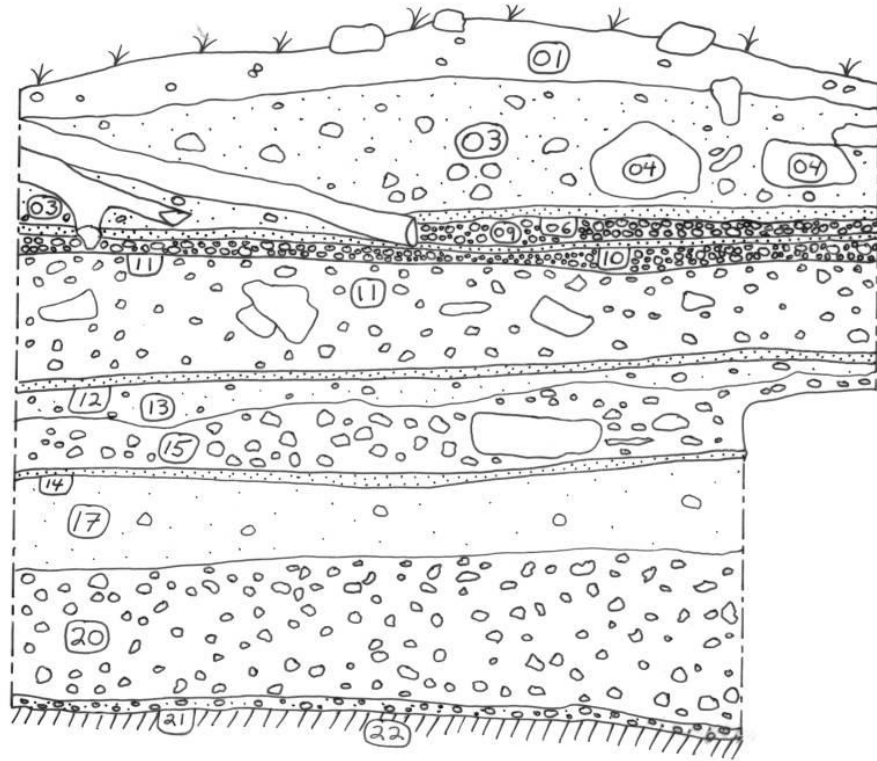


Figure 6.4: KOL.T.15 west profile. Structure 60, Patio Group 4.

KOL.T.16

This excavation investigated Structure 88, located on the northeast edge of the site core (Figure 6.1). Structure 88 is one of five structures forming an enclosed plaza area, and a chultun (Chultun 8) is located five meters southeast of this structure (Figure 6.5). Structure 88 is oriented north-south, and is approximately one meter high, fifteen meters long, and four meters wide. Prior to excavation, it was thought that Structure 88 was associated with a residential patio group, rather than the public architecture of the site core. KOL.T.16 is a 1x2 meter unit oriented east-west, and located 1.5 meters south of the building's central axis. The principal objective of this excavation was to determine the function of Structure 88, and to determine the periods when Structure 88 was constructed and occupied, and to determine whether Structure 88 contained sealed artifact deposits within successive construction phases.

Context 01 consists of a layer of dark brown humus, and Context 02 is a layer of loose, sandy brown soil (Figures 6.6, 6.7). Context 02 also contains large stones that may have been fragments of a masonry superstructure. Ceramics from Contexts 01 and 02 date to the Early and Late Classic period, and a chert biface was recovered within Context 02 (KOL.T.16.02.07.01). Context 03 is a layer of construction fill composed of large uncut limestone and sandy gray soil, and the ceramics recovered within this context date to the Late Preclassic. Context 04 is an uneven layer of loosely compacted plaster, and is most likely a layer of structural fill, rather than a floor. Context 05 is a layer of gravel and large limestone fragments beneath Context 04, and artifacts recovered within this context include a broken chert biface (KOL.T.16.05.04.01). Beneath Context 05 is a second layer of plaster construction fill, designated Context 06. Context 07 is a layer of

gravel and medium-sized limestone fragments, and the ceramics from this context date to the Late Preclassic. Context 08 is a layer of gravel and sandy gray-black soil, and ceramics from this context date to the Late Preclassic and Early Classic. Context 09 is a layer of white marl, or sascab, located directly atop bedrock (Context 10).

Summary of Results:

This excavation has revealed that Structure 88 has evidence of occupation from the Late Preclassic through the Late Classic. The ceramics recovered within the fill of the structure suggests that Structure 88 was constructed during the Early Classic, and remained in use through the Late Classic. Structure 88 appears to have undergone little modification following the initial construction of the platform and platform fill encountered in Contexts 03-07. The relatively large height and area of Structure 88, along with the presence of large stones encountered in Context 02, suggests Structure 88 originally supported a masonry superstructure. Although the function of the building is uncertain, the structure is thought to have been associated with the site's major architecture in the site core, rather than forming a distinct residential patio group.



Figure 6.5: Map showing the location of KOL.T.16. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

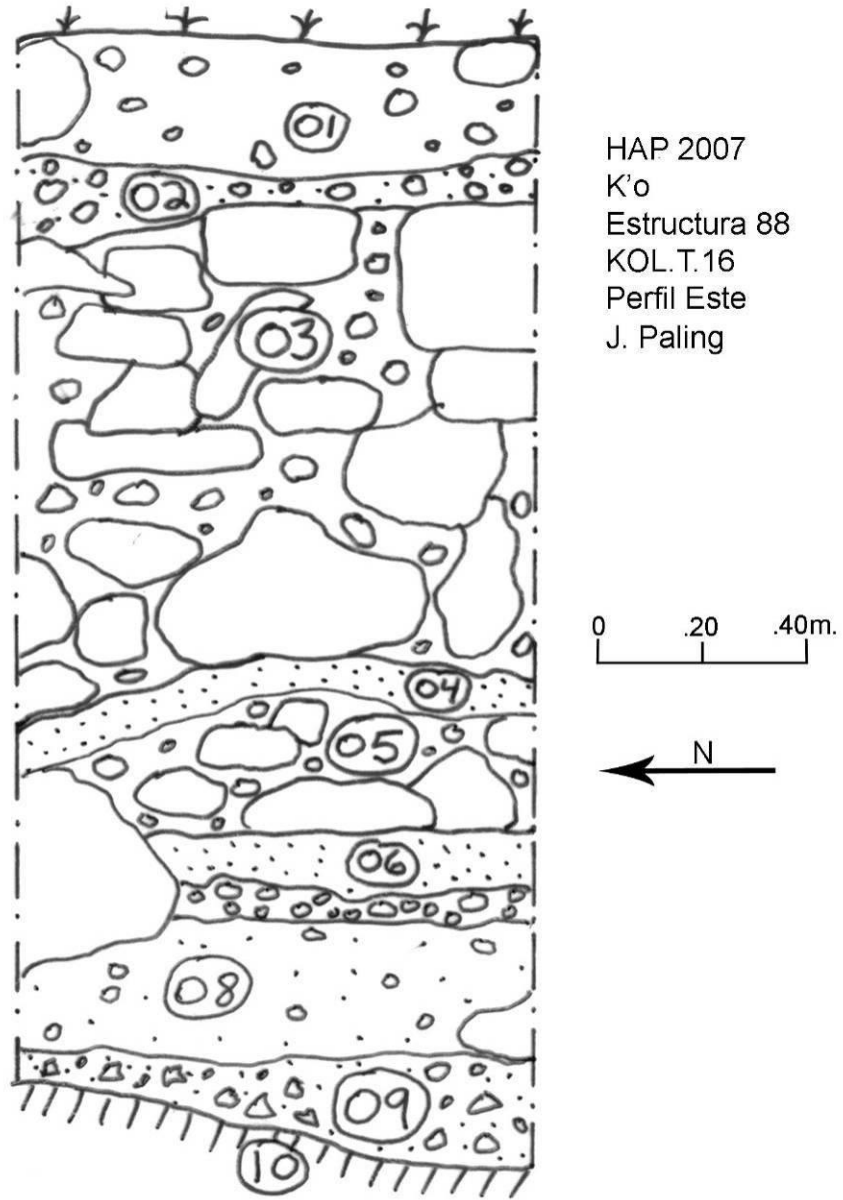


Figure 6.6: KOL.T.16 east profile. Structure 88.

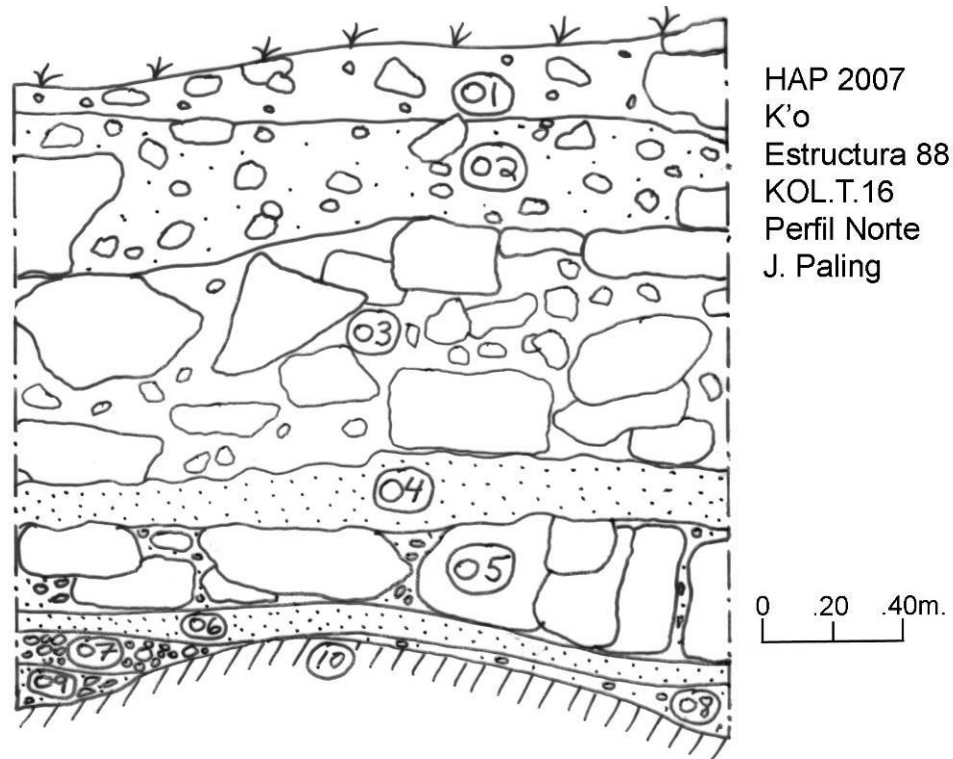


Figure 6.7: KOL.T.16 north profile. Structure 88.

KOL.T.17

Unit 17 investigated Structure 107, the eastern structure of the two structures within Patio Group 12, located approximately 100 meters east-southeast of the site core (Figure 6.1). Patio Group 12 is considered a lower status group, based on the assessment of the relative status of patio groups based on patio group volume described in Chapter IV. Unit 17 is a 1x2 meter unit is located near the southern corner of Structure 107 (Figure 6.8). The primary objectives of this excavation were to determine the periods when Structure 107 was constructed and occupied, and to determine whether Structure 107 contained sealed artifact deposits within successive construction phases.

Context 01 is a layer of dark brown humus and gravel (Figure 6.9). Within this context, in the northwest corner of the unit, human teeth and cranial fragments were discovered and designated Burial 32. However, due to time limitations, Burial 32 was not excavated and it is believed that the remaining portion of this burial is located to the north of, and roughly parallel to KOL.T.17. In addition to the discovery of Burial 32, a fragment of yellow ochre (KOL.T.17.01.14.01) was recovered within Context 01, and may have been originally associated with Burial 32. Context 02 is a layer of compact brown construction fill, and makes up the majority of the volume of this residential platform, and is located directly atop bedrock. Ceramics and lithic debitage were recovered from both Context 01 and Context 02, and the analysis of these ceramics dates the occupation of this structure from the Late Preclassic through the Terminal Classic. Unfortunately, the precise period of construction could not be determined, due to poor stratigraphic preservation.

Summary of Results:

This excavation revealed that Structure 107 has evidence of occupation as early as the Late Preclassic, but the construction of Structure 107 most likely occurred during the Late Classic, and the occupation of the structure continued through the Terminal Classic. Due to the lack of sealed plaster floors, no further chronological distinctions could be made based on the data obtained from this excavation. Finally, the absence of any sort of masonry walls in Context 01, combined with the rather small area and height of Structure 107, suggests this structure originally supported a perishable building, rather than a masonry one.



Figure 6.8: Map showing the location of KOL.T.17, Patio Group 12. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

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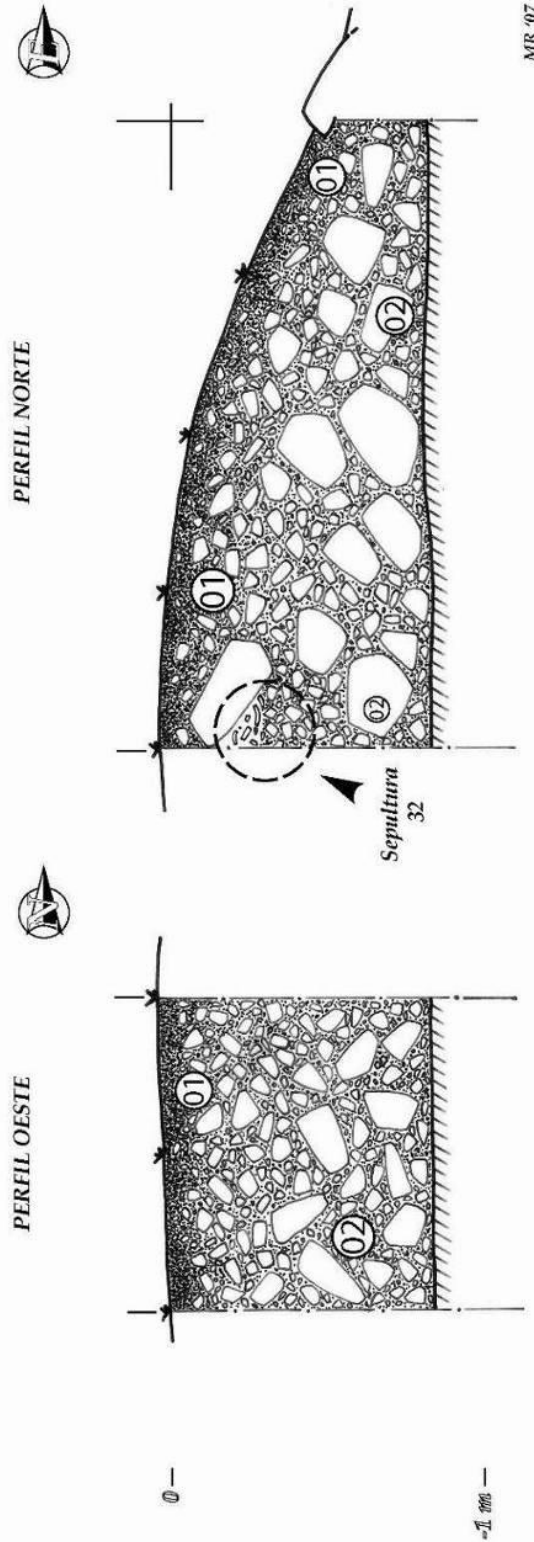


Figure 6.9: North and west profiles of KOL.T.17. Structure 107, Patio Group 12.

KOL.T.18

KOL.T.18 investigated Structure 34, the southernmost structure of four structures forming a residential patio group (Patio Group 18) northeast of the site core (Figure 6.1). Patio Group 18 is considered a lower status group, based on the assessment of the relative status of patio groups based on patio group volume described in Chapter IV. Unit 18 measures 1x2 meters, and is oriented north-south, approximately two meters west of Structure 34's central axis (Figure 6.10). The primary objectives of this excavation were to determine the periods when Structure 34 was constructed and occupied, and to determine whether Structure 34 contained sealed artifact deposits between successive construction phases.

Context 01 is composed of dark, sandy humus mixed with gravel (Figures 6.11, 6.12). Lithics recovered from this context include an obsidian blade (KOL.T.18.01.05.01), and the ceramics recovered from this context date to the Late Preclassic, Early Classic, and Late Classic. Context 02 is a layer of sandy brown soil less than ten centimeters thick, and ceramics from this context date to the Late Preclassic. Large stones were exposed in the northern end of the unit, and human bones were found in association with these stones. Due to a lack of time, these bones were left in place, and excavations were halted in the northern 50 centimeters of the unit, to avoid further disturbance of the human remains.

Context 03 (and all subsequent contexts) measures 1 x 1.5 meters, and is composed of gray/brown sandy construction fill with large stones. Ceramics from Context 03 date to the Late Preclassic. Context 04 is a poorly preserved plaster and piedrin floor, and Context 05 is a row of stones atop Context 04 in the northern profile of

the unit. Ceramics within Context 05 date to the Late Preclassic, Early Classic, and Late Classic. Context 06 and 07 are associated plaster floors; context 06 is whiter than context 07, and Context 06 is in the eastern portion of the unit, while Context 07 is located in the western portion of the unit. Ceramics within context 06 date to the Early Classic, and ceramics within Context 07 date to the Late Preclassic. Context 08 is a layer of gray sandy construction fill with gravel inclusions, and ceramics within this context were heavily eroded, making dating impossible. Context 09 is bedrock which may have evidence of being artificially modified (Figure 6.13).

Summary of Results:

As a result of this excavation, a pair of associated plaster floors, and both of the floors appear to date to the Early Classic. Beneath these plaster floors, the structural fill within Structure 34 contains ceramics dating to the Late Preclassic, which suggests that the occupation of this patio group may date to as early as the Late Preclassic. Furthermore, the evidence of Late Classic ceramics in the latest contexts of this excavation suggests Structure 34 remained in use throughout the Late Classic Period. Finally, it appears Structure 34 supported a perishable building, due to the structure's size and due to the absence of any evidence of masonry architecture associated with the building's superstructure.

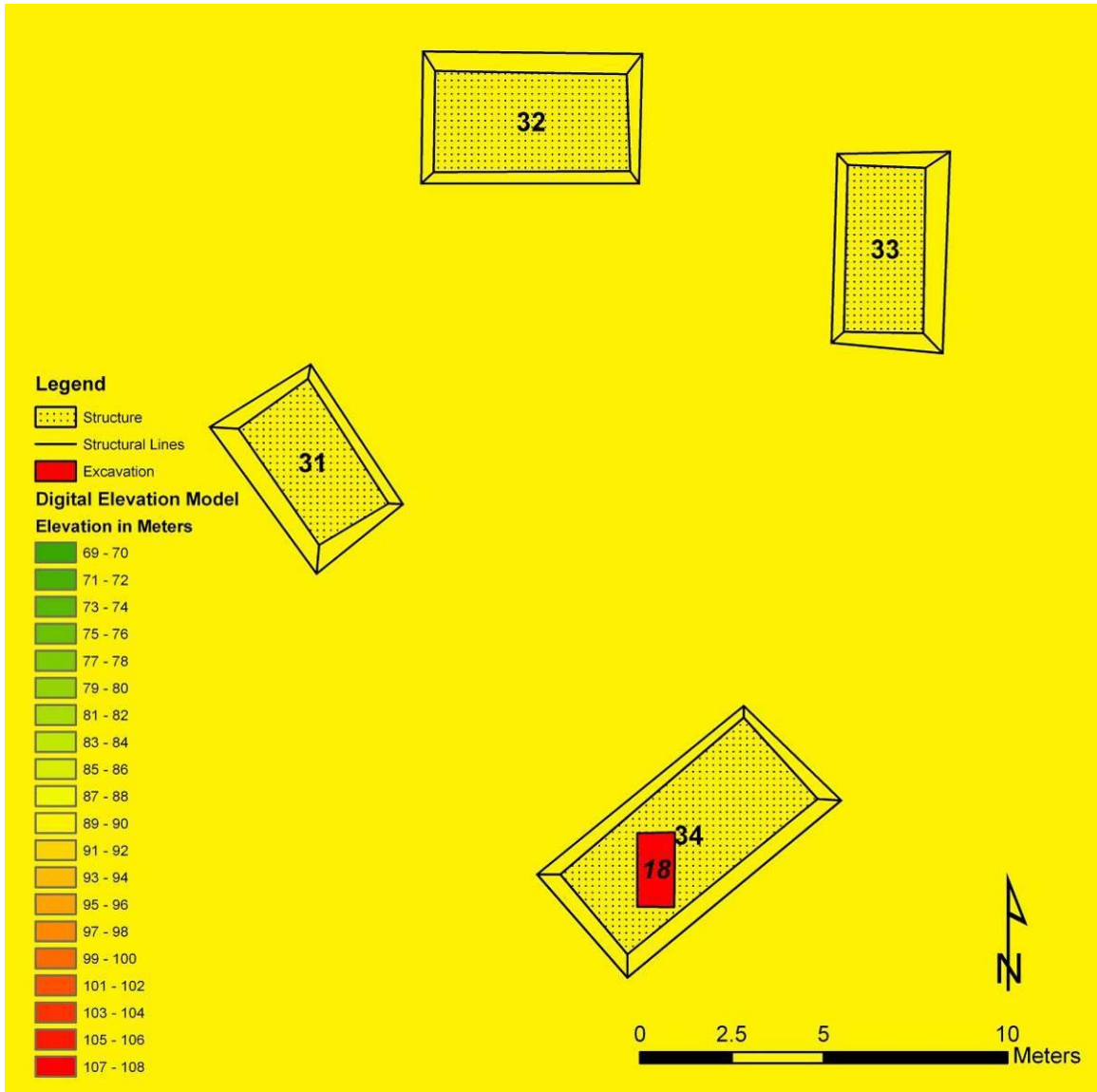


Figure 6.10: Map showing the location of KOL.T.18, Patio Group 18. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

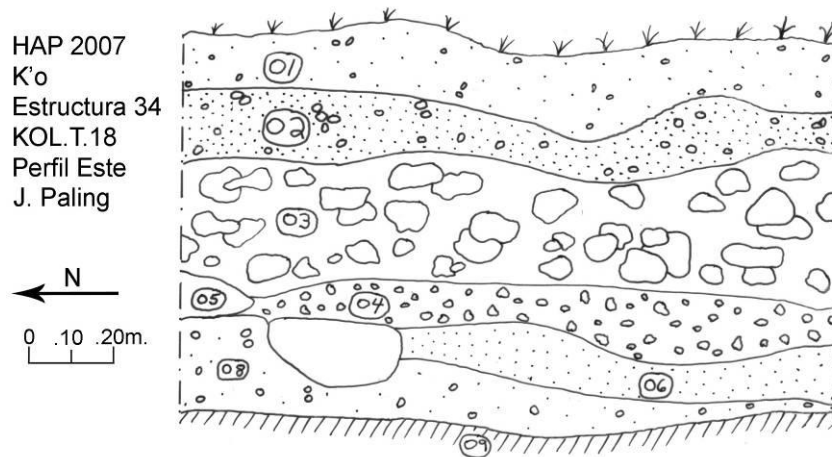


Figure 6.11: KOL.T.18 east profile. Structure 34, Patio Group 18.

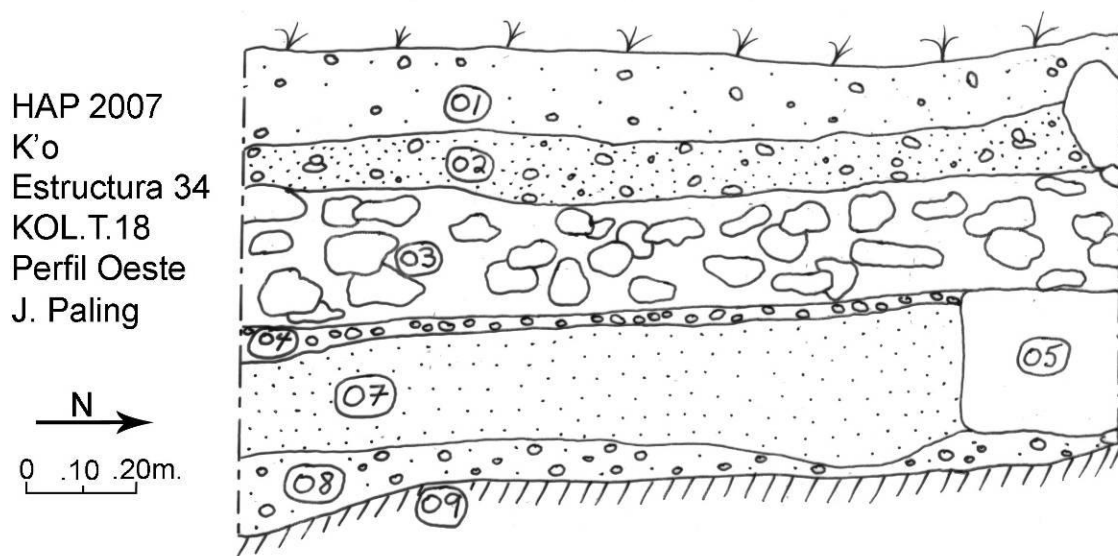


Figure 6.12: KOL.T.18 west profile. Structure 34, Patio Group 18.

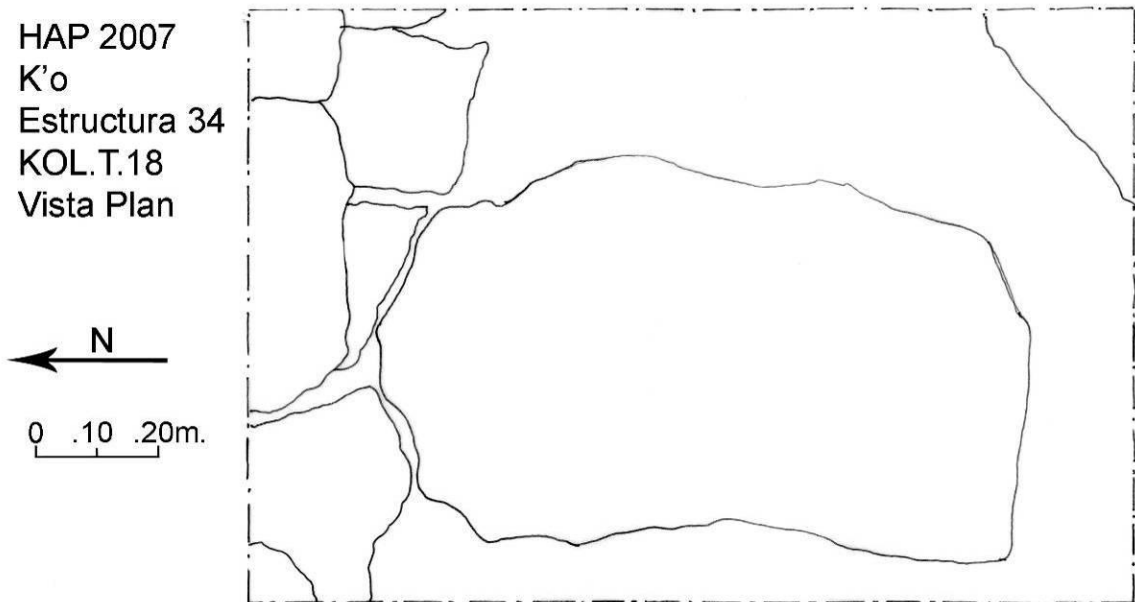


Figure 6.13: Plan view of bedrock in KOL.T.18.09. Structure 34, Patio Group 18.

KOL.T.19

Unit 19 investigated Structure 105, one of seven structures forming Patio Group 6, located approximately 100 meters south-southeast of the site core (Figure 6.1). KOL.T.19 is a 1x2 meter excavation oriented north-south and located within the confines of the eastern end of Structure 105 (Figure 6.14). Patio Group 6 is considered a lower status group, based on the assessment of the relative status of patio groups based on patio group architectural volume described in Chapter IV. However, it should be mentioned that Patio Group 6 has the largest architectural volume of all of the lower status groups. The primary objectives of this excavation were to determine the periods when Structure 105 was constructed and occupied, and to determine whether Structure 105 contained sealed artifact deposits between successive construction phases.

Context 01 is a layer of humus and piedrín (Figure 6.15), and contained a mano and metate fragment (KOL.T.19.01.14.01.02). Context 02 and Context 03 are layers of brown gravel, and are divided by a wall of cut stones, which is designated Context 04. Context 03 appears to be an external floor, and Context 02 appears to be an internal floor. Context 05 is a layer of compact gray platform fill in the northern portion of the unit, and Context 06 is a layer of compact brown-gray platform fill in the southern portion of the unit. Both Contexts 05 and 06 lay directly atop bedrock.

Summary of Results:

Ceramics from KOL.T.19 were heavily eroded, and the ceramics from all contexts within this unit indicate continuous occupation from the Late Preclassic through the Terminal Classic. However, construction of Structure 105 most likely dates to the Late Classic period, based on Classic period ceramics recovered within structural fill (Context 06). The presence of a wall of cut stones suggests the superstructure of the final phase of the building was at least partially constructed of cut stone. There is, however, no evidence that the Structure 105 supported a vaulted superstructure. Although no sealed plaster floors were encountered in this excavation, this may be due to the placement of the excavation partially within an exterior space of the structure, rather than within the confines of the structure. This interpretation is supported by the presence of an interior and exterior piedrín floor within this excavation.

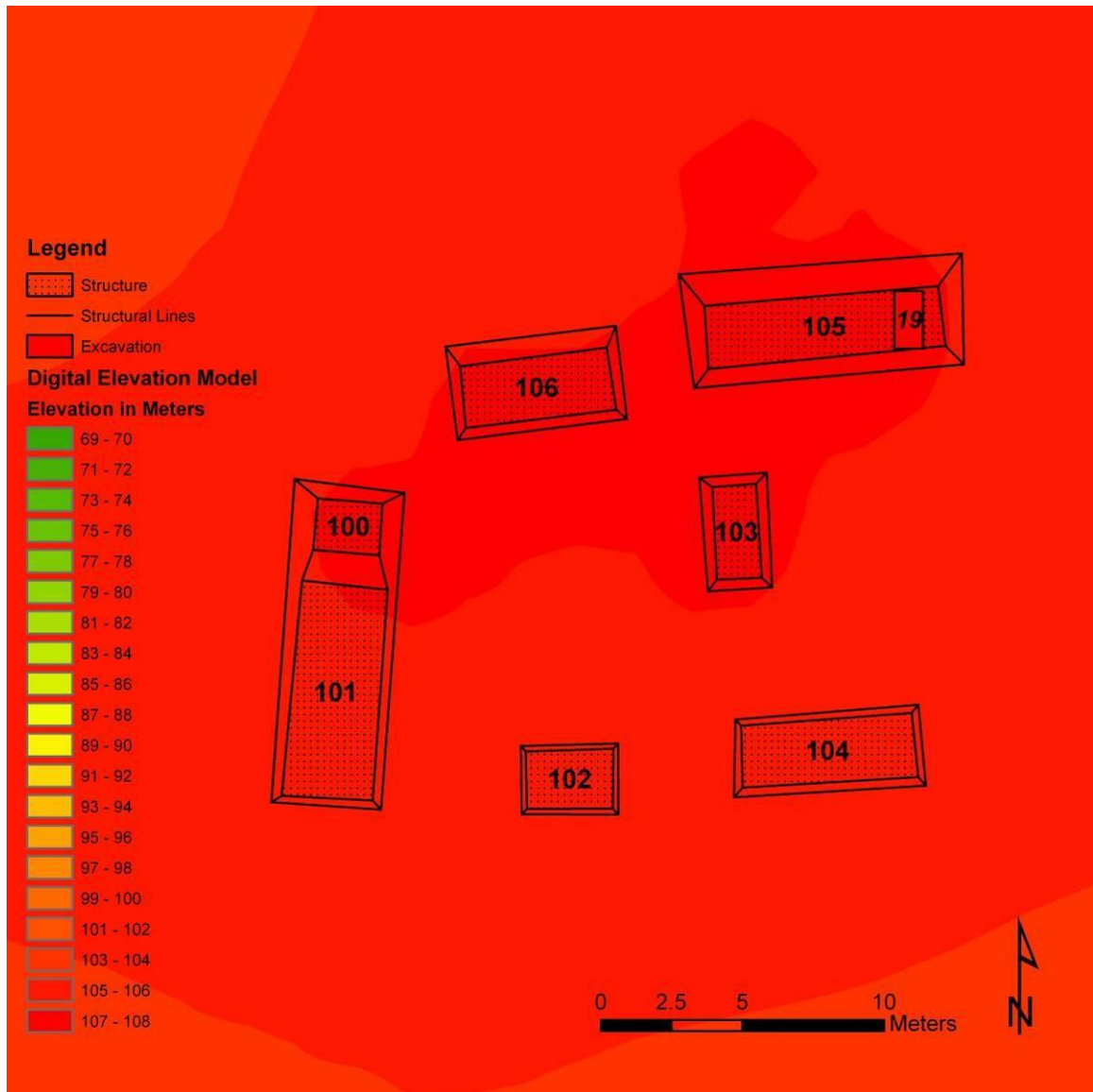
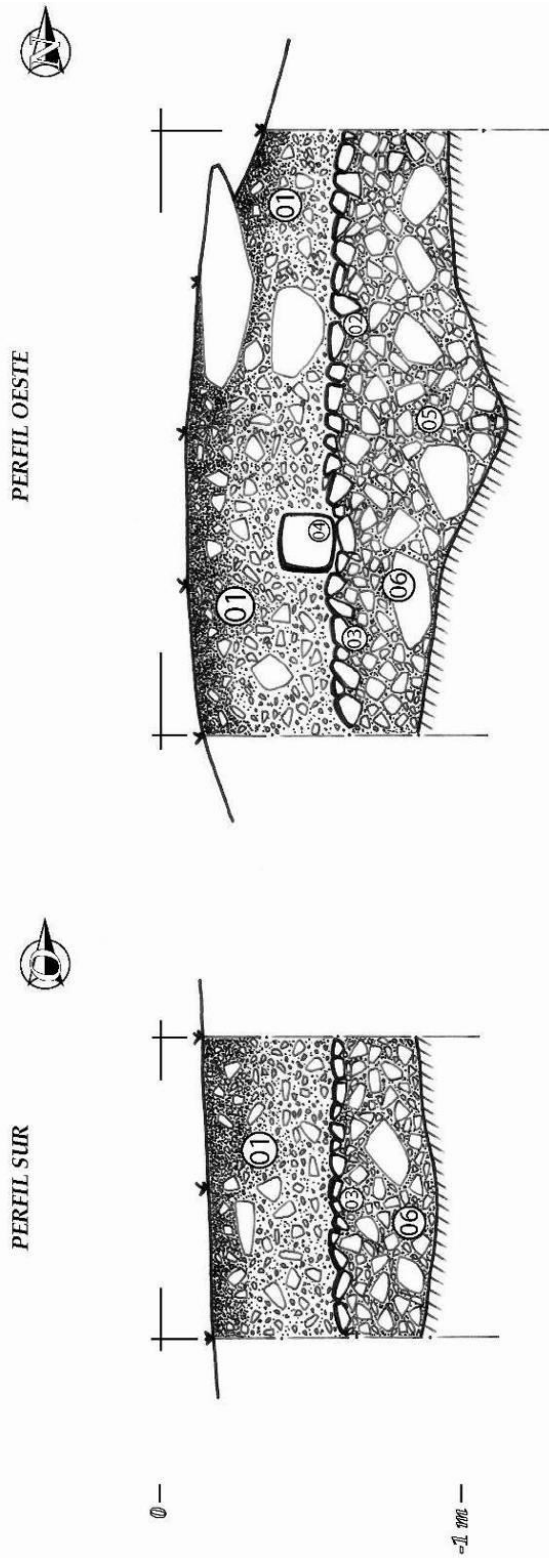


Figure 6.14: Map Showing the Location of KOL.T.19, Patio Group 6. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

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Figure 6.15: KOL.T.19 south and west profiles. Structure 105, Patio Group 6.

KOL.T.20

Unit 20 investigated Structure 116, the northernmost of three structures forming a residential patio group (Patio Group 25) approximately 300 meters northeast of the site core (Figure 6.1). Unit 20 is a 1x2 meter unit oriented east-west within the confines of Structure 116 (Figure 6.16). Patio Group 25 is considered a lower status group, based on the assessment of the relative status of patio groups based on patio group architectural volume described in Chapter IV. The primary objectives of this excavation were to determine the periods when Structure 116 was constructed and occupied, and to determine whether Structure 116 contained sealed artifact deposits between successive construction phases.

Context 01 is a layer of sandy humus, and contained a large quantity of Early Classic and Late Classic sherds (Figures 6.17, 6.18). An obsidian blade was found within this context (KOL.T.20.01.05.01), along with chert debitage. Context 02 is a layer of brown/gray sandy soil, and contained two cut stone blocks, probably associated with the superstructure of Structure 116. Ceramics from Context 02 date to the Late Classic, and chert debitage, chert tools, and an obsidian blade fragment (KOL.T.20.02.05.01) were also recovered from this context.

Context 03 is a partially preserved plaster floor and gravel floor. Context 05 is located beneath Context 03, and consists of a thick layer of subfloor construction fill containing a large quantity of artifacts. In the southwest corner of the unit, an especially dense concentration of ceramics was designated Context 04. The concentration of ceramics within Context 04 is adjacent to, and contemporaneous with, Context 05.

Ceramics within Contexts 04 and 05 date to the Late Classic, and one Late Classic sherd in particular (Figure 19) bore the hieroglyphic inscription “Child of Father” (Alexandre Tokovinine, Personal Communication 2007).

Context 06 is a layer of gray compact sandy soil, and is located directly atop Context 07, a plaster floor. Context 08 is composed of gray compact sandy soil, and ceramics from this context date to the Late Preclassic. In addition, lithic debitage was recovered from Context 08. Context 09 is a plaster floor, and Context 10 is a layer of gray gravel subfloor construction fill. Context 10 contained Late Preclassic ceramics, lithic debitage, a broken chert biface (KOL.T.20.10.07.01), and a broken obsidian blade (KOL.T.20.10.05.01). Context 11 is a layer of brown/gray gravel containing Late Preclassic ceramics, lithic debitage, shell artifacts, and a complete obsidian blade (KOL.T.20.11.05.01).

Context 12 is the fourth plaster floor encountered in KOL.T.20, and sits atop a layer of sandy brown subfloor construction fill (Context 13) that contained Late Preclassic ceramics. Context 14 is a layer of gravel fill containing Late Preclassic ceramics, chert debitage, and shell artifacts. Context 15 is the fifth plaster floor encountered, and the earliest floor associated with Structure 116. Context 16 is a layer of compact gray sandy soil containing chert, shell, and ceramics, and Context 17 is bedrock.

Summary of Results:

As a result of this excavation, it is clear that Structure 116 has evidence of occupation during the Late Preclassic, and again during the Late Classic. The lack of datable construction phases during the Early Classic suggests Structure 116 may have

ceased to have been occupied during the Early Classic. However, the presence of Early Classic ceramics in the humus atop the structure suggests Structure 116 was continuously occupied. Regardless, this excavation has revealed five well-preserved plaster floors associated with the interior space of the building, and these floors have created excellent stratigraphic control for the artifacts recovered from within this excavation. Four of the five plaster floors appear to date to the Late Preclassic, and the latest floor dates to the Late Classic. Finally, there is evidence that the superstructure may have been partially composed of cut stones, although there is no evidence that Structure 116 supported a vaulted superstructure.

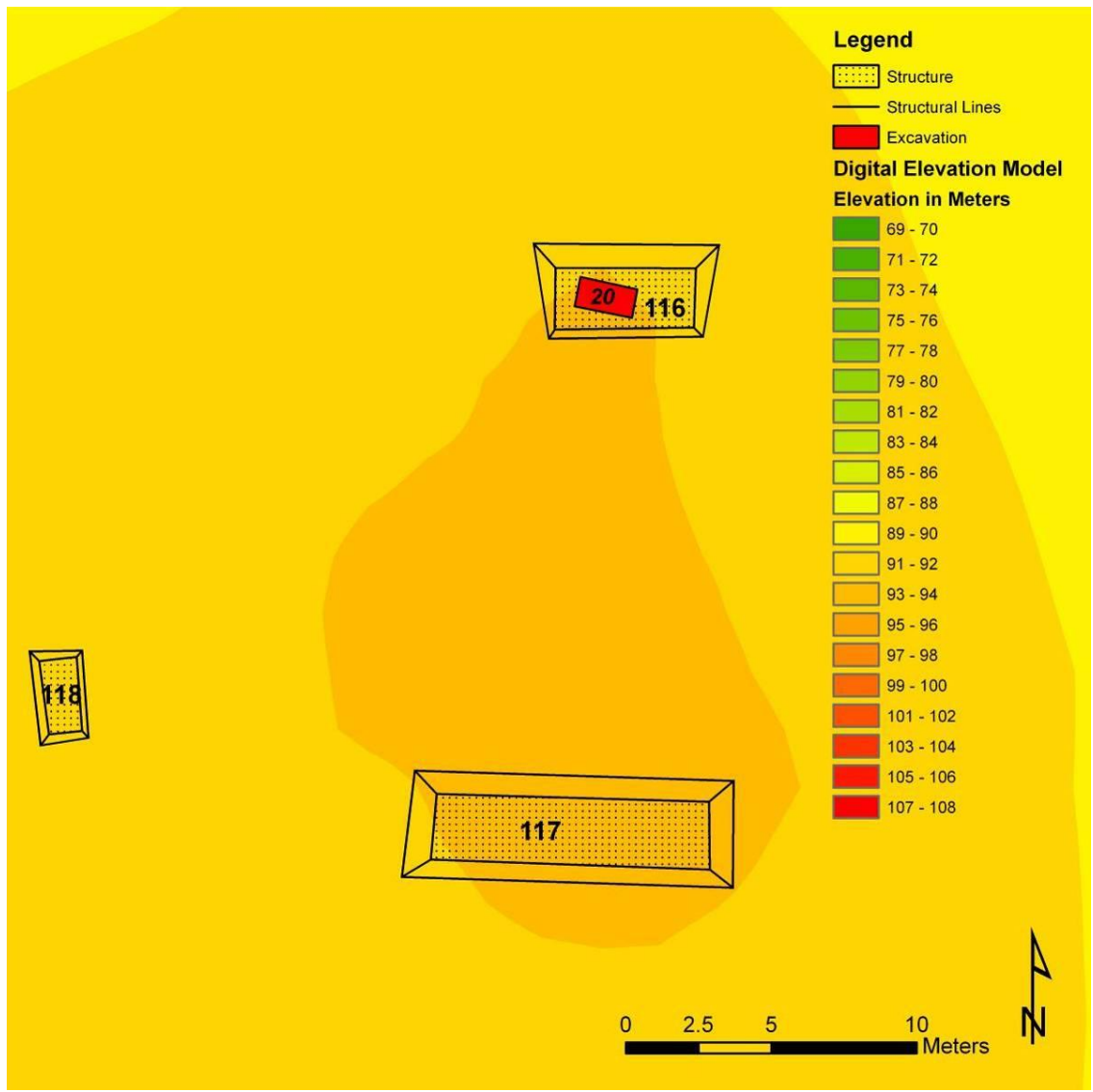


Figure 6.16: Map showing the location of KOL.T.20, Patio Group 25. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

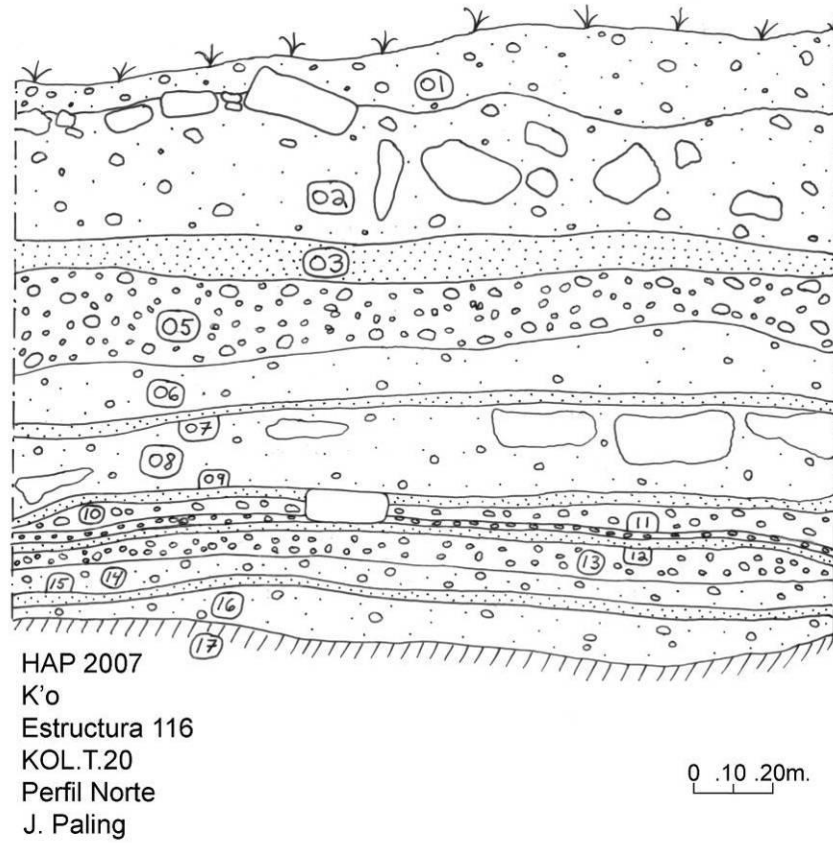
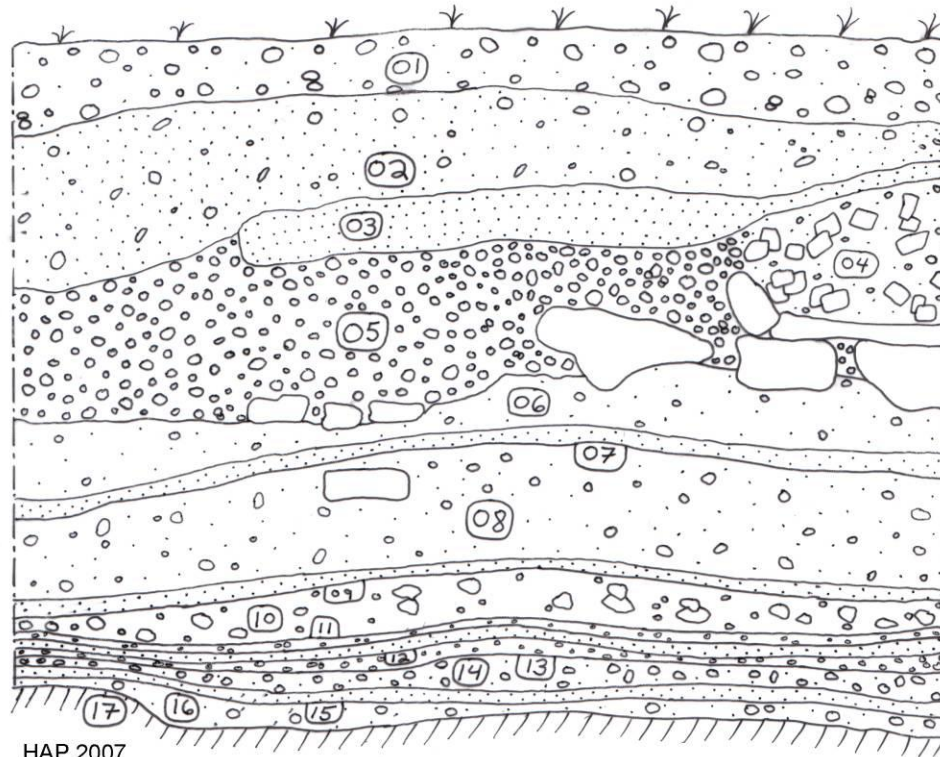


Figure 6.17: KOL.T.20 north profile. Structure 116, Patio Group 25.



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Figure 6.18: KOL.T.20 south profile. Structure 116, Patio Group 25.



**Figure 6.19: Late Classic sherd KOL.T.20.05.01.01 with a hieroglyph translated as “Child of Father”.
Photograph and Translation by Alexandre Tokovinine.
(Alexandre Tokovinine, Personal Communication 2007).**

KOL.T.21

Unit 21 investigated Structure 113, the westernmost structure within Patio Group 11 (Figure 6.1). Structure 113 measures approximately 2.5 meters by 5 meters, and it is the westernmost structure within Patio Group 11, located approximately 200 meters southeast of the K’o site core (Figure 6.20). Patio Group 11 is considered a lower status group, based on the assessment of the relative status of patio groups based on patio group architectural volume described in Chapter IV. Unit 21 is a 1x2 meter unit oriented east-west, and located within the southern end of Structure 113. The primary objectives of this excavation were to determine the periods when Structure 113 was constructed and occupied, and to determine whether Structure 113 contained sealed artifact deposits between successive construction phases.

Context 01 is a layer of dark brown humus which contained Late Classic ceramics and collapsed material pertaining to the superstructure of Structure 113 (Figure 6.21). Specifically, thirteen small stones with single cut faces, known as *sillarejos*, were recovered from Context 01. Context 02 is a compact *pedrín* floor with areas of preserved plaster, and it extends through 75 percent of the unit. Ceramics from Context 02 date to the Terminal Preclassic and Early Classic. Context 03 is a layer of subfloor construction fill containing Early Classic ceramics, and Context 04 is a layer of dark brown, compact platform construction fill containing Late Preclassic and Early Classic ceramics. Context 05 is a thin layer of dark brown soil atop bedrock, and this context is most likely paleosol. Context 05 contains Late Preclassic and Early Classic ceramics.

Summary of Results:

This excavation revealed evidence of a preserved plaster and *pedrín* floor which can be dated to the Early Classic, based on ceramics recovered within the floor and within the subfloor fill. Ceramics recovered within the subfloor fill date to as early as the Late Preclassic, and the ceramics recovered from contexts above the plaster and *pedrín* floor date to as late as the Late Classic, which suggests that Patio Group 11 was occupied from the Late Preclassic to the Late Classic. However, due to the limited extent of the excavation it is unclear whether occupation was continuous from the Late Preclassic to Late Classic. Finally, the presence of cut stone blocks known as *sillarejos* suggests Structure 113 originally supported a partial stone superstructure. There is no evidence the entire superstructure was vaulted, but the *sillarejos* probably formed a retaining wall

associated with the base of a perishable superstructure (Martin Rangel, Personal Communication 2007).

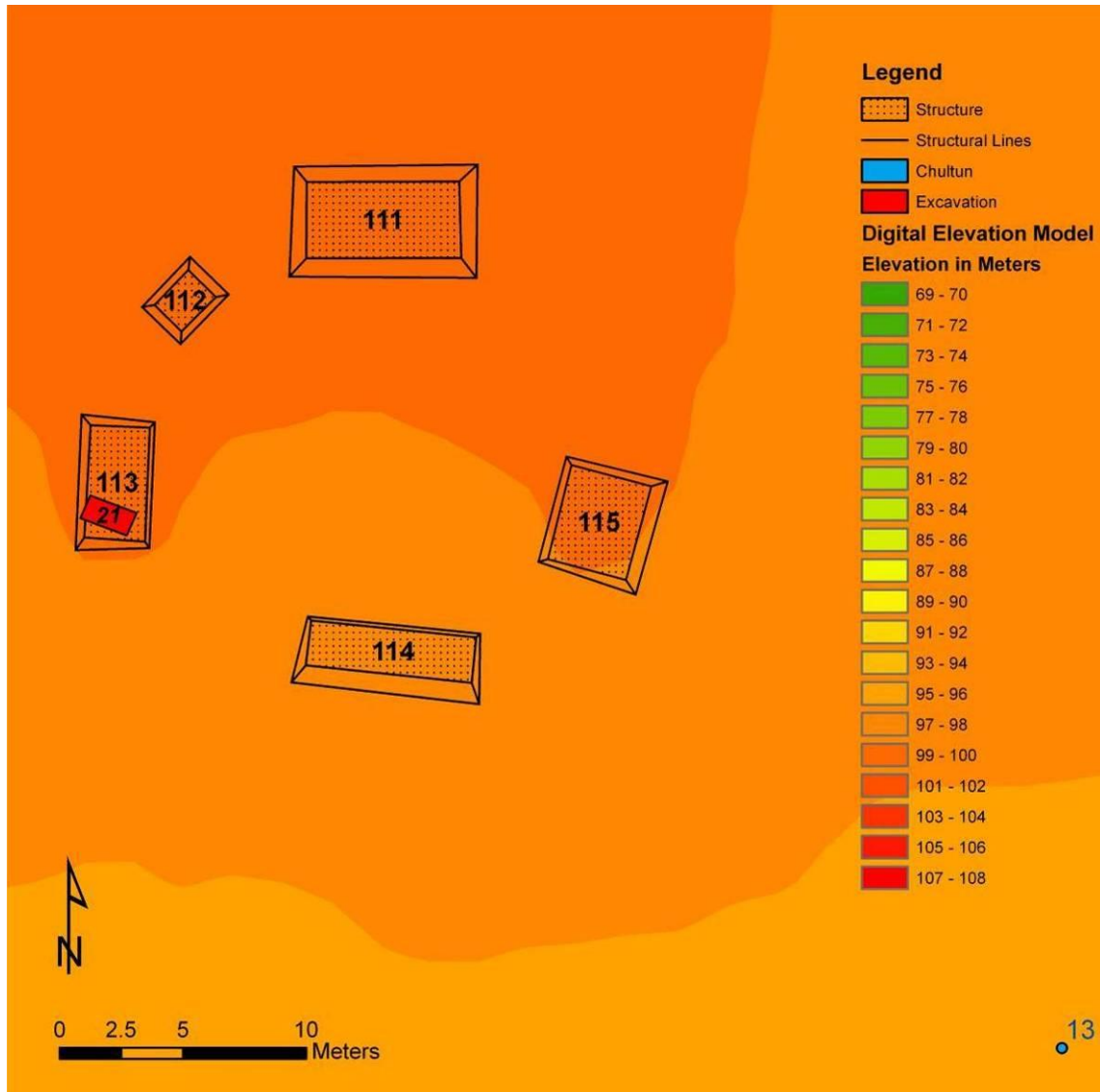
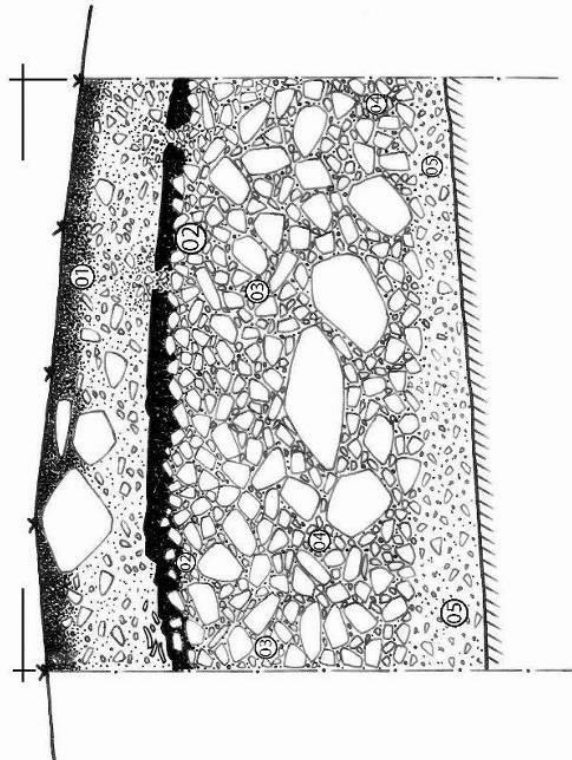


Figure 6.20: Map showing the location of KOL.T.21, Patio Group 11. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

HAP 2007, K'o, Trinchera 21



PERFIL NORTE



MR '07



PERFIL OESTE

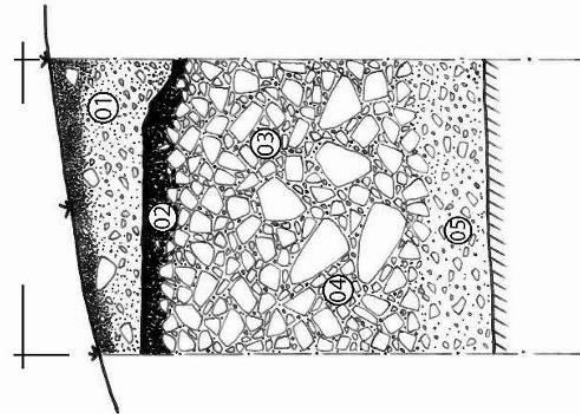


Figure 6.21: KOL.T.21 North and West Profiles. Structure 113, Patio Group 11.

KOL.T.22

Unit 22 investigated Structure 166, located approximately 250 meters northwest of the site core (Figure 6.1). Structure 166 is one of two structures forming a small patio group (Patio Group 37) atop an elevated ridge. Patio Group 37 is considered a lower status group, based on the assessment of the relative status of patio groups based on patio group architectural volume described in Chapter IV. Unit 22 is a 1x2 meter unit oriented north-south, located on the western side of Structure 166 (Figure 6.22). The primary objectives of this excavation were to determine the periods when Structure 166 was constructed and occupied, and to determine whether Structure 166 contained sealed artifact deposits between successive construction phases.

Context 01 consists of a layer of dark brown humus with no cultural material recovered (Figures 6.23, 6.24). Context 02 is a layer of gray/brown loose sandy soil, and contained very few artifacts. Context 03 is a layer of gray sandy soil mixed with gravel, and appears to be the remains of a collapsed superstructure. Ceramics from Context 03 date to the Late Classic. Context 04 is located beneath the central portion of Context 03, and is composed of light sandy soil. Beneath Context 04, an east-west wall was discovered in the center of the unit, and this wall was assigned to Context 05. Context 06 is a plaster floor beneath Context 05. Context 07 is a plaster floor located *above* Context 06, to the north of Context 05. Context 07 appears to have been an interior plaster floor within Structure 166. Contexts 08, 09, and 10 are located directly above Context 07. Context 08 is composed of four rows of fallen, yet still articulated, vault stones. The presence of vault stones leaves no doubt that Structure 166 was originally a vaulted structure. Stylistically, these vault stones are similar to Late Classic vault stones at other

Lowland Maya sites (Martin Rangel, Personal Communication 2007). Context 09 is a layer of loose, lightweight plaster and Context 10 is a layer of gravel construction fill. Ceramics from Context 10 date to the Terminal Classic.

Removal of Contexts 09 and 10 revealed a rectangular cut through Context 07. The cut was assigned Context 11, and Burial 31 was discovered within Context 11 (Figures 6.25, 6.26). Burial 31 is extremely poorly preserved, consisting of nine tooth fragments and several small, unidentified bone fragments. Approximately 20 centimeters west of Burial 31, a small ceramic animal effigy was found (KOL.T.22.07.03.01) within Context 07, and its association with Burial 31 is not clear.

After the discovery of Burial 31, Unit 22 was extended northward 1.5 meters in order to uncover the full extent of Context 11, the burial cut. This extension of the unit into a 3.5 x 1 meter unit revealed Context 13, the interior portion of the posterior wall of the structure, which originally supported the fallen vault stones recovered from Context 08 (Figure 6.27). Context 14 consists of construction fill within Structure 166's posterior wall. Rather than remove Contexts 13 and 14, Unit 22 was reduced to 1 x 2.75 meters, and Context 13 became the northern limit of the excavation.

Context 15 is a layer sandy gravel construction fill located beneath Context 07. Context 16 is a layer of large stones and gravel that appears to have been construction fill. Ceramics from Context 16 date to the Late Classic, suggesting that the superimposed plaster floors and vaulted superstructure all date to the Late Classic. Context 17 is a layer of gray sandy soil containing Late Classic ceramics. Context 18 is a layer of white marl, and Context 19 is bedrock.

Summary of Results:

Overall, the results of this excavation demonstrate that Structure 166 was constructed during the Late Classic, and occupied during the Late Classic and Terminal Classic. Based on the ceramics from the building's subfloor fill, construction of this vaulted building dates to the Late Classic. The burial deposited into a cut in the floor most likely dates to the Terminal Classic. The presence of a vaulted structure in what was presumed to be a lower status structure was unexpected, and the absence of Late Preclassic and Early Classic occupation was also unexpected. One possible explanation is that Structure 166 may belong to a larger patio group unit encompassing one or more nearby patio groups. The form and layout of several small patio groups in this area of the site is somewhat haphazard, and it is possible that the small patio groups northwest of the site core actually form a larger residential unit, which would explain the presence of vaulted architecture in a lower status patio group (Figure 6.28). Furthermore, additional excavations in this patio group and its immediate neighbors may reveal that Structure 166 is a Late Classic structure associated with a patio group with a much longer occupational history.

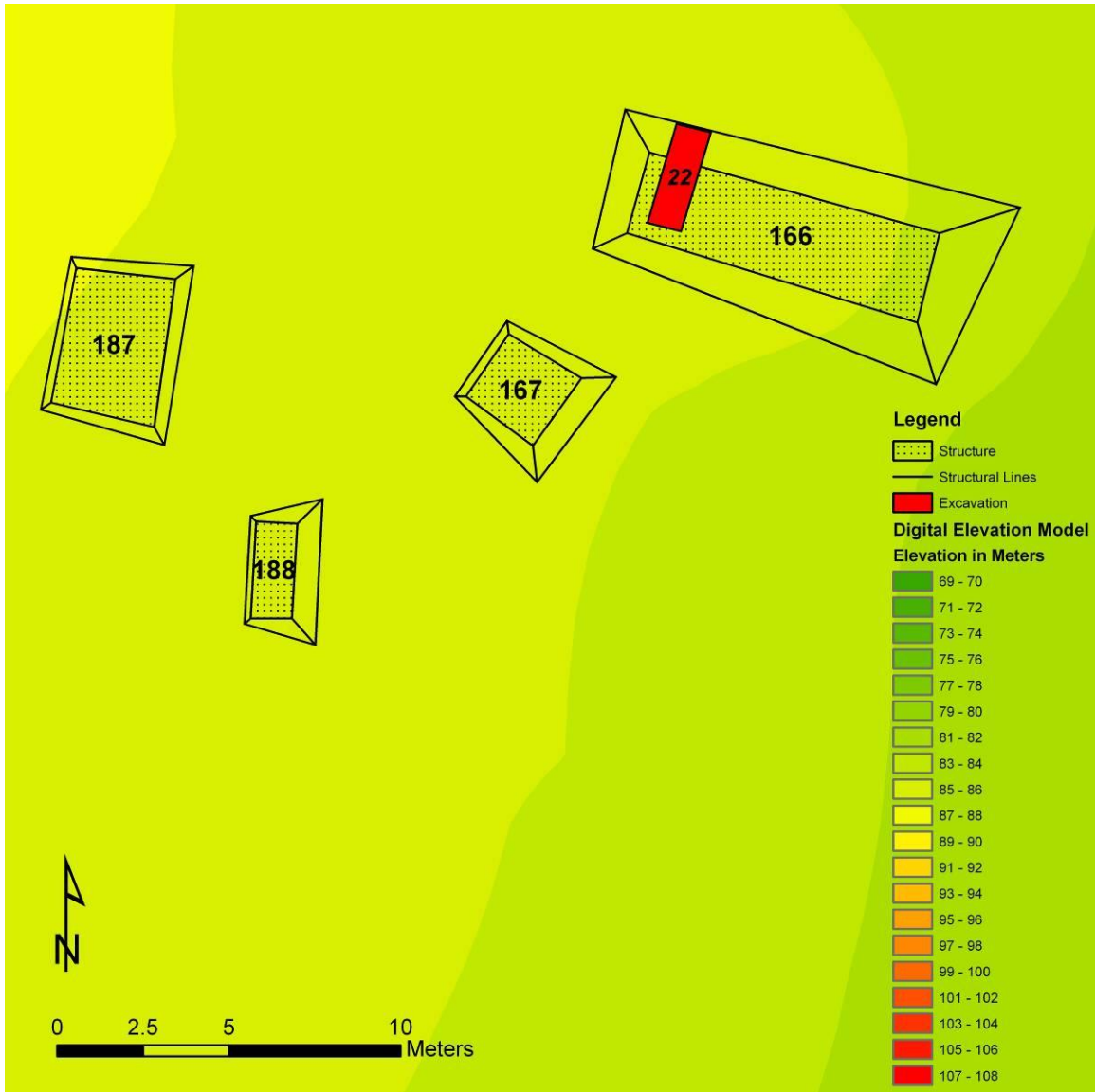


Figure 6.22: Map showing the location of KOL.T.22, Patio Group 37. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

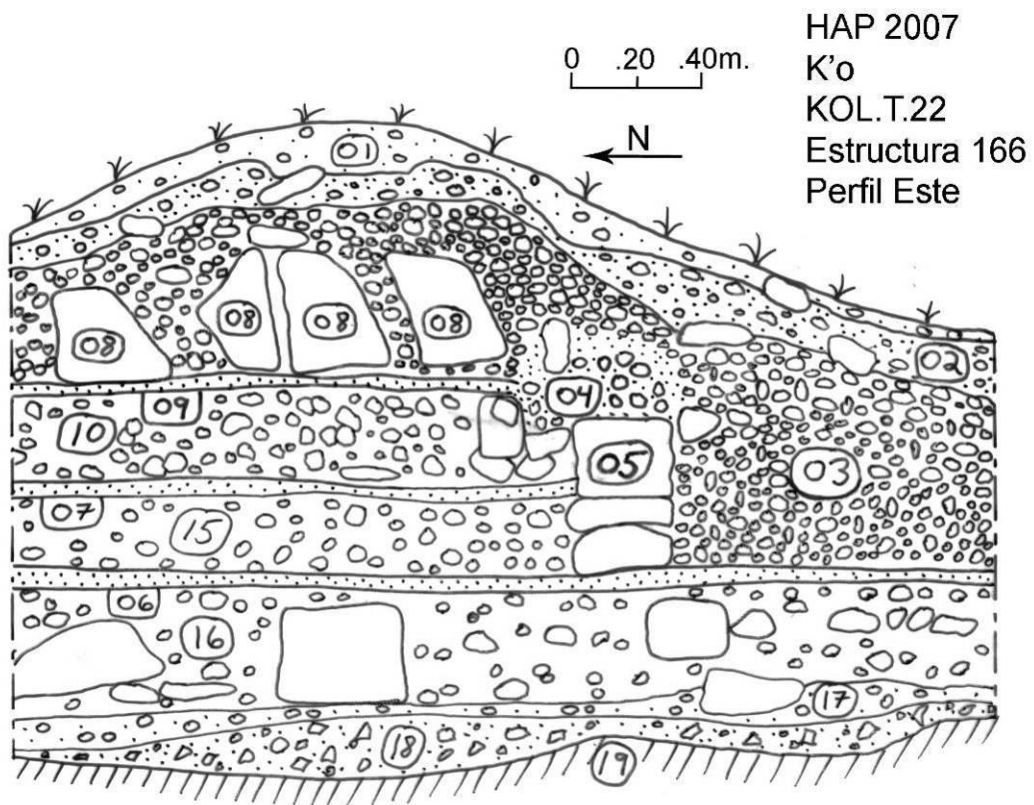


Figure 6.23: KOL.T.22 east profile. Structure 166, Patio Group 37.

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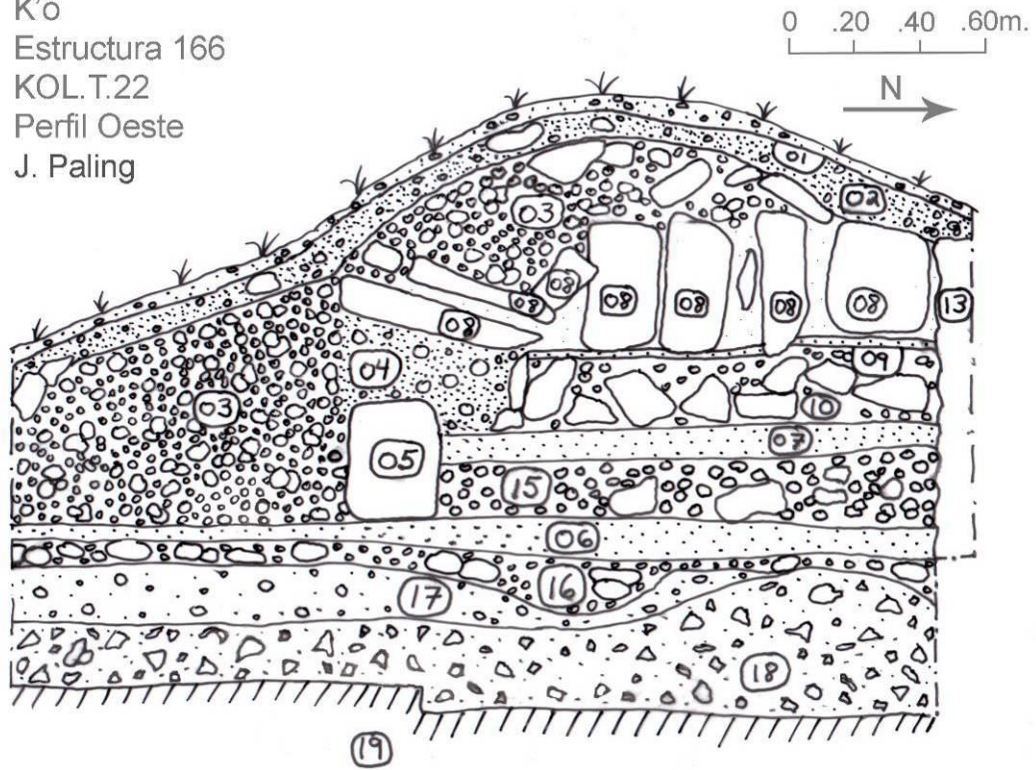


Figure 6.24: KOL.T.22 west profile. Structure 116, Patio Group 37.



Figure 6.25: Photograph of KOL.T.22.12. Structure 116, Patio Group 37.
Photograph by the author.

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Vista Plan
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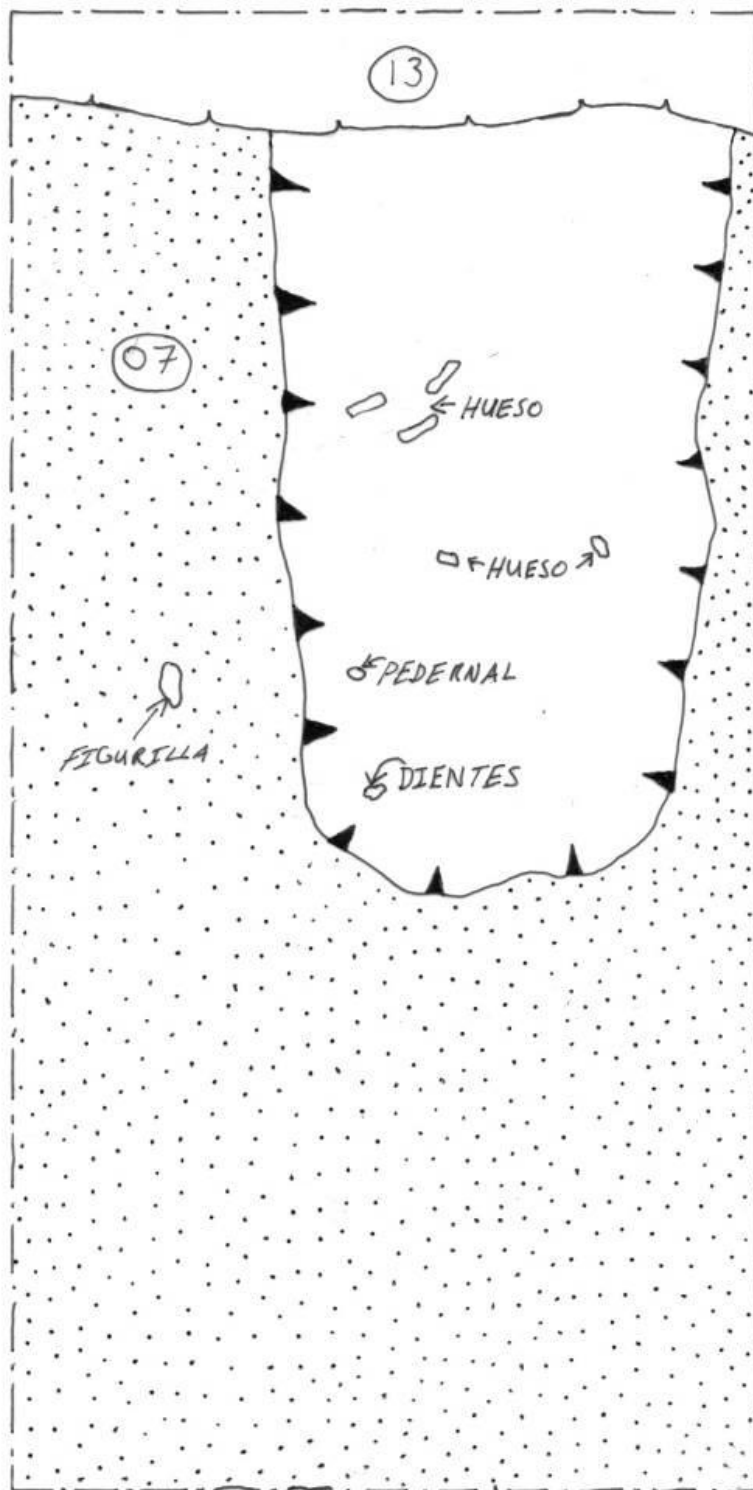
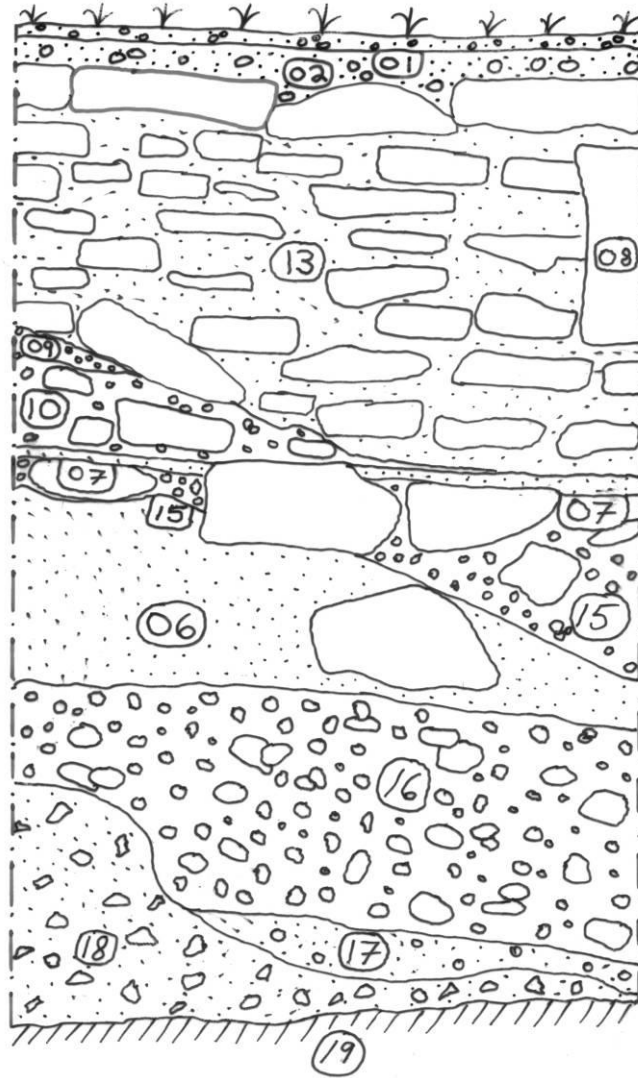


Figure 6.26: Plan view of Burial 31. Structure 116, Patio Group 37.



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Figure 6.27: KOL.T.22 North Profile. Structure 116, Patio Group 37.

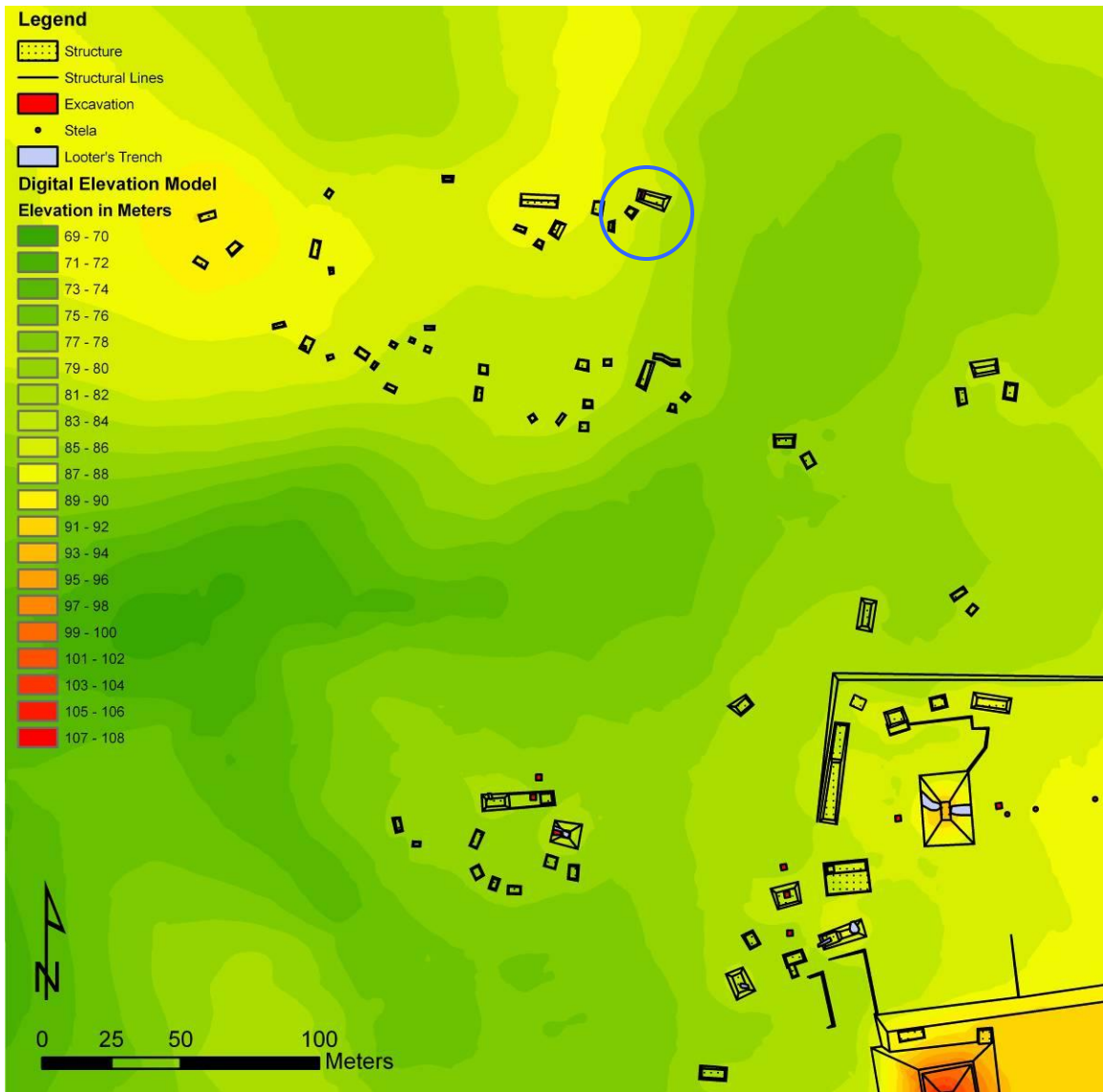


Figure 6.28: Map of the northwest quadrant of K'o, with the location of Patio Group 37 circled (in blue). Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

KOL.T.23

KOL.T.23 investigated Structure 162, the western structure within a three structure patio group (Patio Group 34) approximately 250 meters northwest of the site core (Figure 6.1). Patio Group 34 is considered a lower status group, based on the assessment of the relative status of patio groups based on patio group architectural volume described in Chapter IV. Unit 23 measures 1x2 meters, is oriented east-west, and is located in the western corner of Structure 162 (Figure 6.29). The primary objectives of this excavation were to determine the periods when Structure 162 was constructed and occupied, and to determine whether Structure 162 contained sealed artifact deposits between successive construction phases.

Context 01 consists of a layer of dark brown humus and small gravel, and corresponds to post-depositional organic material mixed with wall collapse or structural fill, and contains Late Classic and Terminal Classic ceramics (Figure 6.30). Context 02 is a compact plaster and gravel floor extending through a portion of the unit, and contains Late Classic ceramics. Context 02 shows evidence of at least two thin layers of plaster which may have been renovations/repairs to the plaster floor within Structure 162. Context 03 consists of a layer of dark gray sandy paleosol with gravel inclusions, and extends throughout the unit. Context 03 is located directly atop bedrock, and ceramics recovered from this context are Late Preclassic.

Summary of Results:

This excavation revealed that Patio Group 34 has evidence of occupation from the Late Preclassic to the Late Classic. Structure 162 was most likely built and occupied

during the Classic period, and the Late Preclassic ceramics from Context 03 likely predate the construction of Structure 162. Due to the lack of well stratified contexts, it is impossible to be more precise regarding the construction history of Structure 162. Finally, the size of Structure 162 and the absence of stone architecture would suggest that Structure 162 supported a perishable superstructure, rather than a masonry building.

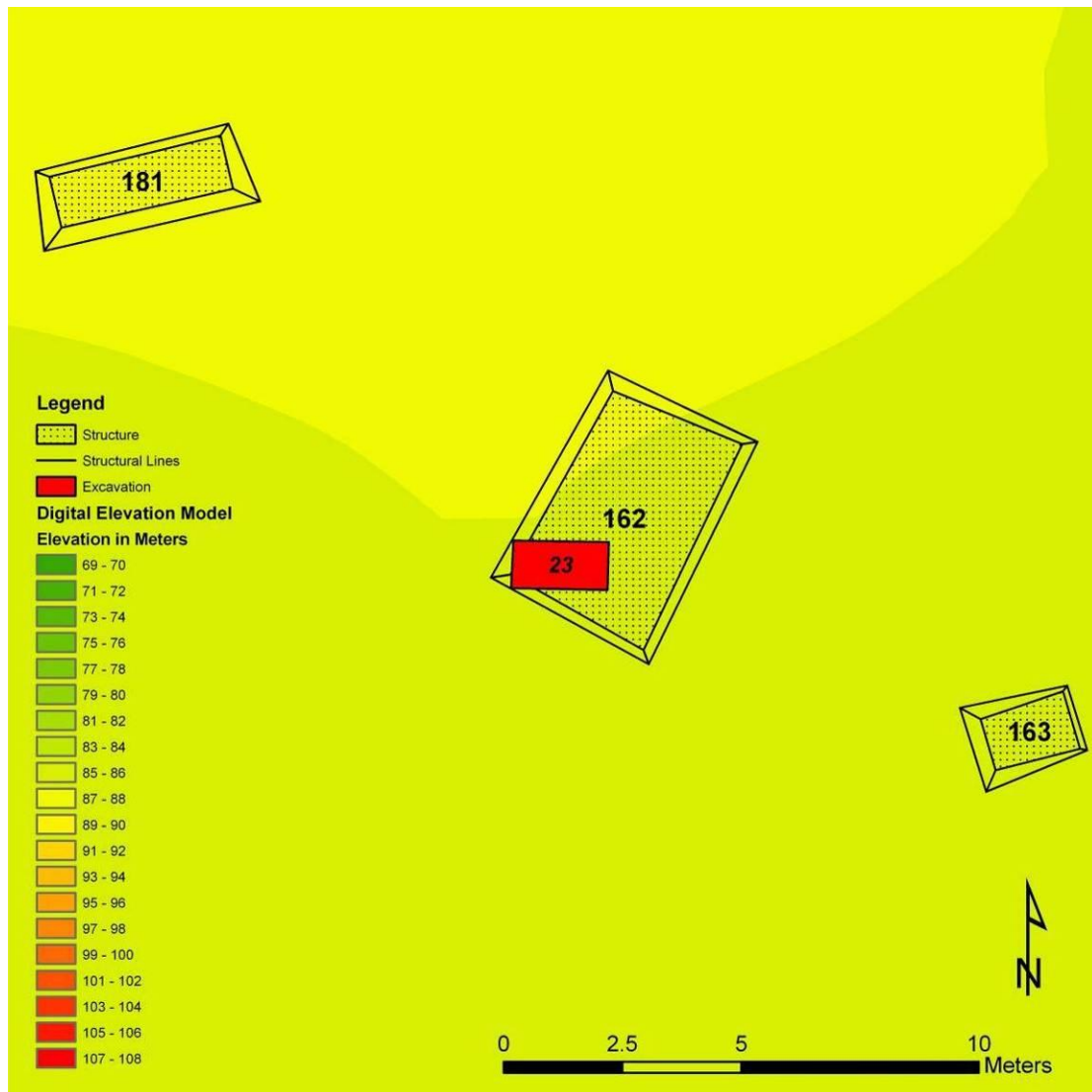


Figure 6.29: Map showing the location of KOL.T.23, Patio Group 34. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

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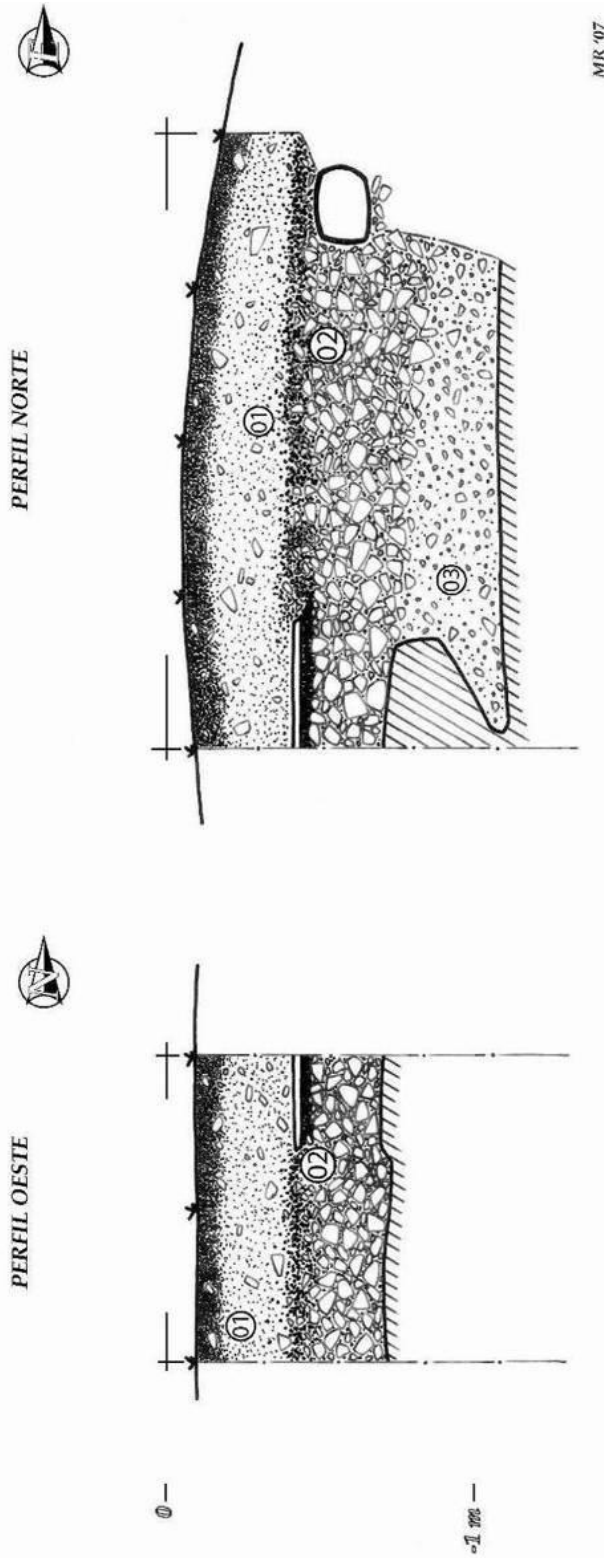


Figure 6.30: KOL.T.23 north and west profiles. Structure 162, Patio Group 34.

KOL.T.36

Unit 36 investigated Structure 44, the northern structure within Patio Group 38, a Plaza Plan 2 type group (Becker 1971,1999) located approximately 100 meters west-northwest of the site core (Figure 6.1). Patio Group 38 is composed of eight structures, and is considered a high status group, based on the assessment of the relative status of patio groups based on patio group architectural volume described in Chapter IV.

KOL.T.36 is a 2x2 meter unit, and is located within the confines of Structure 44 (Figure 6.31). KOL.T.36 was placed in this location in order to determine the periods when Structure 44 was constructed and occupied, and to determine whether Structure 44 contained sealed artifact deposits between successive construction phases.

Context 01 is a 20 centimeter layer of sandy brown humus, and the ceramics from Context 01 date to the Late Classic and Terminal Classic (Figures 6.32, 6.33). Context 01 also contained a row of stones running east-west along the northern edge of the unit. Rather than remove these stones, which were most likely the remains of the superstructure's rear wall, the area of the unit was reduced to 1.80 x 2 meters in all subsequent contexts, in order to avoid disturbing these stones. Context 02 is an approximately 50 centimeter layer of brown sandy loam, and it is sharply separated from Context 01 by the color and consistency of the soil. Most likely, the upper portion of Context 02 was originally a floor and subfloor associated with the final phase of construction. The ceramics from Context 02 date to the Late Classic.

Context 03 is the third and latest plaster floor encountered in this excavation, and Context 04 is composed of subfloor fill beneath Context 03. The ceramics from Context 04 date to the Terminal Preclassic and Early Classic. Context 05 is the second plaster

floor encountered in this unit, and Context 06 is composed of subfloor fill. The ceramics from Context 06 date to the Late Preclassic and Early Classic. Context 07 is a thick, well-preserved plaster floor, and is the earliest floor associated with this structure. The ceramics recovered from within this plaster floor date to the Late Preclassic. Context 08 is composed of subfloor fill, and the ceramics from Context 08 date to the Late Preclassic. Context 09 is composed of very dark brown clay atop bedrock, and the ceramics from Context 09 date to the Late Middle Preclassic and Late Preclassic. Context 09 is most likely paleosol which predates the construction of Structure 44.

Summary of Results:

In total, four floors were encountered in this excavation, three of them plaster floors and one of them a stone floor. The latest of these floors (Context 02) is either a poorly preserved plaster floor or a rustic floor of earth and small stones which dates to the Late Classic. Of the three plaster floors encountered, two of them (Context 03 and Context 05) appear to have been constructed during the Early Classic. The earliest of these floors (Context 07) dates to the Late Preclassic, and this floor is also the thickest and best preserved of all the floors encountered in this unit. Overall, the bulk of construction within Structure 44 dates to the Late Preclassic and Early Classic. The ceramics from the paleosol atop bedrock (Context 09) include Savanna Orange sherds, suggesting that occupation in this area of the site may date to as early as the Late Middle Preclassic. Finally, wall of the cut stones in Context 01 of this excavation suggests Structure 44 supported a building at least partially composed of stone. However, there is

no evidence Structure 44 was a vaulted structure. Most likely, Structure 44 supported a perishable structure with a foundation of cut stones.

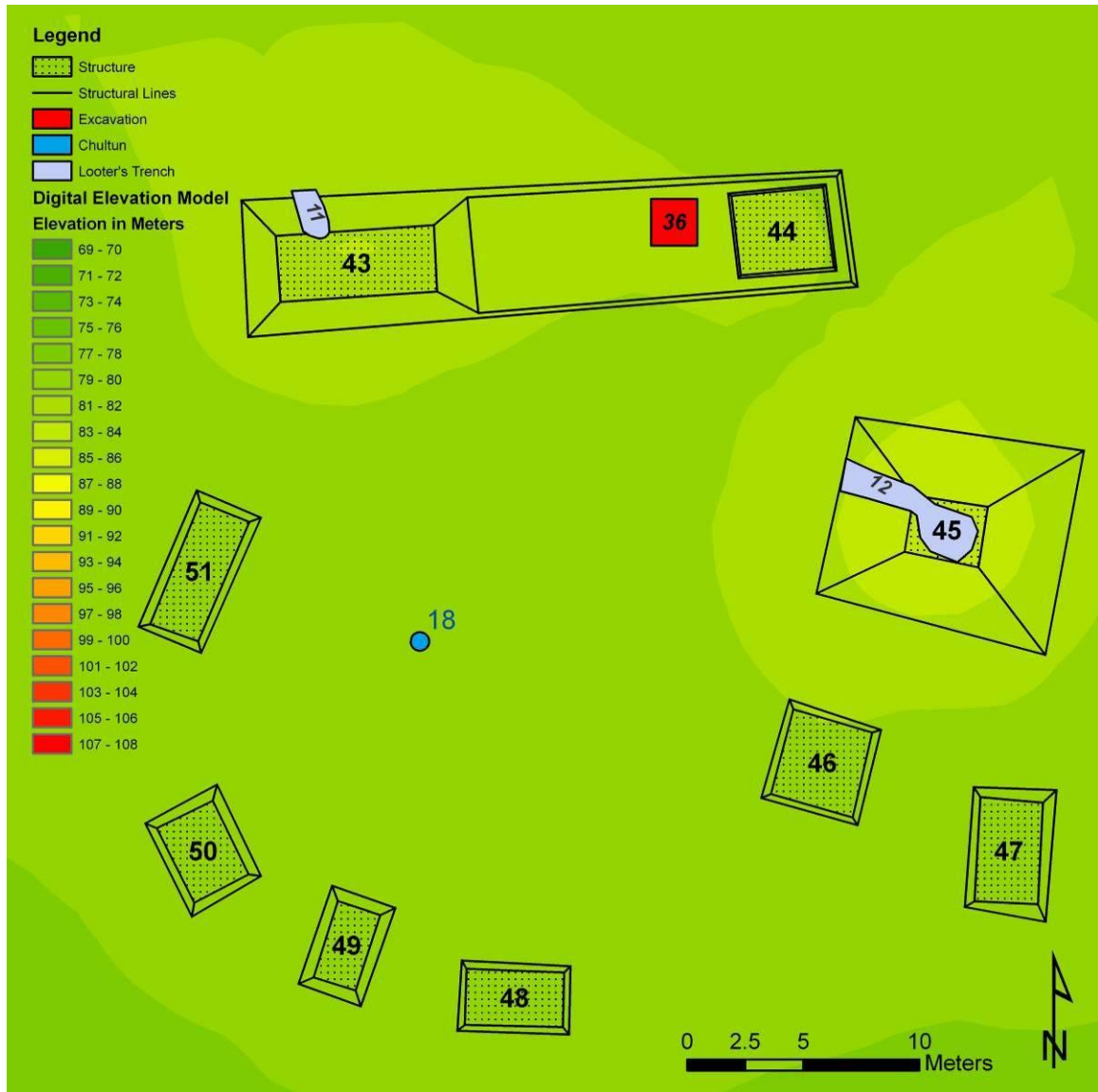


Figure 6.31: Map showing the location of KOL.T.36, Patio Group 38. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

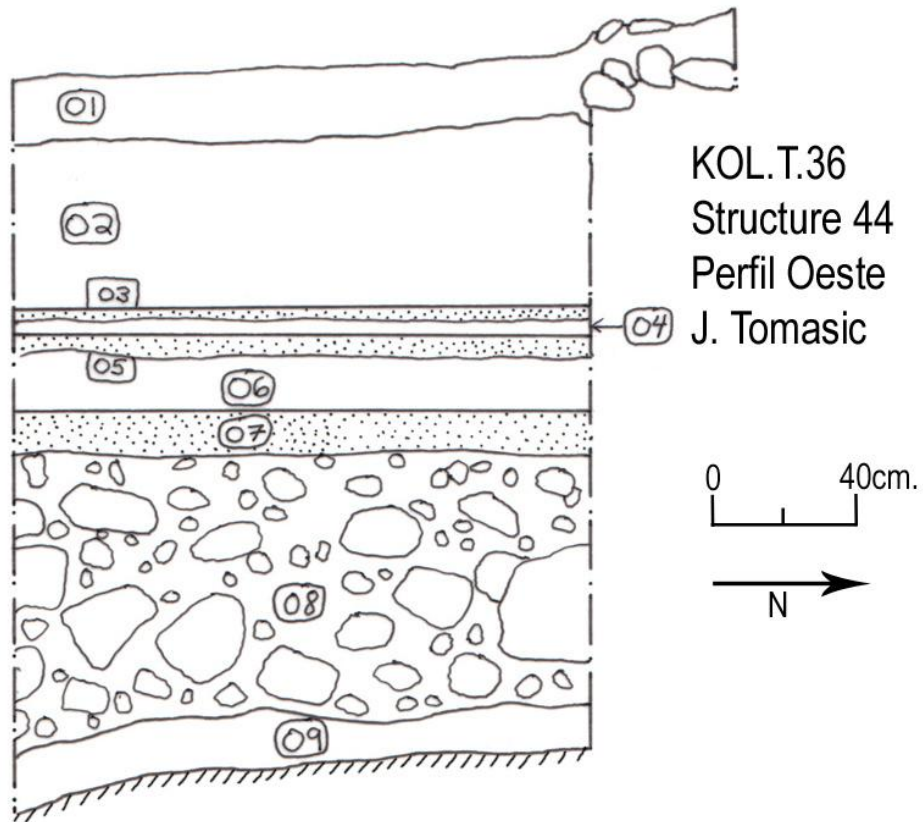


Figure 6.32: KOL.T.36 west profile. Structure 44, Patio Group 38.



**Figure 6.33: Photograph of KOL.T.36 west profile. Structure 44, Patio Group 38.
Photograph by the author.**

General summary of results of Phase 2 excavations

The stratified random excavations within domestic contexts at K'o have been critical in identifying architectural variability, and in generating a representative sample of artifacts from domestic contexts throughout the site and throughout its occupational history. These excavations demonstrate that most patio groups at K'o were occupied continuously from the Late Preclassic to the Late Classic, with some of the groups occupied as early as the Late Middle Preclassic and as late as the Terminal Classic. Furthermore, the stratified random excavations demonstrated that several of the randomly selected structures contained multiple plaster floors covering sealed fill deposits, making several of these structures ideally suited for Phase 3 intensive excavations. In this manner, the stratified random excavations have also ensured that a representative sample of artifacts and architecture would be obtained from the patio groups selected for Phase 3 intensive excavations.

The random sample has also resulted in an excellent distribution of excavations in two high status and seven lower status groups. It was assumed that if enough structures were selected for excavation, the process of randomly selecting structures would produce a representative sample from high and low status patio groups. As seen in the bar graph of patio group architectural volume (Figure 6.34), the patio groups randomly selected and excavated during Phase 2 are relatively evenly distributed along a continuum from low to high status.

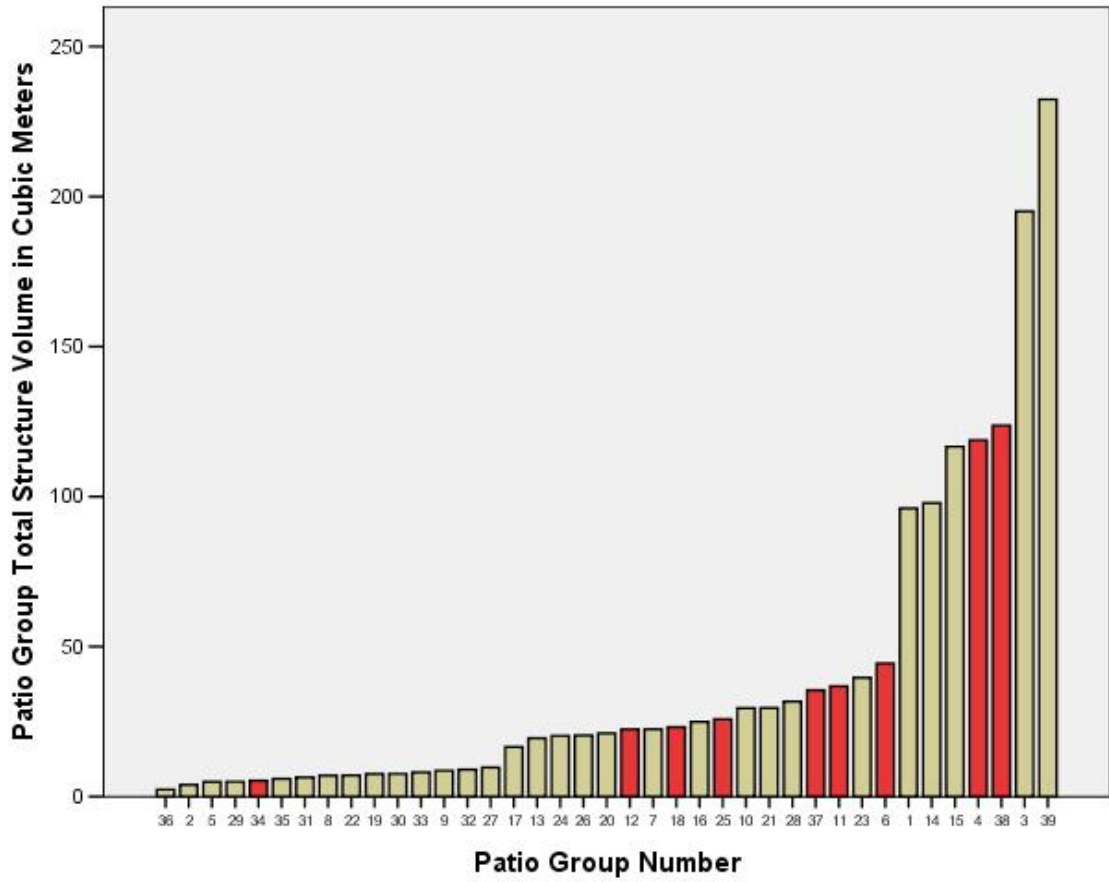


Figure 6.34: Bar graph of patio group total structure volume, with Phase 2 randomly selected patio groups shown in red. Bar graph created in SPSS 13.0.

CHAPTER VII

PHASE 3 INTENSIVE EXCAVATIONS IN PATIO GROUPS

As part of the intensive excavations at K'o, the following five patio groups were selected for further investigation: Group 4, located in the southwest quadrant of the site (Paling 2009); Group 15, located in the southeast quadrant of the site (Rangel 2009); Group 25, located in the northeast quadrant of the site (Tomasic et al. 2009b); Groups 38 and 39, located in the northwest quadrant of the site (Tomasic 2006, 2009b) (Figure 7.1). This chapter describes the factors involved in the selection of patio groups to intensively excavate, and presents a summary of the results of these excavations.

Selection of patio groups for Phase 3 excavation

The selection of areas to intensively excavate was influenced by three factors. The primary factor in the selection of patio groups for intensive excavation was the data generated from all previous excavations. Patio groups which were known to contain well-defined Late Preclassic *and* Classic period contexts were considered ideal candidates for intensive excavation. A secondary factor in the selection of patio groups for intensive excavation was the total volume of patio group architecture as it related to relative patio group status. In order to ensure that a representative sample would be obtained from high status and low status groups, the architecturally-based ranking of patio groups according to status was considered. Rather than simply choosing the largest and smallest patio groups at the site, the position of patio groups along this continuum

from low to high status was considered. The third factor in the selection of patio groups for intensive excavation was the location of patio groups within the four stratified quadrants of the site created as part of the stratified random sampling strategy. Ideally, it was hoped that at least one intensive excavation would be located in each of the four quadrants, ensuring that the intensive excavations would not be clustered within a single region of the site. By taking into account all three of these factors, I have attempted to minimize the number of unproductive, unnecessary excavations, while maximizing the probability of obtaining a representative sample of artifacts indicative of patterns in wealth distribution in high and low status contexts.

In general, the careful selection of areas to intensively excavate has resulted in an excellent sample from patio groups at K'o. However, the one drawback to this method is that the intensive sample was obtained from a larger than ideal number of high status patio groups and, as a result, the overall sample is skewed toward the upper end of the structure continuum (Figure 7.2). During the stratified random excavations, a number of low status contexts did contain Preclassic and Classic period deposits, but the absence of plaster floors made these contexts poor choices for intensive excavations in 2008, given that chronological control of artifacts was essential to this study. By selecting of areas to intensively excavate based on the presence of stratified contexts from the Late Preclassic to the Late Classic, an unintended result is that the sample has been obtained from a larger than ideal proportion of high status contexts. Although certainly not ideal, the methods employed in selecting areas for intensive excavation have resulted in an otherwise excellent sample of Late Preclassic and Classic period artifacts and architecture from patio groups across the site and throughout its occupational history.

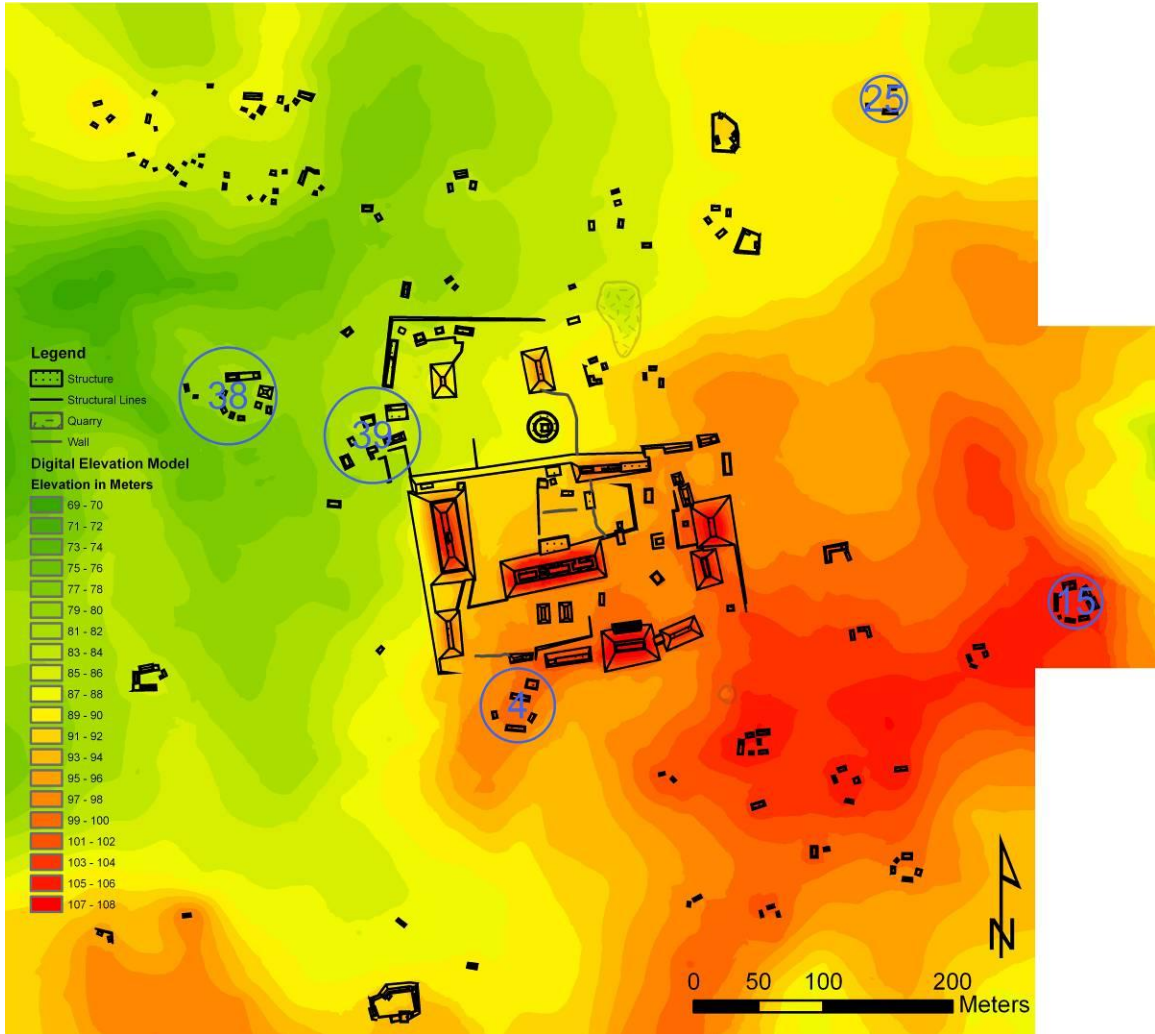


Figure 7.1: General map of K'o, with patio groups selected for Phase III intensive excavation circled in blue. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

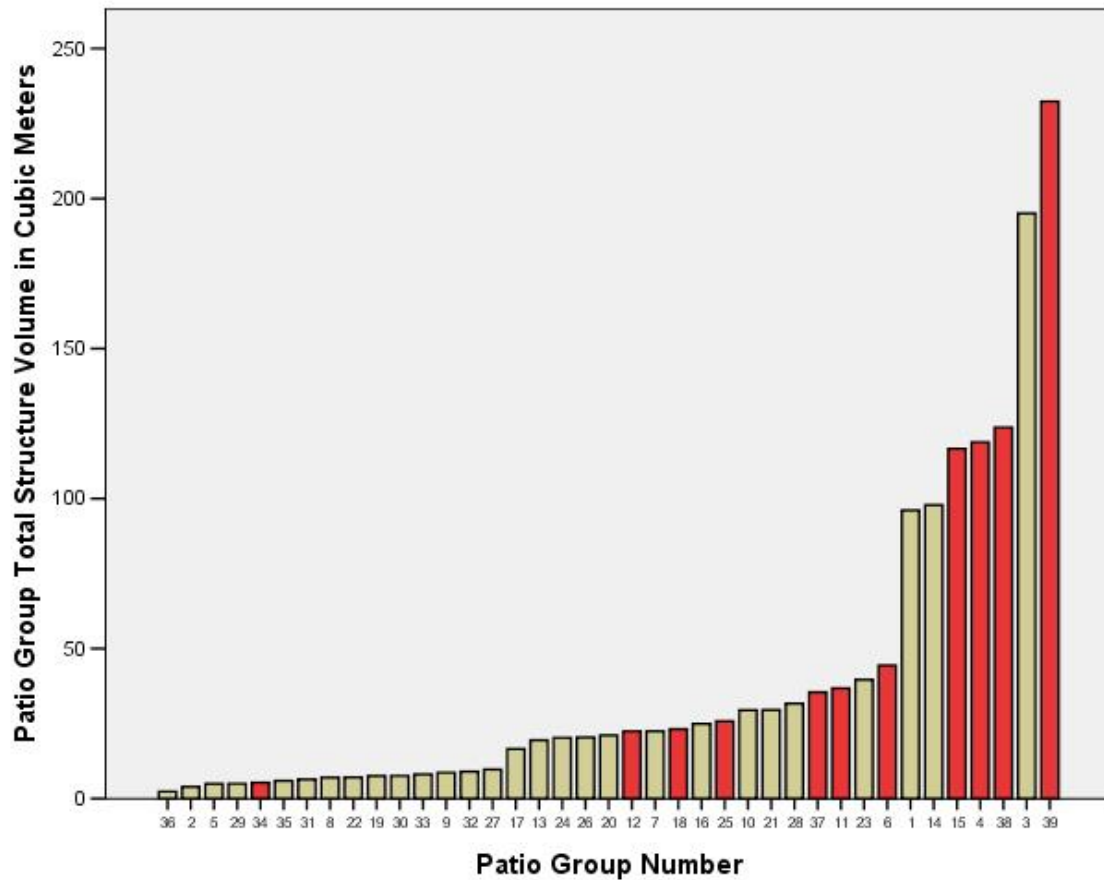


Figure 7.2: Bar graph of the total volume of patio groups, with all excavated patio groups shown in red. Bar graph created in SPSS 13.0.

Phase III Patio Group Excavation Methodology

As part of the intensive excavation program, five patio groups were subjected to broad horizontal excavations. In this manner, intensive excavations took place within five of thirty-nine patio groups, resulting in an approximately 12 percent sample of patio groups. Within each patio group, excavations were placed within ancillary structures, midden areas, and activity areas beyond the confines of the original excavation, and each unit was excavated to sterile soil. Broad exposure of domestic activity areas were needed to identify patterns in the distribution of wealth which might not have been evident from

excavations within the confines of structures (Smith 2004:85). As numerous studies have shown, household activities often occurred outdoors, and artifactual debris is often located in peripheral areas around structures (Hirth 1993; Robin 2003; Webster and Gonlin 1988; Wilk and Ashmore 1988).

In addition to intensive excavations, salvage excavations were also conducted within looters' trenches located within the intensively excavated patio groups, to maximize the amount of information gathered about each building in the group (Tomasic 2006a, Tomasic et al. 2009a). Four of the five patio groups contained at least one looters' trench, and these salvage excavations have provided additional data regarding the distribution of wealth within these intensively excavated patio groups.

Excavations in Group Four

The Phase 2 excavations in Group 4 revealed evidence of occupation from the Late Preclassic to Terminal Classic period. Furthermore, the presence of multiple plaster floors in Structure 60 suggested that intensive excavations in this patio group would likely produce a series of stratified deposits spanning the entire occupational sequence at K'o. Patio Group 4 is considered a high status group, based on the assessment of the relative status of patio groups based on patio group volume described in Chapter IV.

KOL.T.25

Unit 17 investigated Structure 62, the northernmost structure within Patio Group 4. This excavation unit measures 2m², and is located approximately one meter south of Structure 62, and three meters east of the building's north-south axis (Figure 7.3).

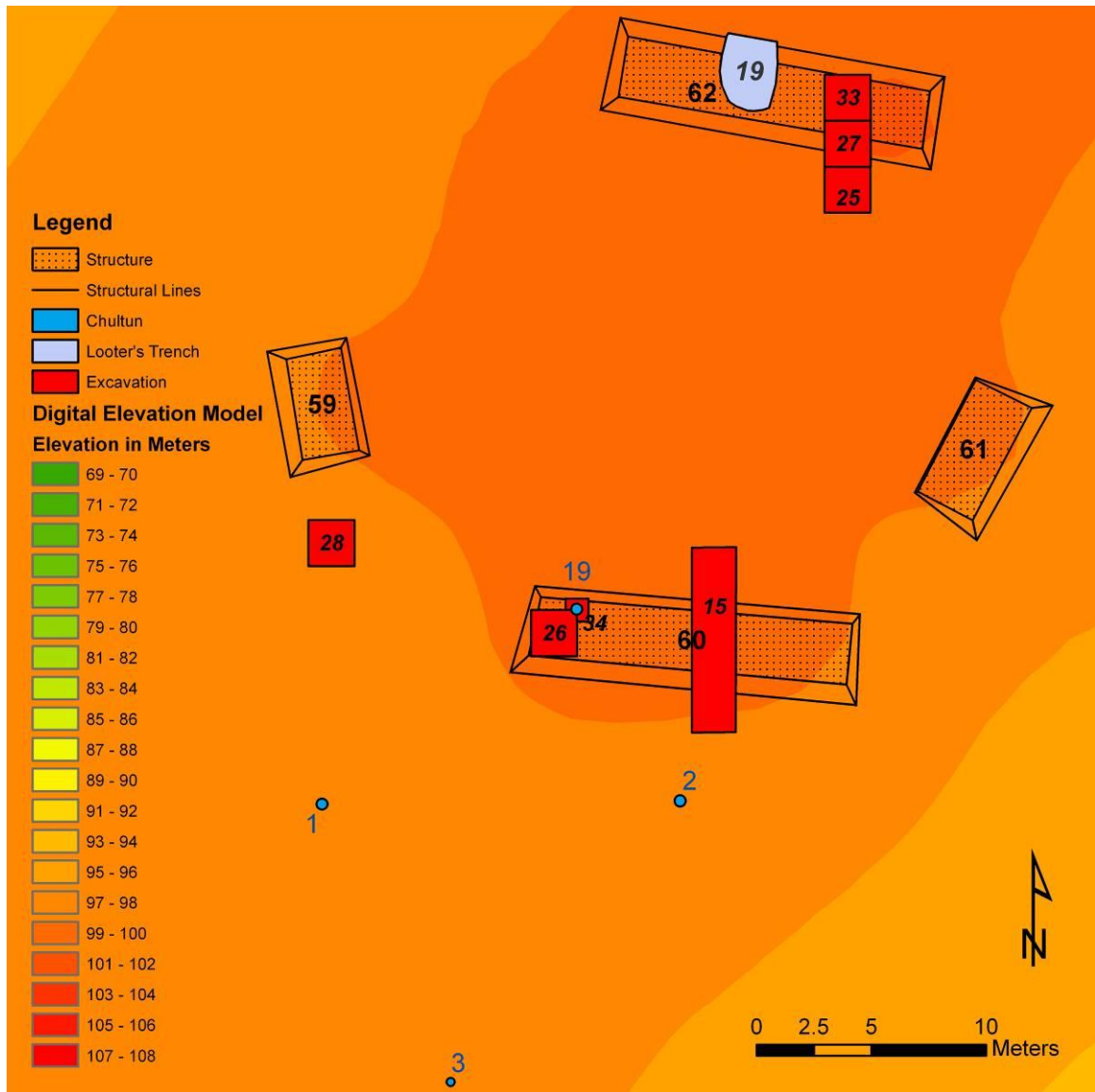


Figure 7.3: Map of Patio Group 4
 Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

Context 01 is a 20-40 centimeter thick layer of humus, and Context 02 is a layer of large stones which appear to be collapsed material from Structure 60 (Figures 7.4, 7.5). The ceramics from Context 02 date to the Late Classic. The removal of Context 02 revealed two walls made of cut stone blocks (Context 03) forming a doorway on the southern side

of the structure. To the south of this doorway is Context 06, a poorly preserved plastered stone step or plinth running parallel to the doorway along the southern edge of the structure. To the south of the plinth is a plaster floor (Context 04) which extends throughout northern portion of the unit. The plaster floor (Context 04) was not present in the southern portion of the unit, and this area was designated Context 05. The ceramics from Context 05 date to the Late Classic.

Directly south of and adjacent to Context 06, a 1 x 1 meter area was excavated through the plaster floor (Context 04), until arriving at bedrock (Figure 7.6). Context 07 is located beneath Context 04 and is composed of subfloor fill. Ceramics from Context 07 date from the Late Preclassic to the Late Classic. Context 08 is a layer of gray-brown sand beneath Context 07 and directly atop bedrock. The ceramics from Context 08 date to the Late Preclassic and Late Classic periods. Based on the ceramics recovered from Contexts 07 and 08, the plaza floor on the southern side of Structure 60 was most likely constructed during the Late Classic.

KOL.T.27

KOL.T.27 is a 2 x 2 meter unit placed directly north of and adjacent to KOL.T.25, in order to expose more of the doorway (Context 03) exposed in KOL.T.25 as well as the internal architecture of the structure.

Context 01 is an approximately 20 centimeter thick humus layer, and Context 02 is composed of gray sandy soil and large stones, including several vault stones, which appear to be collapsed material from the building's superstructure (Figures 7.4, 7.5). In

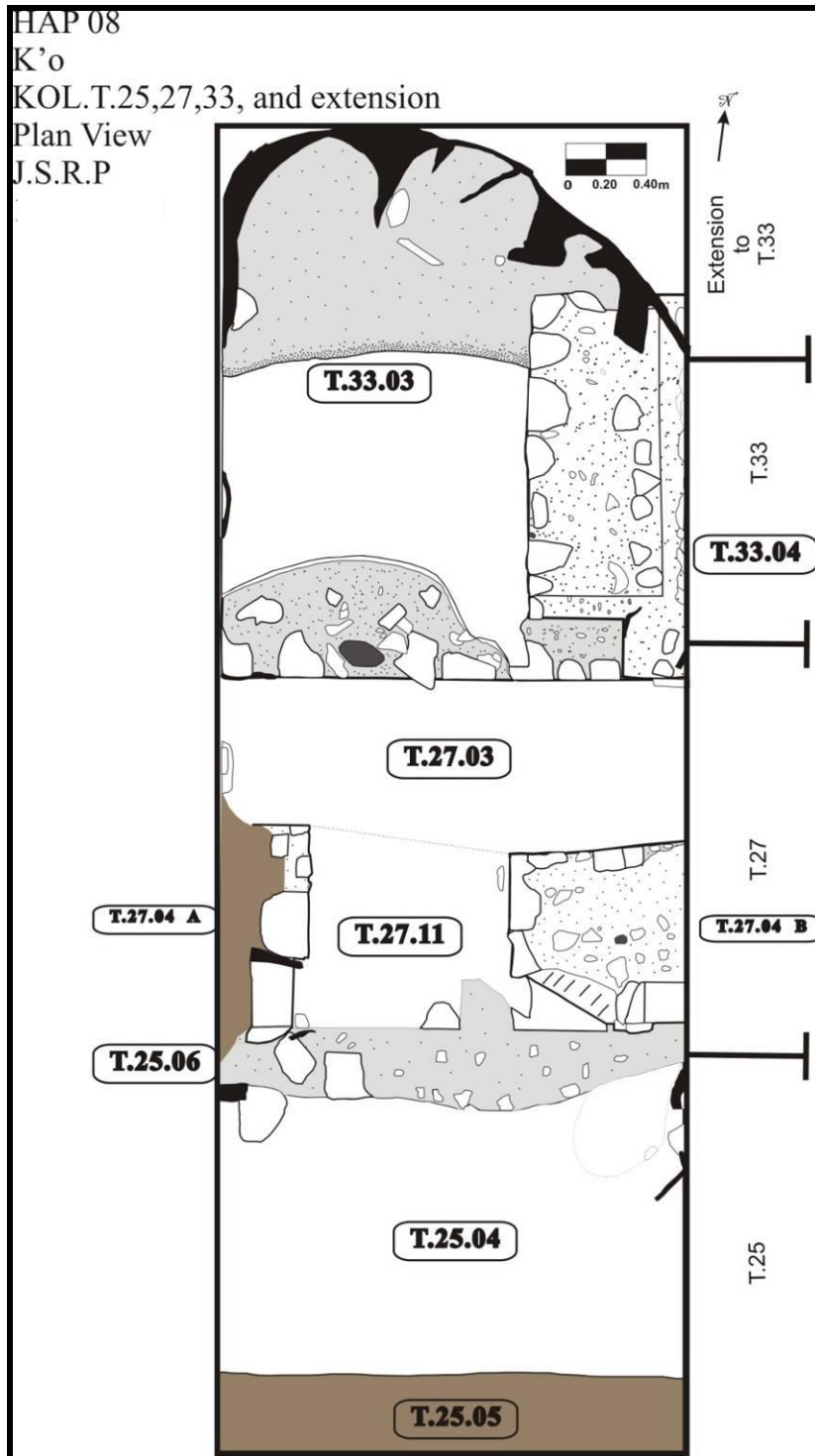


Figure 7.4: Plan view of KOL.T.25, KOL.T.27, and KOL.T.33. Structure 62, Patio Group 4. Black bars along eastern side of plan drawing represent the dividing lines between KOL.T.25, KOL.T.27, and KOL.T.33. Patio Group 4.

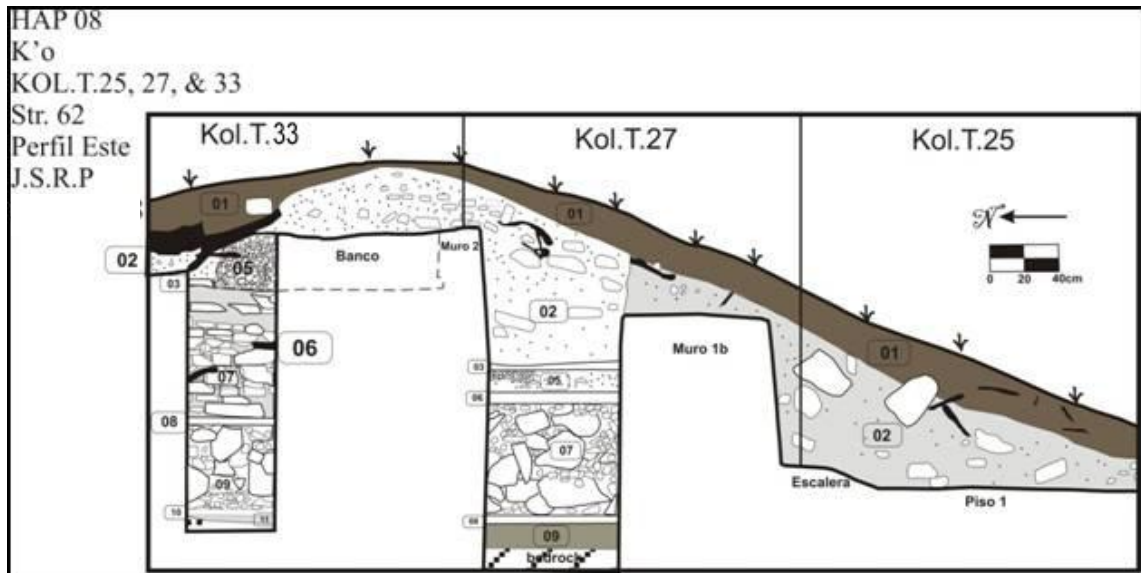


Figure 7.5: East Profile of KOL.T.25, KOL.T.27, and KOL.T.33. Structure 62, Patio Group 4.

in addition to ceramics and lithics, a jade bead was found within Context 02, and the ceramics recovered from Context 02 date to the Late Classic. Following the removal of Context 02, a plaster floor (Context 03) was discovered in the southern portion of the unit. This plaster floor (Context 03) forms the threshold of doorway exposed in KOL.T.25, and the floor extends north beyond the doorway approximately 70 centimeters, forming the floor of an interior room of Structure 60. The northern edge of this floor abuts a 40 centimeter high wall of cut stone blocks (Context 04) running along the northern edge of KOL.T.27

In order to better understand the sequence and timing of construction, an approximately 50cm² area of Context 03 in the eastern portion of the unit was excavated to bedrock. Beneath Context 03, Context 05 is a layer of subfloor fill containing Early Classic, Late Classic, and Terminal Classic period ceramics. Beneath Context 05, a second plaster floor (Context 06) and subfloor (Context 07) were encountered, and the

ceramics from Context 07 date to the Late Classic. Beneath Context 07, a third floor was encountered (Context 08), and Context 09 is a layer of subfloor fill directly atop bedrock. Unfortunately, no datable ceramics were discovered within Context 09.



Figure 7.6: Photograph (looking north) of KOL.T.25, KOL.T.27, and KOL.T.33 following excavation. Structure 62, Patio Group 4. Photograph by Jason Paling.

KOL.T.33

KOL.T.33 is a 2.5 x 2 meter unit placed directly north of and adjacent to KOL.T.27, in order to expose more of the 40 centimeter high wall (KOL.T.27.04) exposed along the northern edge of KOL.T.27. Context 01 is composed of a 10-30 centimeter layer of humus and piedrin, and Context 02 is composed of collapsed material from the building's superstructure (Figures 7.3-7.4). Ceramics from Context 01 and Context 02 date to the Late Classic. Context 03 is a plastered surface which extends throughout the majority of the unit and articulates with the edge of the wall encountered in KOL.T.27.04. Clearly, the plastered surface (KOL.T.33.03) and the wall (KOL.T.27.04) were part of a single construction episode.

In the eastern portion of the KOL.T.33, Context 03 articulates with Context 04, a slanted plastered stone feature approximately 30 cm. high and oriented north-south, or roughly perpendicular to the wall encountered in KOL.T.27.04. The plastered surface of Context 03 curves upward and actually overlaps the base of the plastered feature encountered in KOL.T.33.04; this would suggest that the stone feature encountered in KOL.T.34.04, the plastered surface (Context 03) it articulates with, as well as the stone wall encountered in KOL.T.27.04, were all built as part of a single construction episode.

Originally, the plastered surface of KOL.T.33.03 was interpreted as a floor, and the slanted plastered stone feature in the eastern portion of the unit (KOL.T.33.04) was interpreted as a bench (Paling 2009). However, comparative architectural data from Holmul suggests what has been interpreted as a floor and a bench is actually a very large bench with a slanted stone and plastered arm-rest (Figure 7.7). Holmul's Group III, Court B is an elite palace complex containing a series of elaborate benches, and Bench 4



Figure 7.7: Southern entryway to Structure 62 and inner bench with side-arm, Patio Group 4. Photograph by Jason Paling.

and Bench 5 (Estrada-Belli 2001: Figures 9, 11) are quite similar in form to the bench excavated at K'o. In particular, the slanted masonry and plaster side-arms of the Holmul benches are very similar to the raised plastered stone feature (KOL.T.33.04) encountered in this excavation. Furthermore, the front of the Holmul benches and their large plastered surfaces are very similar to the plastered surface (KOL.T.33.03) and the wall (KOL.T.27.04) encountered at K'o. Based on this comparative data, the architecture

exposed in KOL.T.33 can best be interpreted as a large bench with a slanted masonry and plaster side-arm, stylistically similar to Benches 4 and 5 at Holmul's Group III, Court B.

In order to better understand the timing of construction of the K'o bench, an approximately 50 cm² area was excavated near the northeast corner of the unit. Beneath the plastered surface of the bench (Context 03) and its arm-rest (Context 04), Context 06 is a layer of construction fill containing Late Classic ceramics. Context 07 is a stone wall running north-south along the extreme eastern edge of the unit. This wall runs behind the arm-rest along the entire north-south length of the bench, and appears to have been the eastern wall of the room.

Beneath Context 06, a second plaster floor (Context 08), and a layer of construction fill (Context 09) containing Early Classic and Late Classic ceramics. Context 10 is the third plaster floor encountered in this excavation, and beneath Context 10 is a layer of sterile construction fill (Context 11) directly atop bedrock.

Summary of Results in KOL.T.25, KOL.T.27, and KOL.T.33:

Based on these excavations, it is clear that Structure 62 went through three major construction episodes. Although the dating of the earliest construction episode is uncertain, the final two construction episodes can be securely dated to the Late Classic. However, ceramics recovered from the plaster floor in front of the bench (KOL.T.27.03), suggest construction of the bench may date to as late as the Terminal Classic. If the bench does indeed date to the Terminal Classic, this would be one of the latest construction activities known to have occurred at the site. In fact, this bench and the

circular structure (Structure 20) in the site's northern plaza would be the only structures known to have been constructed during the Terminal Classic.

Structure 62 has been interpreted as part of a high status patio group, based on the assessment of patio group relative status based on total structure volume. The discovery of vault stones from the building's superstructure, combined with the discovery of a bench extremely similar to the benches in Holmul's elite residences suggests Structure 60 was a high status residence during the Late and Terminal Classic.

KOL.T.26

This excavation investigated Structure 60, the southernmost structure in Patio Group 4 (Figure 7.3). The Phase 2 excavation within Structure 60 (KOL.T.15) revealed evidence of multiple construction phases dating from the Late Preclassic to the Terminal Classic. As part of the Phase 3 intensive excavations of Group 4, KOL.T.26 was placed along the western edge of Structure 60 in order to expose more of the stratified deposits excavated during the Phase 2 excavations along the centerline of Structure 60.

Context 01 is a 20 centimeter thick layer of humus, and Context 02 is a layer of sandy soil with cobbles and pebbles (Figure 7.8). Within Context 02, a poorly preserved burial consisting of seven teeth and a number of small bone fragments was discovered and assigned to Context 03. The burial was oriented north-south, with the head to the south. This burial is quite similar in preservation and burial form to Burial 30, found a few meters to the east in KOL.T.15; both burials stratigraphically date to the Late Classic. Osteological analysis of the fragmentary skeletal remains suggest the bones in

Context 3 belong to an individual who was between ten and twelve years of age at death (Matute 2009).

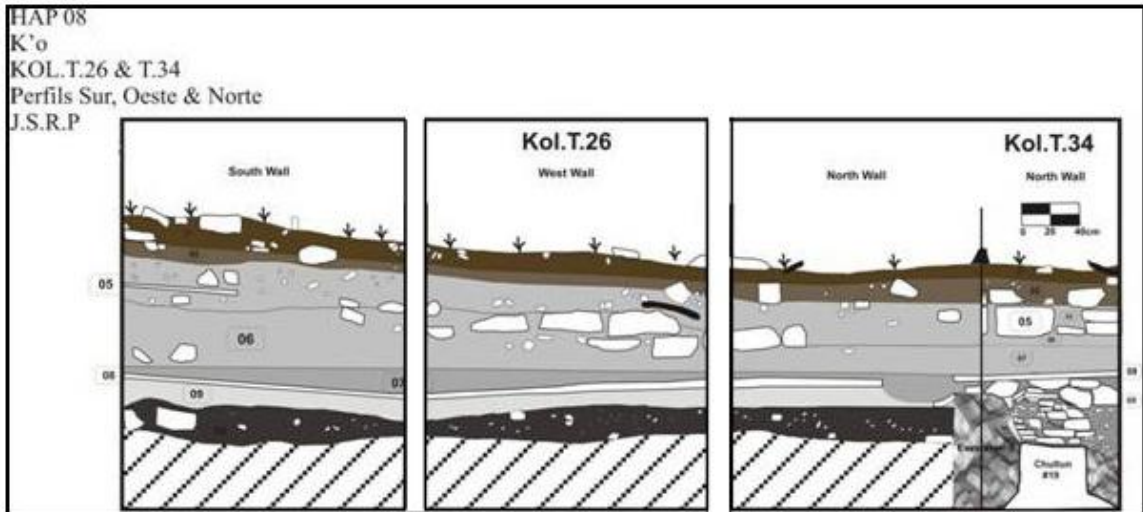


Figure 7.8: South, west, and north profiles of KOL.T.26, and north profile of KOL.T.34 and Chultun 19, Patio Group 4.

Beneath Context 02 and the burial in Context 03, Context 04 is a layer of gray sandy soil atop a plaster floor (Context 05). The plaster floor (Context 05) is best preserved in the southern portion of the unit. Context 06 is a layer of subfloor fill, and the ceramics from this context date to the Late Preclassic and Early Classic. Context 07 is a layer of sandy soil, and the ceramics from Context 07 date to the Late Preclassic and Late Classic. Beneath Context 07, a second plaster floor was encountered, and this floor (Context 08) extends across the entire unit. The ceramics recovered from the subfloor fill (Context 09) date to the Late Preclassic. Context 10 is a layer of gray sandy soil atop bedrock, and the ceramics from this context date to the Late Preclassic.

Following the removal of the plaster floor in Context 08, a large stone was discovered in the northeast corner of the unit. The excavation of Context 09 and 10 revealed the large stone to be covering what appeared to be a chultun. The stone covering the chultun was designated Context 11, and excavations were extended to the northeast in order to fully expose KOL.T.26.11 and the chultun entrance.

KOL.T.34

KOL.T.34 is a 1-x-1 meter unit located on the northeast corner of KOL.T.26 (Figure 7.3). The southwest quadrant of KOL.T.34 overlaps 50 cm² of the northeast corner of KOL.T.26, so that the area excavated within KOL.T.34 is actually an L-shaped area measuring 75cm², rather than 1m².

Context 01 and Context 02 of KOL.T.34 are identical in composition to Context 01 and Context 02 of KOL.T.26 (Figure 7.8). Given that the burial encountered in KOL.T.26 was assigned to Context 03, this context number was not used in KOL.T.34 so that the contexts of KOL.T.34 and KOL.T.26 might continue to share the same context numbers.

Context 04 is identical to Context 04 of KOL.T.26, but Context 05 is a row of three stone blocks running east-west. Most likely, Context 05 is the northern wall of one of the later versions of Structure 60, associated with the Late Classic plaster floor in KOL.T.26.05. Context 06 and Context 07 of KOL.T.34 are identical in composition to Context 06 and Context 07 of KOL.T.26. Context 08 is the same plaster floor encountered in KOL.T.26.08. Context 09 was composed of subfloor fill combined with a

layer of stones surrounding the opening of the chultun and forming a rim on which the chultun lid (KOL.T.34.10) would rest.

The 40 cm. diameter chultun lid (KOL.T.34.10) was discovered within the mouth of the chultun, slightly angled, and resting upon a layer of large stones blocking the entrance. The stone fill blocking the chultun entrance was designated Context 11, and consisted of stacks of large and small cut and uncut stones. Ceramics from Context 11 date to the Late Preclassic.

Following the removal of Context 11, the chultun (designated Chultun 19) was found to be composed of two main chambers separated by a raised platform beneath the chultun entrance (Figure 7.9). The eastern chamber was largely devoid of artifacts, and the western chamber contained an elaborate burial (KOL.T.34.15) accompanied by a number of grave goods, including a jade bead and eight whole vessels (Figure 7.10).

Upon discovery, it was clear that the burial had been disturbed by large stones from Context 11 which sealed the entrance to the chultun, and which had fallen atop portions of the burial at some point in antiquity (Figure 7.11). The fallen stones from the chultun entrance into the western chamber were designated Context 12 and Context 13. A layer of white sandy soil within the western chamber was designated Context 14, and the ceramic sherds recovered from Context 14 date to the Late Preclassic. Ceramic sherds from the fill of the east chamber (Context 31) date to the Late Preclassic.

The individual in burial KOL.T.34.15 was laid to rest prone and extended, with the upper body oriented to the south (Figure 7.12). The arms are flexed, with the hands crossed near the midsection across the ventral side of the body. Although seemingly unusual, burials in the extended prone position are quite common at the Belize River

Valley sites of Baking Pot and Barton Ramie (Welsh 1988). Although somewhat speculative, the orientation of the body could indicate shared regional burial customs between K'o and sites in the Belize River Valley.

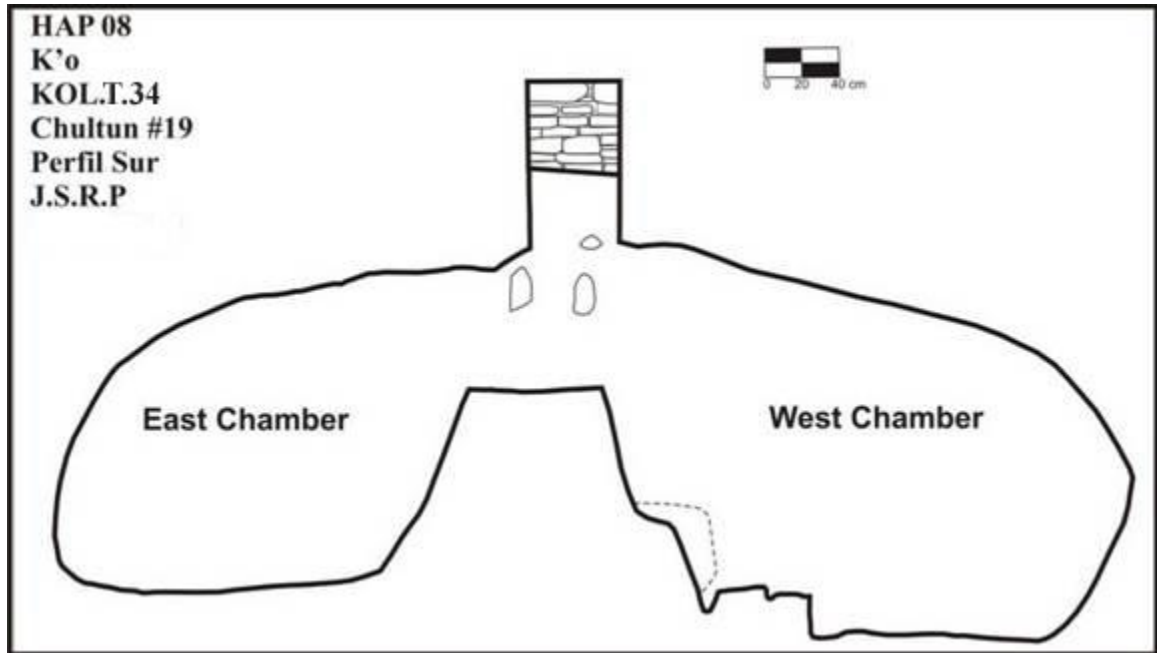


Figure 7.9: South profile of Chultun 19, Patio Group 4.

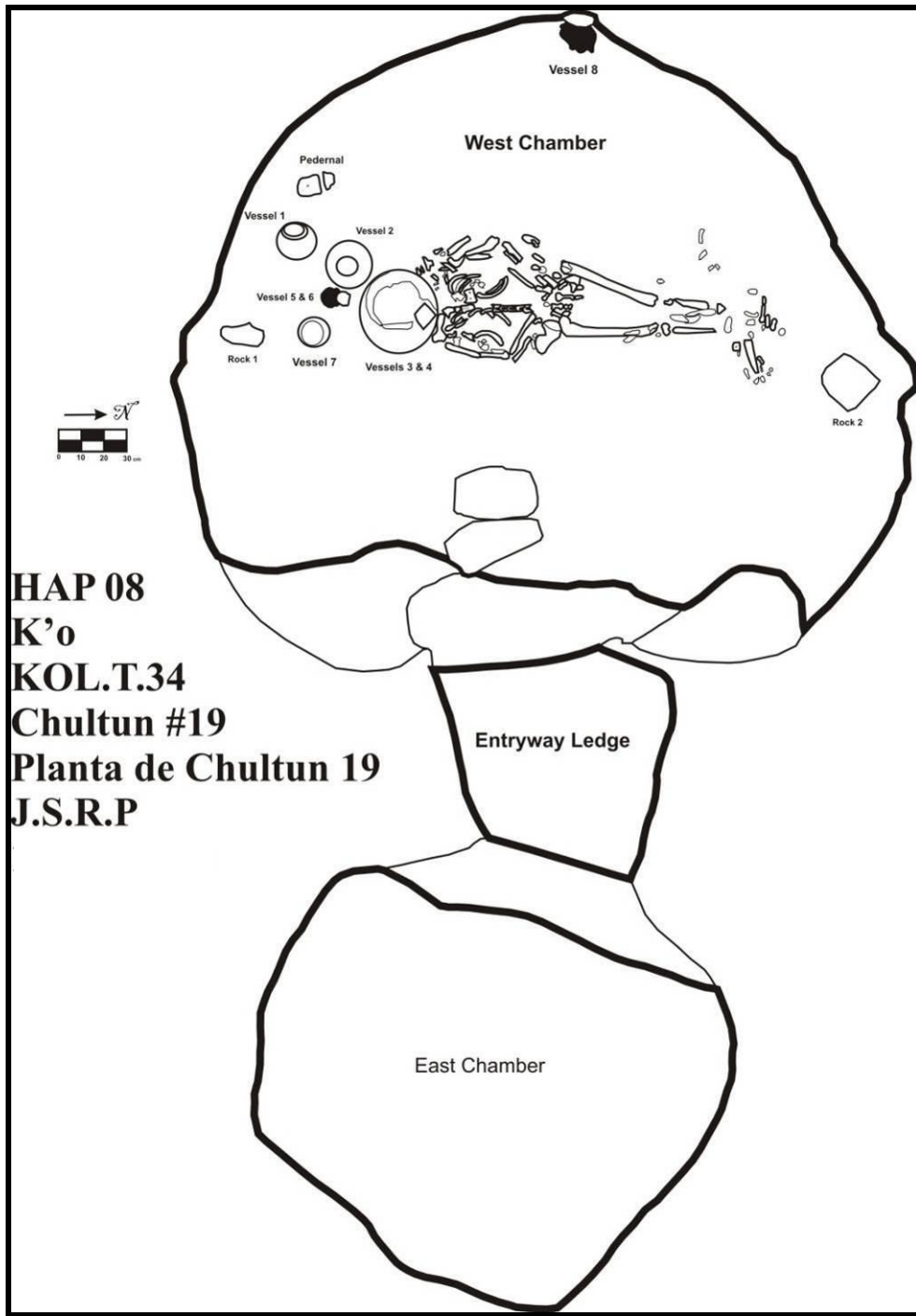


Figure 7.10: Plan view of Chultun 19 and the burial in context KOL.T.34.15, Patio Group 4.



Figure 7.11: Photograph of the KOL.T.34.19 burial before removal of collapsed stones originally sealing chultun entrance and collapsed material from the ceiling of the chultun, Patio Group 4. Photograph by Jason Paling.



**Figure 7.12: Burial in KOL.T.34.15, Patio Group 4.
Photograph by Jason Paling.**

Of the eight burial vessels, Vessels 1-7 were placed near the upper portion of the body, and Vessel 8 was located to the west, near the base of the western wall of the chultun. The skull and mandible of the individual had been placed within a pair of these vessels (Vessels 3 and 4) placed lip-to-lip. Within the mouth of the deceased a single jade bead was encountered (Figure 7.13), and this burial custom has been documented among the Colonial period Maya as well (Landa 1978:57).



Figure 7.13: Jade bead found atop mandible of the burial in context KOL.T.34.15. Photograph by the author.

The osteological analysis of the skeletal material from the burial has determined that the deceased was an adult male of between 40-50 years of age at the time of death (Matute 2009). The individual appears to have been relatively healthy, since no skeletal pathologies were evident other than arthritis, periodontitis, and dental calculus. The individual's maxillary incisors were intentionally filed into a notch, and this cultural

practice is consistent with Lowland Maya burials of high status individuals (Welsh 1988). Initially, it was believed that the individual was a victim of decapitation, due to the fact that the first two cervical vertebrae were found inside the vessel containing the skull and mandible. However, subsequent analysis revealed that the skull and mandible were found in correct anatomical position with the skeleton, and there was no evidence of cut marks on the cervical vertebrae indicative of decapitation. Therefore, it appears that the vessels containing the skull and mandible were placed above and below the head of the deceased while the individual's head was attached to the body (Matute 2009).

The eight burial vessels (Figure 7.14) have been identified and dated based on the Type: Variety method to the Late Middle Preclassic (600-350 BC) and the Late Preclassic (350BC-AD 250) (Michael Callaghan, Personal Communication 2008). Four of the vessels have been identified as Late Preclassic Sierra Red: Vessel 1, Vessel 3, Vessel 4, and Vessel 7 (Figures 7.15-7.18). Vessel 2 is a Joventud Red vessel, and dates to the Late Middle Preclassic (Figure 7.19). Vessel 5 is a Depricio Incised vessel and dates to the Late Middle Preclassic (Figure 7.20). Vessel 6 is a Sapote Striated vessel, and could date to either the Late Middle Preclassic or the Late Preclassic (Figure 7.21). Vessel 8 is tentatively identified as a Chunhinta Black vessel, and could date to the Late Middle Preclassic (Figures 7.22-7.24).

The contents of all of the vessels were collected for paleoethnobotanical analysis by Dr. Andrew Wyatt of the University of Illinois at Chicago. In addition, fragments of bone were collected and will be sent to the University of Arizona's to AMS radiocarbon facility for radiocarbon dating.



**Figure 7.14: Ceramic vessels associated with the burial in KOL.T.34.15.
Photograph by Jason Paling.**



**Figure 7.15: Photograph of Vessel 1.
Sierra Red: Variety Unspecified
(Michael Callaghan, Personal Communication 2008).
Photograph by the author.**



Figure 7.16: Photograph of Vessel 3.
Sierra Red: Variety Unspecified (Michael Callaghan, Personal Communication 2008). Photograph by the author.



Figure 7.17: Photograph of Vessel 4.
Sierra Red: Society Hall Variety (Michael Callaghan, Personal Communication 2008). Photograph by the author.



**Figure 7.18: Photograph of Vessel 7.
Sierra Red: Society Hall Variety (Michael Callaghan, Personal Communication
2008). Photograph by the author.**



**Figure 7.19: Photograph of Vessel 2.
Joventud Red: Variety Unspecified (Michael Callaghan, Personal Communication
2008). Photograph by the author.**



**Figure 7.20: Photograph of Vessel 5.
Depricio Incised: Variety Unspecified (Michael Callaghan, Personal
Communication 2008). Photograph by the author.**



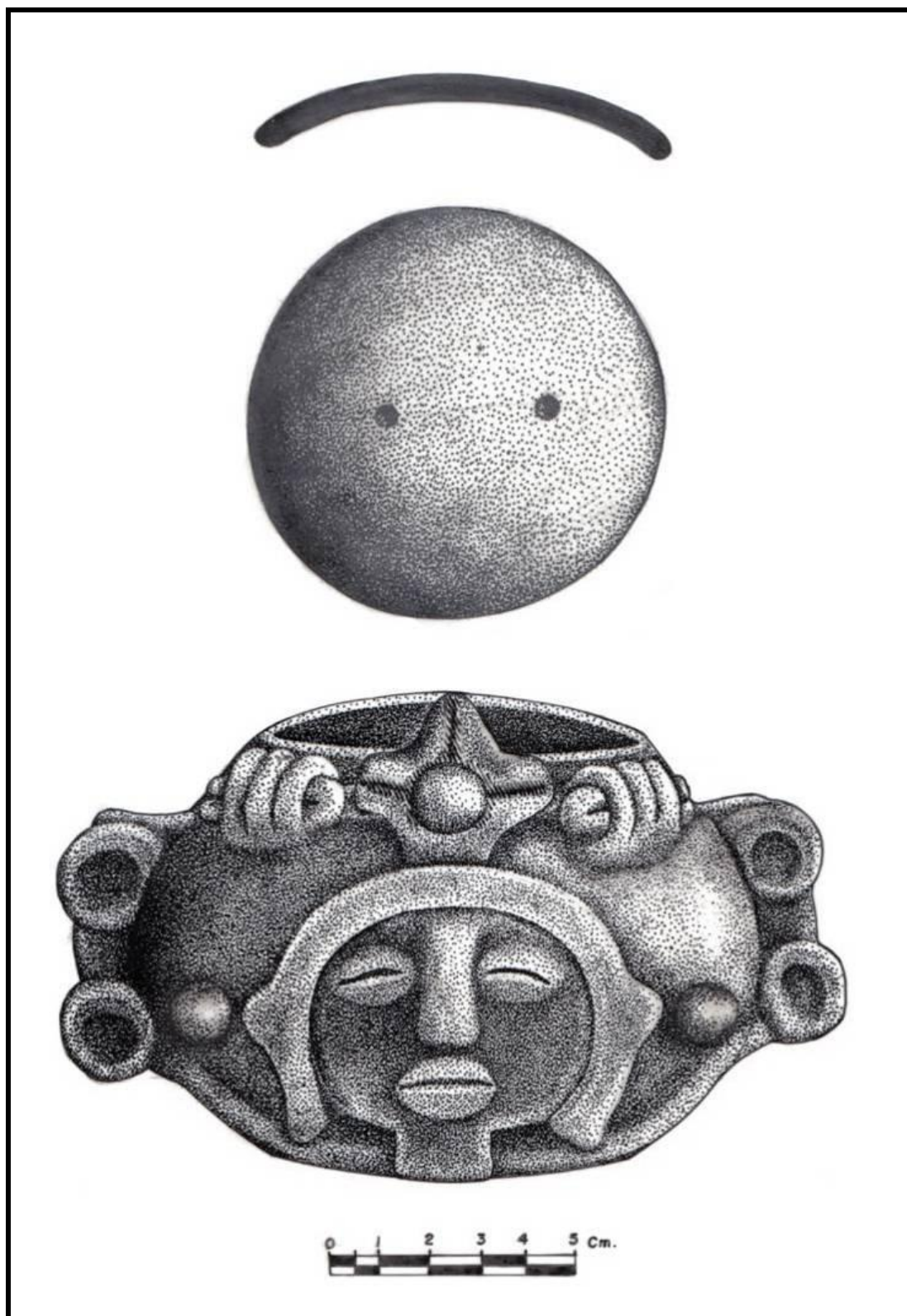
Figure 7.21: Photograph of Vessel 6.
Sapote Striated: Variety Unspecified (Michael Callaghan, Personal Communication 2008). Photograph by the author.



Figure 7.22: Photograph of Vessel 8. Tentatively identified as Chunchinta Black: Variety Unspecified (Michael Callaghan, Personal Communication 2008). Photograph by the author.



Figure 7.23: Photograph of Vessel 8 (Note the modeled band behind the headdress ornaments). Vessel 8 is tentatively identified as Chunchinta Black: Variety Unspecified (Michael Callaghan, Personal Communication 2008). Photograph by the author.



**Figure 7.24: Drawing of Vessel 8 by Fernando Alvarez.
Used with permission of the Holmul Archaeological Project.**

Additional information can be gleaned from the iconography of Vessel 8, perhaps the most elaborate of the burial vessels (Figures 7.22-7.24). Vessel 8 can be classified as an image censer, based on Prudence Rice's classification (Rice 1999). Furthermore, the paired holes along the rim of Vessel 8 and the two holes in its lid functionally identify this vessel as an incense burner, one which was suspended by ropes and probably functioned in the same manner as modern incense burners used in modern Christian churches. Rice (1999) argues that Classic period Lowland Maya image censers are frequently associated with rituals associated with the burial places of high status individuals. The burning of incense within the image censer ritually activates the mortuary structure, acting as a portal and allowing contact with the ancestors of the otherworld.

In terms of iconographic interpretations of the appliqué elements adorning Vessel 8, the central trilobed element on Vessel 8 can be identified as a Preclassic "Jester God" headband ornament (Freidel and Schele 1988:58-61). During the Classic period, the Jester God is frequently depicted in Maya art as an anthropomorphized headdress ornament worn by ruling elites (Schele 1974). The Classic period Jester God is frequently associated with rulership and accession, and it has been argued that the Classic period Jester God headdress ornaments functioned as crowns of Maya rulers (Schele and Freidel 1990; Schele and Miller 1986).

Following Schele's (1974) identification of the Classic Period Jester God headdress ornament, Freidel and Schele (1988:58-61) were able to identify a Preclassic prototype to this Classic period headdress ornament. The Late Preclassic Maya Jester God is frequently depicted as a trilobed ornament on the forehead of both humans and

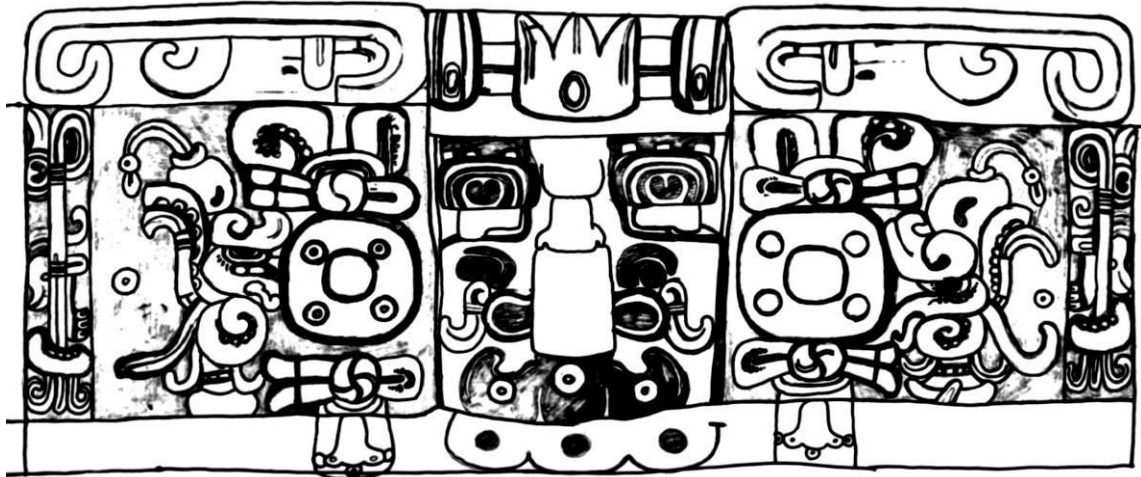
deities. This trilobed ornament is always the central element of a three-part headband assemblage – a central trilobed ornament flanked by two cleft ornaments. This three-part headband assemblage is the prototype to the Classic period Maya Jester God headband, and this Late Preclassic headband functioned as a symbol of authority for lineage heads and a costume element worn by gods (Freidel and Schele 1988:58-61).

Examples of the Preclassic Maya Jester God headband assemblage can be seen on a greenstone mask from Tikal Burial 85 (Harrison 2000:61), the upper pair of masks on Cerros Structure 5c-2nd (Schele and Freidel 1990:112-113), and an unprovenienced jade pectoral at Dumbarton Oaks (Coe 1999:79) (Figure 7.25a-c). Based on the iconographic similarities between these examples and the iconography of Vessel 8, the Vessel 8 headband ornament can also be identified as a Preclassic Maya Jester God headband assemblage. Specifically, the central trilobed ornament on the K'o vessel is essentially identical to the central trilobed ornament on the mask from Tikal Burial 85 and the sculpted façade of Cerros Structure 5C-2nd. Furthermore, the lateral elements of the K'o headband assemblage are outward facing cleft ornaments which appear to be tied to the headband, and these bound cleft ornaments are interpreted as being essentially the same lateral cleft ornaments evident in the preceding examples of Preclassic Maya Jester God headband assemblages. These outward facing cleft elements flanking the central element may be representations of maize leaves, based on similar outward facing cleft headband elements in Olmec iconography interpreted as representations of maize leaves (Taube 1996).

In addition to identifying the Preclassic Maya Jester God headband, the iconographic analysis of Vessel 8 provides some clues to the identity of the image

depicted on the vessel. According to Freidel and Schele (1988:58-61), Preclassic Maya Jester God headbands functioned both as a symbol of authority for lineage heads and a costume element worn by gods. Although the K'o censer could conceivably bear the image of an actual person, perhaps a lineage elder, this interpretation seems unlikely primarily because the majority of Preclassic and Classic period Maya image censers depict gods, rather than humans (Alexandre Tokovinine, Personal Communication 2008; Rice 1999).

Additional clues as to the identity of the image represented on Vessel 8 can be revealed through a consideration of the iconographic origin of the Preclassic Maya Jester God headband assemblage. Virginia Fields (1991) has traced the origin of the Maya Jester God to Preclassic Olmec maize iconography. Fields (1991) demonstrates that the Preclassic Maya Jester God headdress developed out of Olmec representations of a maize cob with flanking leaves, often shown emerging from the foreheads of gods. Building upon Fields' (1991) research, Taube (1996) has identified the gods wearing the trilobed Jester God headdresses as representations of the Olmec Maize God. Given this intimate association between the Jester God headband assemblage and the Maize God, Taube has identified the image on Vessel 8 as this as an image of the Maize God wearing a Preclassic Maya Jester God diadem and headband (Karl Taube, Personal Communication 2008).



a



b



c

Figure 7.25 Late Preclassic examples of the Jester God headband.
 (a) Upper masks, Cerros Structure 5c-2nd. (Drawing by Linda Schele: <http://research.famsi.org/uploads/schele/hires/10/IMG0082.jpg>)
 (b) Dumbarton Oaks pectoral (Coe 1999:fig. 34).
 (c) Tikal Burial 85 greenstone mask (Moholy-Nagy 2008: fig. 137).

Summary of Results in KOL.T.26 and KOL.T.34:

These excavations further refined the occupational sequence of Patio Group 4, providing strong evidence of a Preclassic occupation of Patio Group 4 through the discovery of an elaborate chultun burial beneath Structure 62. Although the analysis of the burial is ongoing, currently available evidence suggests the burial could potentially be interpreted as either: 1). a Late Middle Preclassic burial with evidence of Late Preclassic tomb reentry and deposition of Late Preclassic vessels, 2). a burial dating to a transitional period between the Late Middle Preclassic and Late Preclassic, or 3). a Late Preclassic burial containing several Late Middle Preclassic heirloom vessels. Of these three interpretations, the first interpretation is the least likely based on the relatively undisturbed position of the skeleton. Specifically, given that the skeletal remains were relatively undisturbed at the time of their discovery, and given that the skull and mandible of the deceased were located in correct anatomical position within two Late Preclassic Sierra Red vessels, this is almost certainly not a Late Middle Preclassic burial with evidence of tomb reentry during the Late Preclassic. As for the second interpretation, this burial could date to a transitional period between the Late Middle Preclassic and Late Preclassic (approximately 350 BC), which would explain the presence of Late Middle Preclassic Mamom Complex ceramics and Late Preclassic Chicanel Complex ceramics. The third interpretation is also a definite possibility, and the Late Middle Preclassic vessels may simply be heirloom vessels deposited centuries later with a Late Preclassic vessel. The results of the paleoethnobotanical research combined with a firm radiocarbon date obtained from bone collagen will certainly clarify the interpretations made regarding this burial.

KOL.T.28

KOL.T.28 measures 2m² and is located two meters south of Structure 59, in an area thought to contain midden deposits (Figure 7.3). Context 01 was composed of an approximately 20 centimeter layer of humus with pebble inclusions, and contained Late Classic ceramics (Figures 7.26, 7.27). Context 02 was a 50 centimeter thick layer of gray-brown soil containing extremely high quantities of artifacts. Context 02 is interpreted as a midden, and the ceramics from this midden date from the Late Preclassic to the Late Classic. Context 03 was a 30-40 centimeter layer of very dark gray soil directly above bedrock, and the ceramics from this context date to the Late Preclassic.

Summary of Results:

Based on this excavation, it appears that the area to the south of Structure 59 functioned as a midden area from the Late Preclassic through the Late Classic period. The presence of midden deposits spanning the Preclassic and Classic periods fits well with the data obtained from the excavations in the structures of Patio Group 4, which have demonstrated that Patio Group 4 was continuously occupied from at least the Late Preclassic through the Terminal Classic.

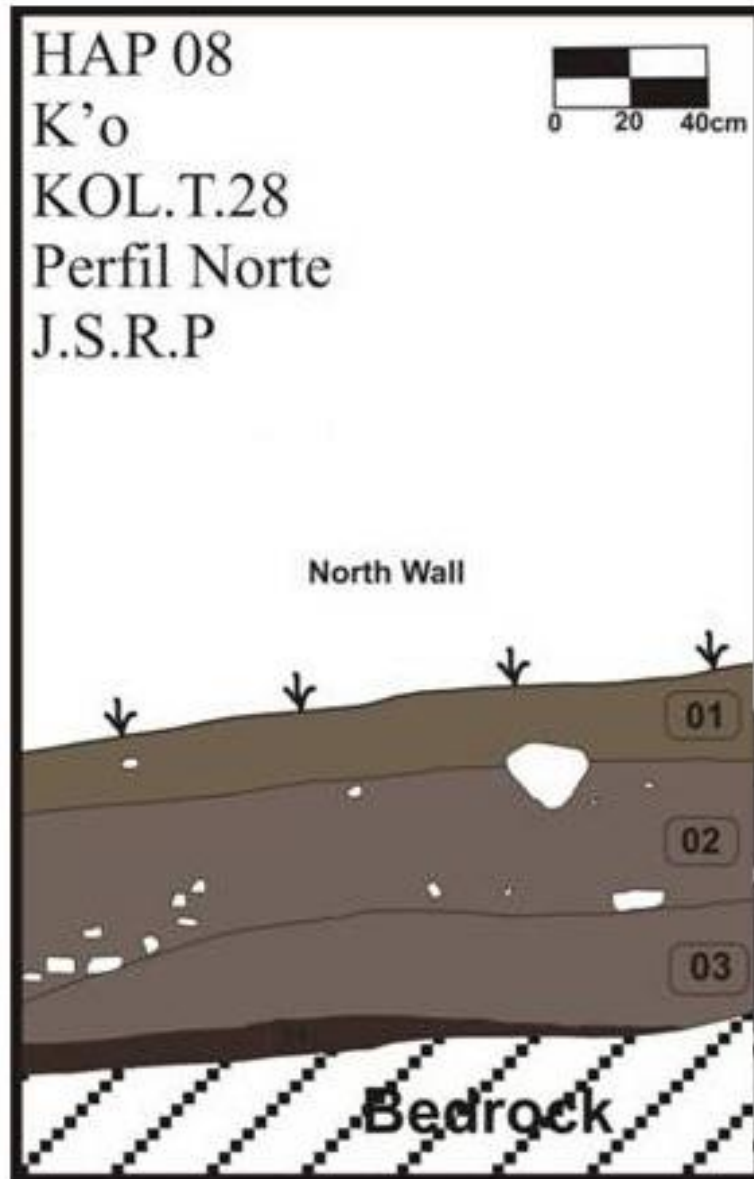


Figure 7.26: North Profile of KOL.T.28. Patio Group 4.



**Figure 7.27: North profile of KOL.T.28, excavated to bedrock. Patio Group 4.
Photograph by Jason Paling.**

KOLL.08

This salvage excavation investigated a looter's trench (Looter's Trench 19) on the north side of Structure 62. Looter's Trench 19 measures roughly 2.5 meters in length and 1 meter in width, and is located near the structure's north-south axis (Figure 7.3). As a first step in the investigation of Looter's Trench 19, all of the looter's backdirt within the trench was removed and screened, and all artifacts recovered were assigned to Context 00. The ceramics recovered within Context 00 date to the Late Classic.

Following the removal of Context 00, an excavation unit measuring 50cm² was placed near the southern end of the trench. Context 01 is a layer of light gray sand mixed with medium-sized stones, and appears to be subfloor fill associated with a plaster floor seen in the profile of the looter's trench (Figure 7.28). Ceramics recovered from Context 01 date to the Early Classic and Late Classic. Beneath Context 01 is a well preserved plaster floor (Context 02). This plaster floor was located atop a thin layer of gray sandy soil (Context 03), and the ceramics recovered from Context 03 date to the Early Classic and Late Classic. In the profile of the looter's trench, several additional contexts were identified. Context 04 is a line of stones oriented east-west, and appears to have been part of the northern wall of the building. Contexts 06 through 11 include a plaster floor and several layers of construction fill, and all of these contexts apparently date to the Early or Late Classic.

Summary of Results:

As a result of this salvage excavation, it appears that the earliest plaster floor associated with Structure 62 dates to the Late Classic. A Late Classic construction date

for the construction phases evident in this looter's trench is consistent with the dating of the architecture encountered in the excavations on the eastern side of Structure 62 (KOL.T.25, KOL.T.27, and KOL.T.33). Based on the data obtained from these formal excavations and the salvage excavation of Looter's Trench 19, Structure 62 appears to be a Late Classic structure within Patio Group 4, whose occupation goes back at least to the Late Preclassic, based on the excavations associated with Structure 60.

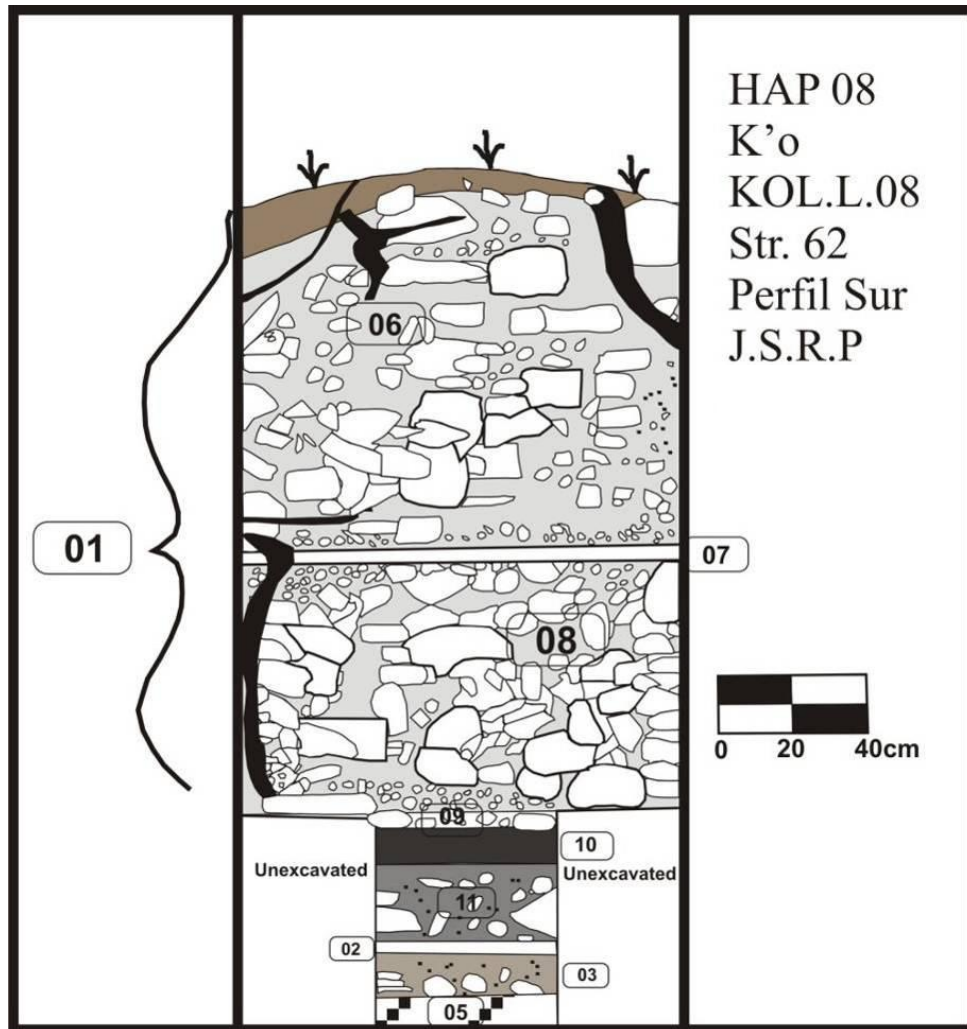


Figure 7.28: South Profile of Looter's Trench 19 (KOL.L.08). Structure 62, Patio Group 4.

Excavations in Group 15

Group 15 is composed of seven structures, and is located on the eastern edge of the mapped extent of K'o (Figure 7.1). Group 15 was discovered during the mapping of the K'o east transect in 2007, and test excavations within one of the structures (described below) revealed evidence of a long occupational sequence and the presence of multiple construction phases (Tomasic et al. 2008). In 2008, intensive excavations in Group 15 were aimed at refining the occupational and construction sequence of this patio group (Rangel 2009). These excavations were located in three areas: in the central plaza, to the south of Structure 139 in a potential midden area, and within Structure 140, the largest of the buildings located on the eastern edge of the group.

The orientation and form of the structures conforms to the Plaza Plan 2 architectural pattern identified at Tikal (Becker 1999). At Tikal it has been demonstrated that the eastern structures of Plaza Plan 2 groups functioned as shrines dedicated to lineage elders. Based on the Plaza Plan 2 form of Structure 140 and its associated structures, as well as data obtained from a looter's trench on the eastern side of Structure 140, it was hypothesized that Structure 140 was the eastern shrine of a Plaza Plan 2 patio group. Excavations within Structure 140, the eastern building within Group 15, were aimed at clarifying the construction sequence of Structure 140, as well as testing the hypothesis that the building was the eastern shrine of a Plaza Plan 2 residential group.

KOL.T.24

Unit 24 investigated Structure 142, the northernmost structure within Patio Group 15. Patio Group 15 is considered a high status group, based on the assessment of the

relative status of patio groups based on patio group volume discussed in Chapter IV.

KOL.T. 24 measures 1 x 2 meters, is oriented north-south, and is located slightly west of the central axis of Structure 142 (Figure 7.29). The primary objectives of this excavation were to determine the periods when Structure 142 was constructed and occupied, and to determine whether Structure 142 contained sealed deposits within successive construction phases.

Context 01 is a layer of brown humus with gravel inclusions and contains Late Classic and Terminal Classic ceramics (Figure 7.30). Context 02 is a layer of gravel and large stones that appears to have been the remains of a collapsed superstructure. Context 03 is a layer of lightly compacted gray/white sandy soil and gravel containing Late Preclassic ceramics. Context 03 appears to be collapsed construction material. Context 04 is a well-preserved, thick plaster floor that extends through the northeast portion of the unit, and terminates in a sharp corner in the center of the unit. Context 04 also includes a layer of compact gravel fill in the areas to the south and southwest where the plaster floor is absent. Ceramics from Context 04 date to the Terminal Preclassic and early facet Early Classic. Context 05 is a layer of loose, lightly compacted subfloor fill extending throughout the unit. In the southern portion of the unit a wall composed of cut stone blocks was encountered, and this wall appears to have been made to support internal construction fill, or it also may have been the exterior retaining wall of the platform. Large quantities of well preserved ceramics were recovered from Context 05, including especially well-preserved early facet Early Classic sherds (KOL.T.24.05.01.01.02.03). The latest ceramics from Context 05 date to the Terminal Preclassic and early facet of the

Early Classic, which would date the construction of the plaster floor (Context 04) to the early facet of the Early Classic

Context 06 is a layer of construction fill located on the north side of the wall encountered in Context 05 and is located directly atop bedrock. Context 06 contained ceramics, lithic debitage and chert tools (KOL.T.24.06.04.01.02.03). Ceramics from Context 06 date to the Terminal Preclassic and early facet Early Classic. Context 07 is a layer of gravel and gray sandy construction fill atop bedrock, and is located on the south side of the wall encountered in Context 05. Within this context, eroded ceramics and some lithics were found, including a chert tool (KOL.T.24.07.04.01).

Summary of Results:

Based on this excavation, the latest construction phase of Structure 142 dates to the early facet of the Early Classic, and occupied throughout the Classic period. In addition, the an abundance of Late and Terminal Preclassic ceramics in the construction fill of Structure 142 suggests the occupation in Patio Group 15 began during the Late Preclassic. Contexts 02 and 03 have been interpreted as material from a collapsed superstructure, which would indicate that Structure 142 originally supported a stone superstructure. Although there is no evidence the structure was originally vaulted, the size of Structure 142, combined with the quantity of collapsed material from the superstructure, is consistent with the expectations for a vaulted structure.

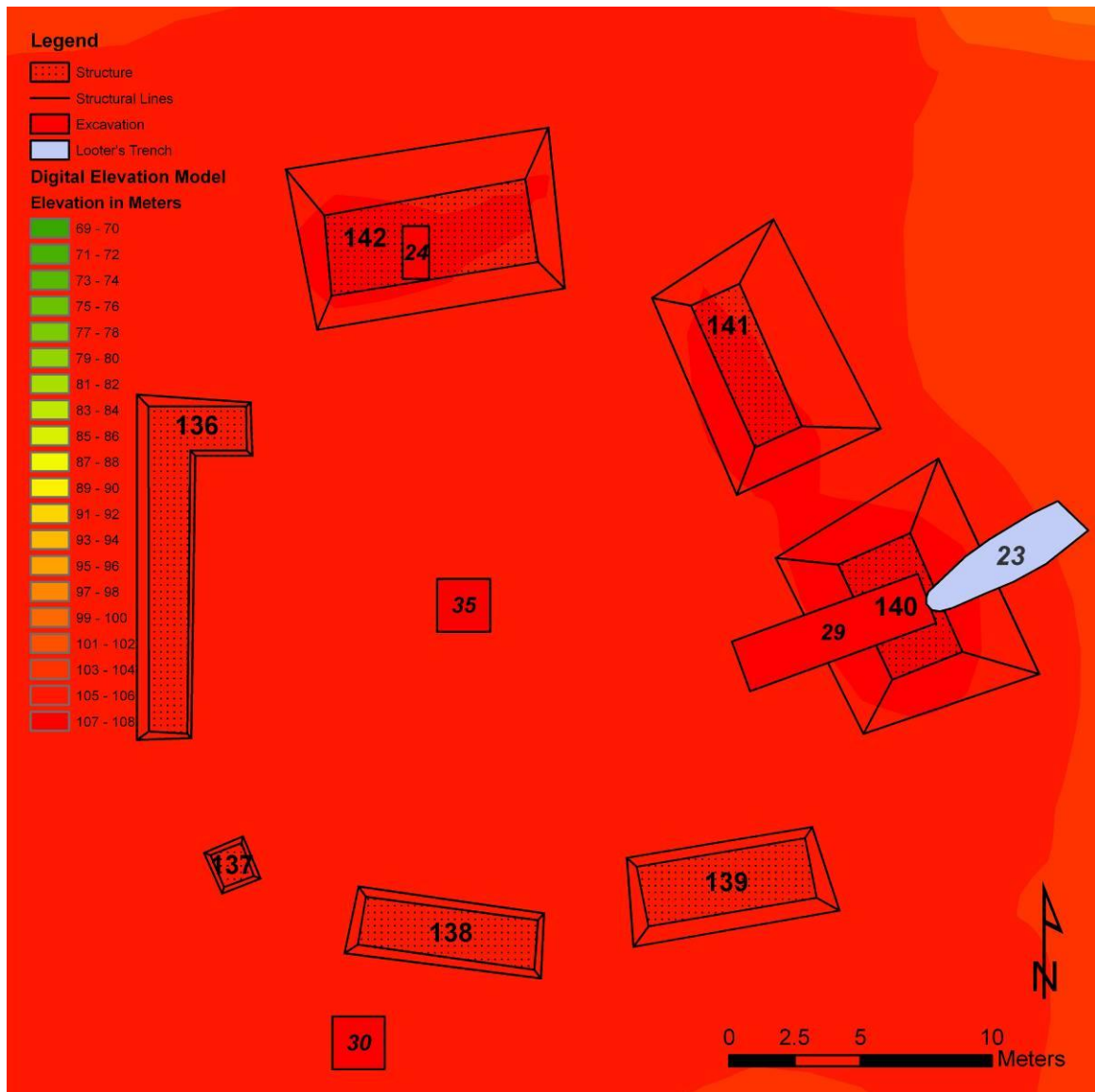


Figure 7.29: Map of Group 15, showing areas excavated. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

HAP 2007, K'o, Trinchera 24

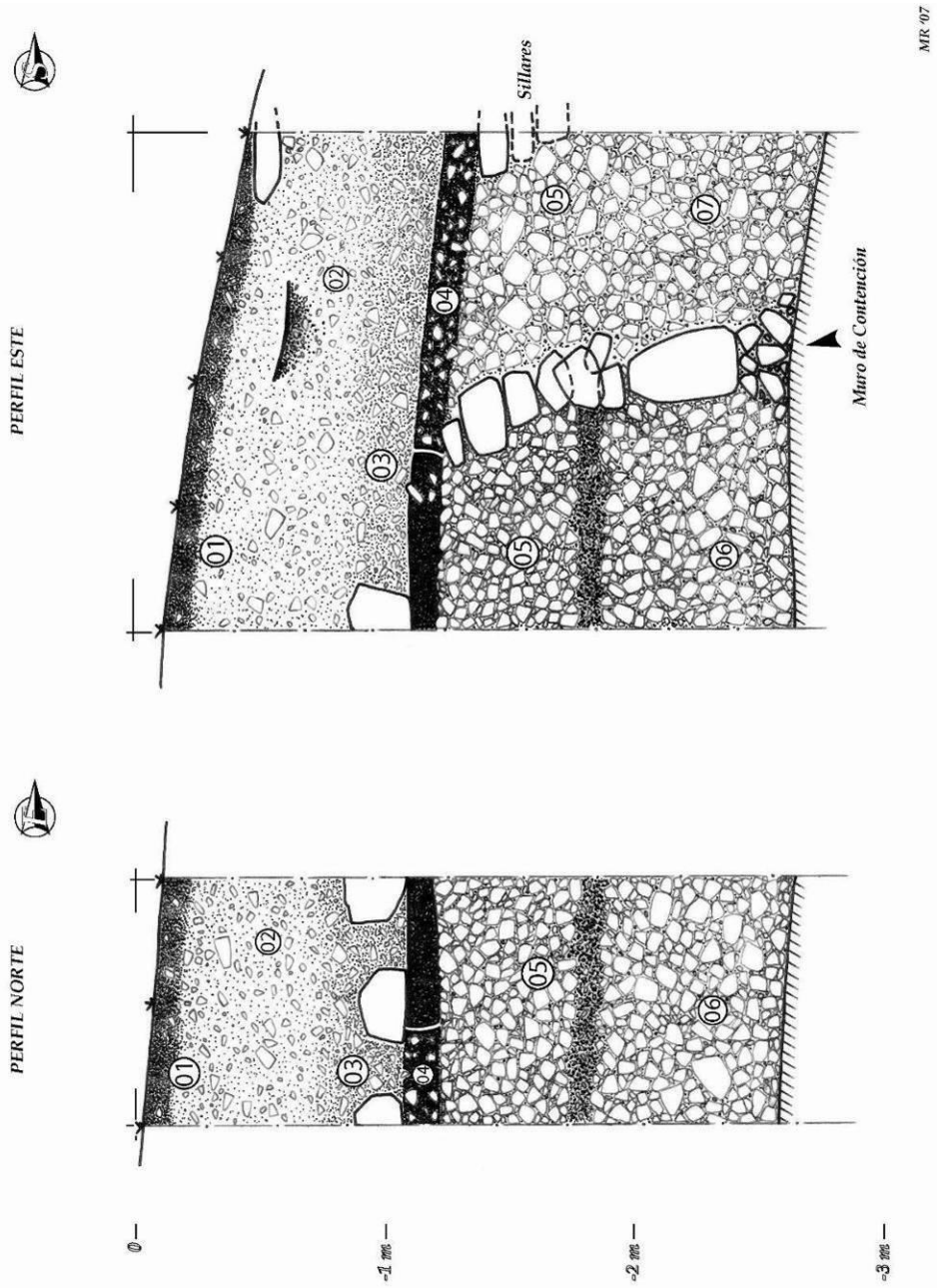


Figure 7.30: KOL.T.24 North and East Profiles. Patio Group 15, Structure 142.

KOL.T.29

KOL.T.29 measures 2 x 8 meters and is located along the east-west axis of Structure 140 (Figure 7.29). Structure 140 is the easternmost structure within Patio Group 15. Patio Group 15 is considered a high status group, based on the assessment of the relative status of patio groups based on patio group volume discussed in Chapter IV. The goals of this excavation were to determine the periods when Structure 140 was constructed and occupied, and to obtain a sample of artifacts and architecture from sealed construction phases.

In total, six contexts were defined in this excavation. Context 01 is a layer of humus and collapsed material from the building's superstructure which extends throughout the entire unit (Figures 7.31, 7.32). The ceramics from Context 01 date to the Late Classic. Context 02 is composed of the remains of a plaster floor and subfloor of *piedrín*. The ceramics from Context 02 date to the Late Classic.

Following the excavation of Context 01, Context 02 and all subsequent contexts were reduced in size to an area measuring 2m² in the western portion of the unit, at the base of the building's stairway. Context 03 is a layer of construction fill composed of gray sandy soil and cobbles. Context 04 is a plaster floor and subfloor of gravel which extends throughout the unit. The ceramics from Context 04 date to the early facet of the Early Classic, and possibly to the Early Middle Preclassic, based on a possible Kitam Incised sherd with an incised avian serpent motif (Callaghan 2008). If the sherd is indeed Early Middle Preclassic, it would represent the earliest evidence of occupation at the site.

Context 05 is a layer of construction fill composed of large stones atop bedrock. Context 06 is a stone cist (Figure 7.33) containing a poorly preserved burial

(KOL.T.29.06). The capstone of the cist was discovered within Context 03, and the sides of the stone cist cut through the plaster floor (Context 04) and the subfloor fill (Context 05). Within Context 05, a large number of bone fragments and teeth were found, and these bones were given a small find number (KOL.T.29.05.09.01). Osteological analysis of the poorly skeletal remains was unable to reveal information regarding the age, sex, or number of individuals present (Matute 2009). It is thought that these bones are associated with the stone cist and burial in KOL.T.29.06. It appears that the burial was disturbed in antiquity, and the bones were scattered outside the cist.

The interpretation of the location of the cist and burial (KOL.T.29.06) is problematic, given that the capstone of the cist protrudes through a plaster floor (Context 04). One possibility is that the cist was created after the construction of the floor and the area for the cist was cut into Context 04 and Context 05. The second possibility is that the cist and burial were deposited before the construction of the plaster floor (Context 04), and the cist was partially destroyed during the construction of the plaster floor, which probably dates to the early facet of the Early Classic. This second option would at least explain the destruction of the cist and the scattering of materials outside the cist.

Summary of Results:

With the exception of the data obtained during the salvage excavation of a looter's trench on the eastern side of Structure 140 (described below), very little is known regarding the internal composition of Structure 140. However, these excavations have revealed a great deal regarding the final phase of construction and final occupation of Structure 140. The front of Structure 140 is composed of three low platforms and a short

stairway of three steps. Atop the stairway, the collapsed material from the building's superstructure included a vault stone, suggesting the final phase of the superstructure included a vaulted building. The walls of the foundation are eighty centimeters wide, and the width of the walls supports the interpretation that the building atop Structure 140 was originally vaulted.



**Figure 7.31: KOL.T.29, looking east. Patio Group 15, Structure 140.
Photograph by Martin Rangel.**

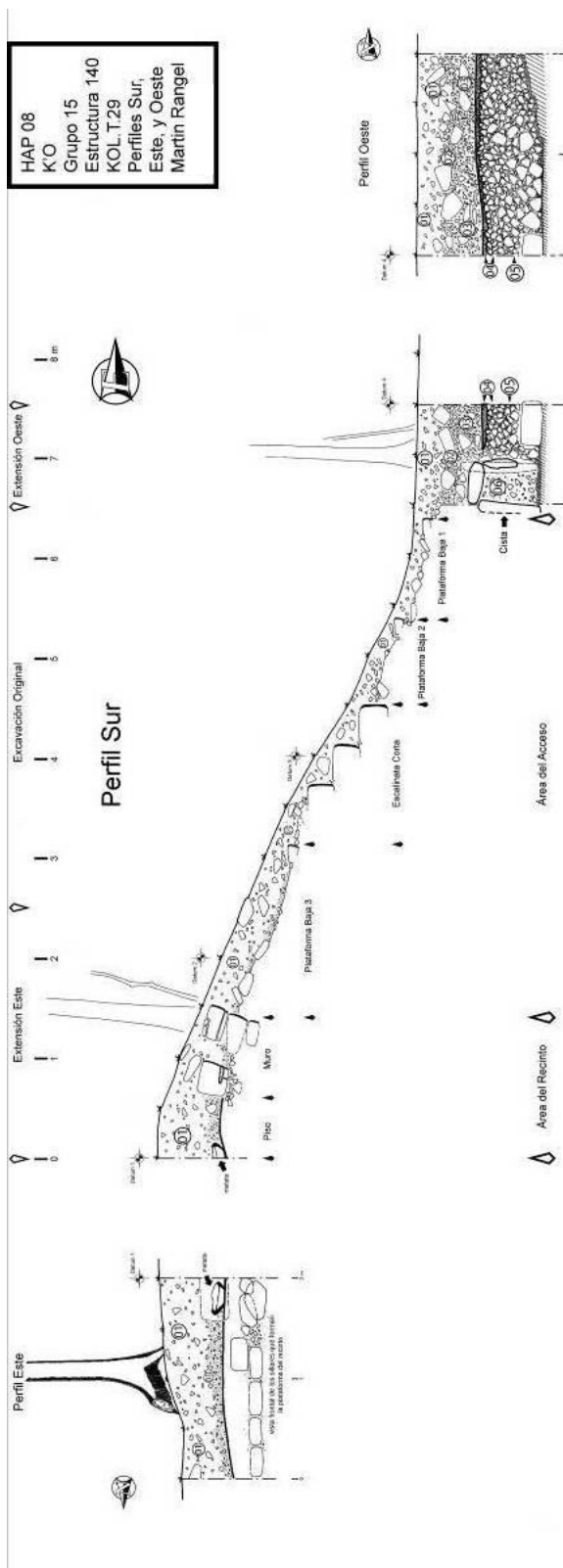


Figure 7.32: KOL.T.29 east, south, and west profile. Structure 140, Patio Group 15.



Figure 7.33: Photograph of stone cist (KOL.T.29.06) in front of Structure 140, Patio Group 15. Photograph by Martin Rangel.

KOL.T.30

In an attempt to locate midden deposits associated with the buildings in Group 15, an excavation unit measuring 2m² was placed behind Structure 138 (Figure 7.29). This excavation was composed of only one 40-50 centimeter layer of humus and brown sandy clay atop bedrock (Figure 7.34). Within this context, a relatively large number of Late Preclassic and Late Classic ceramics were recovered. Based on the quantity of artifacts, it does appear that KOL.T.30 exposed a midden deposit associated with Structure 138.

However, no natural stratigraphic levels could be discerned during the excavation, and as a result, little can be said regarding the depositional sequence of the midden.

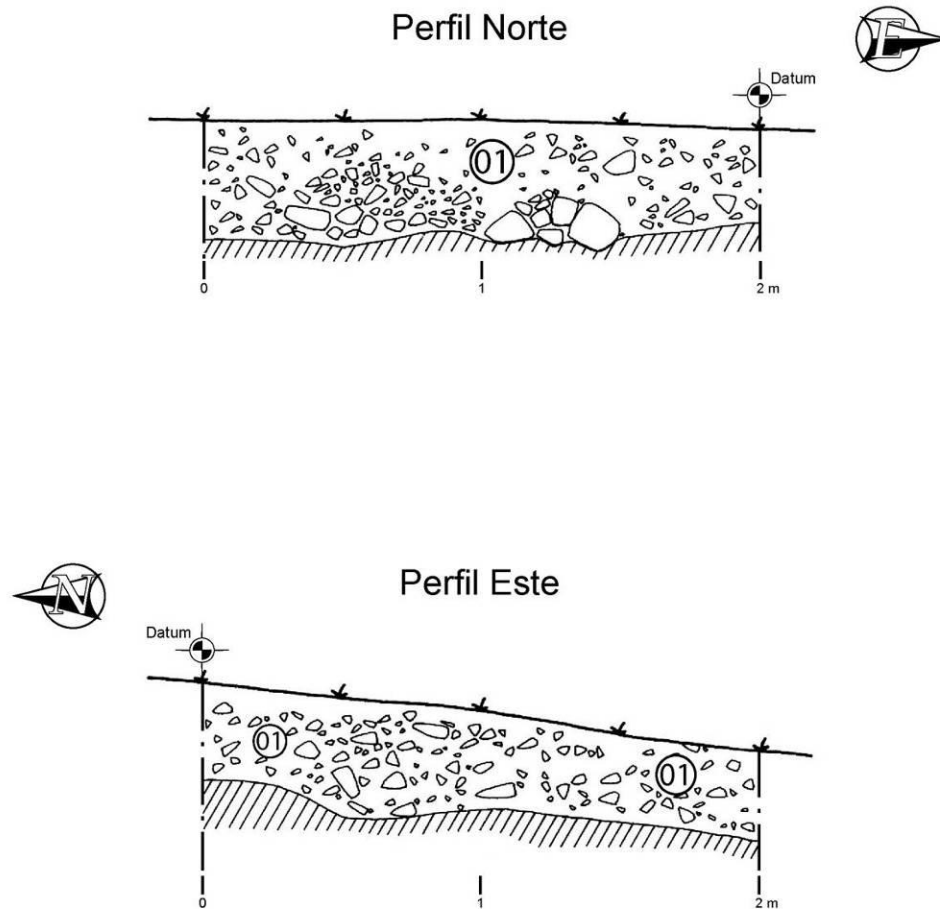


Figure 7.34: North and East Profiles of KOL.T.30. Patio Group 15.

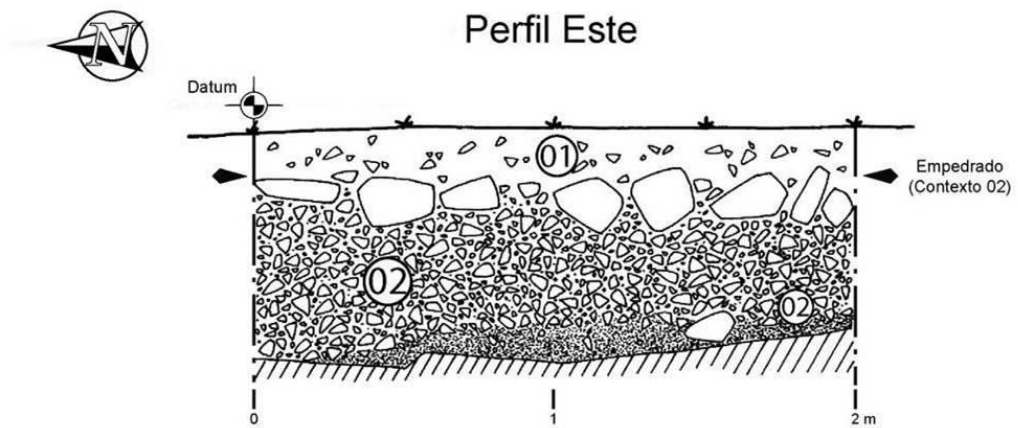
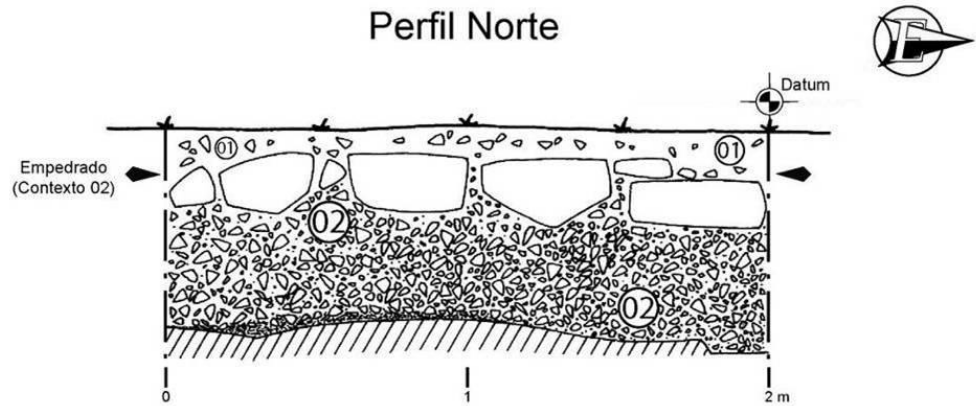
KOL.T.35

In an attempt to clarify the construction phases of plaza floors revealed in KOL.T.29, a 2m² unit was placed in the central patio area of Patio Group 15 (Figure 7.29). Context 01 of KOL.T.35 is composed of a 20 centimeter layer of humus and a layer of piedrín which originally supported a now-disintegrated plaster floor

(Figure 7.35). The ceramics from Context 01 date to the Early Classic and Late Classic. Context 02 is composed of a layer of stone and construction fill mixed with brown sandy soil atop bedrock, and the ceramics from this context date to the Terminal Preclassic and Late Classic.

Summary of Results:

As a result of this excavation, it appears that the latest floor in the central plaza area dates to the Late Classic. The ceramics recovered from subfloor fill suggests occupation dates to as early as the Terminal Preclassic, but no further clarification can be made regarding the construction sequence of the plaza floors based on this excavation. The results of this excavation are consistent with the occupational sequence revealed in the remainder of the excavations in Patio Group 15, with occupation from at least the Terminal Preclassic through the Late Classic.



**Figure 7.35: North and east profiles of KOL.T.35.
Patio Group 15.**

KOL.L.05

This salvage excavation investigated Looter's Trench 23, located on the eastern side of Structure 140 in Patio Group 15 (Figure 7.29). Patio Group 15 is considered a high status group, based on the assessment of the relative status of patio groups based on

patio group volume discussed in Chapter IV. Looter's Trench 23 is oriented east-west, and measures roughly 9 meters in length by 1.5 meters in width (Figure 7.36). Given that the looter's trench was located in the eastern structure of a Plaza Plan 2 group, it was considered likely that looters would have discovered one or more high status burials. The goals of this salvage excavation were to document the construction phases of Structure 140 was constructed and occupied, and to obtain a sample of artifacts and architecture from the earliest construction phases.

As a first step, all of the looter's backdirt and collapsed material within the looter's trench was removed and screened, and treated as a single context (Context 00). The ceramics from Context 00 date from the Late Preclassic to the Late Classic. In addition to ceramics, an elaborate chert biface, a jade bead, and large fragments of human bone were recovered within Context 00. Most likely, these artifacts were originally associated with one or more burials discovered by looters. Osteological analysis of the skeletal remains in Context 00 have identified them as belonging to an adult, but determination of specific age, sex, or the total number of individuals was not possible (Matute 2009).

Context 01 is an intact plaster floor beneath Context 00, extending throughout the western portion of the looter's trench (Figure 7.36). In order to better understand the construction episodes of Structure 140, excavations were continued beneath Context 01 within an area measuring 1 meter by 50 centimeters. The ceramics from the subfloor fill beneath Context 01 date from the Late Middle Preclassic to the early facet Early Classic. Based on this information, the plaster floor encountered in Context 01 probably dates to the early facet of the Early Classic. Unfortunately, the excavations were closed before

arriving at bedrock, and it is unclear if this is the earliest construction episode associated with this structure.

Summary of Results:

This excavation has provided valuable information regarding Group 15 and its chronology of occupation. The remains of one or more looted burials in Context 00 suggest that Structure 140 was indeed the eastern shrine of a Plaza Plan 2 (Becker 2003). Based on the ceramics recovered from undisturbed contexts, the artifacts recovered from Context 00 can be dated to the Early Classic or Late Classic. In addition, the ceramics recovered within the subfloor fill of Context 01 date one of the building's major construction episodes to the early facet of the Early Classic, and the earliest ceramics suggest Group 15 was occupied as early as the Late Middle Preclassic. This early evidence of occupation provides supporting contextual evidence for a possible Early Middle Preclassic Kitam Incised sherd recovered from the excavations on the western side of this structure.

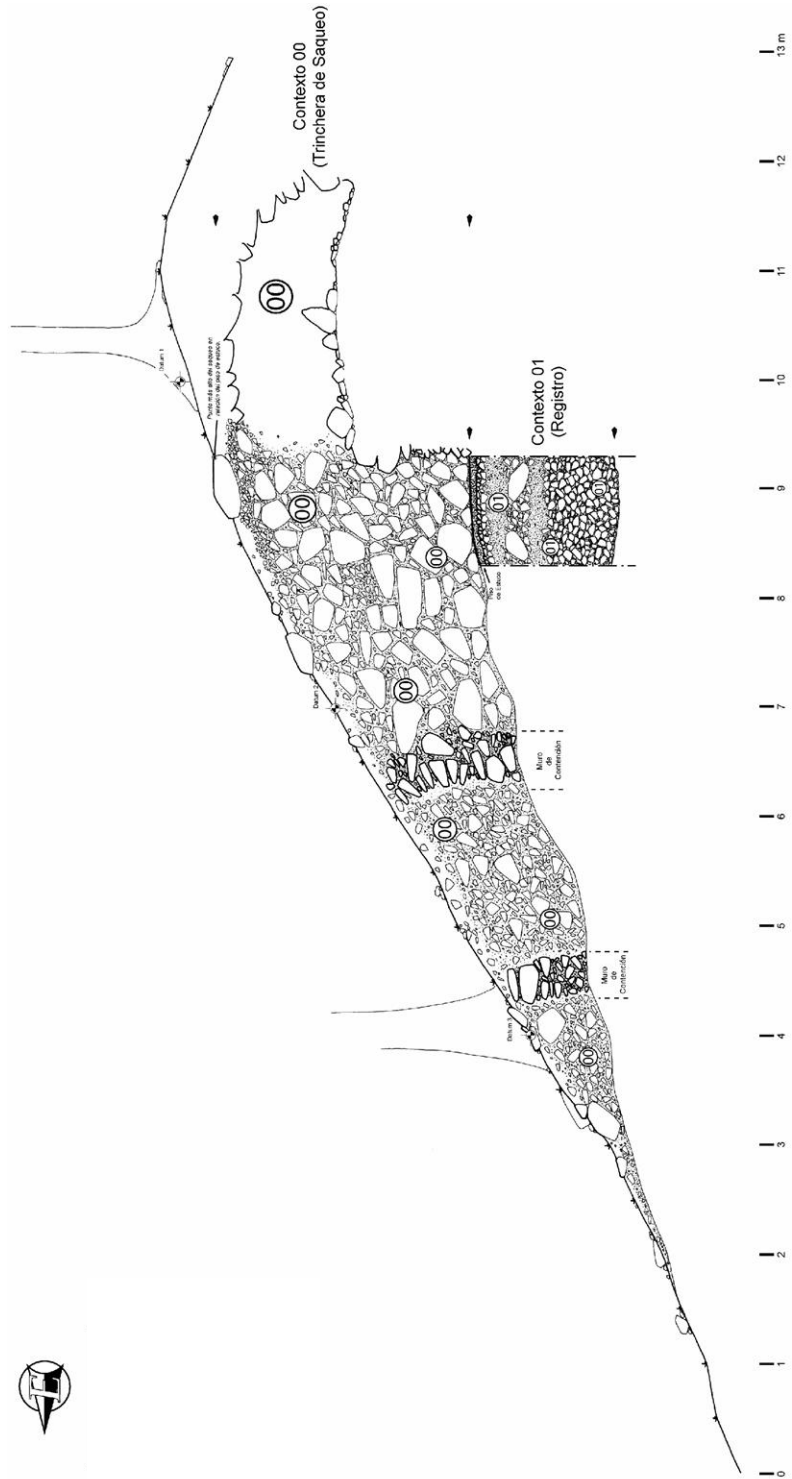


Figure 7.36: KOL.L.05 South Profile. Structure 140, Patio Group 15.

Excavations in Group 25

Group 25 is composed of three structures, and is located in the northeastern corner of the mapped extent of K'o, approximately 300 meters from the site core (Figure 7.1). The 2007 excavations in Group 25 have revealed evidence of occupation from the Late Middle Preclassic to the Late Classic (Tomasic et al. 2008). Furthermore, the discovery of multiple plaster floors in Structure 116 suggested that intensive excavations in this patio group would produce a series of stratified deposits spanning most of the occupational sequence at K'o. In 2008, intensive excavations in Group 25 were aimed at refining the occupational history of this patio group (Tomasic et al. 2009).

KOL.T.37

This 2m² excavation unit was placed in the central patio area of Group 25 (Figure 7.37). Context 01 is a layer of humus and brown clay mixed with a layer of gravel which is interpreted as the subfloor fill of a decayed plaster floor (Figure 7.38). The ceramics from Context 01 date to the Late Preclassic and Late Classic. Context 02 is a layer of claylike soil with gravel inclusions atop bedrock, and it is interpreted as a layer of paleosol. The ceramics from Context 02 date to the Late Preclassic.

Summary of Results:

Based on this excavation, it appears that Group 25 was occupied as early as the Late Preclassic and as late as the Late Classic. The latest discernible floor may date to the Late Classic, but the dating of the floor is uncertain because of poor preservation of the floor and the relatively shallow deposits encountered in this excavation.

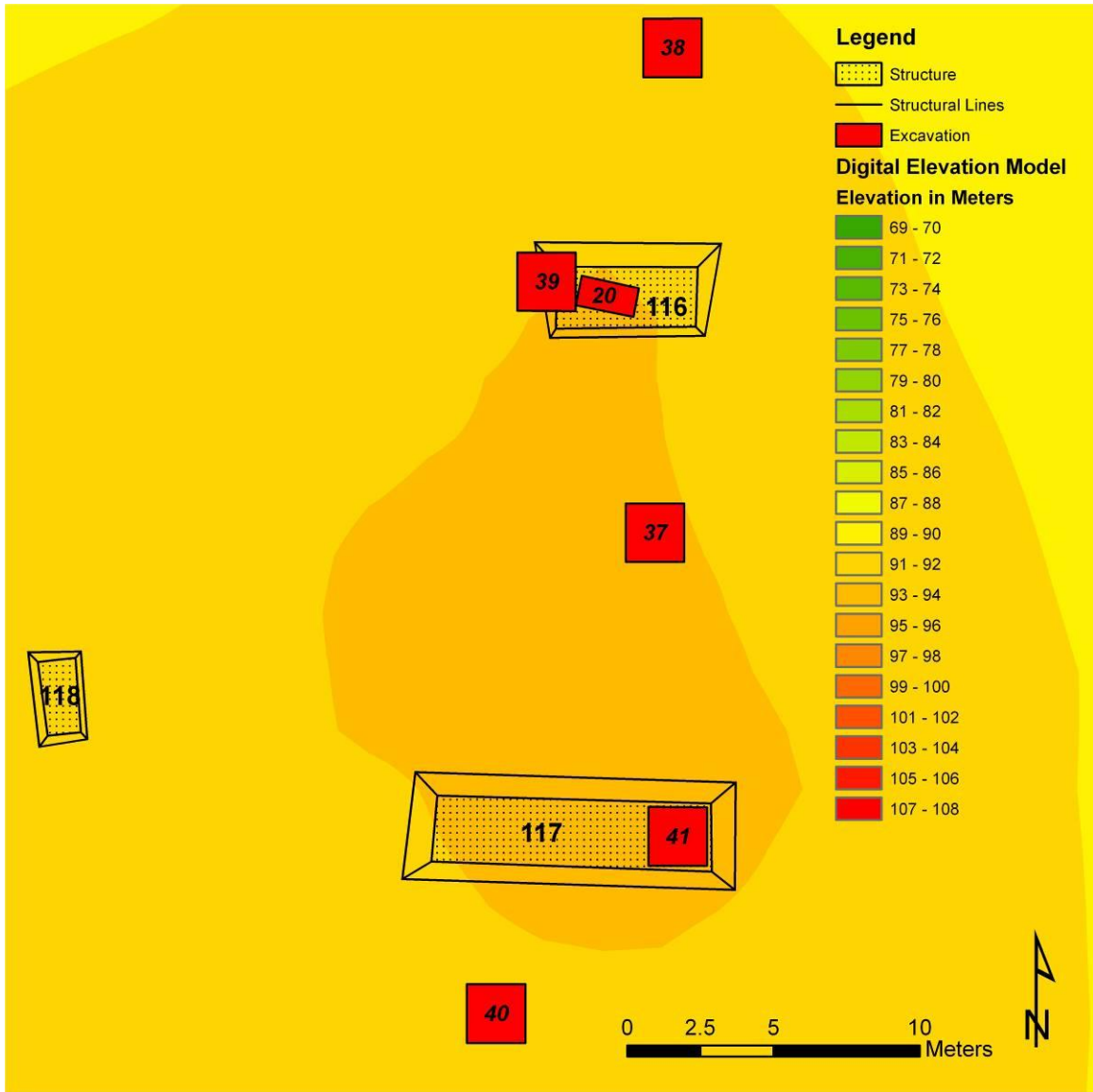


Figure 7.37: Map of Patio Group 25.
Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

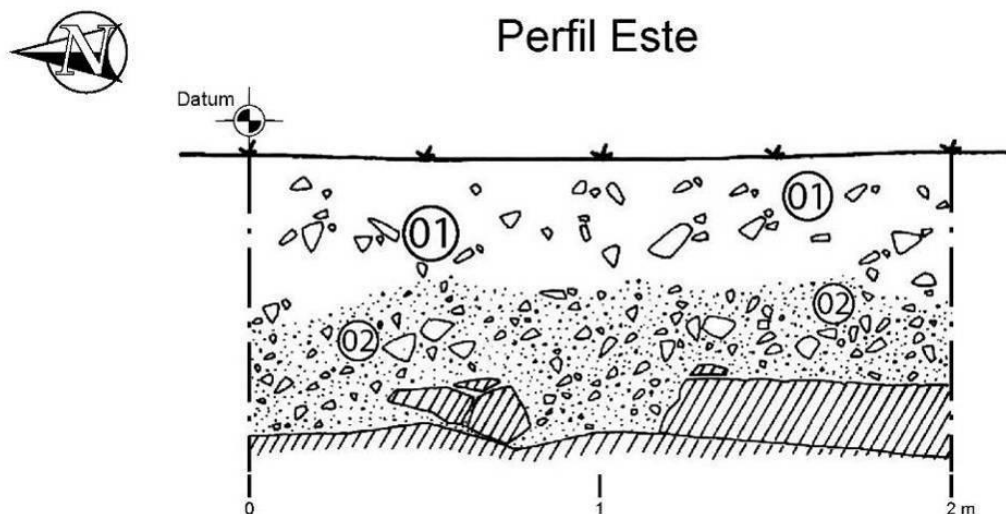


Figure 7.38: East Profile of KOL.T.37, Patio Group 25.

KOL.T.38

Unit 38 is located a few meters north of Group 25 at the base of a sloping hillside thought to have been an area of midden deposits (Figure 7.37). Context 01 is an approximately 30 cm. thick layer of humus and piedrin extending from the ground surface to bedrock (Figure 7.39). Due to the lack of stratigraphic distinctions, the entire unit was excavated as Context 01, and the ceramics from this context date to the Early Classic and Late Classic. Although a significant quantity of ceramics was recovered, this portion of the northern side of Group 25 does not appear to have been a midden area.

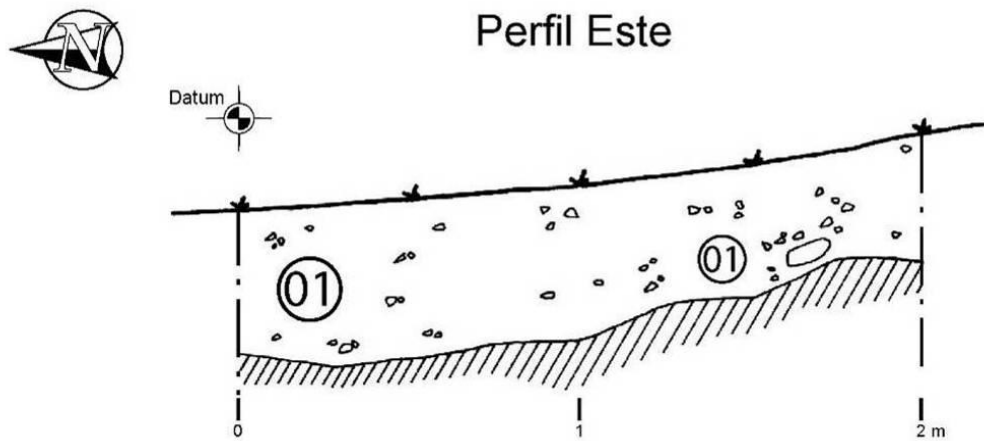


Figure 7.39: East Profile of KOL.T.38, Patio Group 25.

KOL.T.39

Unit 39 is a 2x3 meter unit located along the western edge of Structure 116 (Figure 7.37). Structure 116 is the northernmost structure within Patio Group 25. This patio group is considered a lower status group, based on the assessment of the relative status of patio groups based on patio group volume described in Chapter IV. The Phase 2 excavations in Structure 116 revealed the presence of stratified contexts sealed by multiple plaster floors, and an occupation from the Late Preclassic to the Late Classic. KOL.T.39 was placed adjacent to the western edge of the previous excavation in the hope of exposing more contexts stratified by plaster floors.

Context 01 is a layer of humus with cobble and pebble inclusions, and the ceramics from this context date to the Late Classic (Figures 7.40, 7.41). Following the removal of Context 01, a row of stones oriented north-south was exposed (Figure 7.42).

The area on the eastern side of the wall was designated Context 02, the row of stones was designated Context 03, and the area on the western side of the row of stones was designated Context 04. The ceramics from Context 02 and Context 04 date to the Late Classic and the ceramics associated with the row of stones (Context 03) date to the Late Preclassic and Late Classic.

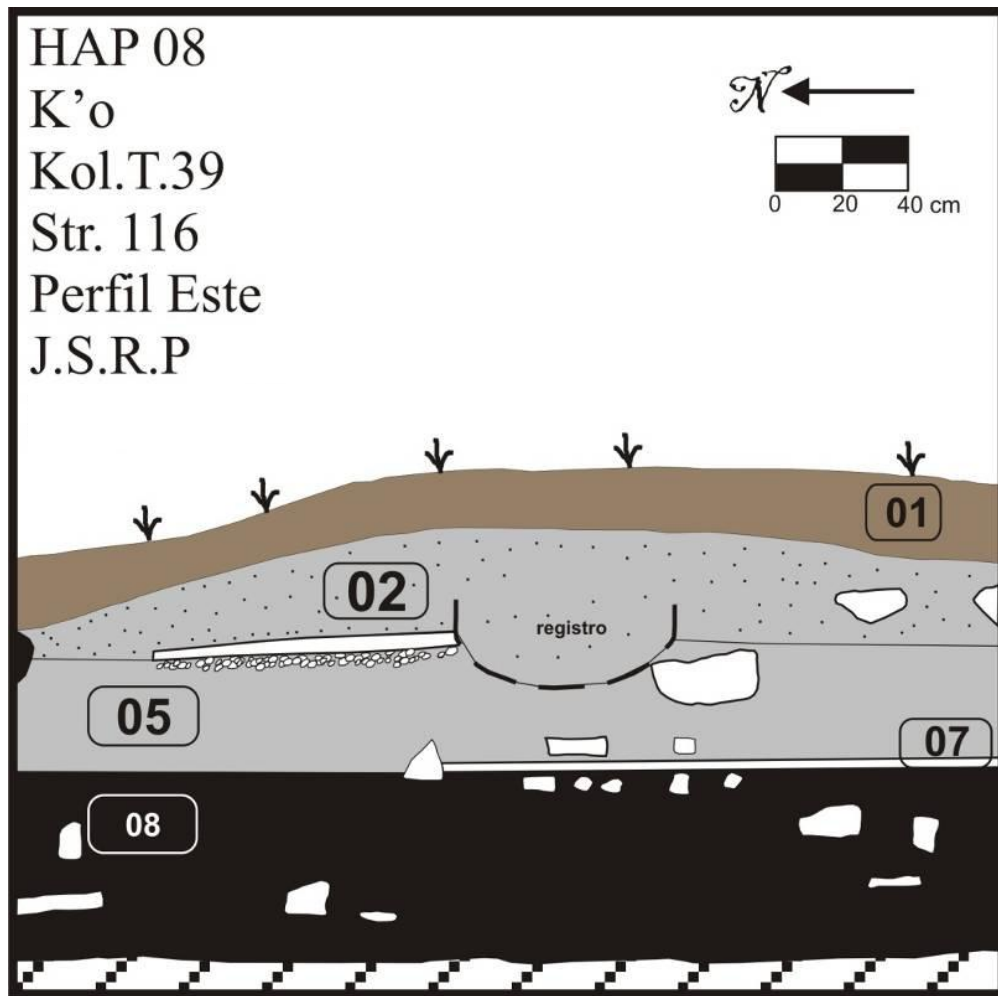


Figure 7.40: East profile of KOL.T.39. Structure 116, Patio Group 25.

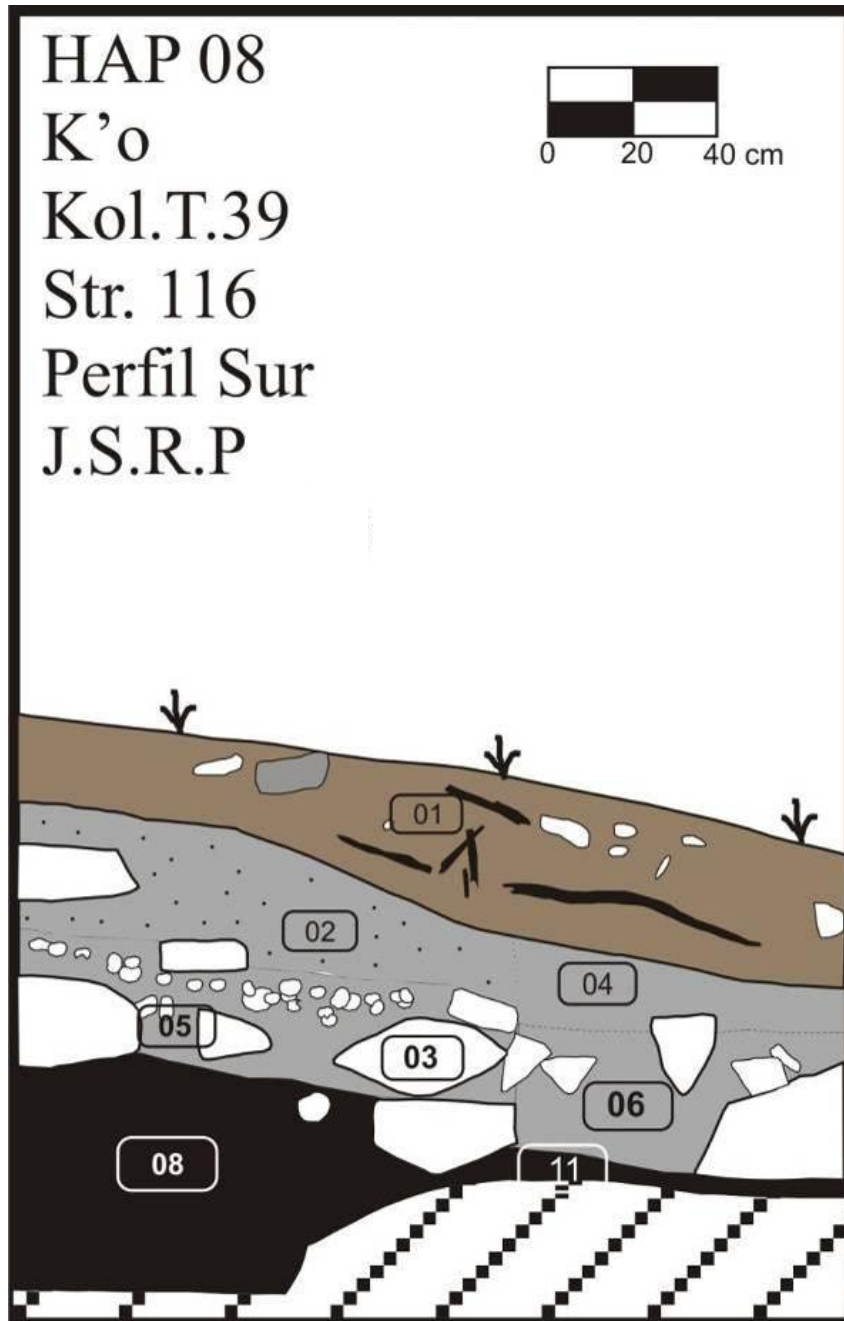


Figure 7.41: South Profile of KOL.T.39, Structure 116, Patio Group 25.

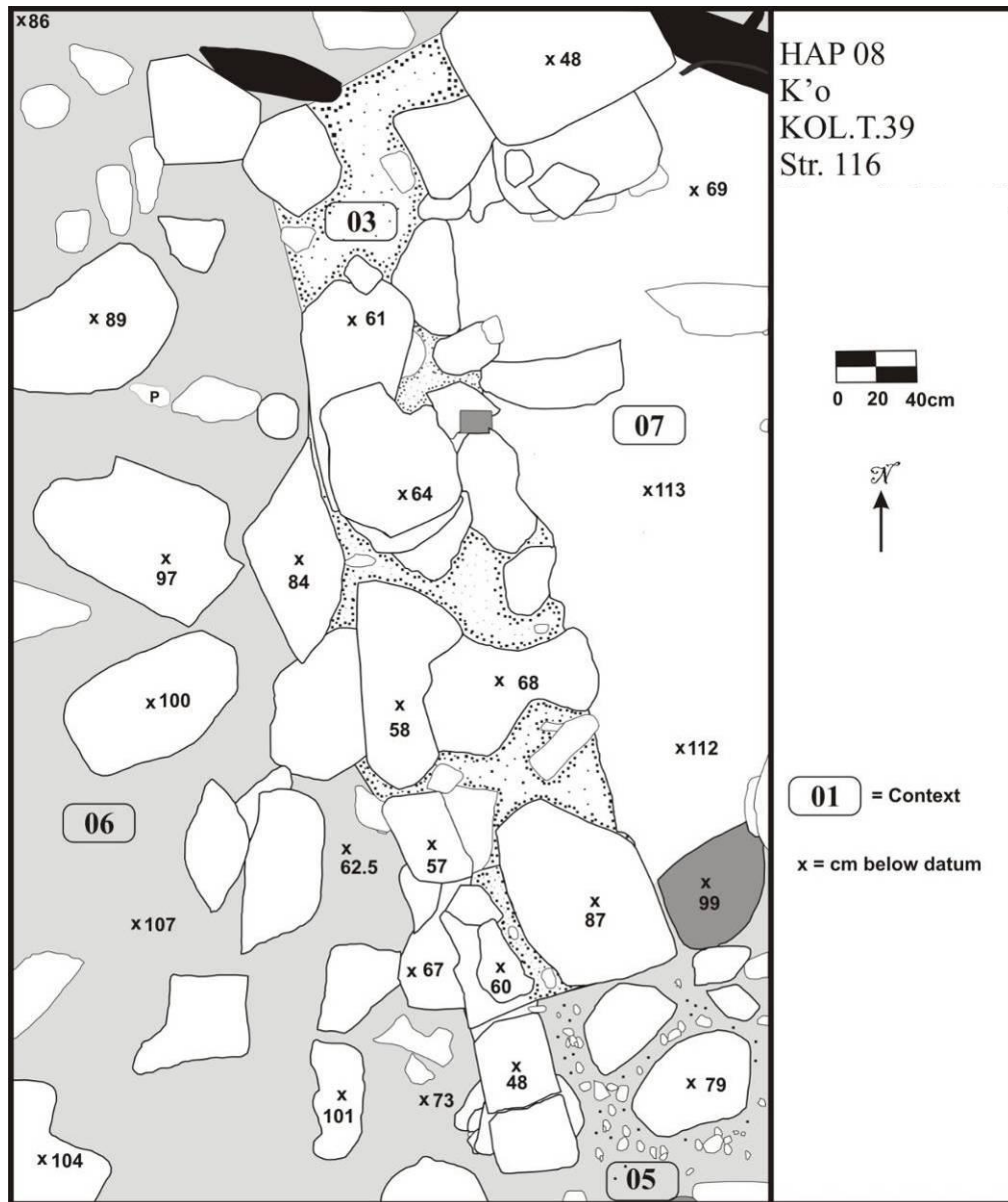


Figure 7.42: Plan view of KOL.T.39. Structure 116, Patio Group 25.

On the eastern side of the row of stones, Context 05 is a sandy cobble surface located beneath Context 02. The ceramics from Context 05 date to the Late Preclassic. The excavation of Context 05 exposed a second course of stone beneath the first course identified in Context 03. Beneath context 05, a plaster floor was discovered and designated Context 07. This plaster floor abuts the second course of stone in Context 03.

Beneath Context 07, Context 08 is a layer of dark brown clay with pebble inclusions atop bedrock. The ceramics from Context 08 date to the Late Middle Preclassic and Late Preclassic.

On the western side of Context 03, Context 06 is a layer of gray silty sand containing Late and Terminal Preclassic ceramics. Beneath Context 06, a layer of relatively flat, uncut stones was designated Context 09. The ceramics from Context 09 date to the Late Middle Preclassic and Late Preclassic. Context 10 is a plaster floor, and Context 11 is a layer of dark brown clay atop bedrock. Context 08 and Context 11 are essentially the same context, and the ceramics from both contexts date to the Late Middle Preclassic and Late Preclassic.

Summary of Results:

As a result of this excavation, it appears that Structure 116 was continuously occupied from the Late Middle Preclassic to the Late Classic, with major construction activity in the Late Preclassic and Late Classic. Previously, the Phase 2 excavations in Structure 116 documented a long sequence of occupation in deposits sealed by a series of plaster floors. These excavations in KOL.T.39 provide additional data regarding the occupational history of this patio group as well as the architecture associated with the final phase of Structure 116. There is no evidence of a vaulted superstructure, but the presence of stone walls in Context 03 indicates that Structure 116 probably supported a perishable superstructure with a stone foundation.

KOL.T.40

KOL.T.40 is a 2x2 meter unit located a few meters south of Structure 117 (Figure 7.37). Unit 40 was placed in this location in hopes of finding midden deposits associated with Structure 117. The excavation is composed of two contexts: Context 01 is a layer of humus with gravel inclusions, and Context 02 is a layer of brown sandy clay atop bedrock (Figure 7.43). A wide variety of artifacts were recovered from these contexts, including a relatively large amount of ceramics, suggesting the area was indeed a midden. The ceramics from Context 01 date to the Late Classic, and the ceramics from Context 02 date to the Late Preclassic and Late Classic.

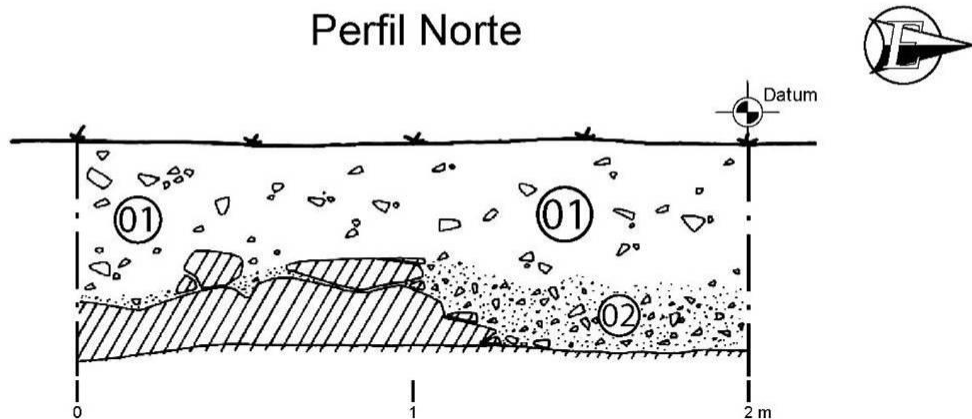


Figure 7.43: KOL.T.40 north profile, Patio Group 25.

KOL.T.41

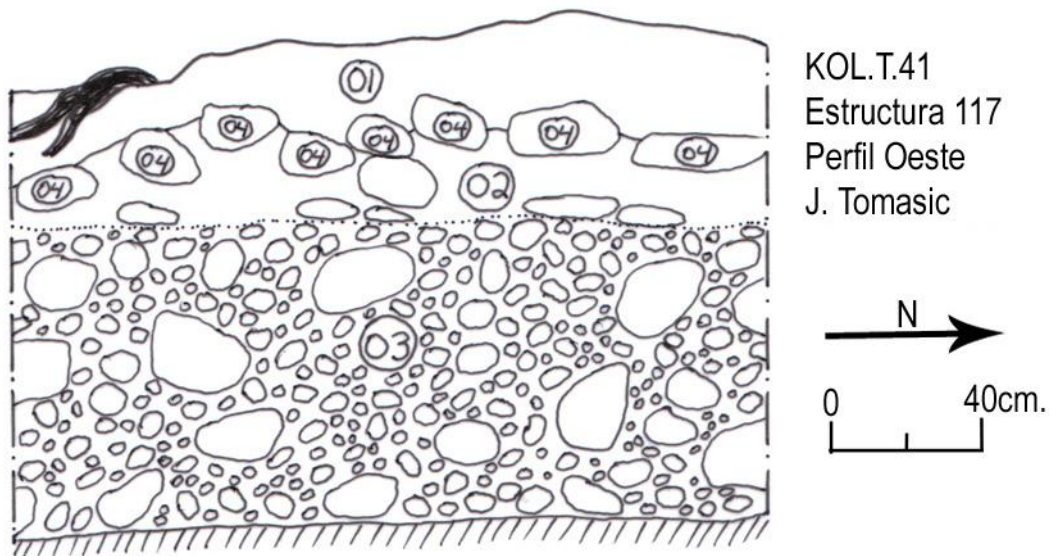
Unit 41 investigated Structure 117, the southernmost structure within Patio Group 25. KOL.T.41 is a 2x2 meter unit located on the eastern side of Structure 117, within the confines of the structure (Figure 7.37). Unit 41 was placed in this location in hopes of finding sealed artifact deposits within successive construction phases which would help to clarify the occupational history of the structure as well as Patio Group 25.

Context 01 is 25-35 centimeter layer of dark brown silty humus, and the ceramics from Context 01 date to the Late Classic (Figure 7.44). In the western portion of Context 01, a row of stones oriented north-south was encountered. These stones, which were most likely part of a wall of the building's superstructure, were designated Context 04 (Figure 7.45). Rather than remove Context 04, all subsequent contexts were reduced in size from 2x2 meters to 2x1.7 meters, in order to avoid removal of Context 04 in the western portion of the unit. Context 02 is an approximately 20 centimeter layer of dark brown clay-loam, and it contains a layer of small, flat stones which appear to have been part of a *laja* floor. The ceramics from Context 02 date to the Late Classic. Context 03 is a 70 centimeter layer of structural fill composed primarily of large stones and *piedrin*.

Summary of Results:

Although a portion of the ceramics from structural fill of Structure 117 dates to the Early Classic, it appears that this building was constructed and occupied during the Late Classic. Unlike most of the Phase 3 excavations in patio group structures at K'o, no plaster floors were encountered in this excavation. Given that Structure 116, located only a few meters from Structure 117 in the same patio group, contains evidence of occupation

during the Late Middle Preclassic and Late Preclassic, it is also somewhat surprising that this excavation has revealed no evidence of Late Preclassic or Early Classic construction phases. Perhaps Structure 117 is a Late Classic addition to this patio group, or at the very least the portion of Structure 117 excavated is a Late Classic addition to the structure. This interpretation is supported by the discovery of the superstructural wall (Context 04) in the western portion of the unit, which may suggest that the unit was located in an exterior space which was built during the Late Classic and paved with laja stones, rather than plaster. This would provide a partial explanation for the absence of plaster floors and successive construction phases in this portion of Structure 117.



**Figure 7.44: KOL.T.41 west profile.
Structure 117, Patio Group 25.**



**Figure 7.45: Photograph of KOL.T.41.02. Structure 117, Patio Group 25.
Photograph by the author.**

Excavations in Group 38

Group 38 is located northwest of the site core (Figure 7.1), and is composed of seven structures whose layout conforms to the Plaza Plan 2 identified at Tikal (Becker 2003). The Phase 2 excavation within Structure 44 revealed evidence of occupation from the Late Middle Preclassic to the Late Classic (Tomasic 2009b), and the presence of multiple plaster floors suggested that intensive excavations in Group 38 would produce stratified deposits spanning most of the occupational sequence at K'o.

KOL.T.31

KOL.T.31 is an excavation unit measuring 2m², and is located approximately five meters to the north of Structure 44 (Figure 7.46). KOL.T.31 was placed in this location in hopes of finding a buried midden to the rear of Structure 44. Context 01 is a layer of dark humus, and the ceramics from Context 01 date to the Late Classic and Terminal Classic (Figure 7.47). Context 02 is a layer of dark brown clay containing a large quantity of ceramic and lithic artifacts. The ceramics from Context 02 date to the Late Classic. Context 03 is a layer of brown clay mixed with large stones, and the ceramics from Context 03 date to the Late Preclassic and Early Classic. Context 04 is a layer of very dark brown clay located directly atop bedrock. The ceramics from Context 04 date to the Late Preclassic.

Summary of Results:

KOL.T.31 has revealed evidence of occupation from the Late Preclassic to the Late Classic. Context 02 appears to have been a Late Classic midden associated with the

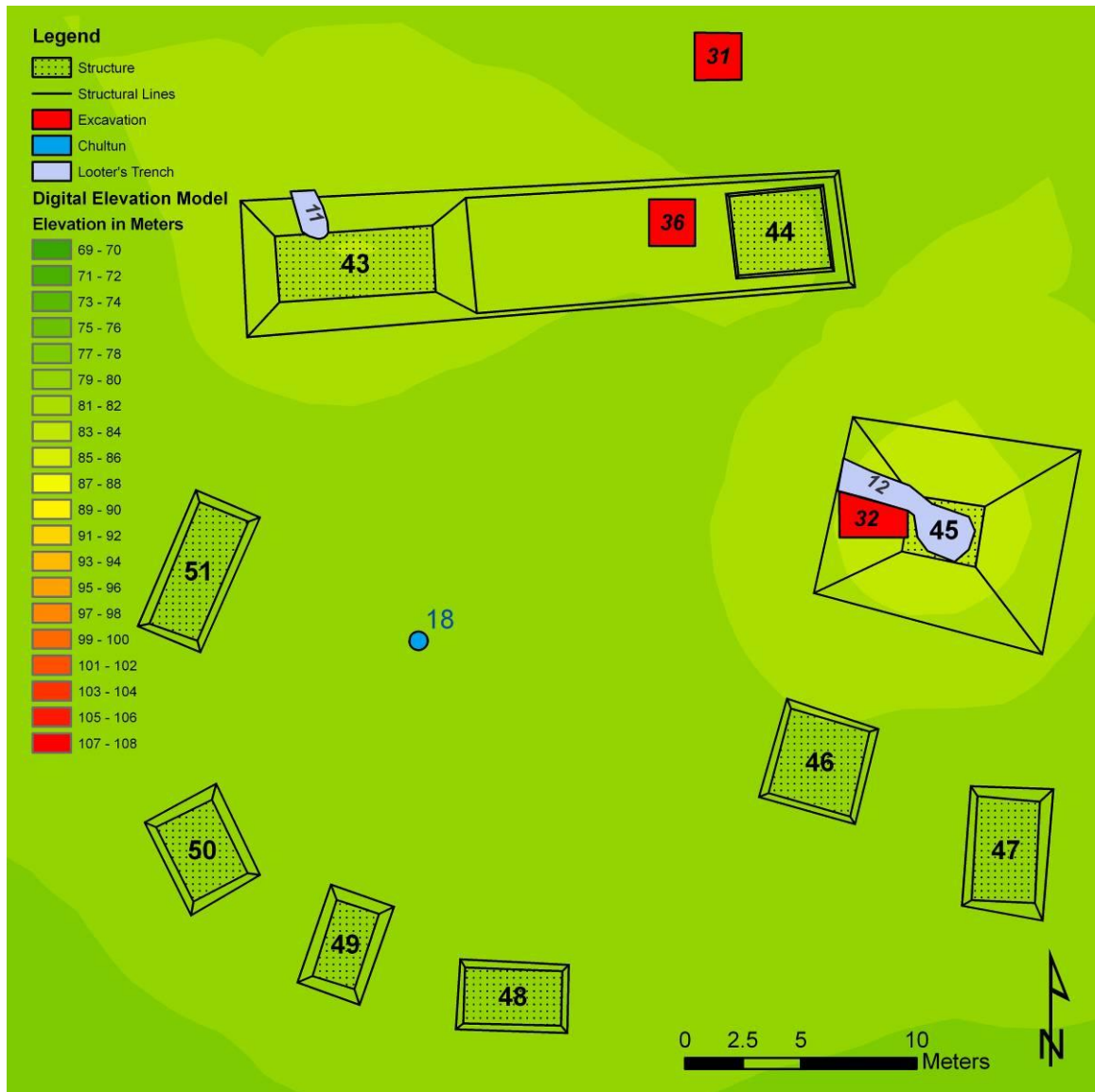


Figure 7.46: Map of Patio Group 38 showing the locations of KOL.T.31, KOL.T.32, and KOL.T.36. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

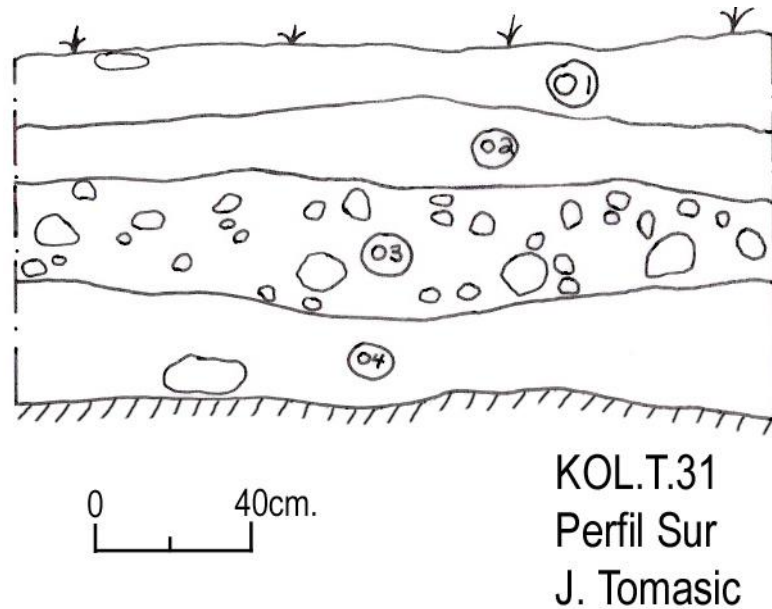


Figure 7.47: KOL.T.31 south profile, Patio Group 38.

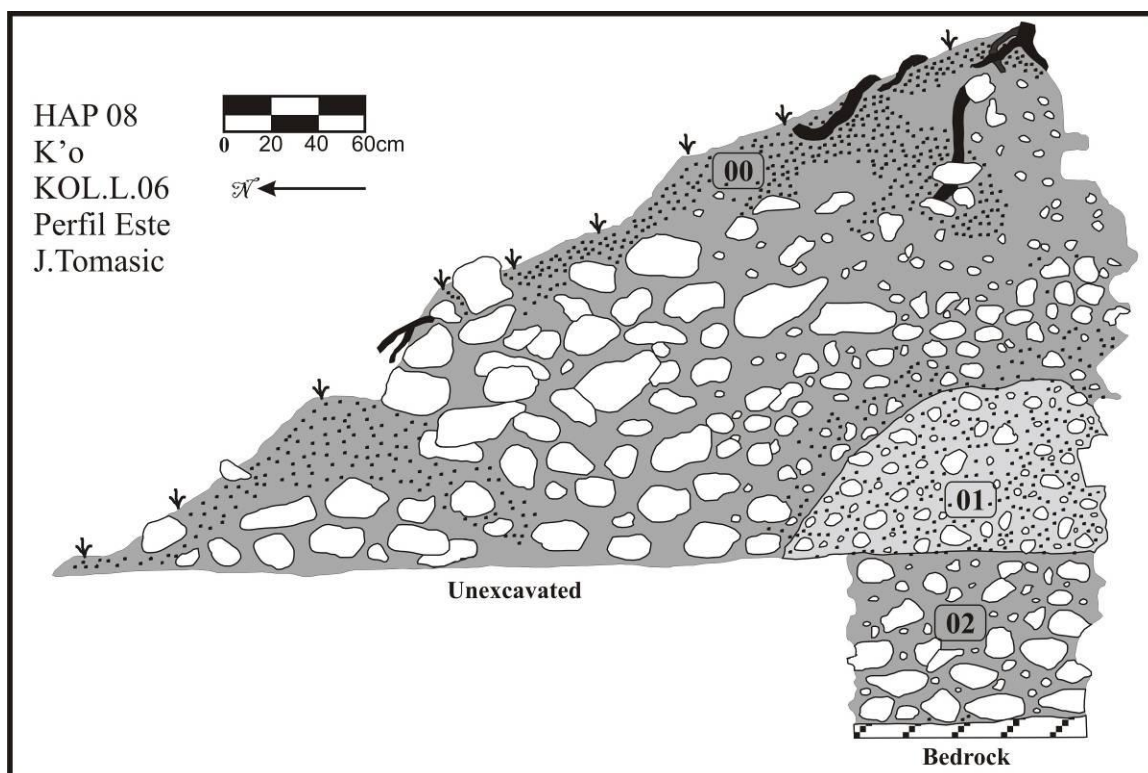
final phase of occupation of Structure 44. Although no sealed plaster floors were encountered, there does seem to be evidence of stratigraphic control in this unit. Unlike Context 02, Context 03 contains a significant proportion of Early Classic sherds, and Context 04 contains purely Late Preclassic sherds. Although the earlier deposits in Context 03 and Context 04 contain a lower density of artifacts compared with the Late Classic midden in Context 02, the majority of the earlier deposits may have been removed and used as building fill for Structure 44 and other nearby structures. Most likely, the area to the north of Structure 44 was used as a midden area for centuries, throughout the occupation of Structure 44.

KOLL.06

This salvage excavation investigated Looter's Trench 11, located on the northern side of Structure 43 (Figure 7.46). Context 00 is a mixed context composed of backdirt from within the looter's trench, and the ceramics from this context date to both the Late Preclassic and Classic periods. Context 01 is composed of undisturbed structural fill within the core of the structure, and the ceramics from this context date to the Late Preclassic and Terminal Preclassic (Figure 7.48). Context 02 is an area beneath Context 01 measuring 50 cm.² which was excavated to bedrock, in order to properly record all of the building's construction phases. Context 02 is approximately 70 cm. in depth, and is composed of a layer of structural fill located directly atop bedrock. The ceramics from this context date to the Late Preclassic.

Results of Excavation:

As a result of this salvage excavation, it is now clear that Structure 43 has evidence of one construction phase and at least two periods of occupation. The structural fill contains Late Preclassic and early facet Early Classic ceramics, suggesting the structure was built no earlier than the early facet of the Early Classic. However, the ceramics from the looters backdirt within mixed contexts date to both the Late Preclassic and the Classic period. Most likely, the building was constructed in the early facet of the Early Classic and occupied throughout the Classic period.



**Figure 7.48: East profile of KOL.L.06 (Looter's Trench 11).
Structure 44, Patio Group 38.**

KOL.L.07

This salvage excavation investigated Looter's Trench 12, a large looter's trench located on the western side of Structure 45 (Figure 7.46). Structure 45 is the easternmost structure in a large patio group located approximately 200 meters northwest of the K'o site core. The form of this patio group closely corresponds to the "Plaza Plan 2" patio group identified at Tikal (Becker 1999). At Tikal it has been demonstrated that the eastern structures of Plaza Plan 2 groups functioned as mortuary shrines dedicated to lineage elders buried within the structure. Based on the Plaza Plan 2 form of Structure 45 and its associated structures, it was hypothesized that Structure 45 was the eastern mortuary shrine of a Plaza Plan 2 patio group. The goals of this salvage excavation were

to clear the looter's trench of all looters backdirt, and to properly record as much information as possible before backfilling the looter's trench, and to test the hypothesis that Structure 45 was the eastern mortuary shrine of a Plaza Plan 2 patio group.

Although the looter's trench did not appear to be extensive, investigations revealed that the looter's trench extended well into the core of the structure, with the entire trench measuring eight meters in length and four meters deep four meters, extending nearly to bedrock (Figure 7.49). As described below, this salvage excavation revealed five major construction phases and a looted tomb, all presented in reverse chronological order.

Context 00 is composed of looter's backdirt and collapsed material located within the entire looter's trench. The ceramics from Context 00 date to the Late Preclassic and the Classic period. Although all artifacts found within the mixed context of the looter's trench were assigned to Context 00, the vast majority of Late Classic sherds were recovered during the initial excavation of the looter's trench, and the majority of Late Preclassic and Terminal Preclassic sherds were recovered from the deepest portions of the looter's trench within the core of Structure 45, suggesting that some stratigraphic distinctions were present within Context 00.

Context 16 is composed of large stone structural fill associated with the fifth and final phase of Structure 45 (Figure 7.49). A Late Classic plate was found in-situ within Context 16, which dates the final phase of Structure 45's construction to the Late Classic.

Context 10 is a plaster floor associated with the fourth of five construction phases, and Context 09 is subfloor fill beneath Context 10. Context 15 is a plaster floor which may also be associated with the fourth construction phase, and Context 14 is subfloor fill

beneath Context 15. The plaster floors within Context 10 and Context 15 probably represent contemporaneous constructions associated with the fourth of Structure 45's five construction episodes, yet the relationship between the two plaster floors is not altogether clear.

Context 12 is a stone structural wall associated with the third of the building's five construction phases. The wall of Context 12 is stratigraphically associated with two floors (Context 08 and Context 13), as well as a layer of subfloor and structural fill (Context 07). A carbon sample was recovered from Context 07, and a few ceramic sherds were recovered from the profile. Unfortunately, due to the small size of the ceramic sherds and the small sample of ceramics the relative dates of this context could not be visually determined.

Context 06 is a plaster floor associated with the second of Structure 45's five construction phases. Context 06 is stratigraphically associated with a layer of subfloor and structural fill (Context 05), a stone structural wall (Context 11), and a looted tomb (Context 02) described below.

The looted tomb (Context 02) was discovered at the base of the looter's trench (Figure 7.50). The tomb itself measures 195 centimeters in length, 45 centimeters in width, and 110 centimeters in height, and is oriented north-south (Figures 7.51-7.53). The looters entered the tomb through the central portion of the roof, and in the process destroyed small portions of the eastern and western walls of the tomb as well. In addition, a portion of the northern wall of the tomb either collapsed in antiquity or was destroyed during the looting of the tomb. With the exception of these damages, the tomb itself is otherwise well preserved.

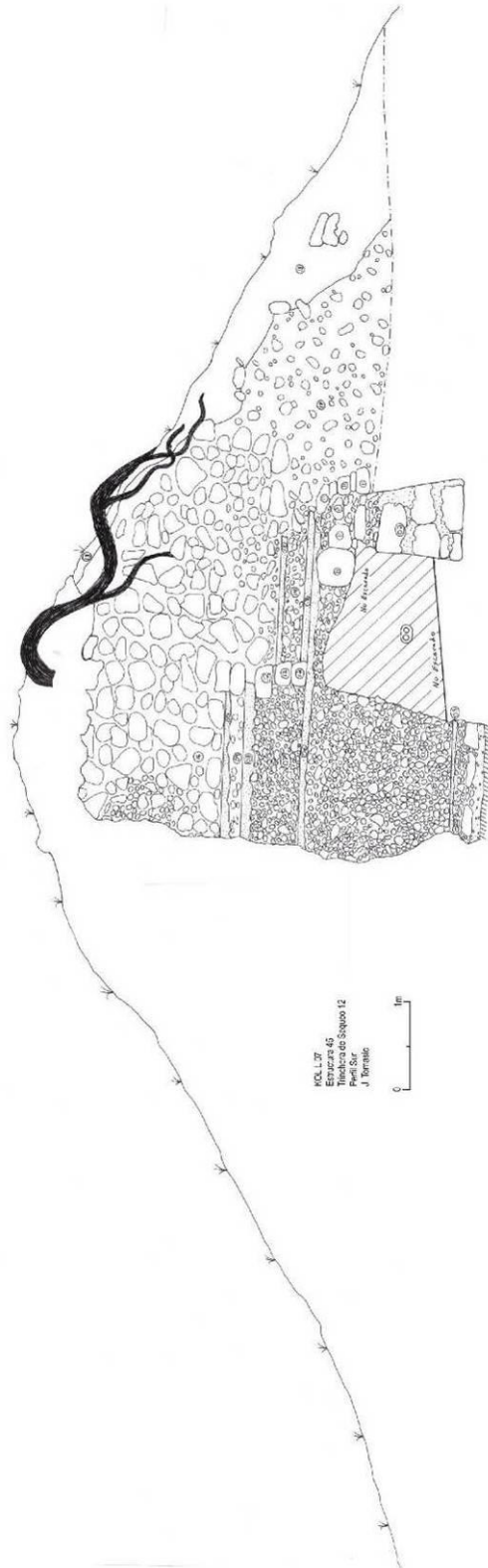


Figure 7.49: South Profile of KOL.L.07. Structure 45, Patio Group 38.



Figure 7.50: Photograph of Looter's Trench 12 (KOL.L.07) after removal of Context 00 and Context 01, showing the looted tomb (Context 02). Structure 45, Patio Group 38. Photograph by the author.



Figure 7.51: Photograph of southern wall of tomb (KOL.L.07.02). Structure 45, Patio Group 38. Photograph by the author.



Figure 7.52: Photograph of southwest corner of tomb and tomb floor. Structure 45, Patio Group 38. Photograph by the author.

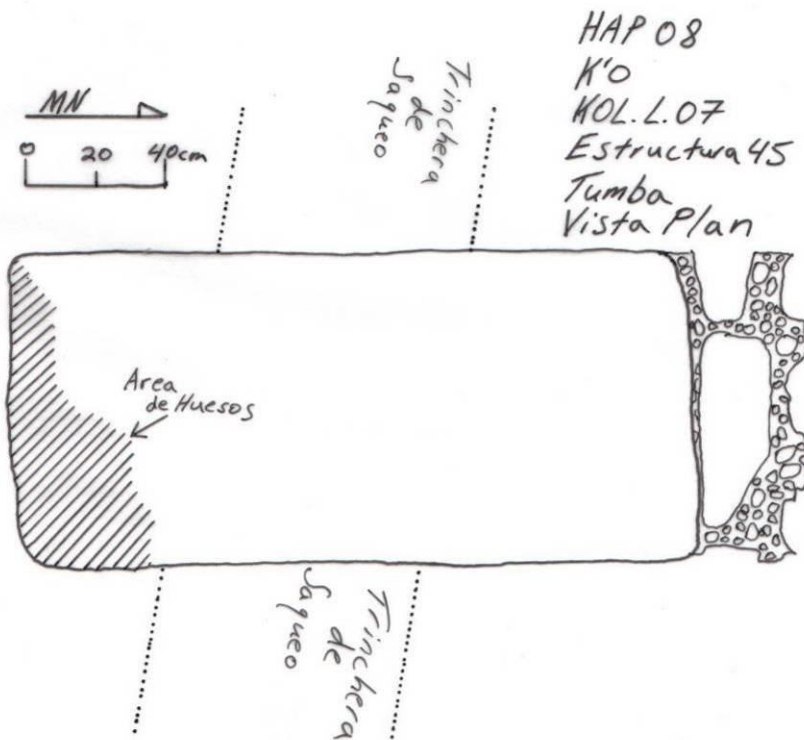


Figure 7.53: Plan drawing of looted tomb in Looter's Trench 12 (KOL.L.07.02). Structure 45, Patio Group 38.

A sample of the wall plaster was taken from the northwest corner of the tomb and given a small find designation (KOL.L.07.02.11.01). All of the artifacts recovered within the looted tomb were assigned a new context number (Context 01). Although the tomb was looted of nearly all its grave goods, the looted tomb did contain a large amount of cranial bone fragments in the southeastern portion of the tomb floor. At least 16 teeth were recovered from the tomb, including two incisors with evidence of filing and incised designs. Osteological examination of these skeletal remains suggests the remains belong to two individuals, and the remains of the principal individual is identified as an adult male of advanced age (Matute 2009).

Late Preclassic and Terminal Preclassic sherds were recovered throughout the fill of the looted tomb (Context 01), but their association with the original tomb contents is entirely unclear. After breaking through the roof and the upper portion of the western wall of the vaulted tomb, the looters continued their looter's trench through the eastern wall of the tomb into the interior of the structure, and probably backfilled the looted tomb as they extended the looter's trench towards the center of the structure. Given that the looter's trench extends eastward toward the interior of the structure, it seems likely that the ceramics recovered from Context 01 may have been originally associated with Context 05, and these ceramics were deposited into Context 01 as the looters continued excavating the trench into the interior of Structure 45. Context 05 and Context 01 are stratigraphically contemporaneous, and if the ceramics indeed came from Context 05 this would date the looted tomb and the second of the building's five construction phases to the Terminal Preclassic. Furthermore, the controlled excavations to the south of Looter's Trench 12 (KOL.T.32) have clarified the construction sequence of Structure 45, and the

evidence from these excavations strongly suggests that the looted tomb in KOL.L.07 was constructed during the Terminal Preclassic (discussed below).

Context 03 is a plaster floor associated with the first and earliest of the building's five construction phases. Context 03 is contemporaneous with Context 04, a layer of subfloor fill directly atop bedrock. Unlike all the other plaster floors encountered in KOL.L.07, Context 03 is a sealed plaster floor undisturbed by looters, which marks the vertical limit of the looter's trench within the structure. In order to obtain datable sherds from this construction phase, and to properly record all construction phases above bedrock, a 1m² area of Context 03 was excavated, and the excavation continued through Context 03 until arriving at bedrock. No artifacts were recovered in Context 03, but the construction fill within Context 04 contained Late Preclassic and Terminal Preclassic sherds, which dates this earliest phase of construction to the Terminal Preclassic.

Summary of Results:

This salvage excavation has resulted in the discovery of a vaulted tomb associated with one of the earliest construction phases of the Structure 45, and provided strong evidence supporting the identification of Structure 45 as the eastern mortuary shrine of a Plaza Plan 2 architectural group. As a result of this salvage excavation, it is clear that Structure 45 was constructed in five major episodes, the earliest of these during the Terminal Preclassic, and the latest episode during the Late Classic. The second construction phase, which dates to the Terminal Preclassic, contained a well built tomb containing the remains of a single adult male, perhaps a lineage elder, as suggested by

Marshall Becker (Becker 1999) regarding the deceased individuals interred within eastern Plaza Plan 2 buildings at Tikal.

KOL.T.32

KOL.T.32 is an irregularly shaped unit located south of and adjacent to Looter's Trench #12 in Structure 45 (Figure 7.46). During the salvage excavation of Looter's Trench 12 (KOL.L.07), it was discovered that the looter's trench was oriented slightly north of the structure's east-west axis. KOL.T.32 was placed slightly south of Looter's Trench 12, in order to expose the east-west axis of the structure, and to clarify the construction sequence of the building. This controlled excavation revealed five major construction phases and two burials, all presented in reverse chronological order.

Context 01 is a 10-20 centimeter layer of sandy brown humus, and the ceramics from Context 01 date to the Late Classic (Figure 7.54). Context 02 is a 30-40 centimeter layer of dark brown silty loam directly atop the latest phase of construction, a stairway (Context 03). The ceramics from Context 02 date to the Early Classic and Late Classic. Context 03 is the poorly preserved stairway associated with the final phase of construction of Structure 45 (Figures 7.55, 7.56).

Context 04 is composed of structural fill, and the ceramics from Context 04 date to the Late Preclassic and Early Classic. As can be observed in the profile of the unit (Figure 7.54), Context 04 is composed of material from at least two construction phases. Context 04 is composed of construction fill beneath the fifth and final phase of construction, as well as construction fill from the building's fourth construction phase.

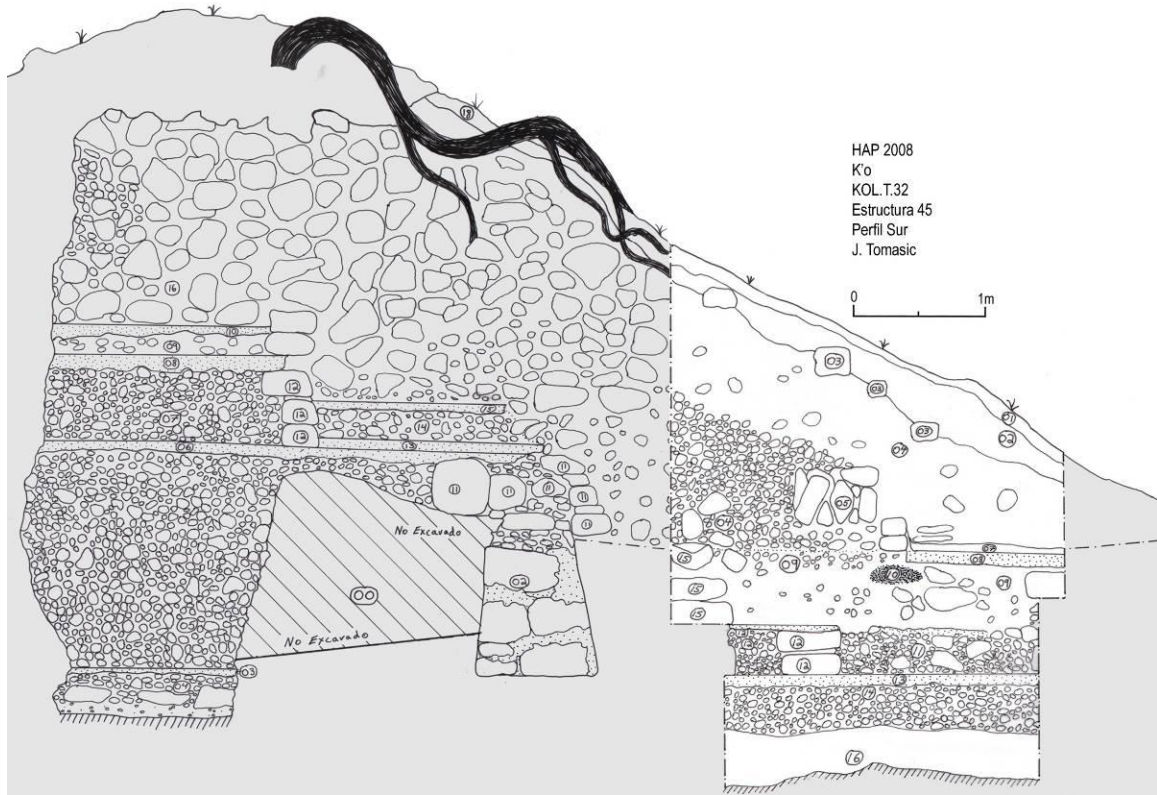


Figure 7.54: KOL.T.32 south profile shown in relation to the KOL.L.07 profile (in gray). Structure 45, Patio Group 38.

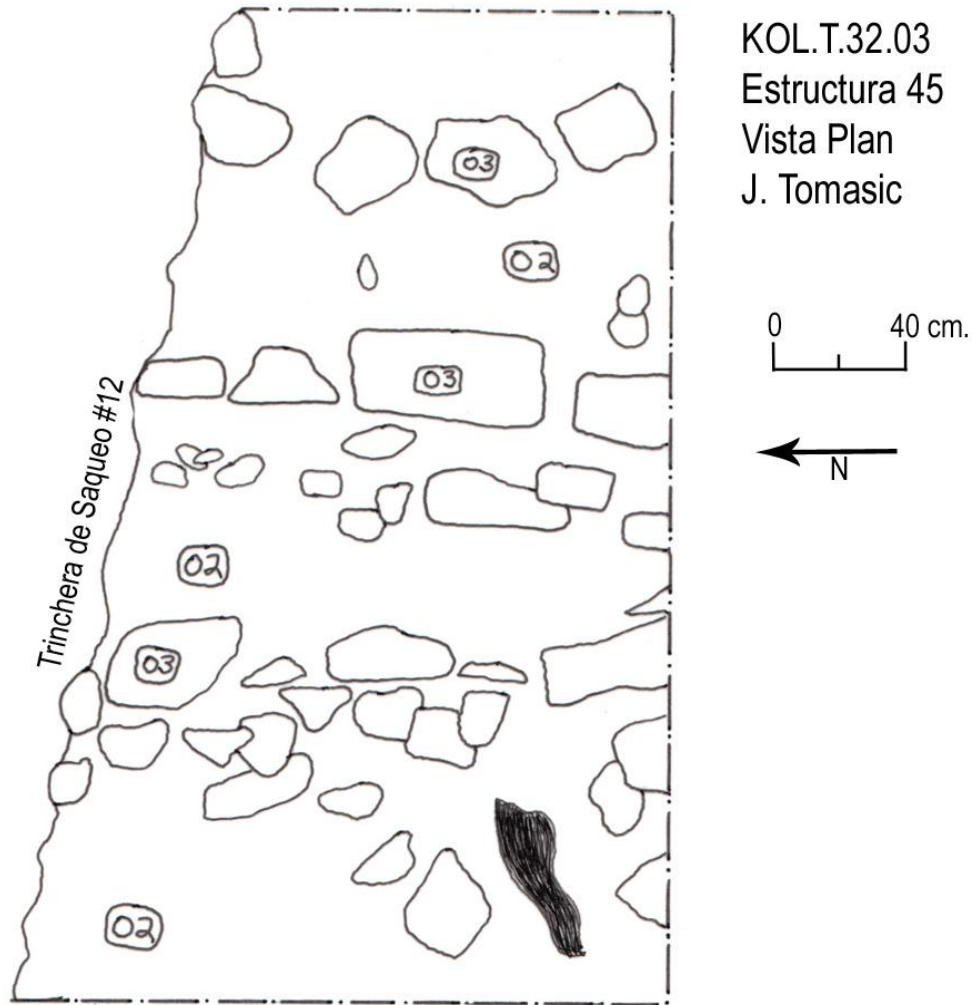


Figure 7.55: KOL.T.32.03 plan view. Structure 45, Patio Group 38.



**Figure 7.56: Photograph of KOL.T.32.03. Structure 45, Patio Group 38.
Photograph by the author.**

Context 07 is a five centimeter thick lens of very dark gray/brown sandy clay containing a high density of Late Classic sherds. Context 07 is located atop a well preserved plaster floor and wall (Context 08) associated with the building's fourth construction phase. The removal of Context 07 revealed evidence of burning on the surface of the plaster floor in the area of Context 07 (Figures 7.57, 7.58). Most likely, the burning on the plaster floor (Context 08) was caused by some type of burning associated with the deposition of the Late Classic ceramics (Context 07).

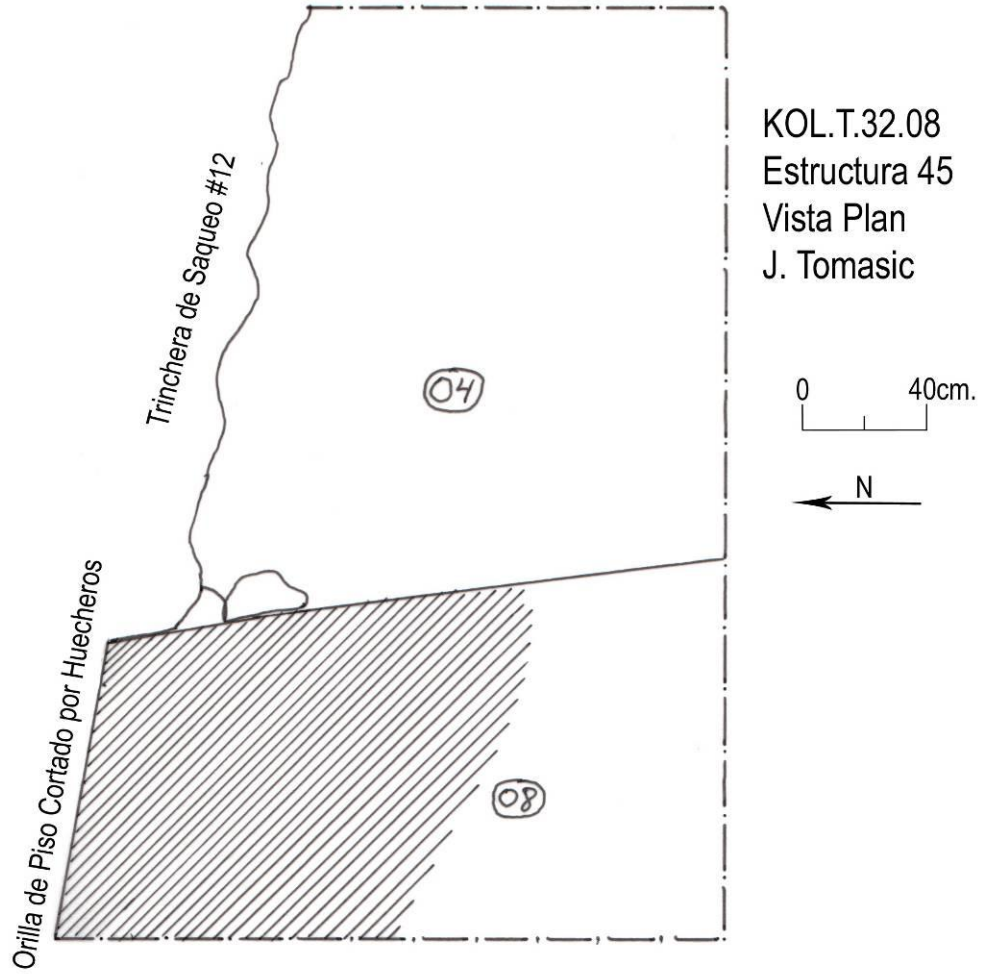


Figure 7.57: Plan drawing of Context 08 (burned area is shaded). Structure 45, Patio Group 38.



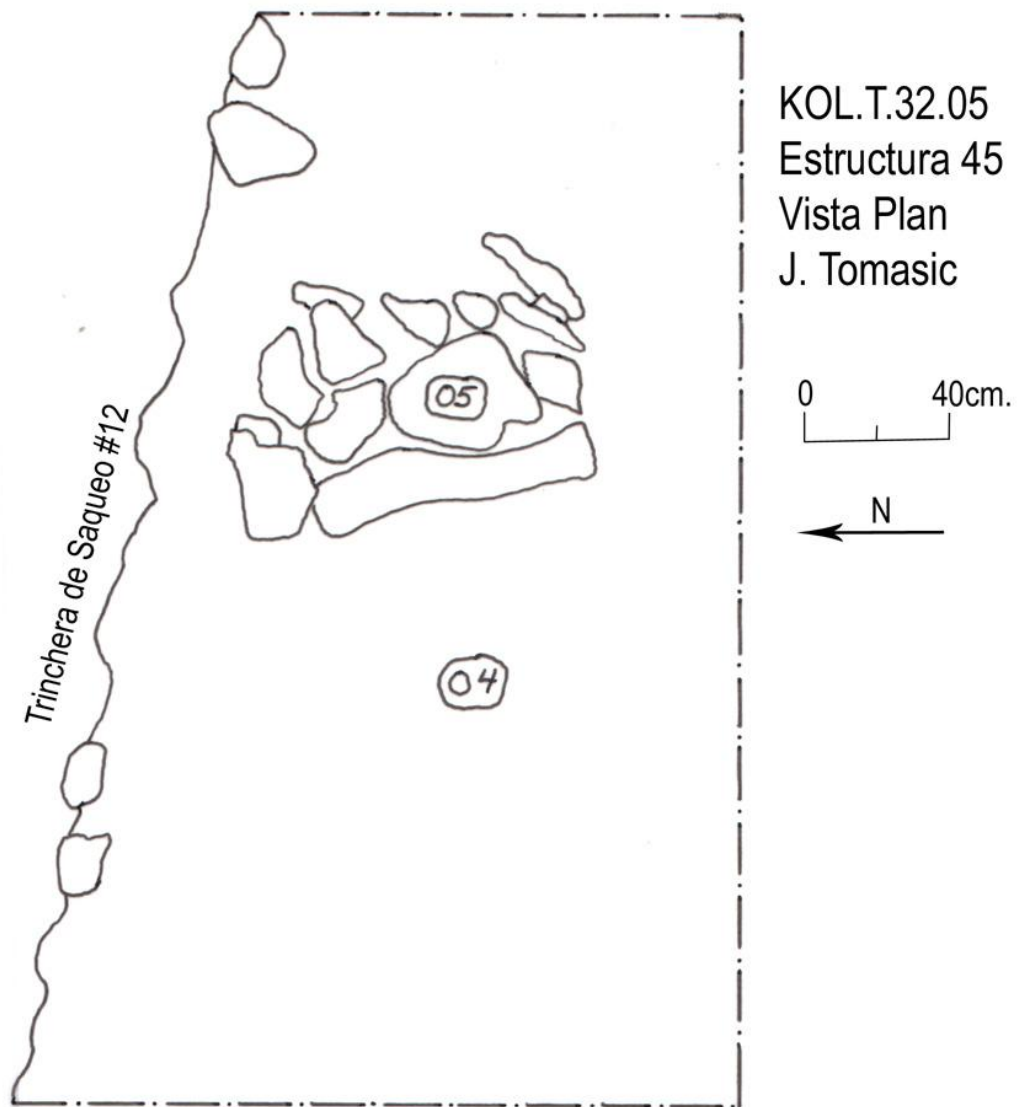
Figure 7.58: Photograph of KOL.T.32.08, looking south, with evidence of burning on plaster floor. Structure 45, Patio Group 38. Photograph by the author.

Although the ceramics in Context 07 could be considered a garbage midden, the location of this deposit in front of the building and along the building's east-west axis makes it an unlikely area for a garbage midden. In addition, the entire deposit was covered by the building's fifth and final construction phase, making it unlikely that the burned ceramics within Context 07 could be considered *de facto* refuse – artifacts deposited in-situ during a rapid abandonment (A. Chase and D. Chase 2004). Most likely, this floor midden is actually a Late Classic termination deposit (Schele and Freidel 1990; Suhler et al. 2004) associated with the ritual termination of the building's fourth

construction phase (Context 08) and the construction of the building's fifth and final construction phase during the Late Classic.

Beneath Context 08, a layer of subfloor/structural fill was designated Context 09, and the ceramics from this context date from the Terminal Preclassic to the late facet of the Early Classic. Based on the ceramics recovered from Context 09, the plaster floor of the building's fourth construction phase (Context 08) can be dated to the late facet of the Early Classic.

In addition to dating the fourth construction phase of Structure 45, the ceramics from Context 09 have also provided dates for two burials associated with the fourth construction phase of Structure 45. Context 05 is located within Context 04, and is a stone cist measuring 50 x 100 centimeters and oriented north-south (Figures 7.59, 7.60). The cist contained a poorly preserved burial (Context 06) with virtually no grave goods, with the exception of a few highly eroded sherds (Figure 7.61). Osteological analysis of the skeletal remains identified the individual as an adult of undetermined age (Matute 2009). Although the burial is located within Context 04 which contains material from both the fourth and fifth construction phases of structure 45, the stratigraphic location of the burial in the excavation profile (Figure 7.54) suggests the burial is associated with the building's fourth construction phase. This burial, like the building's fourth construction phase, most likely dates to the late facet of the Early Classic, based on sherds recovered from the structural fill of Context 09. However, it should be mentioned that the possibility exists that the burial is an intrusive Late Classic burial deposited during the construction of the fifth and final phase of the structure.



**Figure 7.59: Plan drawing of KOL.T.32.04, showing the location of cist (Context 05).
Structure 45, Patio Group 38.**



Figure 7.60: Photograph of stone cist (Context 05). Structure 45, Patio Group 38. Photograph by the author.



Figure 7.61: Photograph of the burial in KOL.T.32.06, following removal of capstones of stone cist (Context 05). Structure 45, Patio Group 38. Photograph by the author.

Within Context 09, a poorly preserved burial was designated Context 10. Osteological analysis suggests the skeletal remains belong to a probable adult (Matute 2009). This poorly preserved burial (KOL.T.32.10) had been deposited along with 23 pieces of obsidian and one jade pebble (Figure 7.62). According to Zac Hruby, 9 of the 23 obsidian artifacts are blade core production fragments with ground edges, and the remaining 14 artifacts are obsidian pebbles which have been reduced by direct percussions. Hruby suggests these pebbles are similar to riverine obsidian pebbles commonly encountered at sites in the Motagua River Valley, and the entire assemblage may have been used as a set of divining stones by a Maya shaman (Hruby 2009).

Context 11 is a layer of large stone and *pedrín* structural fill covered by a poorly preserved cap of plaster. The ceramics from Context 11 date to the Terminal Preclassic. Context 12 is a stone and plaster step/platform with *pedrín* construction fill, and the latest ceramics from Context 12 date to the Terminal Preclassic (Figures 7.63, 7.64). Context 12, and possibly Context 11 as well, are the third construction phase associated with this structure.

Context 12 was built adjacent to and in front of a stone wall (Context 15), and this stone wall is associated with the building's second construction phase. Context 11, Context 12, and Context 15 all were built directly atop a well preserved plaster floor (Context 13) associated with the building's first construction phase. Although no ceramics were recovered from the building's second construction phase (Context 15), ceramics recovered from earlier and later contexts firmly date the second construction phase to the Terminal Preclassic.

The building's first construction phase (Context 13) appears to date to the Late Preclassic, based on ceramics recovered from subfloor fill (Context 14). Context 16 is composed of very dark brown clay directly atop bedrock, and the ceramics from Context 16 also date to the Late Preclassic.

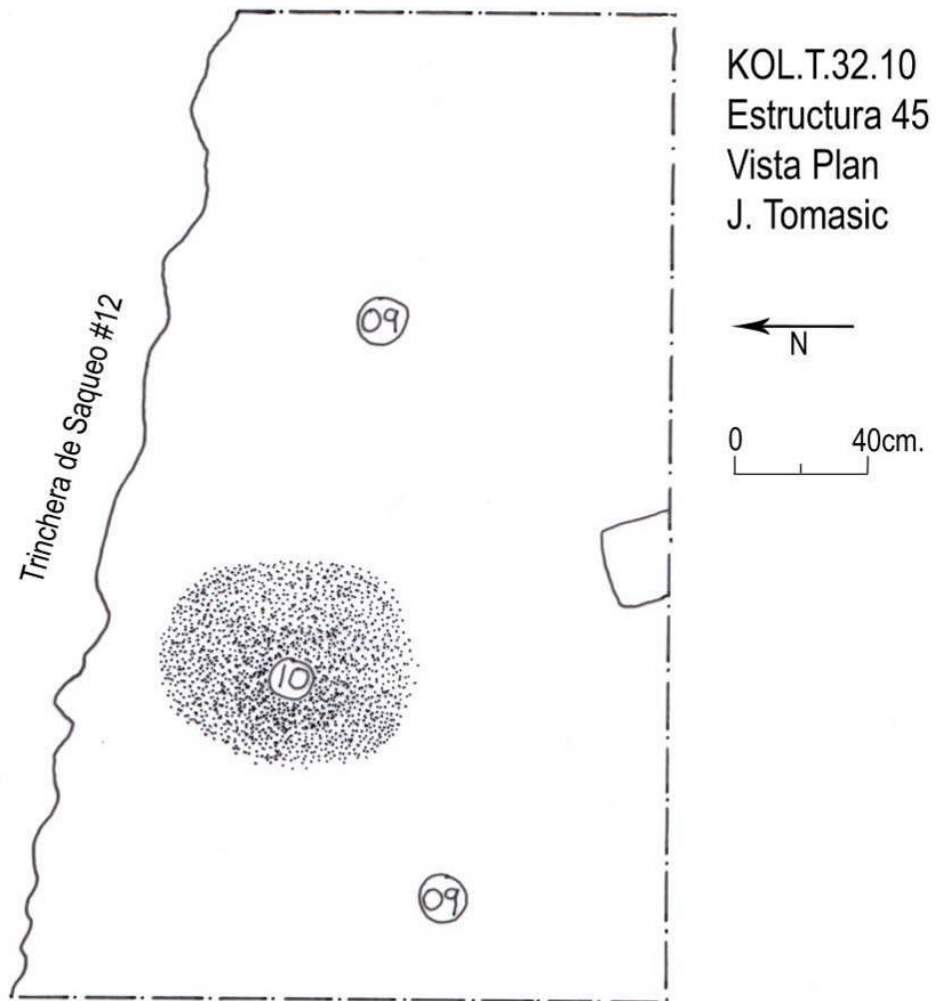
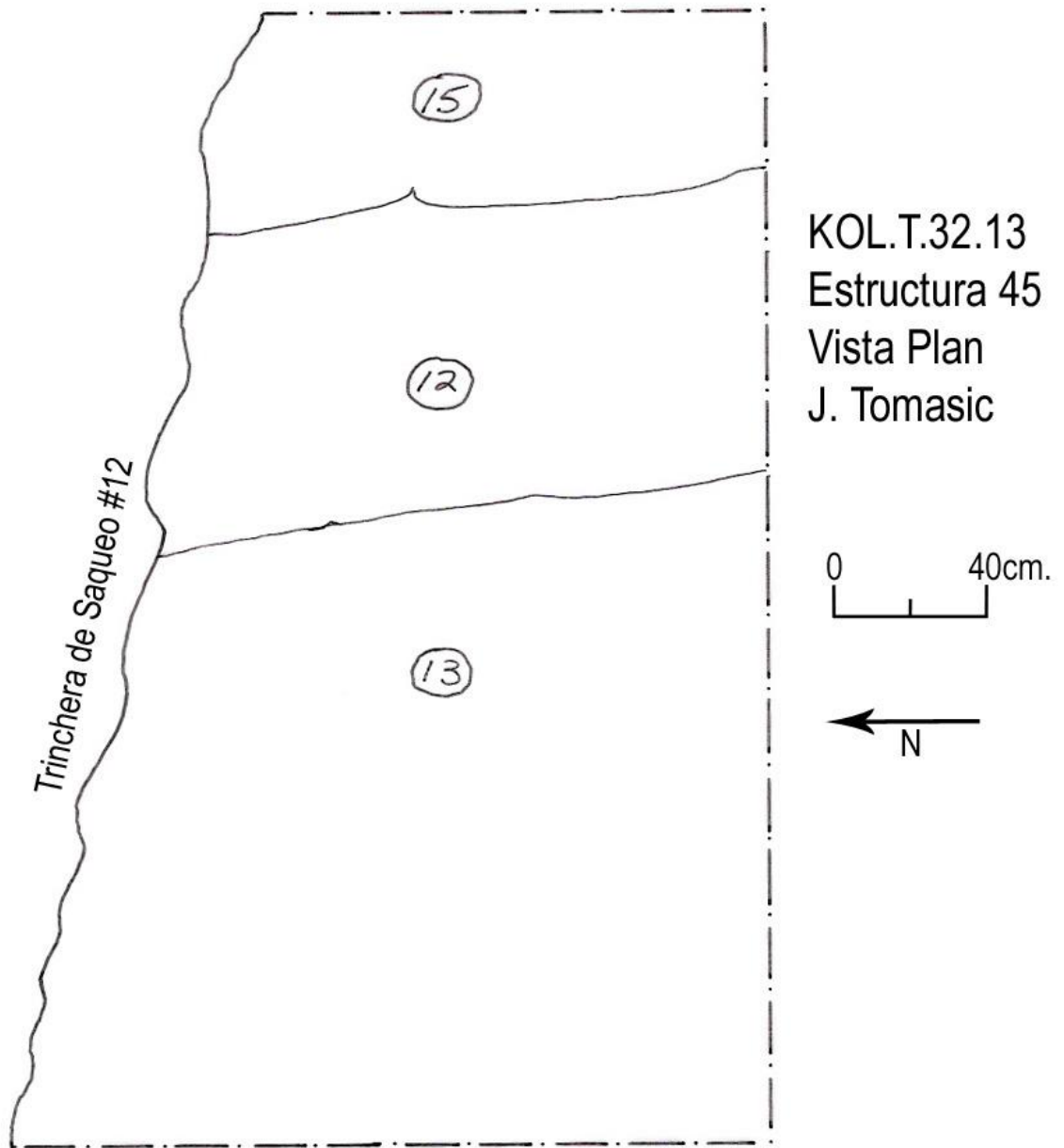


Figure 7.62: Plan drawing showing location of burial within KOL.T.32.10. Structure 45, Patio Group 38.



**Figure 7.63: Plan drawing of KOL.T.32.13.
Structure 45, Patio Group 38.**



Figure 7.64: Photograph of KOL.T.32 following the removal of Context 11. Structure 45, Patio Group 38. Photograph by the author.

Summary of Results:

As a result of this excavation, the construction sequence of Structure 45 is now much better understood. This controlled excavation revealed five major construction phases and two burials. The earliest construction phase (Context 13) dates to the Late Preclassic, and appears to be part of a plaster floor encountered in Looter's Trench 12 (KOL.L.07.03). The second construction phase (Context 15) dates to the Terminal Preclassic, and appears to be contemporaneous with the second phase of construction encountered in the looter's trench, including the looted tomb (KOL.L.07.02). The third construction phase (Context 12) dates to the Terminal Preclassic, and the fourth construction phase (Context 08) containing two burials (Context 06, Context 10) dates to the late facet of the Early Classic. Finally, the fifth construction phase (Context 03) dates to the Late Classic, and is associated with the fifth construction phase encountered in the looter's trench.

In addition to clarifying the construction sequence of the building, the data from this excavation greatly strengthens the interpretation of the looted tomb and associated architecture within Looter's Trench 12. The controlled excavations have demonstrated that the looted tomb (KOL.L.07.02) dates to the Terminal Preclassic, and the presence of multiple burials along the building's central axis associated with successive construction phases supports the hypothesis that Structure 45 was the eastern mortuary shrine of a Plaza Plan 2 patio group (Becker 2003).

Excavations in Group 39

During the 2005 season, in addition to the Phase 1 excavations in the site core, Patio Group 39 was investigated (Tomasic 2006). Patio Group 39 is composed of six structures whose arrangement conforms to the Plaza Plan 2 layout identified by Becker (1971, 1999) at Tikal. Patio Group 39 is considered a high status group, based on the assessment of the relative status of patio groups based on patio group volume described in Chapter IV. Salvage excavations within Looter's Trench 2 (described below) were aimed at documenting a vaulted tomb intruded upon by looters in Structure 3, the easternmost structure within Patio Group 39 (Figure 7.65). Following the salvage excavation of Looter's Trench 2, the area was selected for Phase 3 intensive excavations. All of the data from these excavations, including the salvage excavation of Looter's Trench 2 (Tomasic 2006) and Looter's Trench 10 (Tomasic et al. 2009a), are included in the following summary of Phase 3 intensive excavations in Group 39.

KOL.L.02

Looters' Trench 2 (KOL.L.02) is located in the western portion of Structure 3 (Figure 7.66). Structure 3 is the easternmost structure in a patio group which conforms to the "Plaza Plan 2" eastern shrine architectural unit originally identified at Tikal (Becker 1971, 2003). As a first step in the documentation of this looter's trench, all of the looters' backdirt was removed from the trench and the profile of the trench was drawn (Figure 7.67). Context 00 consists of the tomb's now-disturbed contents, as well as the looters backdirt outside the tomb. A wide variety of artifacts were recovered from within this context, including plaster fragments which appear to have fallen from the walls of the

tomb chamber, and a fragment of a drilled greenstone bead, which likely adorned the tomb's occupant. In addition, a number of small bone fragments and at least three complete teeth were recovered. However, the skeletal remains were so fragmentary that information regarding the individual's age or sex could not be obtained (Anna Novotny, Personal Communication 2005).

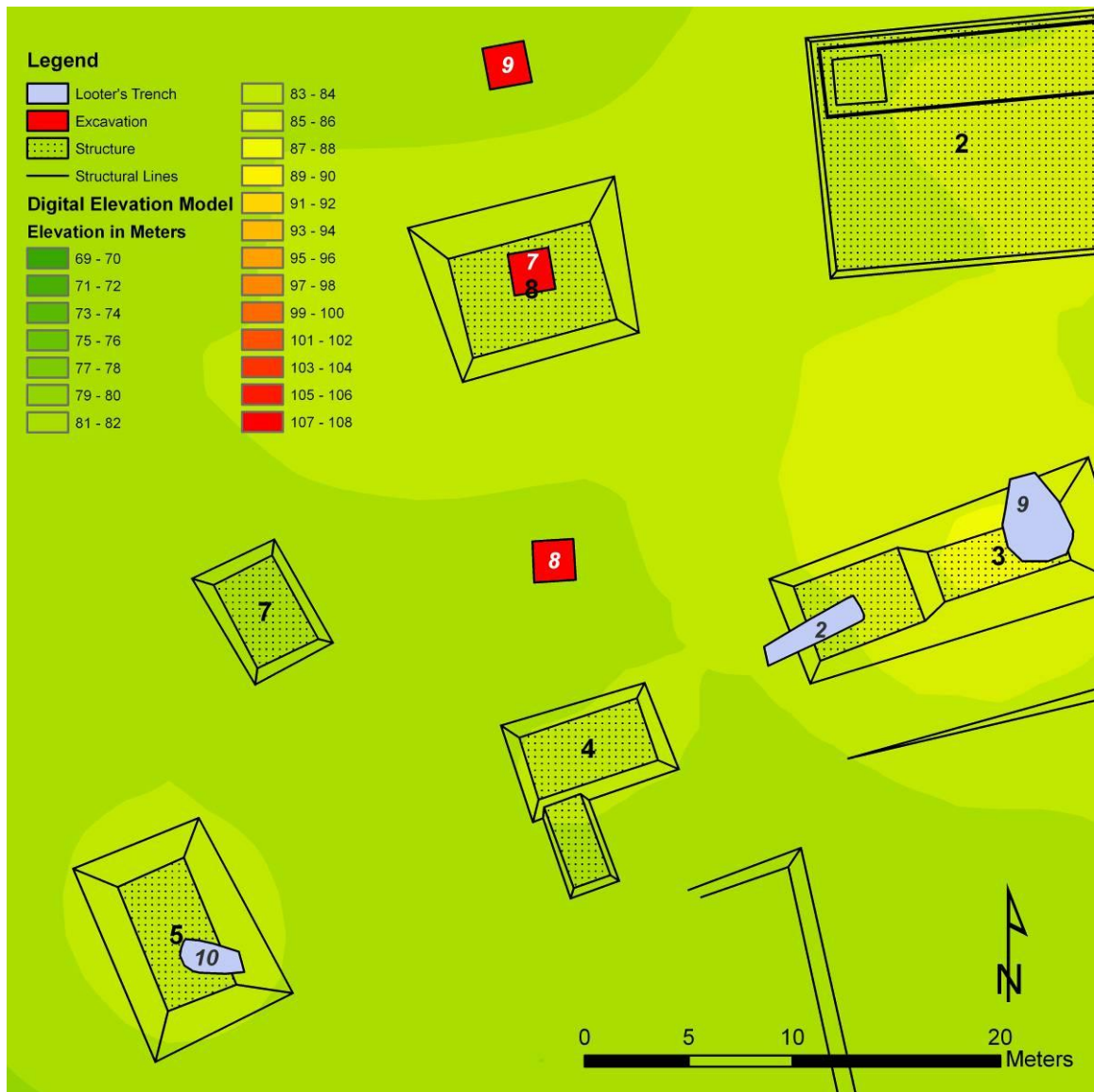


Figure 7.65: Map of Patio Group 39. Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

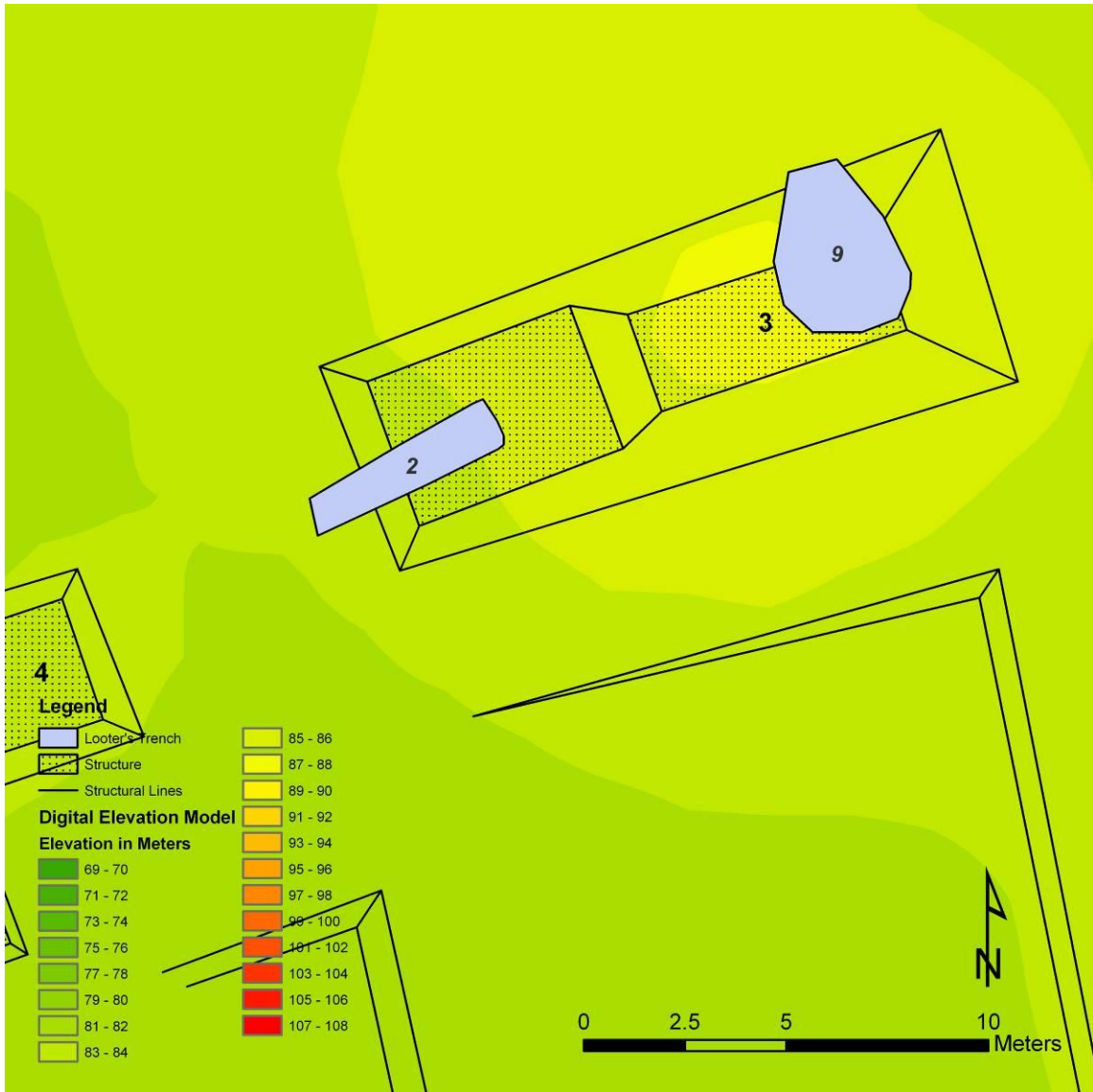


Figure 7.66: Map showing location of KOL.L.02 (Looter's Trench #2) Survey by the author, map created by the author in ArcGIS 9. Digital Elevation Model created using Kriging interpolation.

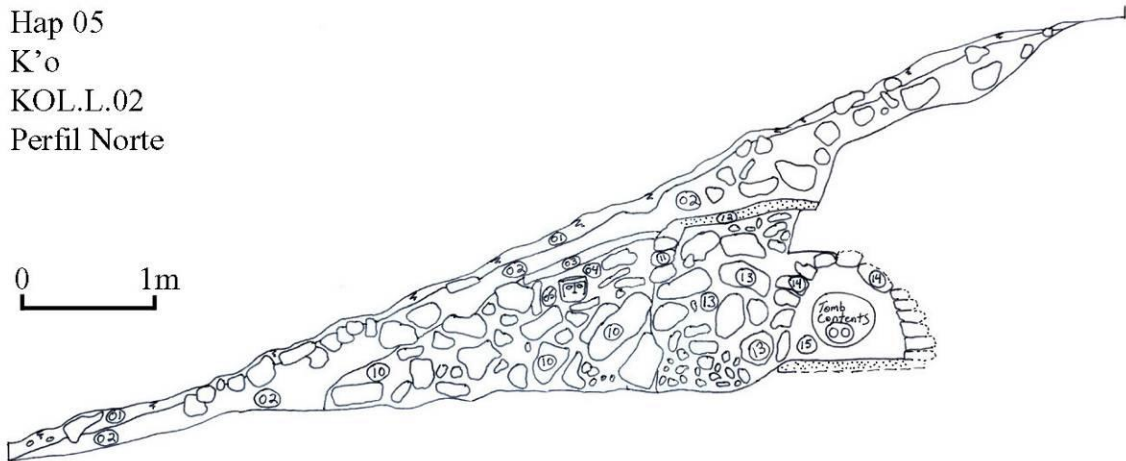


Figure 7.67: North Profile of KOL.L.02. Structure 3, Patio Group 39.

During the examination and documentation of this trench, an intact ceramic vessel with an appliqué face was found to be protruding from the northern wall of this trench (Figures 7.68, 7.69). This vessel had been placed beneath the western stairway of the structure, directly on the structure's east-west axis. Careful excavation of this vessel's contents revealed it to be a lidded cache vessel. This vessel contained a number of artifacts, including two types of coral, three "Charlie Chaplin" figurines (Figures 7.70, 7.71), as well as disk-like objects of jade and shell, hook-shaped jade and shell objects, greenstone microdebitage, a broken jade bead, a chert flake, charred seeds, pyrite fragments, wedge-shaped pieces of spondylus, and two unidentified species of shells.

Both the location of this cache and the contents of this cache are similar in many respects to caches found in the Caracol region. According to Chase and Chase (1994), settlement at Caracol is characterized by a high percentage of eastern shrine residential groups. These eastern shrines often contained multiple tombs, as well as ceramic urns

with appliquéd facial features, called “face caches”. These face caches are found throughout Caracol in association with the western stairway of these eastern shrine buildings and they appear to have functioned as offerings to the deceased individuals interred in these eastern structures (Chase and Chase 1994).

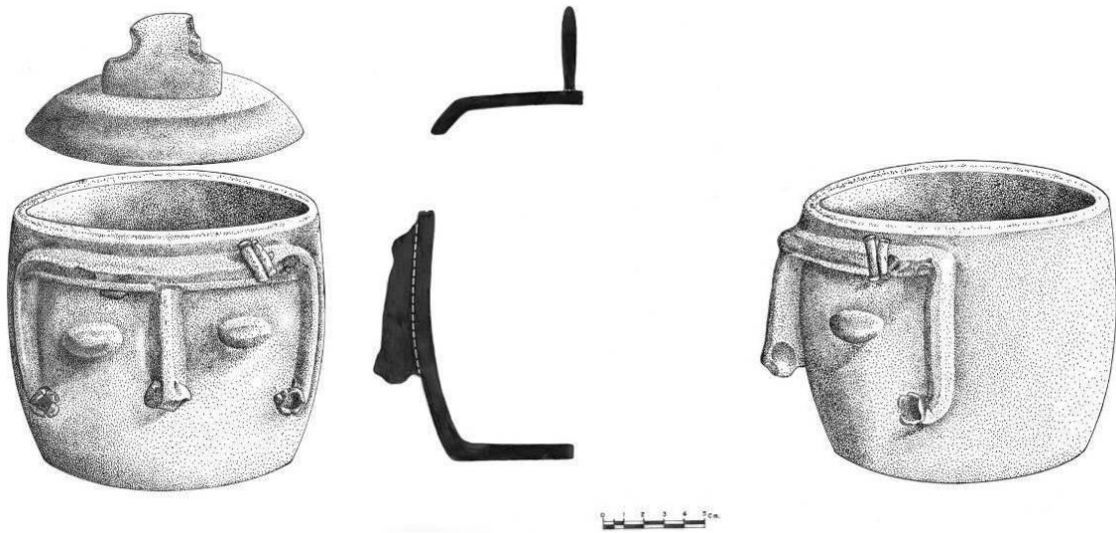


Figure 7.68: Drawing of cache vessel from KOL.L.02. Unnamed Modeled Unslipped (Callaghan 2008:810). Drawing by Fernando Alvarez, used with permission of the Holmul Archaeological Project.



**Figure 7.69: Photograph of the cache vessel from KOL.L.02.
Unnamed Modeled Unslipped (Callaghan 2008:810).
Photograph by the author.**



Figure 7.70: Drawing by Luis Fernando Luin of “Charlie Chaplin” jade and shell figurines from KOL.L.02 cache vessel.



Figure 7.71: Photograph of “Charlie Chaplin” jade and shell figurines from the KOL.L.02 cache vessel. Photograph by the author.

The Caracol face caches and the K'o cache vessel are also quite similar to Rice's (1999) category of image censers. The category of image censer is a general one; some incensarios may have been used to burn copal, others to burn blood-soaked strips of paper as part of royal autosacrifice. Others may have simply been elaborate stands used to support separate receptacles for burning incense. Lowland Maya image censers are associated with the institution of divine kingship, and are frequently associated with rituals associated with the burial places of elites. The burning of incense or paper within the image censer ritually activates the mortuary structure, acting as a portal and allowing contact with the ancestors of the otherworld. Furthermore, the subsequent smashing of image censers deactivates the sacred spaces, and closes the portal to the otherworld (Rice 1999). Although no copal residue was found within the K'o cache vessel, the blackened interior and lid of the K'o cache vessel suggests this before its use as a container for the cache, this vessel may have been an image censer in rituals associated with this eastern focused mortuary structure as described by Rice (1999).

Summary of Results:

Due to the nature of the discovery of this cache vessel, and the destruction caused by looters, the stratigraphic position of the vessel within the building's construction phases is not entirely clear. The stratigraphic investigation of the building's construction phases, and the dating of sherds within the profile of this looters' trench can be used to date the construction of the tomb and the final phase of the structure to the Early Classic (AD 250-550). If the vessel was deposited at the time of the construction of the tomb and the final phase of construction of the building, then the cache would date to the Early

Classic. Support for an Early Classic dating of the K'o cache comes from William Coe's recently published typological description of the Charlie Chaplins recovered during the University of Pennsylvania Museum's Tikal Project (Coe 2008 in Moholy-Nagy 2008). At Tikal, more than five hundred Charlie Chaplins were recovered, and every one of these Charlie Chaplins were found within Early Classic contexts (Moholy-Nagy 2008). Given the excellent chronological control of the Tikal Project's excavations, it seems very likely that the K'o Charlie Chaplins date to the Early Classic as well. William Coe, referring to the dating of Charlie Chaplins at other Lowland Maya sites, states "*It is hard to believe that all such objects are not, as at Tikal, of Early Classic manufacture*" (Coe 2008 in Moholy-Nagy 2008: Appendix 12, p. 5).

KOLL.09

This salvage excavation investigated Looter's Trench 10, located the southeastern side of Structure 5. Structure 5 is the westernmost structure in Patio Group 39, and this looter's trench on the eastern side of Structure 5 measures roughly 6 meters in length by 1 meter in width (Figure 7.65). Prior to excavation, a plaster floor and the remains of a wall were evident in the profile. The objectives of this excavation were to document the construction phases of the building, and to determine the periods when Structure 5 was constructed and occupied.

Context 00 is composed of looter's backdirt and collapsed material located within the looter's trench. The ceramics recovered from Context 00 date to the Late Preclassic and Early Classic. Following the removal of Context 00, excavations continued in the western portion of the looter's trench (Figure 7.72). Context 01 is composed of three

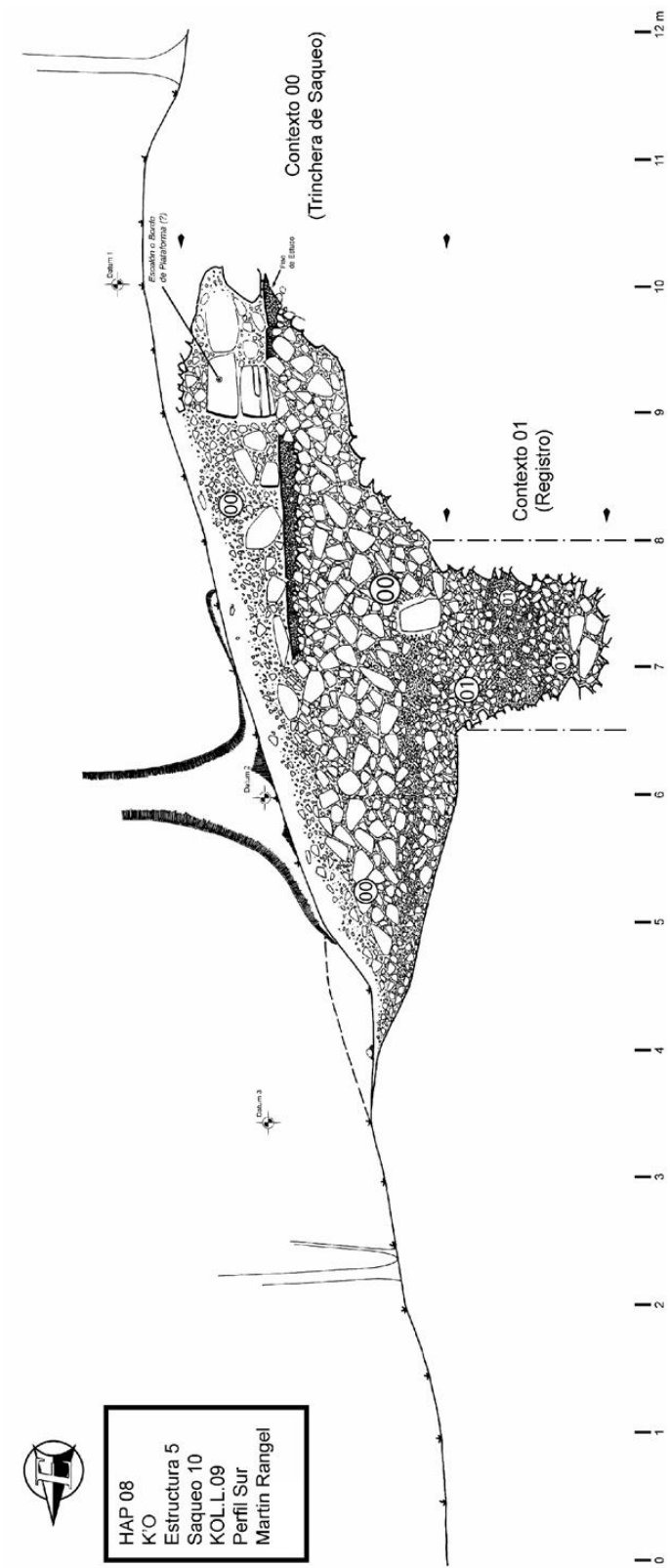


Figure 7.72: Profile of KOLL.09. Structure 5, Patio Group 39.

layers of construction fill, and the ceramics from Context 01 date to the Late Preclassic. Unfortunately, the excavations were ended before arriving at bedrock, and it is uncertain if earlier construction phases lay beneath Context 01.

KOL.T.07

This 2x2 meter unit is located on the central axis of Structure 8, slightly south of the rear wall of the structure (Figure 7.65). Structure 8 is the northernmost structure within Patio Group 39. The primary objectives of this excavation were to determine the periods when Structure 8 was constructed and occupied, and to identify artifact deposits from stratified deposits separated by construction phases.

Context 01 is a 10 centimeter layer of humus containing highly eroded sherds, and context 02 is layer of humus mixed with large stones (Figure 7.73). Ceramics from Context 02 date to the Early Classic. The transition from humus to structural fill occurs within Context 02 without evidence of a formal floor, and although the floor of the structure cannot be discerned within this context, the transition from humus to structural fill clearly occurs within this context. Context 03 is composed of the structure's construction fill, which includes both large and small stones, as well as a plaster construction layer. Ceramics from Context 03 date to the Early Classic. Context 04 is a layer of tightly compacted grayish-black sandy soil with gravel inclusions, and the ceramics from Context 04 date to the Terminal Preclassic and early facet Early Classic. Context 04 lies directly atop bedrock and is likely the ancient land surface which predates the construction of Structure 8.

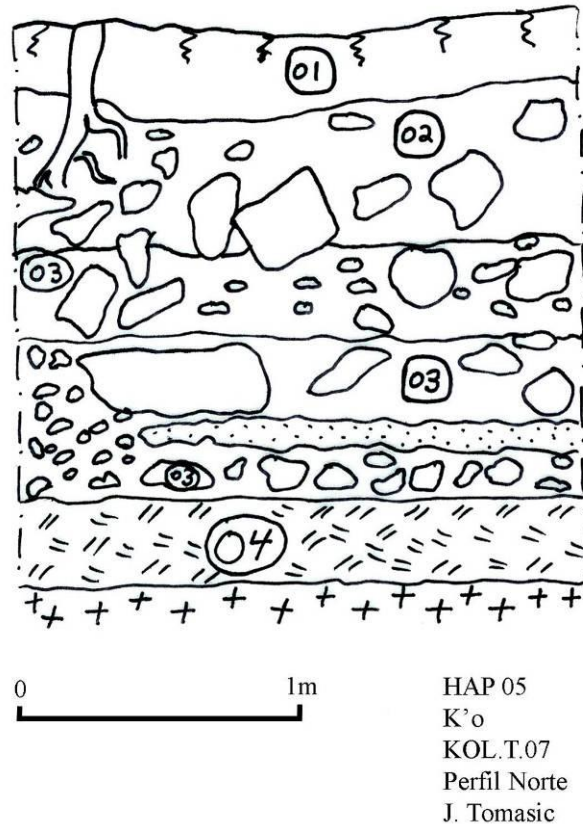


Figure 7.73: North profile of KOL.T.07. Structure 8, Patio Group 39.

Summary of Results:

This excavation revealed one major episode of construction associated with Structure 8, and it appears that this construction episode dates to the Early Classic. The presence of Terminal Preclassic ceramics within the structural fill suggests the occupation of Patio Group 39 may date to as early as the Terminal Preclassic. Furthermore, the Late Classic ceramics in the surface context (Context 01) are evidence of an occupation of Structure 8 through the Late Classic. No evidence of a stone superstructure was encountered in this excavation, which suggests the superstructure was a perishable one.

KOL.T.08

This 2x2 meter unit is located 12 meters south of KOL.T.07, in the central patio of the residential group associated with Structure 8 (Figure 7.65). The entire excavation has been assigned to Context 01, a layer of humus and dark soil directly atop bedrock (Figure 7.74). The profile of KOL.T.08 reveals a lens of white specks at 25 centimeters below ground surface, suggesting the presence of a badly deteriorated plaster floor. Ceramics recovered from KOL.T.08.01 date to the Early Classic and Late Classic

Summary of Results:

Although this excavation did not result in the identification of well preserved exterior floors, the excavation was able to demonstrate the depth of occupation within the plaza area. It appears that this area of the plaza was not extensively modified with artificial fill, since the present surface of the plaza is approximately 40 centimeters above bedrock.. Finally, although the ceramics recovered from this excavation were highly eroded, the identifiable ceramics obtained from this excavation support the interpretation that Patio Group 39 was occupied throughout the Classic period.

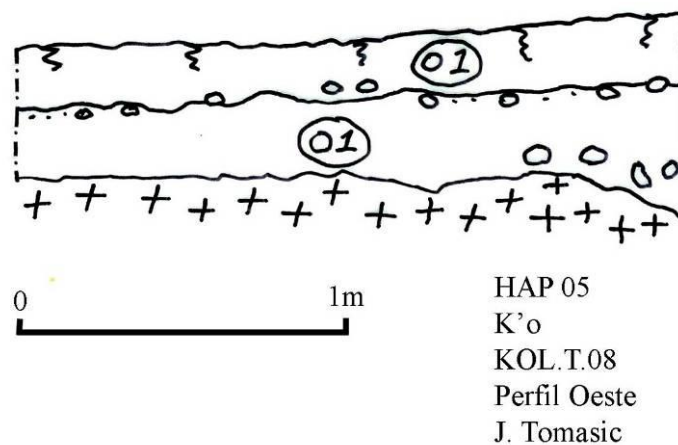


Figure 7.74: West profile of KOL.T.08. Patio Group 39.

KOL.T.09

This 2x2 meter unit is located approximately 8 meters north of KOL.T.07, to the rear of Structure 8, the northernmost structure in Patio Group 39 (Figure 7.65).

KOL.T.09 was placed in this location in hopes of finding a midden associated with Structure 8.

Context 01 consists of a 15 centimeter thick humus layer, and Context 02 consists of a layer of small stones and grayish brown silty soil (Figure 7.75). Ceramics from Context 01 and Context 02 date to the Early Classic and Late Classic. Context 03 is a layer of tightly compacted grayish black sandy soil directly atop a layer of marl (sascab). Ceramics from this context date to the Late Early Classic and possibly as late as the Late Classic, based on a possible Tinaja Red sherd. Beneath Context 03, in order to be certain the layer of marl was not a result of human activity, a 1x2 meter portion of KOL.T.09 was excavated 15 centimeters through the marl until arriving at bedrock..

Summary of Results:

The data obtained from this excavation provides additional support for a Classic Period date for the occupation of Patio Group 39. However, the relatively small number of ceramics encountered in Contexts 01 and 02 suggest this area was not used as a midden, as originally assumed. Although the northern side of Structure 8 is thought to be the rear of the structure, considering the proximity of the site core's major buildings to the northeast, areas on the western side of Structure 8 appear to be better candidates for the locations of middens.

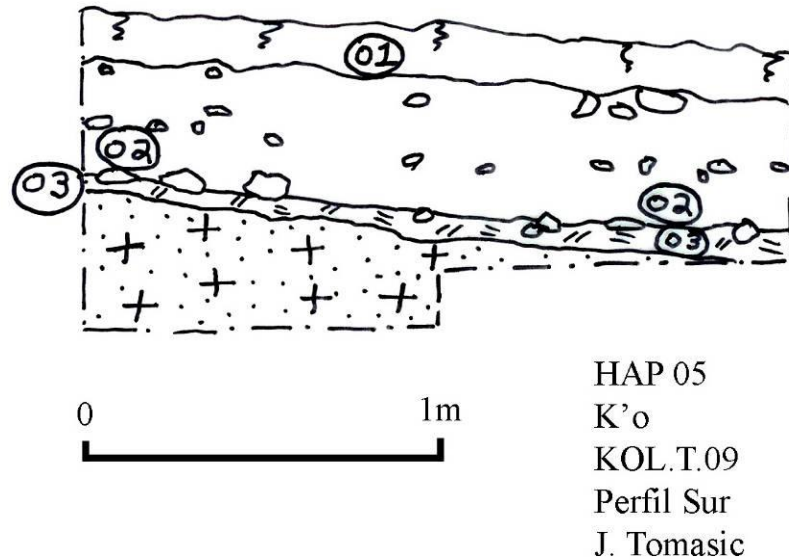


Figure 7.75: South profile of KOL.T.09. Patio Group 39.

General Summary of Results of Phase 3 Excavations

During the Phase 3 excavations, five patio groups were subjected to broad horizontal excavations. Within each of these patio groups, excavations were placed within ancillary structures, midden areas, and activity areas beyond the confines of Phase 2 excavations, and all units were excavated to sterile soil. Broad exposure of domestic activity areas were needed to identify patterns in the distribution of wealth which might not have been evident from the Phase 2 excavations.

Due to the carefully selected nature of the patio groups excavated during Phase 3, these excavations have produced an intensive sample of Late Preclassic and Classic period artifacts and architecture from patio groups across the site and throughout its occupational history. In addition to these intensive excavations, salvage excavations were also conducted within looters' trenches, providing additional data regarding the distribution of wealth within these intensively excavated patio groups. Furthermore, the

Phase 3 excavations have resulted in refinements to the occupational history of K'o, with evidence of occupation from at least as early as the Late Middle Preclassic through the Terminal Classic period.

CHAPTER VIII

DISTRIBUTIONAL ANALYSIS OF WEALTH INDICATORS

This chapter presents the results of the statistical analysis of the long-term distribution of each of the wealth indicators in patio groups at K'o. I begin by describing the methodology used to identify wealth in domestic contexts at K'o, as well as defining key concepts employed in this study. Next, the long-term distribution of each of the wealth indicators used in this study is examined and evaluated independently with a discussion of the probable manners through which these wealth indicators were distributed at K'o.

Challenges to Identifying Wealth in the Archaeological Record

Archaeological identification of variables indicative of wealth can be difficult (Chase and Chase 1992; Rathje 1983; Smith 1987), and it often proves difficult to discern wealthy individuals from elite individuals (Moholy-Nagy 2003). Despite the difficulties inherent in identifying wealth indicators in the archaeological record, this research builds upon similar studies which have successfully demonstrated methods for identification of archaeological indicators of wealth in domestic contexts (Hirth 1993; Rathje 1983; Smith 1987, 1994).

More than 20 years ago, Rathje (1983) outlined current methods of assessment of material well-being, or wealth, in domestic contexts, and called for the development of new measures of household wealth in the future. According to Rathje (1983), one of the

most promising avenues of investigation was within the category of material possessions. In the years following the aforementioned article by Rathje (1983), a number of archaeological indicators have been developed which aid in the identification of wealth in domestic contexts, and this study incorporates a number of these indicators as archaeological correlates of wealth. In this study, jade artifacts, obsidian artifacts, shell artifacts, and ground stone artifacts in domestic contexts are used as archaeological indicators of wealth (Haviland 1981; Moholy-Nagy 1985; Rathje 1983; Smith 1987; Urban et al. 2002; Stark and Hall 1993).

Evaluated independently, each of the archaeological indicators of wealth used in this study reveals only a portion of the patterns of wealth among the ancient inhabitants. It is through the reliance upon multiple independent wealth indicators, rather than a single indicator, that allows me to estimate long-term patterns in wealth at K'o. This study examines multiple lines of evidence in a manner similar to DeMontmollin's (1989) concept of *bundled continua of variation* (DeMontmollin 1989). In this manner, variations in wealth are viewed along several thematically related continua, rather than a single line of evidence. The long-term perspective available at K'o permits an examination of variability in long-term patterns in wealth by tracing movement through time along multiple, independent continua of variation. The use of multiple indicators permits an examination of congruence between wealth indicators, and strengthens the reliability of the interpretations made in this dissertation.

Quantitative and Qualitative Assessments of Wealth

Although this research relies upon quantitative estimates of wealth, I acknowledge that simply documenting the presence and absence of these artifacts in domestic contexts may not result in an accurate assessment of long-term patterns in wealth. Jade, shell, obsidian, and grinding stones are commonly encountered in Lowland Maya domestic contexts (Chase and Chase 1992; Garber 1993; Masson 2002a), and their presence can be the result of a variety of processes (Plunket 1998; Schiffer 1976; Spence 1982). In order to account for these isolated occurrences, I have assessed wealth using a variety of quantitative assessments, rather than relying solely upon simple artifact counts.

In addition to quantitative assessments of wealth, qualitative assessments of wealth are made through an estimate of relative *value*. Rather than attempt to determine the Preclassic and Classic period use-value or exchange-value of each wealth indicator, I follow Smith (1987, 2003) and Rathje (1983) in estimating value by assessing both the labor involved in obtaining and producing an item, as well as its symbolic value. Labor-based estimates of value for each wealth indicator are based on relative estimates of labor costs, with lightly crafted local items at the lower end of the labor spectrum, and heavier crafted exotic items at the higher end of the labor spectrum (Rathje 1983; Smith 1987, 2003). In assessing value in this manner, both the labor involved in the acquisition of the item, as well as the labor involved in the crafting of the item is taken into account (Rathje 1983). In addition to an item's labor value, I acknowledge that symbolic factors are also involved in the value of goods (Hodder 1982). For example, much of the value of jade seems to have been social and ideological in nature – the blue/green color of jade and its

durability and hardness gave jade symbolic value (Freidel 1993; Garber et al. 1993; Taube 2005).

Statistical Analysis of Wealth Indicators

The distribution of wealth indicators in patio groups of high and low status plays a primary role in interpreting long-term patterns in wealth. Artifact data has been entered into a Microsoft Access database and a GIS spatial database created through the use of ArcGIS 9. These data have been quantified with the SPSS 13.0 statistical program and subjected to a number of non-parametric tests.

A number of statistical procedures have been employed which provide quantified assessments of wealth at K'o. Each of these statistical tests, which are discussed below, attempts to identify long-term variation in each of the archaeological correlates of wealth. Each archaeological correlate of wealth has been evaluated independently, and statistical procedures have been used to test the following hypothesis

Jade artifacts, shell artifacts, obsidian artifacts, and grinding stones obtained through elite redistributive or luxury goods networks will decline quantitatively and qualitatively over time, and jade artifacts, shell artifacts, obsidian artifacts, and grinding stones obtained through informal barter and market exchange will not decline quantitatively or qualitatively over time.

Data Limitations

Initially, I expected to be able to evaluate this hypothesis at the .05 level of significance, using a variety of non-parametric tests, including two tailed T-tests, ANOVA (analysis of variance), and Chi Square analysis. Unfortunately, the relatively small sample sizes of each of the wealth indicators have prevented the use of most of these non-parametric tests. Furthermore, even in cases in which these non-parametric

tests could be used, small sample sizes have made it impossible to achieve the standard .05 level of significance. As a result, the majority of the statistical procedures employed in this chapter consist of descriptive statistics. Furthermore, due to the relatively small sample sizes, in most cases comparisons are made between data separated into two time periods, either a Late/Terminal Preclassic (350 BC-AD 250) vs. Classic/Terminal Classic (AD 250-900) comparison, or a Late Preclassic/Early Classic (350 BC-AD 550) vs. Late/Terminal Classic (AD 550-900) comparison.

The second limitation in the dataset which must be mentioned is the identification of status distinctions beyond the traditional elite-nonelite distinction. As described in detail in Chapter IV, I have used assessed the relative status of patio groups based on the architectural volume of patio groups. Initially, I planned to identify a series of subtle distinctions in patio group status along a continuum from commoners to the ruling elite, in a similar manner to the status distinctions identified by Palka (1995, 1997) at Dos Pilas. Unfortunately, due to the small sample sizes of each of the wealth indicators, creating a series of status distinctions beyond a simple distinction between high and low status contexts would subdivide the already small datasets and severely limit my ability to make reliable interpretations based on the data. As a result, I have decided to assess status based on a simple distinction between high status and low status contexts. Rather than create an arbitrary distinction, I have divided the patio groups into high status contexts and low status contexts based on patio group architectural volume (Figure 8.1). Close examination of the bar graph of patio group architectural volume reveals that one of the sharpest distinctions in volume per patio group can be seen between of Patio Group 1 and Patio Group 6. Based on the sharp distinction between the volumes of these patio

groups, I have selected this as the dividing line between high and low status contexts. As a result, Patio Group 6 and all patio groups with lower architectural volumes are considered low status patio groups in this study. Patio Group 1, as well as all patio groups with higher architectural volumes, are considered high status patio groups in this study.

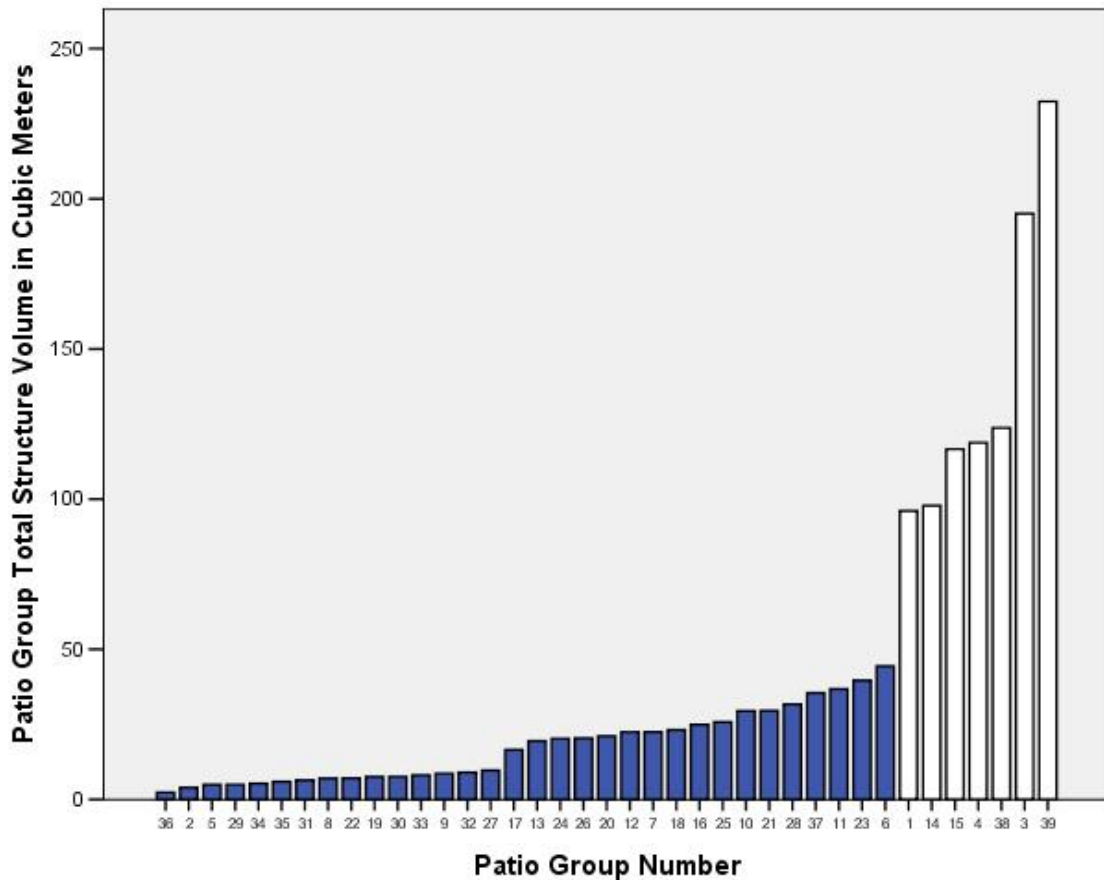


Figure 8.1: Bar graph of patio group architectural volume, divided into high and low status contexts. Bar graph created in SPSS 13.0.

The third limitation that should be mentioned is the absence of ceramics as a wealth indicator. Originally, I had planned to employ ceramic serving ware as a wealth

indicator at K'o. Ceramic serving ware may have been distributed through elite redistribution, reciprocal gifting among elites, and/or informal barter and marketplace exchange. However, the identification of the distribution networks using Hirth's (1998) approach is complicated by the fact that all of the ceramic serving ware at K'o, including polychrome serving ware could have been locally produced. Locally produced ceramic serving ware may have been obtained through direct procurement, and heterogeneity in the distribution of polychrome serving ware could be reflective of direct procurement, rather than distribution through redistributive or elite reciprocal exchange. Hirth (1998) examines the distribution of imported ceramics, in order to ensure that the distribution of artifacts is reflective of consumption patterns, rather than production patterns of locally available goods. Due to limitations in applying Hirth's (1998) distributional approach in the analysis of locally produced ceramic serving ware, it has not been possible to discriminate between goods obtained through informal barter and marketplace exchange vs. elite redistribution. Therefore, ceramic serving ware has not been used as an indicator of wealth in this study.

Despite the aforementioned limitations of the data set, the four wealth indicators examined from K'o collectively reveal a number of important patterns. Despite the limitations of the data, the examination of multiple wealth indicators combined with the descriptive statistical methods employed in this study collectively reveal patterns in the distribution of wealth in domestic contexts which are suggestive of differential forms of acquisition, and serve to illustrate long-term patterns in the distribution of wealth in household contexts relative to elite power.

Grinding Stones

Ground stone manos and metates recovered have been classified following the typology employed by Willey (1978), and mineralogical identification of raw materials has proceeded with the assistance of Dr. Zac Hruby of Humboldt State University. In using grinding stones as an indicator of wealth, a number of potential pitfalls had to be avoided. For example, assessment of wealth based on the size or weight of grinding stones could be problematic, since the form of grinding stones is closely tied to function (Willey 1978). Furthermore, simple quantitative estimates of grinding stones could be misleading, since wealthy households may have been able to afford to have their maize ground by other households (Hayden and Cannon 1984; Smith 1987).

Despite these limitations, this research builds upon studies which suggest that raw material quality can be a useful wealth indicator for grinding stones (Rathje 1983; Smith 1987). Based on comparative data from the northeast Peten (Haviland 1985; Moholy-Nagy 2003b), I assume limestone to have been a locally available and lower quality raw material compared to non-local and higher quality granite, quartzite, and basalt for use as grinding stones. For sites in the Holmul region, the nearest source of quartzite, sandstone, and granitic stones is in the Maya Mountains region of southern Belize. In general, sites in the northeast Peten show an overwhelming preference for metates made of imported materials at least as early as the Late Preclassic (Rathje 1972). At Tikal, the vast majority of grinding stones recovered from the University of Pennsylvania's excavations are of nonlocal materials, such as quartzite, granitic stones, sandstone, and shale (Haviland 1981, 1985).

If the proposed hypothesis is correct, I would expect a long-term decline in raw material quality of grinding stones distributed through elite redistributive networks. In addition, I would expect no long-term decline in raw material quality of grinding stones distributed through informal barter or market exchange.

Ground Stone Analysis

Ground stone artifacts are relatively common in both high and low status patio groups at K'o (Figure 8.2). The fact that grinding stones are not restricted to high status contexts is not surprising, given that ground stone manos and metates are utilitarian items commonly encountered in household contexts, regardless of household status (Moholy-Nagy 2003b).

When a comparison is made between the proportions of local to exotic ground stone artifacts, the overwhelming majority of ground stone artifacts (95 percent) are made from nonlocal raw materials (Figure 8.3). This suggests that nonlocal raw materials such as granite and basalt were preferred over local raw materials like limestone. It appears that ground stone artifacts made of exotic raw materials were not a rare or scarce item at K'o. Furthermore, the distribution of exotic ground stone artifacts appears to be uniform across the site. Nonlocal ground stone was commonly encountered in all excavations, occurring in 9 of 11 patio groups investigated (82 percent), and every group that was intensively excavated yielded at least one piece of exotic ground stone.

An examination of the distribution of local and exotic raw materials between high and low status groups demonstrates there is no correlation between raw material quality and status. Exotic ground stone artifacts were available to both high and low status

groups, and exotic ground stone is not concentrated in high status contexts (Figure 8.4). Interestingly, the distribution of ground stone made of locally available raw materials is restricted to high status groups, which strongly suggests there is no relationship between high status and access to exotic ground stone. The uniform distribution of grinding stones, regardless of status, may indicate that these items were obtained through informal barter and market exchange (Hirth 1998).

When the long-term distribution of ground stone is considered, there is no evidence for a decline in the availability of non-local ground stone (Figure 8.5). When ground stone is grouped into early (Late Preclassic and Early Classic) and late (Late Classic and Terminal Classic) categories, it is evident that local ground stone is confined to the Late Preclassic, and the availability of nonlocal ground stone actually appears to increase during the Late Classic period.

Based on the long-term decline in elite power evident in public architectural construction activity, I would expect a decline in raw material quality over time if nonlocal ground stone was imported and distributed through elite redistributive networks. However, the uniform distribution of nonlocal ground stone in both high and low status groups at K'o may indicate these goods were distributed through informal barter and market exchange. If nonlocal ground stone artifacts were indeed distributed primarily through informal barter and market exchange, the absence of a long term decline in the availability of nonlocal ground stone supports the hypothesis that the distribution of items through informal barter and market exchange was unaffected by the processes responsible for the long-term decline in power at K'o.

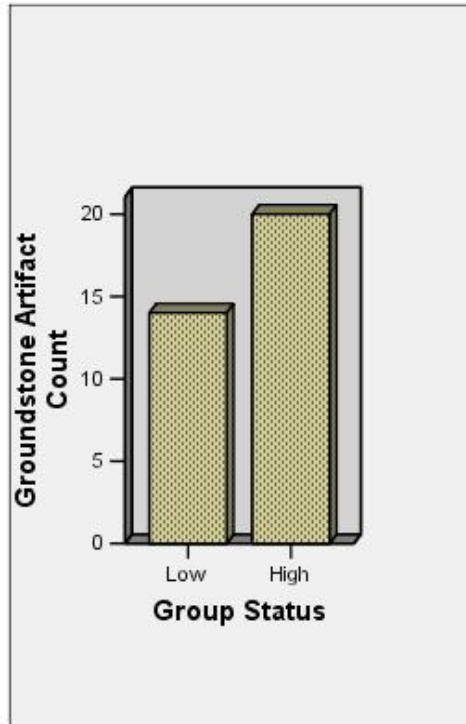


Figure 8.2: Bar graph showing the frequency of grinding stones in high and low status patio groups. Bar graph created in SPSS 13.0.

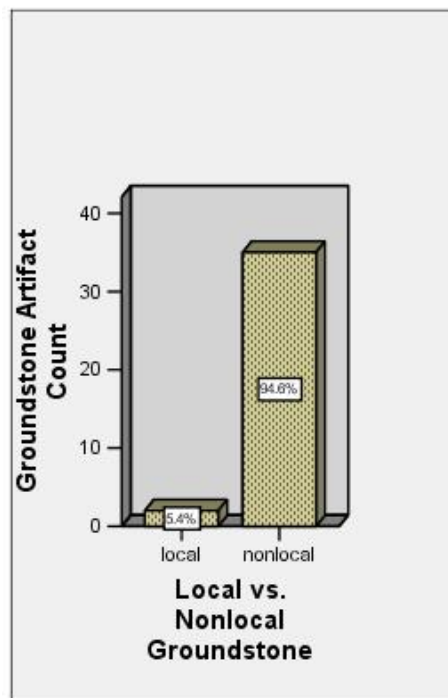


Figure 8.3: Bar graph showing the frequencies and percentages of local vs. nonlocal grinding stones. Bar graph created in SPSS 13.0.

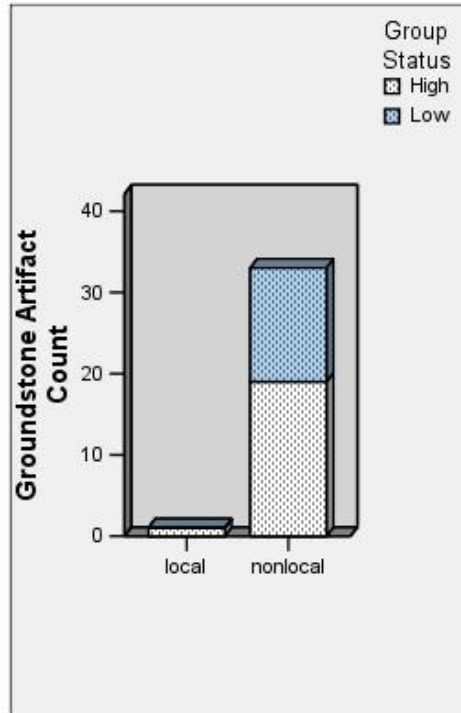


Figure 8.4: Frequency of local and nonlocal grinding stones in high and low status patio groups. Bar graph created in SPSS 13.0.

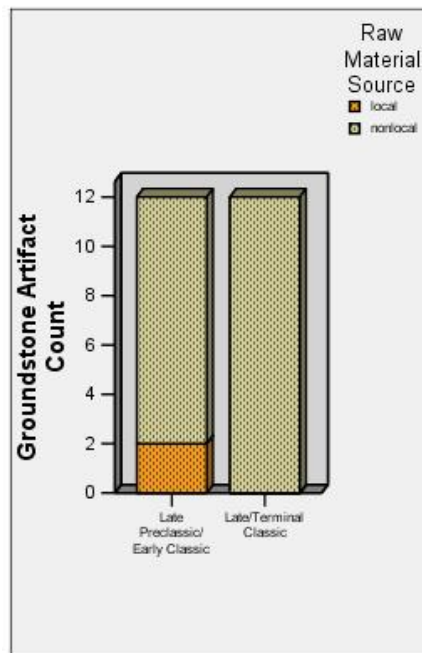


Figure 8.5: Frequency of local and nonlocal grinding stones during the Late Preclassic/Early Classic vs. Late/Terminal Classic. Bar graph created in SPSS 13.0.

Jade

A number of studies have employed jade as an archaeological correlate of wealth (Freidel 1993; Rathje 1970, 1983; Smith 1987; Urban et al. 2002), and this study also employs jade as an archaeological correlate of wealth. In addition to quantitative assessments of jade in domestic contexts, the quality of the raw material, especially its hardness, can be used to assess the value of the item. Also, the workmanship involved in acquiring and crafting the item can be used as an assessment of the relative value of the item. Although the highest quality jades are thought to have been limited to elite consumption (Chase and Chase 1992; Garber et al. 1993:226), items such as small beads or axes made from inferior qualities of less exotic varieties of greenstone may not have been socially restricted luxury goods (Freidel 1993; Freidel et al. 2002; Kovacevich 2006:189-190; Masson 2002b; Palka 1995:400-401; Sheets 2000) and as such, can be used as indicators of wealth in domestic contexts.

In this study, the term jade is used to refer to all varieties of Central American jadeite and lesser qualities of greenstone (Kovacevich 2006:130-132; Stone 1993:141). Although distinctions can be made between these materials based on geological characteristics, the ancient Maya apparently did not distinguish between true jadeite and other greenstones in their social uses (Freidel 1993:162). Therefore, for the purposes of this study I have classified all varieties of Central American jadeite and all varieties of greenstone as jade based on social rather than geological characteristics.

Typological analysis of all jade artifacts recovered follows the technological typology discussed by Kidder, Jennings, and Shook (1946). Jade has been analyzed using tests of hardness (scratch tests), color, weight, length, width, and thickness. As an

archaeological indicator of wealth at K'o, jade has been quantified in a number of ways in order to assess relative wealth over time. Jade has been quantified in terms of weight, size (length, width, and area), and frequency; jade has been qualitatively analyzed in terms of raw material quality (hardness).

If the proposed hypothesis is correct, I would expect to see a long-term decline in the frequency of jade artifacts, mean weight of jade artifacts, size of jade artifacts, and the hardness of jade artifacts distributed through elite redistributive and reciprocal luxury goods networks. In addition, I would expect to see no decline in the frequency of jade artifacts, mean weight of jade artifacts, size of jade artifacts, and the hardness of jade artifacts distributed through informal barter or market exchange.

Jade Analysis

The distribution of jade at K'o appears to be restricted primarily to high status groups. Ninety-one percent of all jade recovered was found in high status contexts (Figure 8.6). Furthermore, jade was only recovered in five of the eleven groups (45 percent) excavated at K'o. The restricted distribution of jade at the site suggests that jade was a socially restricted item, and the uneven distribution of jade is consistent with expected distribution patterns of goods distributed through elite redistributive and luxury goods networks (Hirth 1998). In general, the evidence from K'o seems to fit the pattern of jade distribution at other central Peten sites, and supports the generally accepted idea that jade was a socially restricted item which circulated through elite networks (Garber et al. 1993; Moholy-Nagy 2003b).

Interestingly, there is evidence of a qualitative and a quantitative decline in the distribution of jade over time. When jade is grouped into early (Late Preclassic and Early Classic) and late (Late Classic and Terminal Classic) categories, it is evident that the overall frequency of jade declines over time (Figure 8.7). Although this statistic could be misleading given the relatively small sample size, both the mean weight of jade (Figure 8.8) and the hardness of jade (Figure 8.9) also decline during the Late and Terminal Classic. Although a decline in the simple count of jade artifacts may not necessarily be indicative of a decline in the availability of jade, the observed declines in both the mean weight of jade and the mean hardness of jade indicate both a quantitative and a qualitative decline in the availability of jade during the Late Classic and Terminal Classic.

Based on the long-term decline in power evident at K'o, I would expect a long-term decline in the frequency, weight, and hardness of jade if it was distributed primarily through elite redistributive and/or luxury goods networks. The unequal distribution of jade in high and low status groups at K'o supports the widely held belief that jade was distributed in the Maya Lowlands primarily through elite redistributive and luxury goods networks. The long term decline in the frequency, mean weight, and hardness of jade artifacts supports the hypothesis that the distribution of these items through elite redistributive and luxury goods networks was affected by the same the processes responsible for the long-term decline in elite power at K'o.

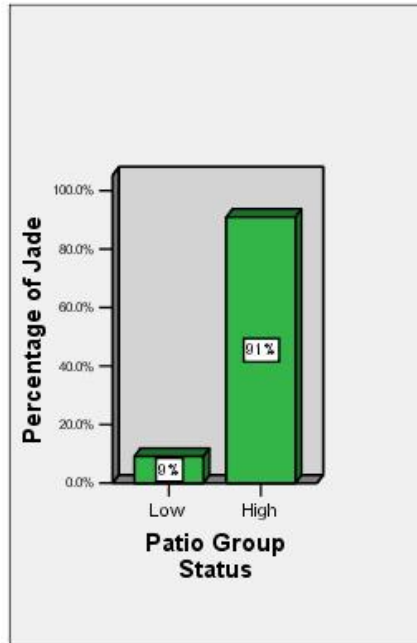


Figure 8.6: Percentage of jade artifacts in high and low status contexts. Bar graph created in SPSS 13.0.

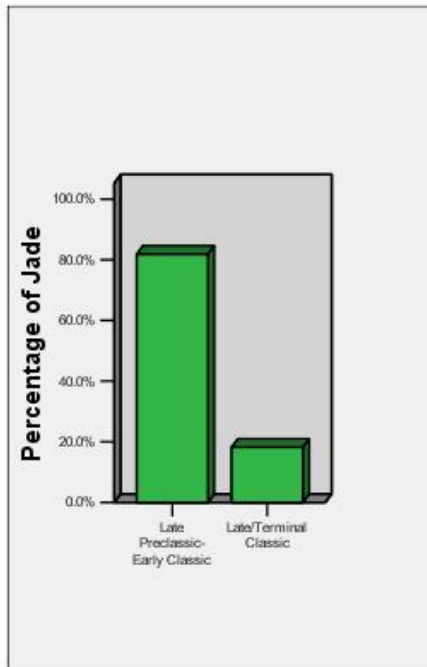


Figure 8.7: Percentage of jade artifacts during the Late Preclassic/Early Classic vs. Late/Terminal Classic. Bar graph created in SPSS 13.0.

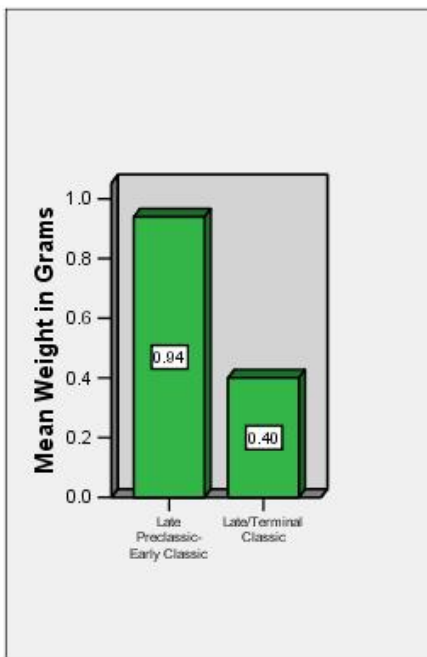


Figure 8.8: Mean weight of jade artifacts during the Late Preclassic/Early Classic vs. Late/Terminal Classic. Bar graph created in SPSS 13.0.

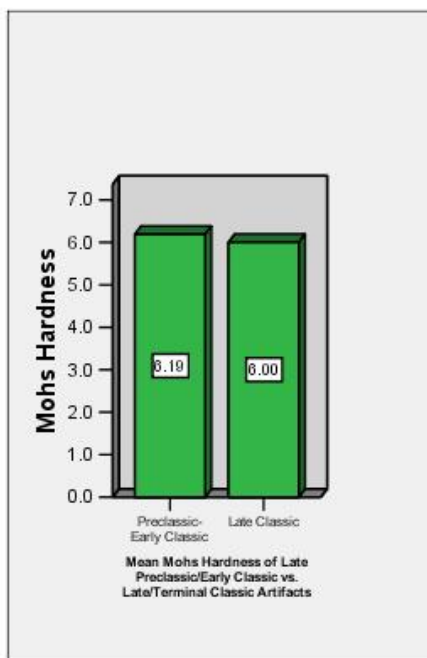


Figure 8.9: Mean hardness of jade artifacts during the Late Preclassic/Early Classic vs. Late/Terminal Classic. Bar graph created in SPSS 13.0.

Shell Artifacts

A number of studies have employed shell artifacts as archaeological correlates of wealth (Rathje 1983; Smith 1987; Urban et al. 2002), and this study also considers shell artifacts an archaeological correlate of wealth. All shell artifacts recovered have been classified on a general level based on observable surface characteristics, as described by Moholy-Nagy (1985). If possible, shell artifacts have been further classified according to genus and species following the classification of Andrews IV (1969), in order to identify geographic origin. The typological classification of shell artifact types follows the established shell artifact typology created by Isaza and McAnany (1999). Shell artifacts have been quantified based on weight, size, and frequency; qualitative assessments have been made based on geographic origin (marine vs. freshwater).

In the case of spondylus shell artifacts, in all cases it has been impossible to distinguish between Atlantic (*Spondylus americanus*) and Pacific (*Spondylus princeps*) varieties (Andrews IV 1969). The nearest source of either variety is coastal Belize, where *Spondylus americanus* occurs along the barrier reef at a depth of between 12 and 30 feet (Graham 2002). Spondylus shell most likely was collected from coastal Belize (Cobos 1994:140), rather than more distant regions such as the coastal regions of Yucatan, as proposed by Andrews IV (1969:43), or the Pacific Ocean. Regardless of its Atlantic or Pacific origin, spondylus shell is difficult to acquire, due to its restriction to deep waters of coastal areas. Therefore, spondylus shell can be considered an exotic item at K'o and throughout the Central Peten region (Moholy-Nagy 1985).

If the proposed hypothesis is correct, I would expect a long-term decline in the frequency, mean weight, and quality of raw material of shell artifacts distributed through

elite redistributive and reciprocal luxury goods networks. In addition, I would expect no long-term decline in the frequency, mean weight, and quality of raw material of shell artifacts distributed through informal barter or market exchange.

Shell Analysis

In total, 88 percent of shell artifacts were determined to be of marine origin, no shell artifacts were determined to be of freshwater origin, and 12 percent could not be identified as to geographic origin (Figure 8.10). Marine shell ornaments were found in both low and high status contexts, and the distribution of marine shell artifacts at K'ö does not appear to have been socially restricted (Figure 8.11). However, when spondylus shell artifacts are considered as a separate class of marine shell artifacts, it is clear that Spondylus shell artifacts are found exclusively in high status contexts at K'ö (Figure 8.12). In general, the evidence from K'ö seems to fit the pattern of Spondylus distribution at other central Peten sites like Tikal, where Moholy-Nagy (1985) found that Spondylus was a socially restricted item reserved for high status burials and caches (Moholy-Nagy 1985).

Based on the available evidence, the primary manner through which marine shell was distributed is unclear. The distribution of marine shell artifacts is not restricted to high status groups, which suggests there is no relationship between high status and access to marine shell artifacts. The distribution of marine shell artifacts in both high status and low status contexts could indicate that these items were obtained through informal barter and market exchange, based on the expectations of Hirth's (1998) model. However, the evidence from K'ö does indicate that spondylus shell artifacts are restricted to high status

groups. The absence of spondylus shell artifacts in low status groups at K'o supports the widely held belief that spondylus was a socially restricted item, and was distributed in the Peten core region of the Maya Lowlands primarily through elite redistributive and luxury goods networks.

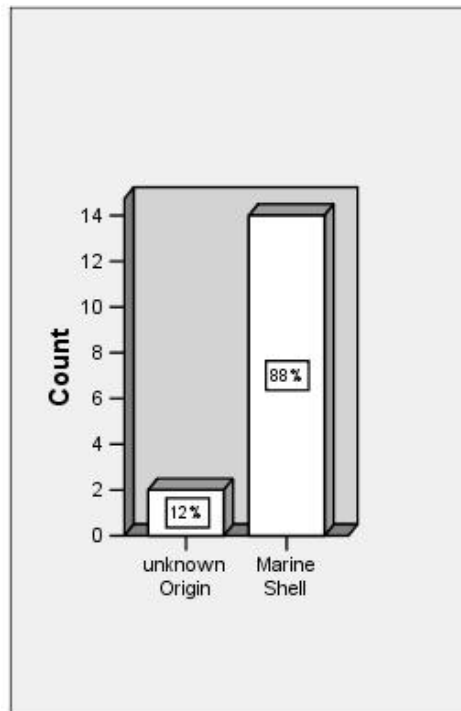


Figure 8.10: Frequencies and percentages of marine shell and unidentified shell. Bar graph created in SPSS 13.0.

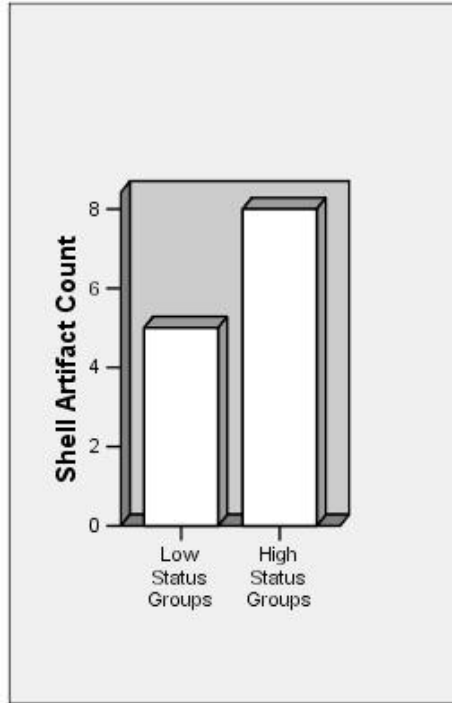


Figure 8.11: Frequency of shell artifacts in high and low status groups. Bar graph created in SPSS 13.0.

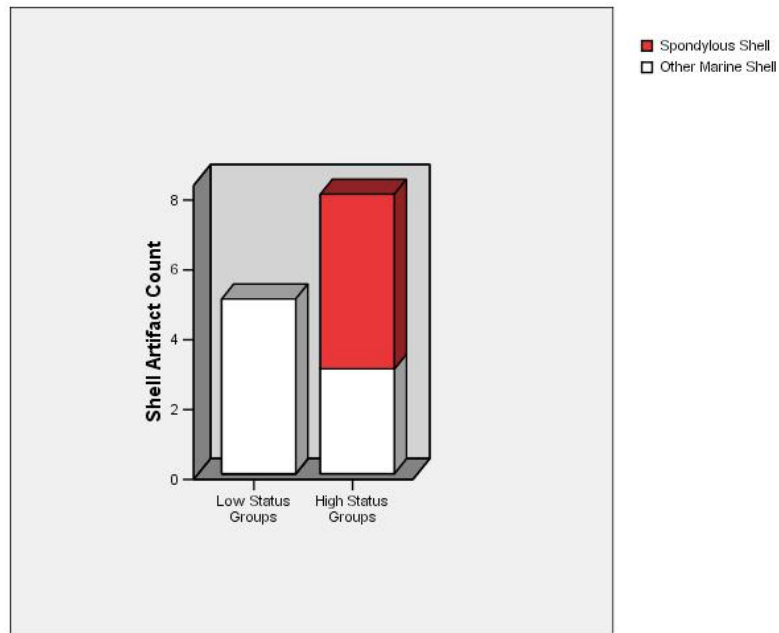


Figure 8.12: Frequency of marine shell artifacts in high and low status groups, with spondylus artifacts shown in red. Bar graph created in SPSS 13.0.

When marine shell is grouped into early (Late Preclassic and Early Classic) and late (Late Classic and Terminal Classic) categories, there is some evidence of a decline in the overall quantities of marine shell artifacts as well as the quantities of spondylus shell artifacts (Figure 8.13). However, this decline could very well be due to the vagaries of sampling, given the small sample size and the unequal time periods within each category. A slightly more reliable pattern can be seen in the mean weight of marine shell artifacts (Figure 8.14) during early (Late Preclassic and Early Classic) and late (Late Classic and Terminal Classic) periods. The observed decline in the mean weight of marine shell artifacts could possibly indicate a quantitative decline in the availability of marine shell during the Late Classic and Terminal Classic, but this too could be due to the vagaries of sampling, given the small sample size.

The declines in both the quantity of marine shell artifacts and the mean weight of shell artifacts could be indicative of a decline in wealth, but due to the small sample size of marine shell artifacts, this interpretation is far from certain. Based on the evidence, it seems most appropriate to say that although marine shell does not appear to have been socially restricted, spondylus shell artifacts are restricted to high status groups. Although spondylus shell may indeed have been a socially restricted item distributed through redistributive or luxury goods networks, other varieties of marine shell artifacts appear to have been more widely available, and could have been distributed through informal barter and market exchange, based on the expectations of Hirth's (1998) model.

With respect to long-term patterns in the distribution of marine shell artifacts, including spondylus shell artifacts, the distribution of these items may have been affected

by the same processes responsible for the decline in power at K'o, but this interpretation is far from certain given the small sample size.

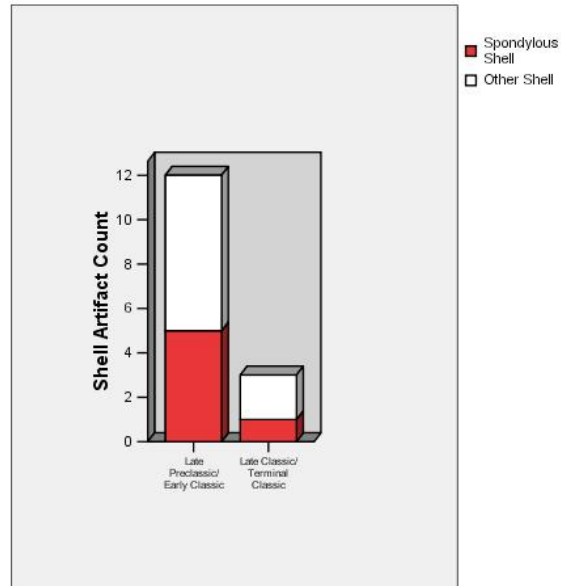


Figure 8.13: Frequency of shell artifacts during the Late Preclassic/Early Classic vs. Late/Terminal Classic, with spondylus artifacts shown in red. Bar graph created in SPSS 13.0.

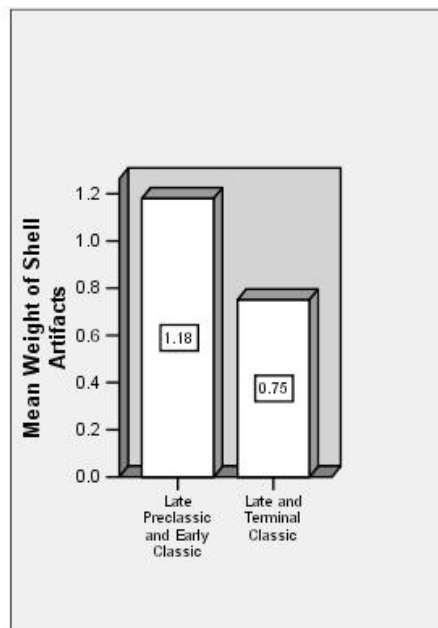


Figure 8.14: Mean weight of shell artifacts during the Late Preclassic/Early Classic vs. Late/Terminal Classic. Bar graph created in SPSS 13.0.

Obsidian

Like jade, obsidian was a material imbued with social, as well as economic value. For example, finely crafted obsidian mirrors and eccentric effigies were likely luxury goods distributed among the elite (Kovacevich 2006:274). Despite decades of research, the degree of elite involvement in the distribution of obsidian blades is still unclear (Clark 2003). It has been argued that obsidian in the Maya Lowlands was controlled by elites (Aoyama 1999, 2006) and distributed through elite redistribution (Hammond 1972; Rice 1987). For example, Aoyama (1999) has interpreted greater elite access to obsidian as evidence for elite control of the procurement and redistribution of obsidian blade-cores at Copan. Clark (2003) suggests Aoyama (1999) has not demonstrated the presence of elite redistribution and the absence of market exchange at Copan. In fact, Clark (2003) suggests the patterns observed by Aoyama could easily be a result of market exchange, with elites having more purchasing power than non-elites (Hirth 1998). With the exception of Aoyama's (1999, 2006) Copan research, most of the recent research involving the distribution of obsidian in Lowland Maya household contexts has demonstrated that obsidian blades were commonly used for utilitarian household tasks, and widely available to all members of the community, regardless of status (Kovacevich 2006:309; Moholy-Nagy 1975, 2003b:28; Palka 1995:400-401, 1997; Sheets 2000).

Obsidian recovered in domestic contexts at K'o has been analyzed with the assistance of the project lithicist, Dr. Zac Hruby of Humboldt State University. This analysis involved a typological analysis of all obsidian artifacts recovered, following the technological typology discussed by Clark (1988). Dr. Hruby has used visual inspection

of all obsidian (Braswell et al. 2000) in order to determine the geologic origin of obsidian artifacts recovered. A variety of measurements were recorded using digital calipers accurate to within .1 millimeter and a digital scale accurate to within .5 grams.

As an archaeological indicator of wealth at K'o, obsidian has been quantified in a number of ways in order to assess relative wealth over time. It is assumed that patterns in the frequency of obsidian blades in elite domestic contexts, the diversity of obsidian sources, the degree of use wear of obsidian blades (Zac Hruby, Personal Communication 2008), and the weight, mean blade length, and mean blade width of obsidian blades (Rovner and Lewenstein 1997) can be reflective of relative wealth.

In assessing wealth using obsidian as an archaeological correlate, the frequencies of obsidian artifacts and mean length of blades have been employed, yet the frequency of artifacts and mean length of blades could be misleading, due to broken blades overinflating the counts. However, the mean length of blades could be indicative of wealth differences since wealthier households may have had the luxury of being able to dispose of broken blades, while less wealthy households may have reused broken blades (Zac Hruby, Personal Communication 2008). Regardless, Rovner and Lewenstein (1997) suggest the mean blade width of obsidian artifacts can be most indicative of the distribution of obsidian artifacts of differential quality, and in this sense mean blade width of obsidian blades, rather than absolute quantities or mean blade length, is probably the most effective indicator of wealth employed at K'o.

If the proposed hypothesis is correct, I would expect the frequency of obsidian, diversity of sources, weight of obsidian blades, and the mean blade length and width of obsidian distributed through elite redistribution or reciprocal luxury goods networks to

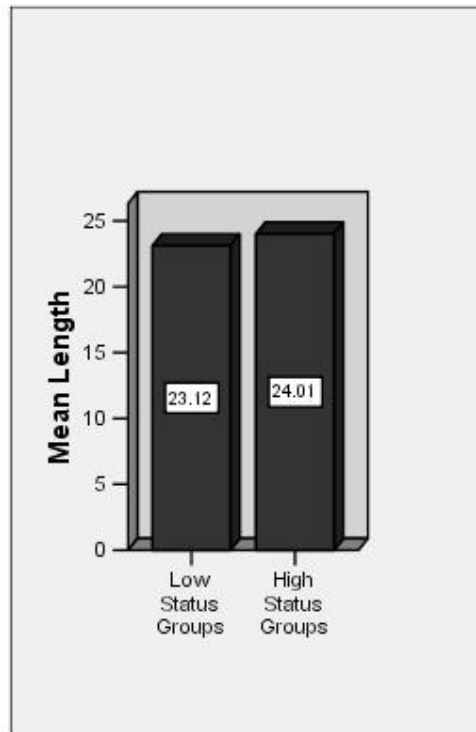
decline over time, and I would expect the use wear of obsidian blades to increase over time. Furthermore, I would expect no long-term decline in the frequency of obsidian, diversity of sources, weight of obsidian blades, use wear of obsidian blades, and the mean blade width and length of obsidian blades distributed through informal barter and/or market exchange.

Obsidian Analysis

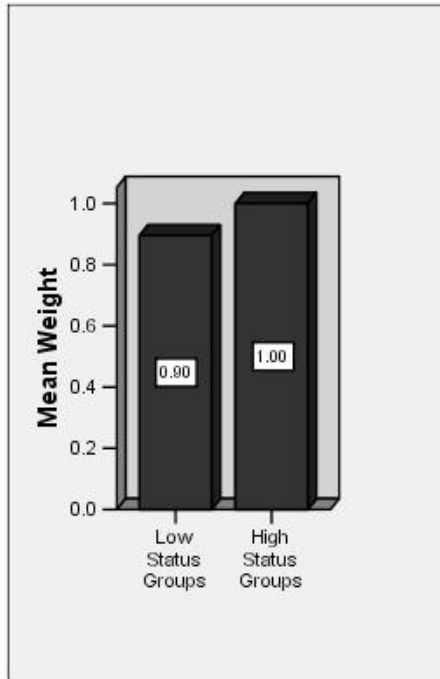
Obsidian was found in 6 of the 11 patio groups (55 percent), and was found in every patio group which was intensively excavated. Obsidian was found in significant quantities in both high and low status groups, and the relatively uniform distribution of obsidian suggests that access to obsidian was not socially restricted at K'o

High status patio groups appear to have had slightly higher degrees of access to obsidian, based on mean blade length and mean blade weight of obsidian blades found in high and low status groups (Figures 8.15, 8.16). However, the mean blade widths of obsidian blades found in high and low status patio groups suggests there is virtually no difference between the access to obsidian in high and low status groups (Figure 8.17). As an indicator of wealth, the degree of use wear might be expected to be higher in low status groups, yet the data from K'o suggests degree of use wear actually is higher in high status groups than low status groups (Figure 8.18). Perhaps the degree of use wear is indicative of some other pattern, such as the activities for which the blades were used. Finally, diversity of obsidian sources does not appear to differ significantly between high and low status groups (Figure 8.19). It seems that high and low status patio groups both had access to a variety of obsidian sources.

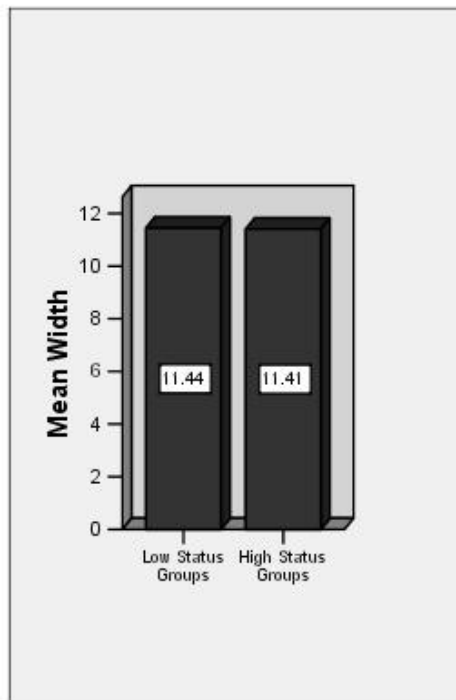
Based on blade weight, mean blade length and width, and degree of use wear, there does not appear to be a significant difference in terms of access to obsidian blades within high and low status groups. The relatively uniform distribution of obsidian across the site regardless of status fits the expectations of informal barter and market exchange, according to Hirth's (1998) model.



**Figure 8.15: Mean length of obsidian blades in high and low status contexts.
Bar graph created in SPSS 13.0.**



**Figure 8.16: Mean weight of obsidian blades in high and low status contexts.
Bar graph created in SPSS 13.0.**



**Figure 8.17: Mean width of obsidian blades in low and high status contexts.
Bar graph created in SPSS 13.0.**

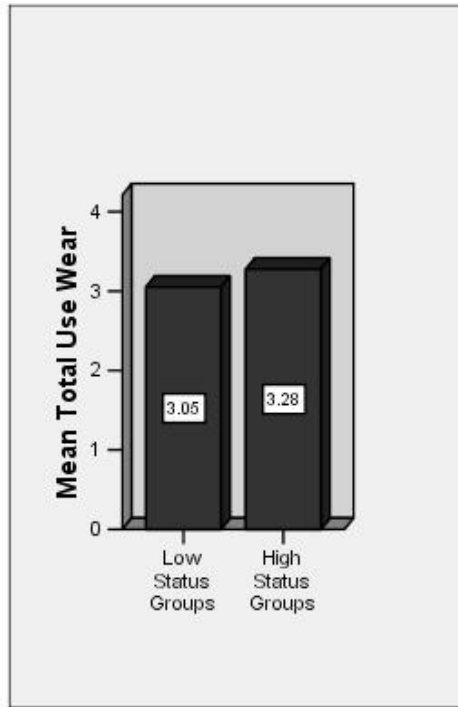


Figure 8.18: Mean use wear of obsidian blades in low and high status contexts. Bar graph created in SPSS 13.0.

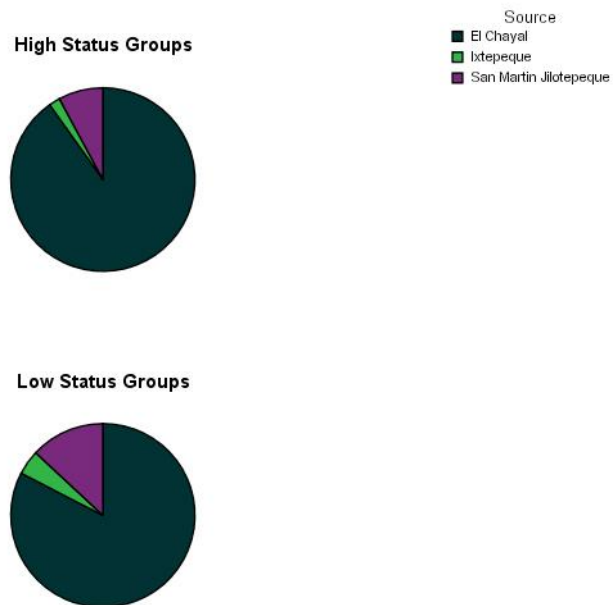


Figure 8.19: The relative proportions of obsidian from each of three sources in high and low status contexts. Pie charts created in SPSS 13.0.

In terms of long-term access to obsidian, mean weight of blades actually appears to rise over time (Figures 8.20, 8.21), which could indicate more rather than less access to obsidian over time. Mean length also increases slightly over time (Figures 8.22, 8.23), as does mean blade width (Figures 8.24, 8.25). Rather than a quantitative decline from early to late periods, all indications are that obsidian length, width, and weight are unaffected by the processes responsible for the long-term decline in elite power.

The only evidence for any sort of long-term decline comes from the area of use wear, where it appears to increase significantly over time (Figures 8.26, 8.27). Degree of use wear was the only dataset which could be reasonably subjected to non-parametric statistical testing. Degree of use wear has been compared between two time periods using a two tailed T-test. The degree of variation between the two time periods is not statistically significant at the .05 level of significance (α). However, it is significant at the .08 level, which falls within the 90 percent confidence interval. The results of an independent samples T-Test with equal variances assumed suggests it is unlikely that the differences between use wear during the Preclassic and Classic periods are due to the vagaries of sampling ($t = -1.403, .08 > p$). This is graphically illustrated in the error bar in Figure 8.28. Despite the significant differences between use wear in early and late periods, it is wholly unclear whether this pattern is actually evidence of decreased wealth. This pattern could reflect changes in the usage of obsidian, rather than a decrease in long-term access to obsidian.

In terms of long-term changes in the diversity of obsidian sources at K'o, Hruby (2009) notes a homogenization in the patterns of obsidian sources over time, with an overall increase in the proportion of El Chayal obsidian and a decrease in the proportions

of Ixtepeque and San Martin Jilotepeque obsidian. Although access to obsidian may be a useful indicator of wealth among contemporary cases, long term patterns appear to be tied to larger patterns of fluctuations in the preference of El Chayal over Ixtepeque and San Martin Jilotepeque. According to Hruby (2009), the reasons for this preference for El Chayal over time are unclear.

In summary, with the exception of total use wear, there is no evidence of a decline in access to obsidian over time. In terms of mean blade width, length, and weight, no declines are evident. The uniform distribution of obsidian across the site in both high and low status groups at K'o may indicate these goods were distributed through informal barter and market exchange (Hirth 1998). If obsidian was indeed distributed primarily through informal barter and market exchange, the absence of a long term decline in the availability of obsidian supports the hypothesis that the distribution of items through informal barter and market exchange was unaffected by the processes responsible for the decline in elite power at K'o.

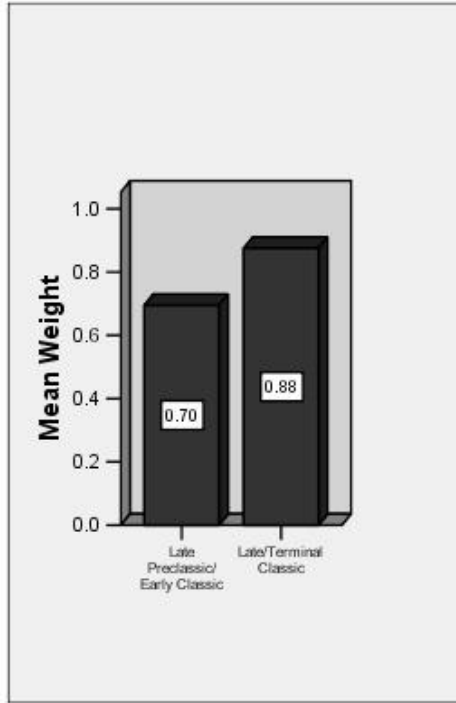


Figure 8.20: Mean weight of obsidian blades during the Late Preclassic/Early Classic vs. Late/Terminal Classic. Bar graph created in SPSS 13.0.

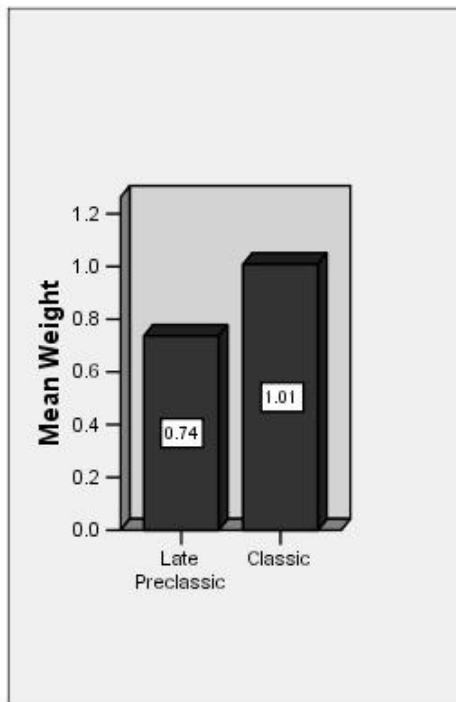


Figure 8.21: Mean weight of obsidian blades during the Preclassic vs. Classic and Terminal Classic. Bar graph created in SPSS 13.0.

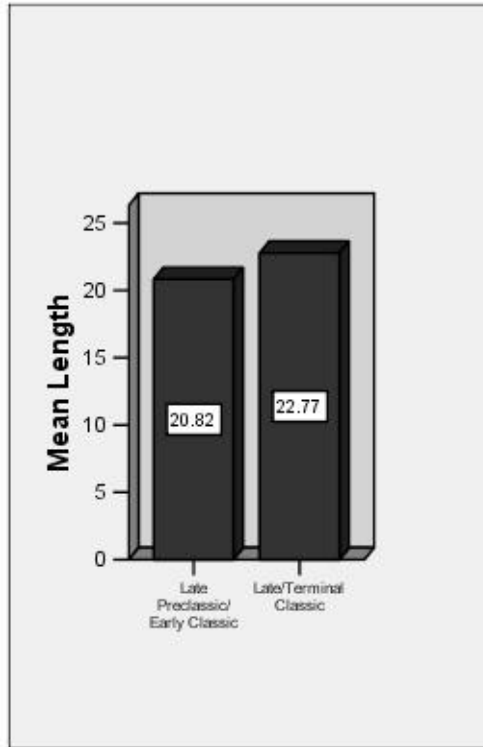


Figure 8.22: Mean length of obsidian blades during the Late Preclassic/Early Classic vs. Late/Terminal Classic. Bar graph created in SPSS 13.0.

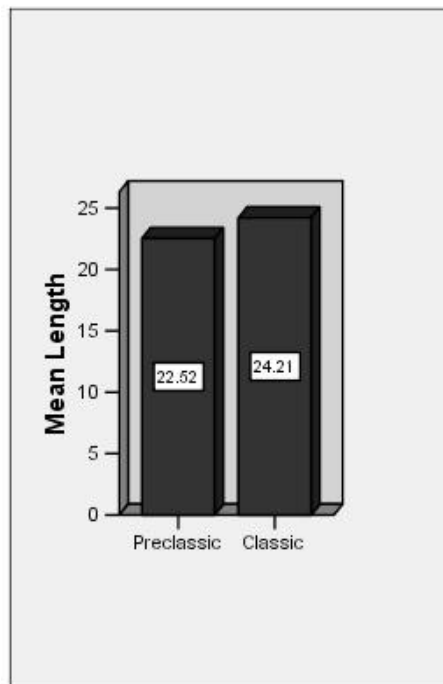


Figure 8.23: Mean length of obsidian blades during the Preclassic vs. Classic and Terminal Classic. Bar graph created in SPSS 13.0.

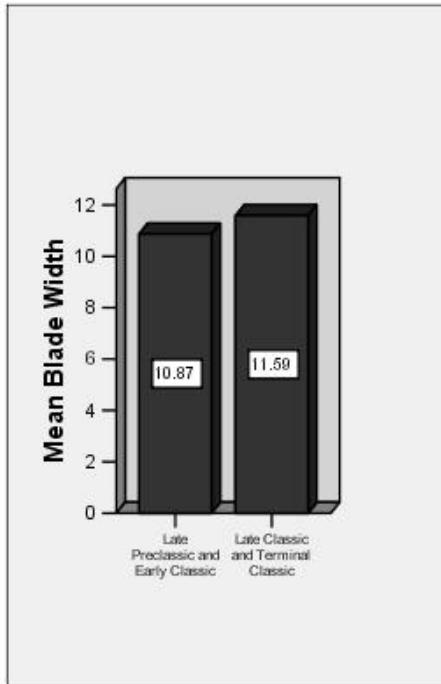


Figure 8.24: Mean width of obsidian blades during the Late Preclassic/Early Classic vs. Late/Terminal Classic. Bar graph created in SPSS 13.0.

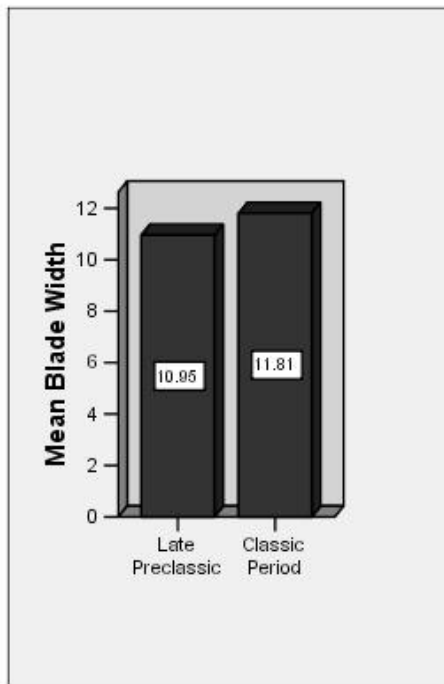


Figure 8.25: Mean width of obsidian blades during the Preclassic vs. Classic and Terminal Classic. Bar graph created in SPSS 13.0.

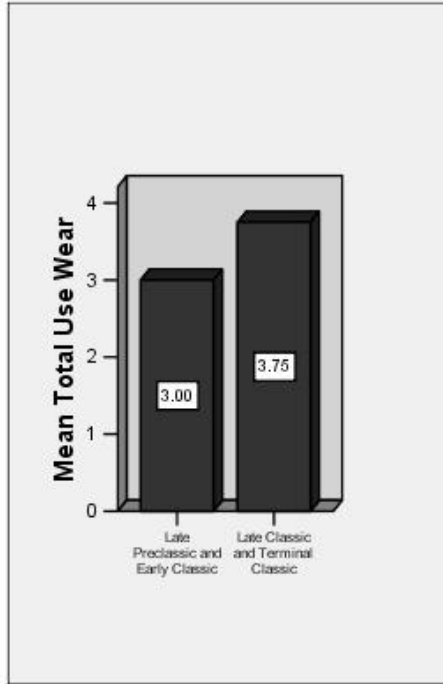


Figure 8.26: Mean obsidian use wear during the Late Preclassic/Early Classic vs. Late/Terminal Classic. Bar graph created in SPSS 13.0.

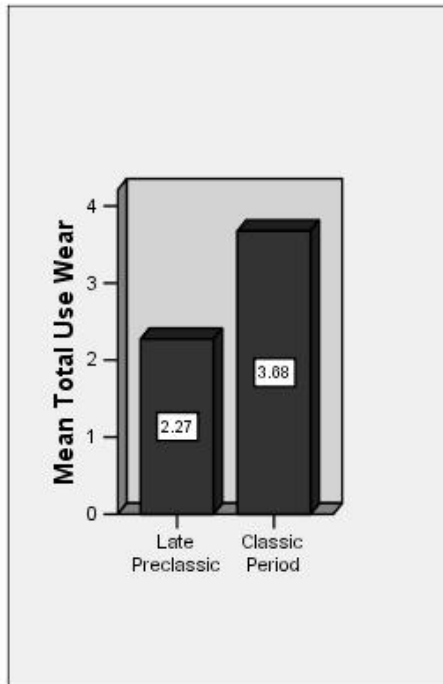


Figure 8.27: Mean obsidian use wear during the Preclassic vs. Classic and Terminal Classic. Bar graph created in SPSS 13.0.

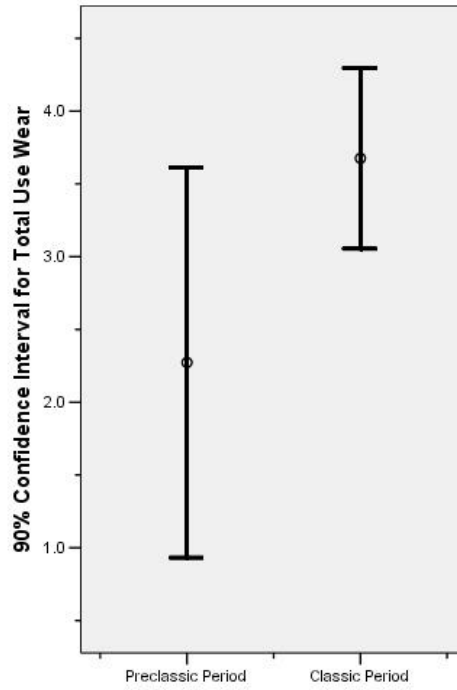


Figure 8.28: Error bars with 90 percent confidence intervals for Preclassic vs. Classic and Terminal Classic mean obsidian use wear. Chart created in SPSS 13.0.

CHAPTER IX

GENERAL SUMMARY AND CONCLUSIONS

This dissertation has investigated the relationship between power and wealth in this past society by examining the manners through which wealth was distributed at K'ó, Guatemala. In the process, this dissertation has addressed the following questions: Does a long-term decline in elite power correspond to an economic decline? To what degree was the long-term material well-being, or wealth, of the past inhabitants affected in a similar manner to the long-term levels of elite power? Rather than assuming power and wealth covary, this research has examined long-term trends in wealth relative to power, and this dissertation demonstrates that the degree to which wealth and power covary is dependent upon the manners through which wealth was acquired within this past economy. Specifically, wealth that appears to have been acquired through elite reciprocal and redistributive networks declines in availability over time in a similar manner to the long-term decline in elite power, yet wealth that appears to have been acquired through informal barter and market exchange does not decline in the long-term and does not covary with the long-term decline in elite power.

History of Settlement at K'ó

As a result of the Holmul Project's recent research at K'ó (Estrada-Belli 2000, 2001, 2002, 2005, 2007; Paling 2009; Rangel 2009; Tomasic 2006, 2009a, 2009b; Tomasic and Estrada-Belli 2008; Tomasic et al. 2008, 2009a, 2009b), it is now evident

that the site was occupied for approximately 1,500 years, from the Late Middle Preclassic (600-350 BC) to the Terminal Classic (AD 830-900). Based on information from regional settlement patterns and evidence of solar alignments among sites in the region (Tomasic and Estrada-Belli 2008; Tomasic 2009a), it appears that K'o was established as part of the Holmul polity's regional hierarchy of scale and control (Crumley 2003) as early as the Late Middle Preclassic (600-350 BC).

Although the earliest evidence of settlement at K'o dates to the Late Middle Preclassic, my research demonstrates that the bulk of the site's public architecture was constructed during a relatively small period of time during the Terminal Preclassic (AD 150-250) and early facet of the Early Classic (AD 250-350). During the middle and later facets of the Early Classic (AD 350-550) and throughout the Late Classic (AD 550-830) and Terminal Classic (AD 830-900), construction of public architecture appears to have declined significantly. These long-term patterns in construction activity have been quantified using volumetrics in order to arrive at an objective long-term estimate of elite power.

Political Processes in the Holmul Region

The ultimate cause of the long-term decline in elite power is still unclear, yet it seems most likely that the decline is due to regional political processes involving the sites of Holmul and Cival, as well as pan-Lowland processes of factionalization and centralization occurring at this time. As discussed in Chapter III, I attribute this Terminal Preclassic/early facet Early Classic peak in power and the subsequent decline in power to pan-Lowland processes of factionalization followed by centralization from the Terminal

Preclassic to Late Classic periods (Estrada-Belli 2004b; Hansen 2001; Reese-Taylor and Walker 2002).

Political Processes and Forms of Exchange

In this dissertation, I have attempted to demonstrate that the degree to which power and wealth covary is dependent upon the manners through which wealth was distributed at K'ò. I argue that long-term political processes responsible for the decline in power at K'ò may have had a differential effect on forms of exchange. I have hypothesized that hierarchically organized elite redistributive and reciprocal luxury goods exchange networks may have been sensitive to political fluctuations, while informal barter and marketplace exchanges may have been generally unaffected by larger political processes (Blanton 1983; Hirth 1998; LeCount 1999; Spence 1982). Similar long-term patterns are evident in ceramic and obsidian assemblages within the Maya region (Culbert 2003, Moholy-Nagy 2003a, 2003b), and are evident in Near Eastern assemblages as well (Wattenmaker 1994). Based on these patterns, I hypothesized that the quantity and quality of goods obtained at K'ò through elite redistributive and reciprocal luxury goods networks should decline over time in a similar manner to the aforementioned decline in power, yet no decline should be evident in goods obtained through informal barter and/or marketplace exchange.

As discussed in Chapter II, I have employed Hirth's (1998) distributional approach in order to discriminate between goods distributed primarily through informal barter and market exchange, versus elite redistributive and reciprocal luxury goods networks. Although the application of Hirth's model to a case in the Maya Lowlands has

been challenging, the methodology developed and implemented at K'o has maximized the probability that a representative sample of artifactual and architectural data have been obtained from the K'o excavations.

Research Design and Stratified Random Sampling

Several aspects of the research design were critical in the development and successful completion of research at K'o. First of all, the detailed Total Station survey of the site and subsequent map creation using ArcGIS 9 were critical in estimating variability in the density and distribution of settlement across the site. Detailed measurements of domestic architecture formed the basis of the assessments of relative patio group status; due to the accurate recording of a variety of architectural measurements, I was able to create a continuum of relative status based on the architectural volume of patio group structures.

Another critical aspect of this research was the design and implementation of a stratified random sampling strategy. The random selection of areas to excavate greatly improved my ability to obtain a representative sample of wealth indicators from high and low status contexts throughout the site, and throughout its occupational history.

In addition to the Phase 2 stratified random excavations, the Phase 3 intensive excavations completed at K'o were a critical component of the research design. During the Phase 3 excavations, five previously investigated patio groups were intensively excavated. An intensive sample from several contexts provided additional data from burials, middens, activity areas, and looters trenches within each of the randomly selected

patio groups. This data complements the data obtained during the Phase 2 stratified random excavations.

As discussed in Chapter II, I argue that by using the methods of household archaeology (Robin 2003; Webster and Gonlin 1988; Wilk and Ashmore 1988) combined with a stratified random sampling strategy (Shennan 1997), a representative sample of artifacts and architecture can be obtained, and Hirth's (1998) model can be applied. The research design developed and implemented at K'o provides a way of obtaining a representative sample of artifacts and architecture from a Lowland Maya site, and it provides a method for applying Hirth's (1998) model at other sites in the Maya Lowlands.

Long-Term Patterns in Wealth at K'o

In this dissertation, I have examined the long-term distribution of the following wealth indicators in carefully selected domestic contexts: 1) jade artifacts, 2) shell artifacts, 3) obsidian artifacts, and 4) grinding stones (Haviland 1981; Moholy-Nagy 1985; Rathje 1983; Smith 1987; Stark and Hall 1993). I have examined the degree to which these wealth indicators were distributed through elite redistribution, reciprocal luxury gifting among elites, and/or informal barter and marketplace exchange (Polanyi 1957). As discussed in Chapter VIII, the restriction of jade and spondylus shell artifacts to high status contexts supports the interpretation of these items as luxury goods distributed through hierarchical networks of elite redistributive and reciprocal luxury goods networks, rather than informal barter and market exchange. On the other hand, the relatively uniform distribution of non-local grinding stones and obsidian blades across the

site in both high and low status contexts suggests these goods were distributed primarily through informal barter and market exchange, based on the expectations of Hirth's (1998) model.

In addition to examining the distributional networks of jade artifacts, shell artifacts, obsidian artifacts, and grinding stones this study has compared long-term patterns in the distribution of each of these wealth indicators with long-term patterns in power from the Terminal Preclassic to the Terminal Classic. Interestingly, wealth indicators distributed primarily through elite redistributive and reciprocal luxury goods networks decline in availability over time, and wealth indicators distributed primarily through informal barter and market exchange apparently do not decline in availability over time. Specifically, non-local grinding stones and obsidian blades appear to have been distributed primarily through informal barter and market exchange, and no long term decline is evident in the availability of these goods. On the other hand, jade and spondylus artifacts were almost certainly distributed through elite redistributive and reciprocal luxury goods networks, and there is evidence for a long-term decline in the availability of these items. The major implication of these patterns is that the processes responsible for the long-term decline in elite power had no effect on the availability of non-local grinding stones or obsidian blades distributed through informal barter and market exchange, but they had a definite effect on the availability of jade and spondylus shell artifacts distributed through elite redistributive and reciprocal luxury goods networks.

Although the homogenous distribution of non-local grinding stones and obsidian blades are consistent with the expectations of Hirth's model, it must be acknowledged

that these patterns could be the result of processes other than Polanyi's (1957) triad of exchange processes. As discussed in Chapter II, the uniform distribution of obsidian and grinding stones could be the result of a variety of factors, and to suggest that these patterns are solely the result of the distributional networks of informal barter and market exchange, elite redistribution, or reciprocal luxury goods networks runs the risk of affirming the consequent. Nevertheless, the examination of four separate wealth indicators strongly suggests that the observed patterns are reflective of the distributional networks through which the wealth indicators were distributed. The use of multiple indicators and the examination of these wealth indicators as *bundled continua of variation* (DeMontmollin 1989), greatly strengthens the reliability of the interpretations made based on this study, and minimizes the risk of affirming the consequent.

Conclusion

This study demonstrates that the degree to which power and wealth vary may be dependent upon the manners through which wealth was acquired at K'o. Following the Terminal Preclassic and early facet Early Classic peak in elite power evident in public architectural construction, the K'o elites seem to have lacked the power to sponsor large-scale construction projects, and the long-term availability of goods obtained through reciprocal luxury goods networks and elite redistributive networks declined during the middle to late facet Early Classic, Late Classic, and Terminal Classic periods. On the other hand, the long-term availability of goods acquired primarily through informal barter and market exchange appears to have been unaffected.

In terms of broader relevance, this research casts light upon the degree to which Terminal Preclassic and Classic period Maya economies relied upon informal barter and market exchange, and it clarifies the types of goods which may have been distributed through informal barter and market exchange. Furthermore, this research is important because it can be used to indirectly assess the degree of elite involvement in market activities, and the relative independence of markets from political processes. There is an ongoing debate in Maya archaeology regarding the degree to which elites were involved in market exchange through sponsorship of markets, taxation of market activities, and distributing goods acquired through elite managed networks in local and regional markets (Blanton 1983; Chase 1998; Demarest 2004:150; Freidel 1981; Masson 2002a; Sheets 2000). These debates in many ways echo earlier debates among social contract theorists as to the nature of the ruling class, whether it be integrative (Hobbes 1985 [1651]) or exploitative (Rousseau 1968 [1762]). Although speculative, the unaffected long-term availability of obsidian blades and non-local grinding stones could indicate that elite involvement in market activities may have been minimal (as least as far as these commodities were concerned), since the political processes responsible for long-term decline in elite power during the Classic period seem to have had no negative effect on the long-term availability of these goods.

APPENDIX

ARTIFACT DATA

Obsidian Data

Context Number	Small Find Number	Plaza Area vs. Patio Group	Patio Group Number	Status
KOL.L.02.00	KOL.L.02.00.05.01	Patio Group	39	High
KOL.L.02.00	KOL.L.02.00.05.02	Patio Group	39	High
KOL.L.02.00	KOL.L.02.00.05.03	Patio Group	39	High
KOL.L.02.00	KOL.L.02.00.05.04	Patio Group	39	High
KOL.L.02.00	KOL.L.02.00.05.05	Patio Group	39	High
KOL.L.02.00	KOL.L.02.00.05.06	Patio Group	39	High
KOL.L.02.00	KOL.L.02.00.05.07	Patio Group	39	High
KOL.L.04.00	KOL.L.04.00.05.01	Plaza Area	0	0
KOL.L.04.01	KOL.L.04.01.05.01	Plaza Area	0	0
KOL.L.04.05	KOL.L.04.05.05.01	Plaza Area	0	0
KOL.L.04.05	KOL.L.04.05.05.02	Plaza Area	0	0
KOL.L.04.06	KOL.L.04.06.05.01	Plaza Area	0	0
KOL.L.06.00	KOL.L.06.00.05.01	Patio Group	38	High
KOL.L.07.00	KOL.L.07.00.05.01	Patio Group	38	High
KOL.L.07.00	KOL.L.07.00.05.02	Patio Group	38	High
KOL.L.07.00	KOL.L.07.00.05.03	Patio Group	38	High
KOL.L.08.00	KOL.L.08.00.05.01	Patio Group	4	High
KOL.L.08.00	KOL.L.08.00.05.02	Patio Group	4	High
KOL.L.08.01	KOL.L.08.01.05.01	Patio Group	4	High
KOL.L.08.01	KOL.L.08.01.05.02	Patio Group	4	High
KOL.T.02.06	KOL.T.02.06.05.01	Plaza Area	0	0
KOL.T.02.08	KOL.T.02.08.05.01	Plaza Area	0	0
KOL.T.03.02	KOL.T.03.02.05.01	Plaza Area	0	0
KOL.T.03.02	KOL.T.03.02.05.02	Plaza Area	0	0
KOL.T.06.01	KOL.T.06.01.05.01	Plaza Area	0	0
KOL.T.06.04	KOL.T.06.04.05.01	Plaza Area	0	0
KOL.T.07.01	KOL.T.07.01.05.01	Patio Group	39	High
KOL.T.07.01	KOL.T.07.01.05.02	Patio Group	39	High
KOL.T.07.04	KOL.T.07.04.05.01	Patio Group	39	High
KOL.T.07.04	KOL.T.07.04.05.02	Patio Group	39	High
KOL.T.07.04	KOL.T.07.04.05.03	Patio Group	39	High
KOL.T.09.02	KOL.T.09.02.05.01	Patio Group	39	High
KOL.T.09.02	KOL.T.09.02.05.02	Patio Group	39	High
KOL.T.10.04	KOL.T.10.04.05.01	Plaza Area	0	0
KOL.T.12.02	KOL.T.12.02.05.01	Plaza Area	0	0
KOL.T.12.05	KOL.T.12.05.05.01	Plaza Area	0	0
KOL.T.13.05	KOL.T.13.05.05.01	Plaza Area	0	0
KOL.T.15.02	KOL.T.15.02.05.01	Patio Group	4	High
KOL.T.15.11	KOL.T.15.11.05.01	Patio Group	4	High
KOL.T.15.13	KOL.T.15.13.05.01	Patio Group	4	High
KOL.T.15.15	KOL.T.15.15.05.01	Patio Group	4	High
KOL.T.15.17	KOL.T.15.17.05.01	Patio Group	4	High
KOL.T.15.19	KOL.T.15.19.05.01	Patio Group	4	High
KOL.T.15.20	KOL.T.15.20.05.01	Patio Group	4	High
KOL.T.18.01	KOL.T.18.01.05.01	Patio Group	18	Low
KOL.T.18.07	KOL.T.18.07.05.01	Patio Group	18	Low
KOL.T.20.01	KOL.T.20.01.05.01	Patio Group	25	Low
KOL.T.20.02	KOL.T.20.02.05.01	Patio Group	25	Low
KOL.T.20.10	KOL.T.20.10.05.01	Patio Group	25	Low

Obsidian Data

Context Number2	Time Period	Source	Weight	Blade ?
KOL.L.02.00	EC-LC	El Chayal	0.8	y
KOL.L.02.00	EC-LC	El Chayal	0.6	n
KOL.L.02.00	EC-LC	El Chayal	0.7	n
KOL.L.02.00	EC-LC	El Chayal	0.3	n
KOL.L.02.00	EC-LC	El Chayal	0.7	y
KOL.L.02.00	EC-LC	El Chayal	0.5	n
KOL.L.02.00	EC-LC	El Chayal	0.8	y
KOL.L.04.00	LC-TC	El Chayal	1.8	y
KOL.L.04.01	LC	El Chayal	0.4	y
KOL.L.04.05	LP-LC	El Chayal	0.2	y
KOL.L.04.05	LP-LC	El Chayal	0.8	y
KOL.L.04.06	LC	El Chayal	1	y
KOL.L.06.00	TP-LC	El Chayal	0.6	y
KOL.L.07.00	LP-LC	El Chayal	2.9	y
KOL.L.07.00	LP-LC	El Chayal	0.5	y
KOL.L.07.00	LP-LC	El Chayal	1	y
KOL.L.08.00	EC-LC	El Chayal?	1.7	y
KOL.L.08.00	EC-LC	El Chayal	2.6	y
KOL.L.08.01	EC-LC	El Chayal	0.4	y
KOL.L.08.01	EC-LC	El Chayal	1.6	y
KOL.T.02.06	LP	Ixtepeque	0.5	y
KOL.T.02.08	TP-EEC	San Martin	0.6	n
KOL.T.03.02	LEC-LC	El Chayal	1.3	y
KOL.T.03.02	LEC-LC	El Chayal	0.6	y
KOL.T.06.01	LP-TC	El Chayal	1.6	y
KOL.T.06.04	LP	El Chayal	0.7	y
KOL.T.07.01	LEC-LC	El Chayal?	2.6	y
KOL.T.07.01	LEC-LC	Ixtepeque?	1.4	y
KOL.T.07.04	TP-EEC	El Chayal	0.5	y
KOL.T.07.04	TP-EEC	El Chayal	1	n
KOL.T.07.04	TP-EEC	El Chayal	0.7	y
KOL.T.09.02	EEC-LC	El Chayal	0.8	y
KOL.T.09.02	EEC-LC	El Chayal	1.2	n
KOL.T.10.04	TP	El Chayal?	0.9	y
KOL.T.12.02	LP-TP	San Martin	0.5	y
KOL.T.12.05	TP-EEC	Ixtepeque?	0.6	y
KOL.T.13.05	TP-EEC	El Chayal	0.3	y
KOL.T.15.02	LC-TC	El Chayal	0.4	n
KOL.T.15.11	EC	El Chayal	0.4	y
KOL.T.15.13	EC	El Chayal	0.9	y
KOL.T.15.15	EC	El Chayal	1.6	y
KOL.T.15.17	EC	El Chayal	1	n
KOL.T.15.19	EC	El Chayal	0.7	n
KOL.T.15.20	LP-EEC	San Martin	0.2	n
KOL.T.18.01	LP-LC	El Chayal	0.7	y
KOL.T.18.07	LP	El Chayal	0.2	y
KOL.T.20.01	EC-LC	El Chayal	0.5	y
KOL.T.20.02	LC	El Chayal?	0.6	y
KOL.T.20.10	LP	El Chayal	0.5	y

Obsidian Data

Context Number3	Length	Width	Thickness	Artifact Portion	Total Use Wear
KOL.L.02.00	32.00	12.00	2.00	C	2
KOL.L.02.00	18.00	9.00	2.00	P	0
KOL.L.02.00	14.50	18.00	1.00	C	0
KOL.L.02.00	11.50	12.50	2.00	C	0
KOL.L.02.00	17.50	17.00	2.00	P	2
KOL.L.02.00	14.50	7.00	4.00	D	0
KOL.L.02.00	23.00	10.00	2.00	D	2
KOL.L.04.00	20.40	14.50	4.10	P	5
KOL.L.04.01	20.40	10.00	2.20	M	2
KOL.L.04.05	17.20	6.80	2.10	D	0
KOL.L.04.05	26.30	10.30	3.40	M	1
KOL.L.04.06	38.30	12.00	3.30	P	4
KOL.L.06.00	20.00	8.70	3.10	P	7
KOL.L.07.00	49.80	12.10	3.60	P	4
KOL.L.07.00	22.20	8.30	2.40	M	1
KOL.L.07.00	30.50	11.80	2.90	P	1
KOL.L.08.00	25.80	14.00	3.30	M	5
KOL.L.08.00	41.50	11.10	5.30	M	8
KOL.L.08.01	19.80	9.10	2.00	M	2
KOL.L.08.01	23.70	16.40	4.90	P	1
KOL.T.02.06	27.00	8.00	2.00	M	0
KOL.T.02.08	14.50	10.00	9.00	C	2
KOL.T.03.02	30.50	11.50	3.00	M	2
KOL.T.03.02	22.00	10.50	2.50	D	4
KOL.T.06.01	24.50	10.00	4.00	M	3
KOL.T.06.04	17.00	12.00	2.50	M	3
KOL.T.07.01	43.00	15.50	3.50	M	1
KOL.T.07.01	22.00	15.50	3.50	M	0
KOL.T.07.04	10.00	16.00	3.50	M	2
KOL.T.07.04	38.00	11.50	2.00	D	1
KOL.T.07.04	28.00	9.00	3.00	D	2
KOL.T.09.02	27.00	8.50	3.00	M	1
KOL.T.09.02	36.00	11.00	3.50	D	3
KOL.T.10.04	22.00	13.50	3.00	M	5
KOL.T.12.02	19.00	11.50	4.00	D	8
KOL.T.12.05	18.00	10.00	2.50	M	4
KOL.T.13.05	17.90	8.60	1.80	M	3
KOL.T.15.02	17.90	5.90	3.80	C	0
KOL.T.15.11	9.10	12.60	3.20	P	5
KOL.T.15.13	23.50	11.50	3.00	P	5
KOL.T.15.15	33.30	11.80	3.40	D	5
KOL.T.15.17	39.40	7.60	3.20	P	1
KOL.T.15.19	23.90	9.30	3.80	C	0
KOL.T.15.20	12.60	6.60	2.30	D	0
KOL.T.18.01	21.80	9.30	3.10	M	4
KOL.T.18.07	12.70	8.90	2.80	D	3
KOL.T.20.01	19.80	8.50	2.10	M	5
KOL.T.20.02	15.60	11.60	3.00	P	4
KOL.T.20.10	15.10	11.90	2.90	P	1

Obsidian Data

Context Number	Small Find Number	Plaza Area vs. Patio Group	Patio Group Number	Status
KOL.T.20.11	KOL.T.20.11.05.01	Patio Group	25	Low
KOL.T.25.07	KOL.T.25.07.05.01	Patio Group	4	High
KOL.T.25.08	KOL.T.25.08.05.01	Patio Group	4	High
KOL.T.26.01	KOL.T.26.01.05.01	Patio Group	4	High
KOL.T.26.02	KOL.T.26.02.05.01	Patio Group	4	High
KOL.T.26.06	KOL.T.26.06.05.01	Patio Group	4	High
KOL.T.26.07	KOL.T.26.07.05.01	Patio Group	4	High
KOL.T.27.02	KOL.T.27.02.05.01	Patio Group	4	High
KOL.T.27.02	KOL.T.27.02.05.02	Patio Group	4	High
KOL.T.27.02	KOL.T.27.02.05.03	Patio Group	4	High
KOL.T.28.02	KOL.T.28.02.05.01	Patio Group	4	High
KOL.T.31.01	KOL.T.31.01.05.01	Patio Group	38	High
KOL.T.31.01	KOL.T.31.01.05.02	Patio Group	38	High
KOL.T.31.01	KOL.T.31.01.05.03	Patio Group	38	High
KOL.T.32.09	KOL.T.32.09.05.01	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.02	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.03	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.04	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.05	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.06	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.07	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.08	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.09	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.10	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.11	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.12	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.13	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.14	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.15	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.16	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.17	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.18	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.19	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.20	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.21	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.22	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.23	Patio Group	38	High
KOL.T.32.10	KOL.T.32.10.05.24	Patio Group	38	High
KOL.T.38.01	KOL.T.38.01.05.01	Patio Group	25	Low
KOL.T.38.01	KOL.T.38.01.05.02	Patio Group	25	Low
KOL.T.38.01	KOL.T.38.01.05.03	Patio Group	25	Low
KOL.T.38.01	KOL.T.38.01.05.04	Patio Group	25	Low
KOL.T.39.01	KOL.T.39.01.05.01	Patio Group	25	Low
KOL.T.39.04	KOL.T.39.04.05.01	Patio Group	25	Low
KOL.T.39.05	KOL.T.39.05.05.01	Patio Group	25	Low
KOL.T.39.08	KOL.T.39.08.05.01	Patio Group	25	Low
KOL.T.39.08	KOL.T.39.08.05.02	Patio Group	25	Low
KOL.T.39.08	KOL.T.39.08.05.03	Patio Group	25	Low
KOL.T.39.08	KOL.T.39.08.05.04	Patio Group	25	Low
KOL.T.39.09	KOL.T.39.09.05.01	Patio Group	25	Low

Obsidian Data

Context Number2	Time Period	Source	Weight	Blade ?
KOL.T.20.11	LP	El Chayal?	3.9	n
KOL.T.25.07	LC	El Chayal	0.9	n
KOL.T.25.08	LP-LC	El Chayal	0.9	y
KOL.T.26.01	LC	El Chayal	1.3	y
KOL.T.26.02	EC	San Martin	0.5	y
KOL.T.26.06	LP-EC	El Chayal	0.3	y
KOL.T.26.07	LP-LC	El Chayal	0.5	n
KOL.T.27.02	LC	El Chayal	0.2	y
KOL.T.27.02	LC	El Chayal	0.8	y
KOL.T.27.02	LC	El Chayal	0.3	y
KOL.T.28.02	LP-LC	El Chayal	0.2	n
KOL.T.31.01	LC-TC	El Chayal	0.2	y
KOL.T.31.01	LC-TC	San Martin	1.1	y
KOL.T.31.01	LC-TC	San Martin	0.9	y
KOL.T.32.09	TP-EC	El Chayal	0.5	n
KOL.T.32.10	TP-EC	El Chayal	0.4	n
KOL.T.32.10	TP-EC	El Chayal	1	n
KOL.T.32.10	TP-EC	El Chayal	0.7	n
KOL.T.32.10	TP-EC	El Chayal	0.9	n
KOL.T.32.10	TP-EC	El Chayal	0.5	n
KOL.T.32.10	TP-EC	El Chayal	1.2	n
KOL.T.32.10	TP-EC	El Chayal	1.2	n
KOL.T.32.10	TP-EC	El Chayal	0.7	n
KOL.T.32.10	TP-EC	Motagua	1.1	n
KOL.T.32.10	TP-EC	Motagua	0.5	n
KOL.T.32.10	TP-EC	Motagua	0.5	n
KOL.T.32.10	TP-EC	Motagua	0.6	n
KOL.T.32.10	TP-EC	Motagua	1.4	n
KOL.T.32.10	TP-EC	Motagua	0.3	n
KOL.T.32.10	TP-EC	Motagua	0.3	n
KOL.T.32.10	TP-EC	Motagua	0.7	n
KOL.T.32.10	TP-EC	Motagua	0.7	n
KOL.T.32.10	TP-EC	Motagua	1.3	n
KOL.T.32.10	TP-EC	Motagua	1	n
KOL.T.32.10	TP-EC	Motagua	0.6	n
KOL.T.32.10	TP-EC	Motagua	0.7	n
KOL.T.32.10	TP-EC	Motagua	0.4	n
KOL.T.32.10	TP-EC	Motagua	0.6	n
KOL.T.38.01	EC-LC	El Chayal	0.7	y
KOL.T.38.01	EC-LC	El Chayal?	0.5	y
KOL.T.38.01	EC-LC	El Chayal	1.1	y
KOL.T.38.01	EC-LC	San Martin	1.8	y
KOL.T.39.01	LC	El Chayal	0.6	y
KOL.T.39.04	LC	El Chayal	1.9	y
KOL.T.39.05	LP	El Chayal?	0.3	y
KOL.T.39.08	LMP-LP	El Chayal	1.4	y
KOL.T.39.08	LMP-LP	El Chayal?	0.9	y
KOL.T.39.08	LMP-LP	El Chayal?	0.4	y
KOL.T.39.08	LMP-LP	El Chayal	0.3	n
KOL.T.39.09	LMP-LP	San Martin	1.5	n

Obsidian Data

Context Number3	Length	Width	Thickness	Artifact Portion	Total Use Wear
KOL.T.20.11	64.40	16.30	4.50	P	5
KOL.T.25.07	31.50	10.00	3.20	M	2
KOL.T.25.08	12.90	8.00	3.10	P	0
KOL.T.26.01	29.00	12.50	2.30	M	7
KOL.T.26.02	19.60	8.10	2.70	M	4
KOL.T.26.06	9.30	9.30	2.50	M	5
KOL.T.26.07	11.40	16.40	4.20	C	0
KOL.T.27.02	8.00	8.20	2.50	M	7
KOL.T.27.02	28.00	9.90	2.90	D	7
KOL.T.27.02	10.00	10.10	0.20	N	0
KOL.T.28.02	10.10	10.10	2.40	C	0
KOL.T.31.01	24.30	6.30	1.90	M	1
KOL.T.31.01	20.80	14.60	2.70	M	6
KOL.T.31.01	32.80	12.90	2.20	M	2
KOL.T.32.09	23.20	9.10	2.20	M	0
KOL.T.32.10	12.40	7.70	4.70	L	
KOL.T.32.10	16.10	10.50	5.60	L	
KOL.T.32.10	12.20	9.90	4.60	I	4
KOL.T.32.10	15.00	12.40	5.00	L	4
KOL.T.32.10	11.30	10.70	7.00	C	5
KOL.T.32.10	13.60	12.20	9.40	D	
KOL.T.32.10	14.30	12.40	8.60	D	
KOL.T.32.10	14.10	10.50	7.40	C	3
KOL.T.32.10	16.90	8.90	7.00	C	
KOL.T.32.10	13.10	7.80	4.90	C	
KOL.T.32.10	12.70	9.00	4.60	C	
KOL.T.32.10	11.50	11.20	5.50	C	
KOL.T.32.10	12.60	11.70	9.90	C	
KOL.T.32.10	14.10	10.90	3.30	C	
KOL.T.32.10	9.00	13.60	4.50	C	
KOL.T.32.10	12.50	10.50	6.30	C	
KOL.T.32.10	11.70	10.10	5.80	C	
KOL.T.32.10	8.20	16.40	9.30	C	
KOL.T.32.10	15.50	8.40	7.50	C	
KOL.T.32.10	7.00	12.50	5.90	C	
KOL.T.32.10	14.80	7.60	5.60	C	
KOL.T.32.10	10.10	6.60	5.30	C	
KOL.T.32.10	7.20	11.50	6.00	C	
KOL.T.38.01	20.80	12.30	2.60	M	5
KOL.T.38.01	14.80	10.10	2.70	M	5
KOL.T.38.01	25.00	12.80	3.00	P	5
KOL.T.38.01	37.70	12.60	3.10	P	7
KOL.T.39.01	14.90	11.70	2.80	M	6
KOL.T.39.04	20.90	17.40	5.00	P	1
KOL.T.39.05	13.40	9.20	2.50	P	1
KOL.T.39.08	46.00	9.60	2.60	P	0
KOL.T.39.08	28.60	9.60	2.20	M	0
KOL.T.39.08	14.00	8.50	2.50	P	2
KOL.T.39.08	10.80	15.00	2.60	L	0
KOL.T.39.09	13.20	19.50	6.50	C	0

Obsidian Data

Context Number	Small Find Number	Plaza Area vs. Patio Group	Patio Group Number	Status
KOL.T.39.09	KOL.T.39.09.05.02	Patio Group	25	Low
KOL.T.40.01	KOL.T.40.01.05.01	Patio Group	25	Low
KOL.T.40.01	KOL.T.40.01.05.02	Patio Group	25	Low
KOL.T.40.01	KOL.T.40.01.05.03	Patio Group	25	Low
KOL.T.40.02	KOL.T.40.02.05.01	Patio Group	25	Low

Context Number2	Time Period	Source	Weight	Blade ?
KOL.T.39.09	LMP-LP	San Martin	1.8	y
KOL.T.40.01	LC	Ixtepeque	0.7	y
KOL.T.40.01	LC	El Chayal	0.7	y
KOL.T.40.01	LC	El Chayal?	1.5	y
KOL.T.40.02	TP-LC	El Chayal	1.1	y

Context Number3	Length	Width	Thickness	Artifact Portion	Total Use Wear
KOL.T.39.09	32.90	17.80	2.90	C	2
KOL.T.40.01	13.70	14.50	2.70	M	3
KOL.T.40.01	21.20	10.00	2.90	M	1
KOL.T.40.01	46.00	9.20	3.00	M	4
KOL.T.40.02	27.50	13.40	2.10	M	2

Groundstone Data

Context Number	Small Find Number	Patio Group Number	Plaza Area vs. Patio Group	Status	Time Period
KOL.L.04.00	KOL.L.04.00.07.01	0	Plaza Area	0	LC-TC
KOL.L.05.00	KOL.L.05.00.07.01	15	Patio Group	High	LP-LC
KOL.L.06.00	KOL.L.06.00.07.01	38	Patio Group	High	TP-LC
KOL.L.07.00	KOL.L.07.00.07.01	38	Patio Group	High	LP-LC
KOL.L.07.00	KOL.L.07.00.07.02	38	Patio Group	High	LP-LC
KOL.L.07.00	KOL.L.07.00.07.03	38	Patio Group	High	LP-LC
KOL.L.07.00	KOL.L.07.00.07.05	38	Patio Group	High	LP-LC
KOL.L.10.01	KOL.L.10.01.07.01	0	Plaza Area	0	TP-EC
KOL.T.07.01	KOL.S.01.07.01	39	Patio Group	High	LEC-LC
KOL.T.10.02	KOL.T.10.02.07.01	0	Plaza Area	0	TP-EEC
KOL.T.15.07	KOL.T.15.07.07.01	4	Patio Group	High	EC-LC
KOL.T.18.06	KOL.T.18.06.07.01	18	Patio Group	Low	EC
KOL.T.19.01	KOL.T.19.01.07.01	6	Patio Group	Low	LP-TC
KOL.T.19.01	KOL.T.19.01.07.02	6	Patio Group	Low	LP-TC
KOL.T.19.01	KOL.T.19.01.07.03	6	Patio Group	Low	LP-TC
KOL.T.20.05	KOL.T.20.05.07.01	25	Patio Group	Low	LC
KOL.T.21.04	KOL.T.21.04.07.01	11	Patio Group	Low	LP-EC
KOL.T.21.04	KOL.T.21.04.07.02	11	Patio Group	Low	LP-EC
KOL.T.21.04	KOL.T.21.04.07.03	11	Patio Group	Low	LP-EC
KOL.T.23.01	KOL.T.23.01.07.01	34	Patio Group	Low	LC-TC
KOL.T.24.05	KOL.T.24.05.07.01	15	Patio Group	High	TP-EEC
KOL.T.26.01	KOL.T.26.01.07.01	4	Patio Group	High	LC
KOL.T.26.02	KOL.T.26.02.07.01	4	Patio Group	High	EC
KOL.T.29.01	KOL.T.29.01.07.01	15	Patio Group	High	LC
KOL.T.29.01	KOL.T.29.01.07.03	15	Patio Group	High	LC
KOL.T.32.09	KOL.T.32.09.07.01	38	Patio Group	High	TP-EC
KOL.T.34.02	KOL.T.34.02.07.01	4	Patio Group	High	EC
KOL.T.34.07	KOL.T.34.07.07.01	4	Patio Group	High	LP
KOL.T.36.01	KOL.T.36.01.07.01	38	Patio Group	High	LC-TC
KOL.T.36.02	KOL.T.36.02.07.01	38	Patio Group	High	LC
KOL.T.36.02	KOL.T.36.02.07.02	38	Patio Group	High	LC
KOL.T.36.08	KOL.T.36.08.07.01	38	Patio Group	High	LP
KOL.T.39.01	KOL.T.39.01.07.01	25	Patio Group	Low	LC
KOL.T.39.01	KOL.T.39.01.07.02	25	Patio Group	Low	LC
KOL.T.39.03	KOL.T.39.03.07.01	25	Patio Group	Low	LP-LC
KOL.T.39.03	KOL.T.39.03.07.02	25	Patio Group	Low	LP-LC
KOL.T.40.01	KOL.T.40.01.07.01	25	Patio Group	Low	LC

Groundstone Data

Small Find Number2	Artifact Type	Raw Material	Raw Material Type	Local/Nonlocal
KOL.L.04.00.07.01	mano end fragment	pink granite	Granite	nonlocal
KOL.L.05.00.07.01	mano end fragment	white to light gray quartz	Quartz	nonlocal
KOL.L.06.00.07.01	Metate end fragment	green schist (chocolate)	Schist	nonlocal
KOL.L.07.00.07.01	metate corner fragment	tan pink gray quartz	Quartz	nonlocal
KOL.L.07.00.07.02	mano end fragment	tan to light gray quartz	Quartz	nonlocal
KOL.L.07.00.07.03	mano end fragment	white to light gray quartz	Quartz	nonlocal
KOL.L.07.00.07.05	Metate Fragment	yellow orange granite corner	Granite	nonlocal
KOL.L.10.01.07.01	mano end fragment	limestone	Limestone	local
KOL.S.01.07.01	metate fragment	light gray tan pink quartz	Quartz	nonlocal
KOL.T.10.02.07.01	mano end fragment	white to light gray quartz	Quartz	nonlocal
KOL.T.15.07.07.01	mano fragment	light gray pink quartz	Quartz	nonlocal
KOL.T.18.06.07.01	metate fragment	green schist/quartz	Quartz	nonlocal
KOL.T.19.01.07.01	mano end fragment	pink granite	Granite	nonlocal
KOL.T.19.01.07.02	Metate Fragment	tan pink granite	Granite	nonlocal
KOL.T.19.01.07.03	metate fragment	tan pink gray quartz	Quartz	nonlocal
KOL.T.20.05.07.01	mano fragment	tan pink quartz	Quartz	nonlocal
KOL.T.21.04.07.01	Metate Fragment	Light Gray Pink Quartz	Quartz	nonlocal
KOL.T.21.04.07.02	Lateral Mano Fragment	White Pink Tan Quartz	Quartz	nonlocal
KOL.T.21.04.07.03	Mano Lateral Fragment	tan pink quartz	Quartz	nonlocal
KOL.T.23.01.07.01	mano fragment	light gray tan quartz	Quartz	nonlocal
KOL.T.24.05.07.01	mano end fragment	tan to light gray quartz	Quartz	nonlocal
KOL.T.26.01.07.01	Metate Fragment	tan pink granite	Granite	nonlocal
KOL.T.26.02.07.01	Metate fragment	pink granite	Granite	nonlocal
KOL.T.29.01.07.01	mano end fragment	pink granite	Granite	nonlocal
KOL.T.29.01.07.03	mano	pink granite	Granite	nonlocal
KOL.T.32.09.07.01	mano	light brown to brown banded quartz	Quartz	nonlocal
KOL.T.34.02.07.01	Mano end fragment	light gray pink gray quartz	Quartz	nonlocal
KOL.T.34.07.07.01	mano end fragment	tan to light gray quartz	Quartz	nonlocal
KOL.T.36.01.07.01	mano end fragment	tan to light gray quartz	Quartz	nonlocal
KOL.T.36.02.07.01	mano medial fragment	white to light gray quartz	Quartz	nonlocal
KOL.T.36.02.07.02	mano fragment	pink to light gray quartz	Quartz	nonlocal
KOL.T.36.08.07.01	metate fragment	limestone	Limestone	local
KOL.T.39.01.07.01	mano end fragment	pink granite	Granite	nonlocal
KOL.T.39.01.07.02	metate edge fragment	red sandstone	Sandstone	nonlocal
KOL.T.39.03.07.01	metate fragment	pink red granite	Granite	nonlocal
KOL.T.39.03.07.02	Metate Fragment	red pink granite	Granite	nonlocal
KOL.T.40.01.07.01	mano medial fragment	pink granite	Granite	nonlocal

Shell Data

Context Number	Small Find Number	Plaza Area vs. Patio Group	Patio Group Number	Status	Time Period
KOL.L.02.09	KOL.02.09.10.05	Patio Group	39	High	EC
KOL.L.02.09	KOL.L.02.09.10.01	Patio Group	39	High	EC
KOL.L.02.09	KOL.L.02.09.10.03	Patio Group	39	High	EC
KOL.L.02.09	KOL.L.02.09.10.04	Patio Group	39	High	EC
KOL.L.02.09	KOL.L.02.09.10.06	Patio Group	39	High	EC
KOL.L.02.09	KOL.L.02.09.10.07	Patio Group	39	High	EC
KOL.L.02.09	KOL.L.02.09.10.08	Patio Group	39	High	EC
KOL.L.04.00	KOL.L.04.00.10.01	Plaza Area	0	0	LC-TC
KOL.L.04.00	KOL.L.04.00.10.02	Plaza Area	0	0	LC-TC
KOL.L.04.06	KOL.L.04.06.10.01	Plaza Area	0	0	LC
KOL.T.15.20	KOL.T.15.20.10.01	Patio Group	4	High	LP-EEC
KOL.T.19.01	KOL.T.19.01.10.01	Patio Group	6	Low	LP-TC
KOL.T.20.16	KOL.T.20.16.10.01	Patio Group	25	Low	LP
KOL.T.39.08	KOL.T.39.08.10.01	Patio Group	25	Low	LMP-LP
KOL.T.39.11	KOL.T.39.11.10.01	Patio Group	25	Low	LMP-LP
KOL.T.39.11	KOL.T.39.11.10.02	Patio Group	25	Low	LMP-LP

Small Find Number2	Shell Artifact Type	Geographic Origin	Genus/Species	Length	Width	Thickness	Weight
KOL.02.09.10.05	Blank nondrilled worked shell	marine	Spondylous spp.	16.9	12.7	2.7	0.8
KOL.L.02.09.10.01	Spondylous thorn	Marine	Spondylous spp.	13.1	3.8	0.9	0.05
KOL.L.02.09.10.03	Spondylous thorn fragments (3)	Marine	Spondylous spp.	8	3	1	0.2
KOL.L.02.09.10.04	Blank nondrilled worked shell	Marine	unknown	15	6.7	3.4	0.5
KOL.L.02.09.10.06	figurine nondrilled worked shell	Marine	unknown	22	12.9	5.9	2.9
KOL.L.02.09.10.07	figurine nondrilled worked shell	marine	Spondylous spp.	26.8	10.4	4.3	2.1
KOL.L.02.09.10.08	regular disk	marine	Spondylous spp.	9.2	9.7	3.9	0.6
KOL.L.04.00.10.01	carved disk	marine	Spondylous spp.	11.4	10.8	3.4	0.8
KOL.L.04.00.10.02	"other" bead	unknown	unidentified	11.1	9.5	0.2	0.05
KOL.L.04.06.10.01	"other" bead	marine	unknown	18.2	16.3	5.2	1.4
KOL.T.15.20.10.01	pendant	unknown	unidentified	30.8	23.2	2.8	2.6
KOL.T.19.01.10.01	tinkler	Marine	Oliva	22.3	12.7	10.8	2.5
KOL.T.20.16.10.01	"other" bead	marine	unknown	14.3	13.2	4	1.2
KOL.T.39.08.10.01	"other" bead	marine	unknown	21.5	12.7	2.1	0.9
KOL.T.39.11.10.01	"other" bead	marine	unknown	11.5	11.3	2.1	0.4
KOL.T.39.11.10.02	unmodified pendant	marine	undetermined	24.4	21.5	4.2	1.9

Jade Data

Context Number	Small Find Number	Plaza Area vs. Patio Group	Patio Group Number	Status	Time Period
KOL.L.02.00	KOL.L.02.00.06.01	Patio Group	39	High	EEC
KOL.L.02.09	KOL.L.02.09.06.01	Patio Group	39	High	EC
KOL.L.02.09	KOL.L.02.09.06.02	Patio Group	39	High	EC
KOL.L.02.09	KOL.L.02.09.06.03	Patio Group	39	High	EC
KOL.L.02.09	KOL.L.02.09.06.04	Patio Group	39	High	EC
KOL.L.02.09	KOL.L.02.09.06.05	Patio Group	39	High	EC
KOL.L.05.00	KOL.L.05.00.06.01	Patio Group	15	High	LP-LC
KOL.T.27.02	KOL.T.27.02.06.01	Patio Group	4	High	LC
KOL.T.32.10	KOL.T.32.10.06.01	Patio Group	38	High	TP-EC
KOL.T.34.16	KOL.T.34.16.06.01	Patio Group	4	High	LMP-LP
KOL.T.39.08	KOL.T.39.08.06.01	Patio Group	25	Low	LMP-LP

Small Find Number2	Artifact Type	Length	Width	Thickness	Weight	Hardness
KOL.L.02.00.06.01	Jade bead fragment	11.8	5.9	3	0.2	6.5
KOL.L.02.09.06.01	polished undrilled bead	12.3	11.8	6	1.1	6
KOL.L.02.09.06.02	Jade Charlie Chaplin	15.1	12	3.3	1.2	5.5
KOL.L.02.09.06.03	Crozier/hook shaped jade	11.2	9.2	3.2	0.6	5.5
KOL.L.02.09.06.04	drilled bead	5.4	4.6	2	0.05	6.5
KOL.L.02.09.06.05	Jade microdebitage	4.4	4.1	2.8	0.7	
KOL.L.05.00.06.01	perforated bead	10.5	9.1	1.6	0.2	6
KOL.T.27.02.06.01	Jade bead fragment	11.6	9.2	3.1	0.6	6
KOL.T.32.10.06.01	jade pebble	17.2	14.7	7	2.6	6
KOL.T.34.16.06.01	Perforated jade bead	6.3	6.1	4	0.3	6.5
KOL.T.39.08.06.01	polished jade pebble	22.1	8.9	5.7	1.7	7

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