MAPPING OF THE FORT DADE HISTORIC TRANSPORTATION NETWORK EGMONT KEY HILLSBOROUGH COUNTY FLORIDA

Volume I

FINAL

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ABSTRACT

The U.S. Fish & Wildlife Service contracted Panamerican Consultants, Inc., to create a topographic base map of the historic transportation network associated with Fort Dade, a Taft-Endicott coastal fortification located on Egmont Key, Florida. This project was conducted in accordance with Section 106 of the *National Historic Preservation Act of 1966* (PL 89-665) as amended in 1992, and *36 C.F.R., Part 800: Protection of Historic Properties*. This investigation was designed to satisfy the requirements of Chapter 1A-46 of the *Florida Administrative Code*, and to comply with Chapter 267, *Florida Statutes*, as well as other impending State regulatory requirements. Fieldwork was conducted from October 16 through November 1, 2006, by Senior Archaeologist James N. Ambrosino, Ph.D., RPA, Staff Archaeologist Kelly A. Driscoll, RPA, crew chief Matthew Bray, and field technician Cliff Jenks, under U.S. Fish & Wildlife Service Special Use Permit No. 41562-07002 and FDHR Archaeological Research Permit No. 0607.16. Additional photographs were taken on January 4, 2007, by Kelly A. Driscoll.

The work completed during this project will enable the U.S. Fish & Wildlife Service and the Florida Park Service to preserve, protect, and interpret a significant cultural resource on Egmont Key, and will also aid the U.S. Fish & Wildlife Service in the proposed rehabilitation and subsequent maintenance of the brick road.

One known archaeological site had been identified within the project area. 8HI117 (Egmont Key) encompasses the entire island and is a multi-component site that was occupied prehistorically and historically from the Territorial period onward (1821 to present). 8HI117 was listed on the National Register of Historic Places in 1978.

A Topcon GTS-226 Electronic Total Station was used to take 3,752 points along the brick and concrete roads, concrete sidewalks, entrances, ramps, extant portions of the railroad, and other relevant features associated with the Fort Dade transportation network in order to create the base map. Five 1-x-0.5-meter test units were excavated along the brick road to examine construction techniques.

During this project, 454 identifiable artifacts were recovered from the excavation of the five test units. No prehistoric material was recovered or observed during the course of this project. The historic materials recovered were consistent with the previously recorded time frame of 8HI117 from 1821 to the present. No new cultural components were identified at 8HI117 and no intact features from historic or prehistoric contexts were encountered. The artifacts and copies of the field notes, maps, and other paperwork generated during the course of this survey will be returned to Bureau of Archaeological Research in Tallahassee, Florida, per the conditions of the FDHR Archaeological Research Permit.

ACKNOWLEDGMENTS

The successful completion of this project is the result of the hard work of numerous individuals. The principal investigators would like to thank the U.S. Fish and Wildlife Service, specifically Mr. Richard Kanaski, Regional Archaeologist, and Brian Ellington, Civil Engineer, for giving Panamerican Consultants, Inc., the opportunity to conduct this investigation. Mr. Kanaski's previously conducted research on Egmont Key proved to be an invaluable resource for this project. A special thanks also goes out to Artela Jacobs of the U.S. Fish and Wildlife Service, who administered the contract for this project.

We would also like to thank Tom Watson of the Florida Park Service for sharing not only his vast knowledge of the history of Egmont Key, but also his equipment during the fieldwork phase of this project. Thanks to Ms. Leslie Head and the rest of the Tampa Bay Pilots Association for their special assistance. Our gratitude is also extended to our co-workers at Panamerican Consultants, Inc. – Tampa. Matt Bray and Cliff Jenks, who excavated the test units; Anna Dixon, who cataloged, analyzed, and prepared all of the artifacts for curation; Skye Hughes, who helped write the test unit summaries; and Lucy Jones, for editing this report.

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INTRODUCTION

The U.S. Fish & Wildlife Service contracted Panamerican Consultants, Inc., to create a base map of the historic transportation network associated with Fort Dade, a Taft-Endicott coastal fortification located on Egmont Key. The entire island is recorded within the Florida Master Site File as 8HI117, which was listed on the National Register of Historic Places (NRHP) in 1978. This project was conducted in accordance with Section 106 of the *National Historic Preservation Act of 1966* (PL 89-665) as amended in 1992, and *36 C.F.R., Part 800: Protection of Historic Properties*. This investigation was designed to satisfy the requirements of Chapter 1A-46 of the *Florida Administrative Code,* and to comply with Chapter 267, *Florida Statutes*, as well as other impending State regulatory requirements.

Fieldwork was conducted from October 16 through November 1, 2006, by Senior Archaeologist James N. Ambrosino, RPA, Staff Archaeologist Kelly A. Driscoll, RPA, crew chief Matthew Bray, and field technician Cliff Jenks, under U.S. Fish & Wildlife Service Special Use Permit No. 41562-07002 and FDHR Archaeological Research Permit No. 0607.16 (Appendix A). Additional photographs were taken on January 4, 2007, by Kelly A. Driscoll. All fieldwork was performed to meet the guidelines set forth in the DHR's (2003) *Module Three: Guidelines for Use by Historic Preservation Professionals*.

The work completed during this project will enable the U.S. Fish & Wildlife Service and the Florida Park Service to preserve, protect, and interpret a significant cultural resource on Egmont Key, and will also aid the U.S. Fish & Wildlife Service in the proposed rehabilitation and subsequent maintenance of the brick road.

One known archaeological site had been identified within the project area. 8HI117 (Egmont Key) encompasses the entire island and is a multi-component site that was occupied prehistorically and historically from the Territorial period onward (1821 to present). This site was listed on the National Register of Historic Places (NRHP) in 1978.

A Topcon GTS-226 Electronic Total Station was used to take 3,752 points along the brick and concrete roads, concrete sidewalks, entrances, ramps, extant portions of the railroad, and other relevant features associated with the Fort Dade transportation network in order to create the base map (Appendix E). Five 1-x-0.5-meter (m) test units were excavated along the brick road to examine construction techniques associated with this resource.

During this project, 454 identifiable artifacts were recovered from the excavation of the five test units. No prehistoric material was recovered or observed during the course of this project. The historic materials recovered were consistent with the previously recorded time frame of 8HI117 from 1821 to the present. No new cultural components were identified at 8HI117 and no intact features from historic or prehistoric contexts were encountered.

No further archaeological or historical research is recommended. A Florida Master Site File (FMSF) Survey Log Sheet was completed for this investigation, and is included as part of Appendix C. An updated FMSF archaeological site form was completed for site 8HI117, and also is included as part of Appendix C.

Figure 1. Location of Egmont Key within Hillsborough County, Florida.

ARCHIVAL RESEARCH

Township 33 South, Range 15 East was surveyed on January 25, 1876, by J.P. Apthorp, Deputy Surveyor. The plat map was examined, compared with the field notes, and approved on September 27, 1877, by the Surveyor General. The map of the township drawn from the surveyor's field notes depicts only Egmont Key. No natural features are shown on the entire island, but the lighthouse is noted as being located in the northern portion of the key (Florida Department of Environmental Protection 1877).

Previous Investigations

A search of the Florida Master Site File (FMSF) records dated July 2006, as provided in Geographic Information Systems (GIS) format, was completed. No historic bridges or resource groups have been recorded within the project area. One archaeological site, one historic structure, one historic cemetery, and one NRHP-listed resource are located within the current project area. 8HI117 (Egmont Key) is a multi-component archaeological site that was occupied

prehistorically and historically from the Territorial period onward (1821 to present) and includes the entire island. This site has been found to be potentially eligible for inclusion in the NRHP by the SHPO. 8HI117A, the Egmont Key Lighthouse, is a historic structure located within the upper northeast portion of Egmont Key. 8HI117A was built circa 1858 and has not been evaluated by the SHPO concerning its potential eligibility for inclusion in the NRHP. The Egmont Key Cemetery (8HI117B) is a ca. 1900 military cemetery located off the southwest coast of the key. The entire island of Egmont Key (8HI117) was listed on the NRHP in 1978.

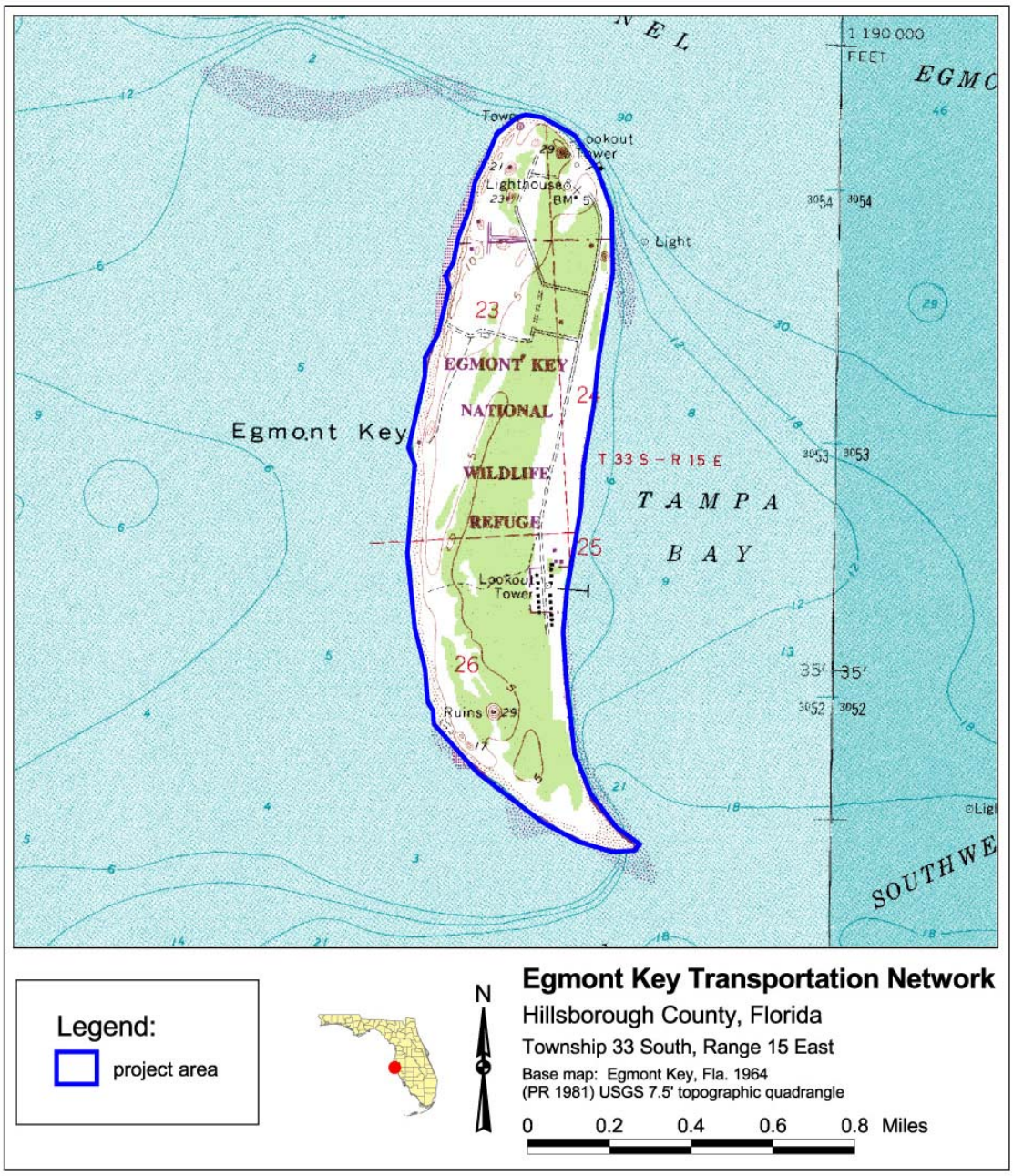

Figure 2. Map of the project area on the Egmont Key, Fla. 1964 (PR 1981) USGS 7.5' topographic quadrangle.

Three previous cultural resource surveys have been conducted within any portion of the project area (Table 1). Egmont Key was the subject of a reconnaissance-level survey completed in 1977 (Grange et al. 1977), the main purpose of which was to locate any prehistoric archaeological sites located in the National Wildlife Refuge portion of the island. A preliminary reconnaissance of the island's historical resources was also completed as part of the aforementioned survey. Archaeological monitoring of a diesel fuel line removal within the northeast portion of Egmont Key was conducted in November 2005 by Panamerican Consultants, Inc., but no new cultural components at 8HI117 (Driscoll 2005). Archaeological monitoring of the removal of lead contaminated soil from around the Egmont Key Lighthouse was conducted in February of 2006 by Panamerican Consultants, Inc.; again, no new cultural components were identified at 8HI117 (Driscoll 2006).

Table 1. Previous Cultural Resource Surveys Conducted within One Mile of the Project Area.

Survey No.	Title	Date	Author(s)
215	An Archaeological Survey of Egmont Key National Wildlife Refuge	1977	Grange et al.
1799	Marine Magnetometer Survey of a Proposed Sand Borrow Site and Sand Transfer Site, Indian Rocks Beach, Pinellas County, Florida	1988	Espey Huston and Associates
6593	A Remote Sensing Survey of the Proposed Egmont Channel Borrow Area, Pinellas County, Florida	2001	Gordon Watts
12519	Archaeological Monitoring of Fuel Line Removal at Egmont Key, Hillsborough County, Florida	2005	Kelly A. Driscoll
-	Historic Assessment, Remote Sensing Survey, and Diver Evaluations at Egmont Key, Hillsborough County, Florida	2006	Panamerican Consultants, Inc.
-	Archaeological Monitoring of Contaminated Soil Removal at Egmont Key, Hillsborough County, Florida	2006	Kelly A. Driscoll

ENVIRONMENTAL SETTING

Egmont Key is a low-lying, sandy island located at the entrance to Tampa Bay in Hillsborough County, Florida. This small island is oriented roughly north-south, parallel to the Florida coastline; it is approximately 1.75 miles long and has a uniform width of a little less than 0.5 miles. Most of the island is below four feet in elevation, except along a row of higher sand dunes along the northwestern shore. Even here, the highest natural elevations are only about 10 feet above sea level (Stafford 1980).

Egmont Key lies in the Central or Mid-Peninsular Zone within the Gulf Barrier Chain of the Gulf Coastal Lowlands physiographic province (White 1970:Map 1-B). This area extends along the west coast of Florida from Anclote Key to Naples. The Gulf of Mexico lies to the west of the island and Tampa Bay is located on the east.

One soil association is mapped for the project area: Myakka-Urban land-St. Augustine, which consists of nearly level, very poorly drained to somewhat poorly drained soils that have a sandy subsoil or are sandy throughout (Doolittle et al. 1989:General Soil Map). One soil series is mapped within the project area, St. Augustine fine sand (Doolittle et al. 1989:Inset-Sheet Number 47). This is a nearly level and somewhat poorly drained soil found on flats and ridges bordering Tampa Bay. It is subject to flooding for very brief periods during hurricanes. Native

vegetation for this soil type consists of wax myrtle, greenbrier, blackberry, and panicum (Doolittle et al. 1989).

Egmont Key is vegetated primarily with cabbage palms, wax myrtle, Brazilian pepper, sea grapes, and various grasses, shrubs, and weeds. Gopher tortoises, box turtles, pelicans, and various sea birds were the only types of fauna observed during the field investigation (Figure 3). Photographs of the current setting are shown in figures 4 through 8.

Geology of Egmont Key

The size and configuration of Egmont Key have changed considerably since it was first mapped in the mid-1750s. The natural forces of wind and water have, at times, enlarged the island through the deposition of sand, while at other times erosion has decreased the size of the island. Most of the modifications have occurred on the seaward side of the island where impacts from natural processes are most intense. The earliest map of Egmont Key seems to have been made in 1757 by the Spanish pilot Don Francisco Maria Celi. His map shows that the island contained approximately 400 acres (Grange et al. 1977). In 1877, a survey by the U.S. Coast and Geodetic Survey indicated that the island contained about 540 acres. Most writers have presumed that Celi's map was very accurate, meaning that the island expanded considerably in size during the 118 years between these two surveys (see Grange et al. 1977; Stafford 1980; Ware 1968). Since 1877, however, erosion from the action of winds and waves has been severe on the western, or Gulf side of the island, reducing it to a size of about 400 acres in the late 1970s and to less than 280 acres of dry land in 1997 (Figure 9) (Coastal Planning & Engineering, Inc., 1997; Grange et al. 1977; Stafford 1980). It is possible that erosion of Egmont Key did begin to accelerate in the 1870s, particularly if it is related to man-induced activities, such as channel dredging, which began to occur around this same time. However, Kling (1997) argues that natural forces, such as changes in tidal flow and a decrease in the available sand source, are more likely explanations. An alternative proposition is that the Celi map is not as accurate as many believe; thus, it is impossible to accurately evaluate changes to the island's size prior to 1875. Regardless, land loss from beach erosion on the western side of Egmont Key has been ongoing for the past 125 years or so. The overall low elevation of the island, particularly along the western side, means that even relatively minor storms can cause considerable beachfront erosion. The severe erosion of Egmont Key prompted the State of Florida to fund a study in 1997 to assess the rates of erosion and to formulate erosion control solutions.

The 1997 erosion study indicated that the shorelines of Egmont Key are experiencing differential erosion. The western side of the island was highly erosional while the eastern side was relatively stable. The southern end of the island consisted of a sand spit that was migrating toward the east while the northern beach was experiencing moderate erosion (Coastal Planning & Engineering, Inc. 1997). The extreme erosion on the western side of the island and the moderate erosion at its northern end have outpaced deposition, at least in the past 100 to 130 years, such that the island has been significantly reduced in size. This erosion is related to an array of complex processes, including sea level rise, a decrease in the landward transport of offshore sands, and changes in tidal hydraulics and wave refraction. Kling (1997) suggests that severe hurricanes in 1921 and 1926 altered the entire Egmont ebb-tidal delta in such a way that it resulted in increased erosion, particularly along the southern end of the island. Hurricanes in the 1950s and 1960s have increased the rate of erosion on the island.

Figure 3. Photograph of a Gopher Tortoise walking immediately west of Battery Avenue, taken facing north.

Figure 4. Photograph of the former location of the Ft. Dade town square, taken facing northwest.

Figure 5. Looking south down the concrete portion of Palmetto Avenue, located near the eastern shoreline.

Figure 6. Photograph taken looking north up Battery Avenue to Battery Guy Howard.

Figure 7. Photograph taken facing west from Center Street near the former location of the Fort Dade Pump House.

Figure 8. Photograph of the Egmont Key Lighthouse and associated buildings, taken facing northwest.

While natural forces seem to have been most responsible for these processes of erosion, some of them, particularly the change in tidal hydraulics, may have been human induced (Coastal Planning & Engineering, Inc. 1997). Kling and Davis (1997) note that dredging of Egmont Channel (which passes near the northern end of the island) from a natural depth of 19 feet to 45 feet has affected tidal hydraulics in the area around Egmont Key and in all of Tampa Bay, itself. This dredging has been accompanied by a variety of other dredging, filling, and construction activities in and around Tampa Bay, all of which have contributed to changes in the bay's tidal hydraulics. Currently, the northern and western portions of the island are undergoing a beach replenishment process in which dredged sand is being added to the existing coastlines.

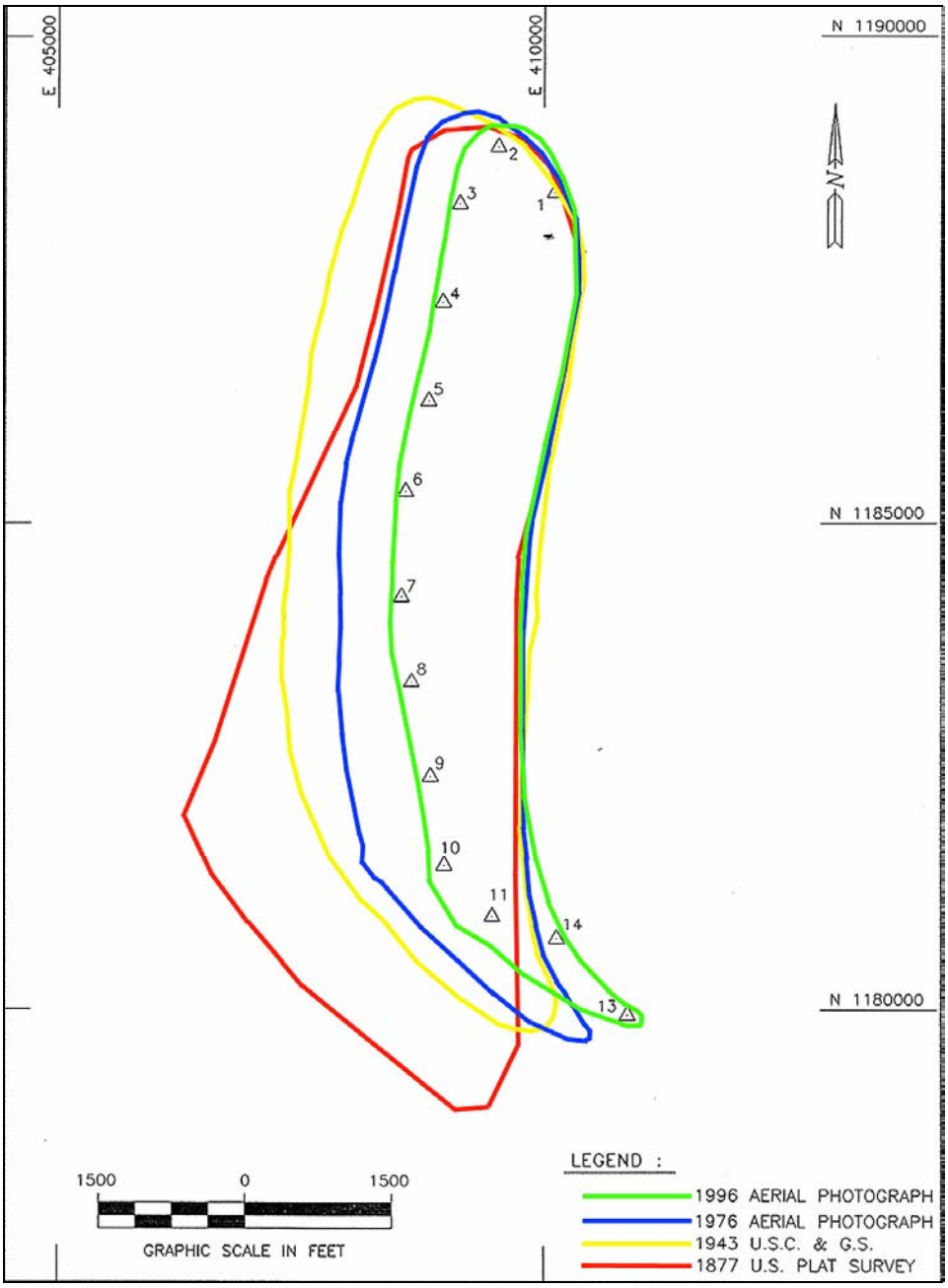

Figure 9. Shoreline changes on Egmont Key, 1877-1996 (Modified from Coastal Planning & Engineering 1997:Figure 7).

CULTURE HISTORY

Prehistoric Context

The project area falls within the central peninsular Gulf coast prehistoric culture region of Florida, as defined by archaeologists (Milanich 1994) (Figure 10). This region is defined as extending from Pasco County south to Sarasota County, including Pinellas, Hillsborough, and Manatee counties. It also includes the inland counties of Polk, Hardee, and DeSoto, stretching east to the Peace River drainage. Human occupation of Florida dates back to the arrival of the Paleoindians at approximately 10,000 B.C. (Milanich 1994).

Prior to 4,000 to 5,000 years ago, during the Archaic Stage, the water table in the region including the project area was considerably lower than at present and the climate was more arid (Watts and Hansen 1988). In addition to the effects on vegetation, it may be reasonably inferred that surface water was less available in the region at that time. Without an aquifer-fed sinkhole or other permanent source of water nearby, aboriginal use of this location prior to the Archaic Stage is considered unlikely.

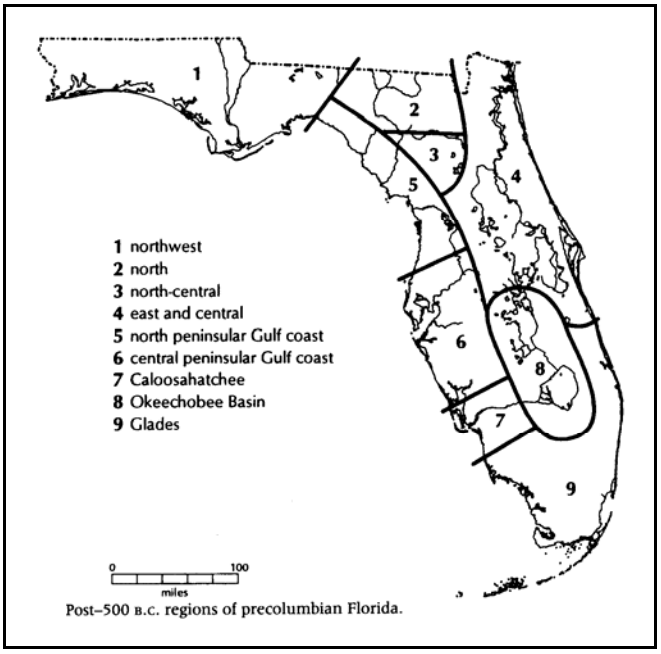

Figure 10. Post-500 B.C. archaeological regions of Florida (from Milanich 1994:xix).

Paleoindian Stage (10,000 to 7500 B.C.)

The Paleoindian Stage is the earliest documented prehistoric cultural manifestation in Florida, beginning approximately 10,000 B.C. and persisting until 7500 B.C. The earliest evidence for human occupation in Florida comes from the investigations at Little Salt Springs (8SO18) (Clausen et al. 1975; Clausen et al. 1979) and at Warm Mineral Springs (8SO19) (Royal and Clark 1960), both in southwest Florida, where human skeletal remains have been radiocarbon dated at approximately 10,000 B.C.

Paleoindians lived a nomadic lifestyle based on hunting and gathering, including hunting of the large, now extinct Pleistocene animals like the mastodon and mammoth. Recent excavations of Paleoindian sites have contributed to the development of increasingly sophisticated models of early hunter-gatherer settlement that take into account the adaptive responses of human populations to both short- and long-term environmental change. These models suggest that Paleoindian groups in Florida may have practiced a more sedentary lifestyle than had previously been believed (Daniel and Wisenbaker 1987).

The environmental conditions in Florida at the close of the Pleistocene were much different than those of Florida today. The ice fields of the Wisconsin glacial period retained large quantities of the earth's available water. This resulted in a worldwide reduction of sea levels. Florida's west coast extended out as much as 110 km (70 miles) from its present location (Fairbridge 1974). Scrub oak woodlands separated by patches of grassland prairie covered much of peninsular Florida. Temperatures were cooler and the climate was drier (Watts and Hansen 1988).

Freshwater may have only been available from aquifer-fed lakes and sinks and shallow seasonal ponds (Clausen et al. 1979). Paleoindian groups were probably small groups that subsisted by gathering wild foods and hunting both now extinct Pleistocene megafauna and several smaller animal species. By late Paleoindian times, the large Pleistocene animals had disappeared, the climate had changed and the sea levels had risen, and the large lanceolate points considered diagnostic of this period were replaced by smaller side- and corner-notched varieties.

Archaic Stage (7500 to 500 B.C.)

The Archaic Stage, which began approximately 7500 B.C., followed the Paleoindian Stage. The Archaic Stage has been subdivided into three periods, Early, Middle, and Late, primarily based on certain types of stone tools (Bullen 1975; Purdy and Beach 1980). The Early Archaic period dates from 7500 to 5000 B.C., the Middle Archaic period dates from 5000 to 3000 B.C., and the Late Archaic period dates from 3000 to 500 B.C. (Milanich 1994). Environmental and cultural changes mark the introduction of the Early Archaic period. By 7500 B.C., the sea levels fluctuated near present levels and the Pleistocene/Holocene transition was complete (Anderson et al. 1996). The middle Holocene Hypsithermal (6000 to 3000 B.C.) was a period of hotter, drier conditions across the peninsula. A return of wetter conditions and a corresponding fluctuation in the level of the Floridan Aquifer resulted in the appearance of vast swamps and extensive bayheads. By 3000 B.C., the scrub oak-prairie vegetation cover of post-Pleistocene Florida had given way to extensive stands of slash and longleaf pine, cypress swamps, and bayheads (Delcourt and Delcourt 1987).

These environmental changes had an impact on the ecological zones important for prehistoric groups. Archaic populations hunted, fished, and collected plants and shellfish. Acorns and other hardwood nuts were also harvested. Settlement patterns and social organization focused on effectively exploiting seasonally available resources. Larger populations could congregate at those times of the year when plant and animal resources were locally abundant and separate into smaller social units during less plentiful times. Seasonality is reflected in both site function and settlement patterning. Centralized base camps or villages,

defined by the number and diversity of artifacts present, are habitation sites for larger social groups. Less extensive, limited activity/extractive camps and quarry sites suggest resource use by fewer people for shorter periods.

The Late Archaic period (3000 to 500 B.C.) is best described as a continuation of Middle Archaic lifeways in an environment similar to that of present-day Florida. Late Archaic populations exploited inland, riverine, and coastal resources and Late Archaic sites are more often coastal or riverine shell middens, small inland sites, or single components of larger, multi-component sites. Recent studies have indicated that there may not have been a population shift during the Late Archaic period as previously believed. Coastal and riverine wetland areas could have supported much larger, more sedentary populations than would the interior forests. People may not have moved; rather, the population grew more quickly in areas that were best able to support more people (Milanich 1994).

By around 2000 B.C., fiber-tempered pottery known as Orange ceramics began to be produced (Bullen 1972). Orange ceramics are generally crude, thick wares made with Spanish moss and other vegetable matter used as a tempering agent. This pottery was hypothesized to exhibit changes in design and motif that designate different subperiods. The later subperiod, 1250 to 1000 B.C., represents the introduction of sand into the ceramics as temper, as well as the introduction of the coiling method of manufacturing clay pots (Sassaman 1993). However, more recent work by Sassaman (2003) has rejected the claim the Orange period can be further broken down into subperiods based on decorative techniques applied to the exterior of the fiber-tempered ceramics. Sassaman (2003) has dated soot from the exterior of incised pottery that has produced dates as early as those extant for plain ceramics. Thus a cultural and not chronological explanation is hypothesized for the difference in Orange Plain and Orange Incised wares. In essence, the pottery manufactured with incisions tends to be thick, spiculate, tall, and used over fires, while the plain wares tend to be thin, non-spiculate, and never used over fire. Thus, it appears that the difference between incised fiber-tempered wares and plain fiber-tempered wares is that the incised wares are for cooking over open flames, while the plain are not (Sassaman 2003).

Early indications of interregional interaction are expressed in the archaeological record at a few sites dating to the Late Archaic period. The use of clay cooking "balls," grog-tempered pottery, and certain ceramic forms and steatite vessels indicates direct or indirect contact with the Poverty Point culture in the Lower Mississippi River Valley. Known in Florida as the Elliott's Point Complex, this contact is best documented in the Panhandle, and especially in the Apalachicola Delta-Apalachee Bay area (White and Estabrook 1994).

During the late Orange phase, also known as the Florida Transitional period (1200 to 500 B.C.), changes in pottery and technology occurred in Florida, marking the beginning of the Woodland Stage. A decline in the use of fiber and an increase in the use of sand as a tempering agent in ceramics occurred during this time. The temperless St. Johns ceramic series began to appear, and three different projectile point styles (basally-notched, corner-notched, and stemmed) all occur in relatively contemporaneous contexts. This profusion of ceramic and tool traditions suggests an increased social interaction between the various regions of Florida and other parts of the Southeast. Other changes include the possible use of domesticated plants, such

as maize and some gourds; however, ceramic traditions also indicate increased regional differentiation (Milanich and Fairbanks 1980).

Woodland Stage (500 B.C. to A.D. 900)

Populations continued to manufacture ceramics and were characterized by increasing sedentism throughout the Woodland Stage. The first post-Archaic group to inhabit present-day Hillsborough County was the Manasota culture. The Manasota culture was principally a coastal adaptation that first appeared about 500 B.C. and continued until roughly A.D. 900 (Luer and Almy 1979, 1982). The Manasota settlement pattern was one of permanent residence on the coast for most of the year with seasonal forays into the interior to obtain game, plants, or other resources. The catchment or procurement area of these groups is thought to be 30 km (18 miles). The term "inland from the shore" is used to differentiate this area from interior regions such as the Peace River basin (Luer and Almy 1982:51). Inland Manasota sites are often recognized by the recovery of quartz sand-tempered ceramics.

During its later stages, the Manasota culture was influenced by the extensive Weeden Island socio-political complex that is best known in northern Florida, southern Georgia, and Alabama - the recognized "heartland" of Weeden Island cultures. Present evidence suggests a date of circa A.D. 200 for the beginning of the Weeden Island period (Milanich 1994). Mound burial customs, artifactual evidence of an extensive trade network, and settlement pattern data suggest a complex socio-religious organization, while technologically and stylistically Weeden Island ceramic types are considered outstanding examples of aboriginal pottery. Evidence for the adoption of Weeden Island customs by local Manasota groups appears in the archaeological record around A.D. 300, with evidence that the Manasota culture practiced Weeden Island burial ceremonialism (Milanich 1994).

Mississippian Stage (A.D. 900 to 1500)

The Safety Harbor culture evolved from the Manasota and Weeden Island cultures. While this culture was similar to the Mississippian cultures of northern Florida in their adoption of ideas and practices that helped them adjust to larger populations and maintain a greater level of political complexity, other ideas and practices from the Mississippian way of life were not adopted because the agricultural system at the heart of the Mississippian culture did not exist in southern coastal Florida. As with previous populations, people of the Safety Harbor culture subsisted mainly on the gathering of shellfish and other freshwater and marine resources. The Safety Harbor culture can be seen as a Mississippian adaptation to a specialized coastal environment (Milanich 1994).

Most Safety Harbor sites are shell middens, mounds or earth mounds found along the Gulf coast. Inland Safety Harbor sites consisted of camps villages and mounds (Milanich 1994). Safety Harbor is divided into four sub-periods: two pre-Columbian and two colonial. The two pre-Columbian phases are Englewood (A.D. 900 to 1100) and Pinellas (A.D. 1000 to 1500). The two colonial phases are Tatham (A.D. 1500 to 1567) and Bayview (A.D. 1567 to 1725) (Mitchem 1989).

Safety Harbor ceramics vary between regions, and most village ceramics are undecorated. Ceramics from Safety Harbor sites in the northern Safety Harbor area in Citrus,

Hernando, and Pasco counties are primarily Pasco Plain. Pasco series ceramics are tempered with limestone and are very similar to earlier Weeden Island ceramics from this area. Safety Harbor ceramics from the circum-Tampa Bay region, which includes southern Pasco, Hillsborough, Pinellas, and northern Manatee counties, is a sand-tempered ware called Pinellas Plain. Wide-mouthed bowls were most common, many with serrated rims. Inland Safety Harbor sites are located in Polk, DeSoto, and Hardee counties. Ceramics from this region are the same as those found in other regions and include Pinellas, St. Johns, and Belle Glade variants (Milanich 1994).

Mississippian-period projectile points are primarily small and triangular or ovate in shape. Based on the small and thin shape of these points, they were probably used to tip arrows. Lithic artifacts used by Safety Harbor peoples include Pinellas, Tampa, and Ichetucknee points, salvaged and reused Archaic stemmed points or knives, scrapers, and utilized flakes. Celts, gouges, adzes, planes, and hammers made from large and medium-sized marine shellfish are also found in Safety Harbor middens. Tools made of bone are also found in Safety Harbor contexts (Milanich and Fairbanks 1980). Sandstone abraders and lithic implements made from exotic material acquired through trade have also been recovered from Mississippian Stage sites in Florida (Milanich 1994).

Historic Context

Egmont Key has existed as a habitable landform for at least 1,000 years and possibly for as long as 4,000 or 5,000 years. However, it has always been an inhospitable place for human settlement; not only is it exposed to sea winds, it also has no permanent source of fresh water and few edible plant or animal resources. As Grange et al. (1977) note, there is a low probability that prehistoric populations established any type of permanent settlement on Egmont Key, and no evidence of prehistoric sites was located during their reconnaissance-level survey. It is suspected, however, that native populations from the mainland did periodically visit the island for fishing, to capture marine turtles, or to collect turtle and bird eggs (Grange et al. 1977). When Francisco Maria Celi visited Egmont Key in 1757, he implied that he found an Indian canoe on the island, supporting the idea that native groups visited the island (Grange et al. 1977; Ware 1968).

Early Period, 1513-1821

Our knowledge of Egmont Key begins with the period of Spanish exploration in the early sixteenth century. Spanish parties of exploration of the Tampa Bay area began with Ponce de Leon in 1513, followed by Panfilo de Narvaez in 1528, and Hernando de Soto in 1539. While some of these expeditions may have passed near Egmont Key, none have left accounts or descriptions of the island (Grange et al. 1977; Stafford 1980). The earliest known description of Egmont Key is provided by the pilot Don Francisco Maria Celi, who visited Tampa Bay in 1757. Celi provides the first reliable description of the water depths, tides, and winds at Tampa Bay, including descriptions and measurements of Egmont Key and other nearby islands. On April 13, 1757, Captain Jimenex anchored his vessel, the *San Francisco de Asis,* at Egmont Key and put the pilot, Celi, ashore to start his survey. Celi started his survey at the south end of the island,

which he named “Isla de San Blas Y Barreda” for the Rear Admiral of the Royal fleet and Commander General in Havana (Stafford 1980). On May 6, when departing Tampa Bay, Celi marked this starting point with a cross and his chart names this location as "Point of the Cross" (Ware 1968).

By 1759, the name “Castor” was applied to Egmont Key, a name apparently referring to a Caribbean pirate (Kanaski 1998a). In 1765, the British surveyor George Gauld visited the island and gave it the name Egmont Island, after John Perceval, the second Earl of Egmont, who was serving as the First Lord of the Admiralty. Gauld noted that:

> Egmont Island lies North and south, is about 2 miles long, and better than 1/4 of a mile broad. The North end is highest, being about 6 or 7 feet above high water mark: a bank much of the same height, and about 40 feet broad, runs on the west side next to the sea, almost the length of the whole island, within which there is a valley covered with bushes of different sorts, and various plants that afford an agreeable verdure, though the soil is hardly any thing but sand and shells. There are a few fresh water swamps, but the water is not good [Ware 1982:49]

Gauld also reported that water could be obtained on Egmont Island by digging shallow wells, and he went on to note that, “A small Fort on the North End of the Island would easily command the Entrance of the Harbour [i.e., Tampa Bay then known as Espiritu Santo Bay]” (Ware 1982:53). Kanaski (1998a) states that a shore party from the survey expedition’s principal vessel, the 32-gun frigate H.M.S. *Alarm*, did construct a temporary earthen fort on Egmont Key and armed it with two of the frigate’s guns. However, John Ware (1982), in his detailed discussions on George Gauld’s survey, makes no mention of the construction of a fortification, besides Gauld’s recommendation that one be built.

In 1769, Bernard Romans, the Deputy Surveyor of East Florida, referred to Egmont Key as Castor Key. In 1783, another Spanish pilot, Jose Antonio de Evia, visited Egmont Key, and seems to have given it the name “Cayo de Cruz,” possibly after the cross erected years earlier by Celi (Stafford 1980:21).

American Period, 1821-present

By the end of the eighteenth century, the name Egmont Key, given to the island by George Gauld, seems to have become standard. Despite visits by explorers and surveyors, Egmont Key saw little, if any, settlement before the third decade of the nineteenth century. The island was apparently visited and used by fishermen and, in 1821, the year that the United States acquired East Florida from Spain, two individuals unsuccessfully attempted to homestead the key. In 1837, the United States established a small military depot and observation tower on the island. In 1842, after the end of the Second Seminole War, southern Florida was opened to homesteading. The following year, the land office in present-day Alachua reported that there were settlers on Egmont Key, but the Secretary of War informed the land office that the island was reserved for military use and no grants for settlement were to be allowed (Stafford 1980).

In 1846, because of the island’s ideal position at the bay’s entrance, the United States Congress authorized the construction of a lighthouse on Egmont Key. The lighthouse was built, in part, to accommodate the increased military vessel traffic related to the government’s actions

against the Seminole Indians, but it was also built in light of anticipated commercial traffic at Tampa Bay. In 1847, 15 acres of land at the northern end of the island were reserved by the United States government for the location of the lighthouse, which was completed in May 1848 at a cost of $7,050. However, the lighthouse and the adjacent keeper's home were seriously damaged in September of the same year by one of the worst hurricanes to ever hit the west coast of Florida (Maio et al. 1996). Egmont Key was reportedly covered by over six feet of water by the storm. Although damaged, it appears that the lighthouse was soon repaired and put back into service. However, in 1852, another storm damaged the structure, nearly causing its collapse. Although extensive repairs were made to the lighthouse and to the keeper's house in 1854, two years later, Congress appropriated $16,000 to rebuild both structures. In 1858, the new lighthouse was completed; it stood 87 feet tall and was equipped with an Argard lamp and a Fresnel lens (Maio et al. 1996). This lighthouse still stands on Egmont Key.

In 1849, several U.S. Army officers surveyed Egmont Key and nearby Mullet Key to assess their military utility. These officers recommended the continued need to retain both islands for military purposes. This action marked the beginning of significant military activity on Egmont Key, which would continue up to World War II.

The Third Seminole War, 1856-1858

During the Third Seminole War (1856-1858), Egmont Key was used as a holding depot for Seminole Indians who had been captured or surrendered and awaited transport to "Indian Territory," west of the Mississippi, in present-day Arkansas and Oklahoma.

Exactly how many Seminole Indians were interned at Egmont Key is unknown, although Stafford (1980) estimates as many as 300 were held there over the course of the war. It is also unknown exactly where the internment encampment was located. Presumably, it was in the vicinity of the lighthouse, which represented some of the highest land on the island and where the few structures on the island were located (Kanaski 1998a). Considering the relatively harsh living conditions on Egmont Key, some of the Seminole captives probably died during their imprisonment, and may have been buried on the island. There were two cemeteries on Egmont Key, one associated with the lighthouse that was in use between the 1850s and 1909 and another associated with Fort Dade that was in use between 1903 and 1912. The specific location of any Seminole burials is unreported; however, the lighthouse cemetery is the most likely location of any Seminole burials (Kanaski 1998a and 1998b).

The Civil War

Just a few years after the end of the Third Seminole War, Egmont Key was involved in activities associated with the Civil War. The key reportedly served as a base for Confederate blockade runners headed for the Caribbean. Sometime before January 10, 1861, George V. Richards, the lighthouse keeper, removed the Fresnel lens from the lighthouse and carried it to Tampa to prevent it from falling into Union hands. Confederate control of Egmont Key was short-lived. In July 1861, United States Navy forces captured the island and it became a base of operations for the East Gulf Blockading Squadron. A number of structures were built near the lighthouse, some of which were used to house Confederate prisoners. By 1863, the island had

become a haven for Union sympathizers who had been driven from their homes, plus upwards of 200 escaped slaves, or "Contrabands," were encamped on the island, awaiting transport out of the area (Kanaski 1998a; Maio et al. 1996).

The Union Navy used Egmont Key as a staging ground for raids against the Florida mainland and to control blockade running. In May 1864, forces from Egmont Key and ships of the blockade participated in a joint army-navy assault on Tampa. Soldiers and sailors sacked the town, driving out the Confederates and capturing "artillery pieces, mail, and money" (Coles 1992:52-54). During this attack, some of the lens pieces from the Egmont Key Lighthouse were discovered in Tampa, but not enough to put the lighthouse back into operation.

After the Civil War, Egmont Key was quiet and almost deserted until the Spanish American War in 1898. The principal residents on the island from 1866 to 1898 were the lighthouse keepers and their families. In 1872, a depot was established on the island to provide maintenance and storage for the buoys used in Tampa Bay. In addition, a coal shed was constructed to store fuel for U.S. Lighthouse Service buoy tenders; by 1889, almost all of the buoys between St. Mark's and Key West were serviced on Egmont Key (Maio et al. 1996).

In 1882, Egmont Key and nearby Mullet Key were officially set aside as U.S. military reservations. In the summer of 1887, a United States Marine Hospital Service facility was established on Egmont Key, following a serious yellow fever epidemic in Key West. By August 1887, there were thirty patients at the hospital, but, by 1888, Florida was clear of yellow fever and the hospital not needed (Stafford 1980).

In 1888, the Tampa Bay Pilots' Association was established, and ships entering Tampa Bay stopped near Egmont Key to take pilots aboard. In 1912, the federal government leased a five-acre tract on the southeastern side of the island where facilities were built for the pilots' use (Maio et al. 1996). This tract is still utilized by the Tampa Bay Pilots' Association. Prior to 1912, the pilots may have stayed at the lighthouse and keeper's cottage; however, several maps depict buildings at the current pilots' lease area by 1897 (Kanaski 1998a; University of Alabama 2007).

The Spanish American War and Fort Dade, 1898-1921

The Spanish American War initiated the greatest military build-up seen on Egmont Key, resulting in the construction of several large gun batteries and numerous support structures. The stimulus for this military development was the great fear of foreign invasion that spread through coastal Florida in the months before the Spanish American War broke out in late April 1898. Tampa residents were especially fearful and lobbied for fortifications on Egmont Key and nearby Mullet Key. Coastal artillery batteries were constructed on both islands to protect Tampa Bay, although none were completed before the end of the war with Spain, and none of the guns have ever been fired at an enemy. When construction of the coastal batteries was begun on Egmont Key in 1898, the station was known as the United States Military Reservation at Egmont Key. In 1900, the military fortifications and other facilities on the island were named Fort Dade, in honor of Major Francis L. Dade, who suffered the loss of most of his command by Seminole Indians in 1835 (Stafford 1980). Bruce McCall (1996, 1998) has conducted a detailed study of the

establishment and development of Fort Dade and the batteries constructed there, and his work is largely followed here.

Fort Dade with Fort DeSoto, on nearby Mullet Key, were part of what was known as the "Defenses of Tampa Bay," and were elements in a comprehensive system of fortifications established along the seacoasts of the United States in the late nineteenth century. Planning for this defensive system was begun in 1885 under the auspices of a committee appointed by President Grover Cleveland to evaluate America's harbor defenses. Led by Secretary of War William C. Endicott, this nine-man committee, consisting of military men and politicians, known as the "Endicott Board," reported that the United States needed to build or strengthen forts in almost 30 seaport locations. This new defensive system would incorporate long-range guns and mortars mounted in concrete bunkers, plus floating gun batteries, torpedo boats, minefields and rapid-fire guns to protect the minefields. These fortifications would be planned, built, and manned by the United States Army (National Park Service 2004).

In 1888, Congress created the Board of Ordnance and Fortification to test weapons and implement the recommended defensive program. However, the cost of instituting the Endicott Board's recommendations was huge, and the proposed defensive system was mostly unfinished when the possibility of war with Spain emerged in 1898. Tampa was not even one of the original harbor locations considered in the Endicott Board's report; however, in light of the great fear of invasion, it was included in a massive national defense appropriation passed by Congress in March 1898. Under this appropriation, Army engineers were given orders to prepare or complete the necessary seacoast defenses of the country. In March 1898, the Board of Engineers proposed very elaborate fortifications for Egmont Key to include four 10-inch breechloading rifles, seven 6-inch, and six 16-pounder rapid fire guns mounted at fortifications at the north and south ends of the island. In addition, the board recommended fortifications on Mullet Key and Anna Maria Island. However, adequate seacoast artillery was unavailable, and the fortifications finally established on Egmont Key used fewer and smaller guns. In April 1898, Colonel William H. Benyuard of the Corps of Engineers arrived in Tampa to plan and lay out the defensive system. The principal military fortifications planned by Colonel Benyuard consisted of forts located on either side of the harbor's entrance channel: Fort Dade on Egmont Key to the south and Fort DeSoto on Mullet Key to the north.

In late June 1898, prior to the construction of permanent facilities on Egmont Key, a timber and sand siege gun battery was erected at either end of the island to serve in the interim. These batteries were each armed with one 5-inch siege gun and one 7-inch howitzer (McCall 1996). On July 3, shortly after these batteries were erected, the Spanish Navy was destroyed at Santiago, Cuba. Although this eliminated the threat of any invasion of Florida, the construction of the planned fortifications on Egmont and Mullet keys proceeded (McCall 1996).

The final fortifications constructed on Egmont Key consisted of five coastal batteries, three at the north end of the island and two at the south end, all of which were large, heavily strengthened concrete facilities. The three batteries built at the northwestern corner of the island were Batteries Charles Mellon, Guy Howard and James McIntosh, while batteries Burchsted and John Page were constructed at the southern end of the island. Battery Burchsted, at the south end of the island, was the first constructed, and it was completed in December 1898. Battery Burchsted was apparently named for Henry A. Burchsted (also Burchstead), an 1811 graduate of

the United States Military Academy at West Point, a 1st Lieutenant in the 2nd U.S. Infantry, who was killed on November 30, 1813, in fighting with Creek Indians on the Alabama River (Cullom 1891).

Building of the fortifications on Egmont Key required the development of a physical infrastructure to handle the tons of material involved. Initially, a temporary wharf was built at the southern end of Egmont Key, about 600 yards from the Battery Burchsted building site. Construction material brought to the wharf by boat and lighter was carried to the work site by a temporary cable railway. McCall (1996:61) reports that this railway used "strap iron rails, and utilized some truck wheels from the lighthouse buoy dock for dump cars." A rock crusher was built at the construction site, but most of the construction work was conducted by hand.

The construction involved laying a bed of shell on which the cement foundations of the battery were poured. It was reported that three grades of concrete were used in the construction of Battery Burchsted. The main body of the work was built with concrete composed of "1 part cement, 3 parts sand, 3 parts Mullet Key sand, and 5 parts broken stone." The concrete used for "gun platforms and for protection against blast in front of the guns" consisted of "1 part cement, 3 parts sand, [and] 5 parts broken stone mixed with proper proportions of granolithic stone," while the mixture used for pavement consisted of "1 part cement, 3 parts sand" (Report of the Chief of Engineers 1899, in McCall 1998:12). Although the sand and shell used in construction could be obtained locally, the stone and cement were brought by sailing vessels from New York and New Jersey. Throughout the construction of the fortifications on Egmont Key, the builders often faced delays in the receipt of material because of uncertainties of "wind and weather" or because of unavailability. When completed, the Battery Burchsted measured about 215 feet long and 110 feet wide. The side of the battery facing to the southwest, toward the Gulf of Mexico, was arc-shaped. The other batteries built at Fort Dade were similarly constructed and consisted of sand-filled concrete structures, reinforced with steel beams and with thick walls designed to support the guns and protect storage and powder and ammunition rooms. All of the batteries were fitted with cranes, hoists, and/or trolley systems to move and handle ammunition. Beginning in 1901, Battery Burchsted was enlarged to accommodate an additional 3-inch gun.

The second battery constructed on Egmont Key was named "8-Inch Battery Number One" and was designed to hold two 8-inch guns mounted on 15-inch smoothbore Rodman carriages. Ultimately, these carriages were extensively modified to handle 8-inch guns and consisted of granite block carriage pintles "surrounded by a concrete platform that sloped downward," and each carriage was fitted with "two traversing tracks overlapping" (McCall 1996:61). This battery was considered inefficient and was later converted to a rapid fire battery named Battery Charles Mellon that mounted two, 3-inch rapid fire guns, and measured about 145 feet long and 145 feet deep. Battery Mellon was named for Captain Charles Mellon who was killed in fighting with the Seminole Indians on February 8, 1837.

The third fortification constructed at Fort Dade was Battery McIntosh at the northwestern corner of the island. This battery was named after Lieutenant Colonel James S. McIntosh who died on September 26, 1847, of wounds received at the battle of Molino del Rey, Mexico, on May 8, 1847.

Begun in October 1899 and completed in April 1900, Battery McIntosh was designed to replace the old 8-Inch Battery Number One (later named Battery Charles Mellon), and it became

the principal and largest gun emplacement at Fort Dade. Battery McIntosh was fitted with two 8-inch, breech-loading guns mounted on disappearing carriages. These guns could fire a 300-pound shell a distance of 11,000 yards and were manufactured by the Bethlehem Steel Company. When completed at a cost of $118,949.53, Battery McIntosh measured 385 feet long, 145 feet wide, and 20 feet high (McCall 1998).

As at Battery Burchsted, a variety of infrastructure facilities were built to support the work at Battery McIntosh and the other north end batteries. These included a 190 foot long dock with a derrick at the north end of the island and over 1,300 feet of narrow-gauge railroad track extending from the dock to the building site, as well as quarters for workmen and numerous storage buildings (McCall 1998). Subsequently, this railroad track was extended to the southern end of the island to serve the two batteries built there.

Several years after the completion of Battery McIntosh, Battery Guy Howard was constructed nearby. This battery was fitted with two, 6-inch guns on disappearing carriages and measured 260 feet long and about 120 feet wide. Battery Guy Howard was named for Lieutenant Colonel Guy Howard who was killed in action near Arayat in the Philippine Islands on October 22, 1899.

The final battery constructed on Egmont Key was Battery John Page, built at the south end of the island near Battery Burchsted and apparently on the location of the earlier sand and timber fortification. It was the smallest of the batteries on Egmont Key, measuring 145 feet long and 80 feet wide (McCall 1996). Battery Page was named after Captain John Page, another veteran of the Seminole wars (Descendants of Mexican War Veterans 2004; Sequoyah Research Center 2005).

Not long after the completion of Battery Page, the shoreline erosion that has consistently plagued Egmont Key for the past 150 years began to endanger it and adjacent Battery Burchsted. Between 1902 and 1907, erosion so threatened the two batteries that groins and a seawall were constructed to protect them. This effort proved futile, and, today, the remains of the two batteries and the protecting seawall lie several hundred feet offshore in the open waters of the Gulf of Mexico.

The war with Spain was over before any of the batteries on Egmont Key were completed. A 1,000-tent hospital and quarantine station was set up at Fort Dade, and all soldiers returning from Cuba were held there. This seems to have been the fort's only real involvement in the war. It was decided, however, to keep Fort Dade active as a military post and training center. Between 1900 and 1916, over 70 buildings were constructed on Egmont Key to support the military activities. Costing over $494,000, these structures included all manner of service buildings to support the batteries (fire control facilities, aiming towers, magazines, etc.) and to house the troops and their families. In addition, structures and bunkers to store mines and handle mine-laying activities were constructed. Stafford, describing this development, notes:

> A sewer system installed in 1902 drained into Tampa Bay. Cypress cisterns stored water drained from roofs of buildings for drinking purposes. In 1904 six shallow wells and a large storage tank were installed to provide water for bathing and flushing toilets. Work began in 1909 on brick streets and sidewalks. In 1911 an electric generating plant was installed, and by 1912 most buildings had electric lights. An underground cable provided phone service to St. Petersburg. In 1911 the first school was started at Fort Dade and enrolled sixteen students. In addition to

> barracks, lavatories, a bakery, miscellaneous storehouses, mess halls, a guardhouse and other typical installations, Fort Dade also had a thirteen-bed hospital, a morgue, cemetery, movie theater, ice plant, fire station, tennis court, baseball diamond, gymnasium, bowling alley, corral, stable, post office, telegraph, a train, and daily steamer service to Tampa [Stafford 1980:24].

The majority of the buildings constructed at Fort Dade were located on the northern half of Egmont Key (Figure 11). The number of soldiers stationed at Fort Dade prior to World War I ranged from a low of 63, in 1906, to a high of 254, in 1916. Stafford (1980) estimates that with families and children, Fort Dade generally had fewer than about 300 personnel. McCall (1998) and others have collected some information on the various units stationed at Fort Dade. For example, in 1900, Battery A, 1st Artillery Regiment, manned Battery McIntosh, while the 111th Coast Artillery Command Company, formed out of this battery, was stationed at Battery McIntosh from 1901 until being shipped to the Philippines in 1915.

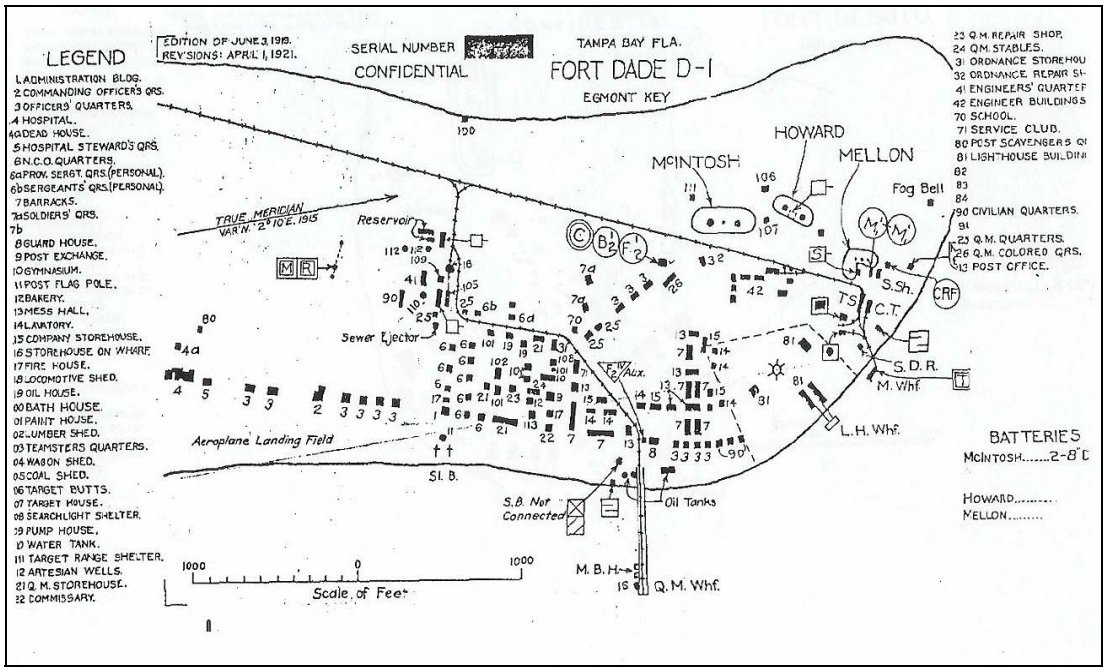

Figure 11. 1919-1921 Corps of Engineers map of the north end of Egmont Key showing the principal buildings associated with Fort Dade (U.S. Army Corps of Engineers 1921).

During World War I, there was some revival of activity on Egmont Key, when Fort Dade was used for the training of National Guard Coast Artillery units. In addition, anti-submarine mine personnel were stationed on the island to protect Tampa Bay from possible submarine attack. During the war, several additional structures were built on the island, including a mine-laying wharf at the north end of the island (Stafford 1980).

By World War I, advances in the science of coastal artillery and fire control technologies made the batteries on Egmont Key obsolete. In 1917, a review by a board of officers concluded that the "capture of Tampa City and neighboring towns would be of no great military value to an enemy;" plus, the guns on Egmont Key were of little use against the longer range guns then being used aboard battleships (McCall 1996:58). Also, some of the guns from Forts Dade and DeSoto were removed to be placed at locations considered more vital. The concrete batteries at Fort Dade were also outdated. McCall (1996:59) writes that:

> The parapets were relatively easy to see, and the ammunition storage rooms were too small. The gun emplacements were not designed to resist plunging fire, nor were the magazine roofs capable of resisting modern artillery. The wooden fire control towers were very fragile.

On August 31, 1921, the fort was deactivated and all of the remaining personnel were transferred to Key West, except for an 18-man caretaking unit (Maio et al. 1996). In 1922, Fort Dade was declared surplus, and, on May 25, 1923, it was abandoned except for a single caretaker, Sergeant Fagan (Maio et al. 1996; McCall 1996). According to McCall (1998), shortly after the fort was deactivated, scrap dealers stripped the batteries on Egmont Key of almost every piece of metal they could find. In 1926, the Secretary of War was authorized to sell the installation. Stimulating the decision to sell the fort were hurricanes in 1921 and 1926 that damaged the already deteriorating facilities. But, in 1929, Egmont Key was "permanently withdrawn from sales on grounds that it was required for coast defense purposes" (in McCall 1996:60). By the 1930s, many of the buildings at Fort Dade had been demolished or were burned down (Stafford 1980). At this time, a small detachment of the United States Coast Guard was kept on Egmont Key to man the lighthouse, but they also used the island as a small arms' practice range (McCall 1996).

Egmont Key, Post-1921

Although Fort Dade was largely abandoned after World War I and deactivated in 1921, Egmont Key was not sold, and it remained property of the U.S. government. During World War II, the fort, again, saw use. Egmont Key served as a harbor patrol station, and as a location to store ammunition removed from vessels entering Tampa Bay. The island was also used for amphibious warfare training and aerial gunnery exercises. Detachments from the Army and the Navy joined the small number of Coast Guard servicemen on Egmont Key. A number of new buildings were constructed on the island during World War II to support the patrol and training activities conducted there (Stafford 1980).

Following World War II, Egmont Key was largely abandoned, except for a small contingent from the U.S. Coast Guard, who tended the lighthouse and a radio beacon for guiding aircraft, and the Tampa Bay pilots who used their compound on the southeastern side of the island. In 1974, all of Egmont Key, except for the lighthouse compound and the pilots' compound, was declared a National Wildlife Refuge under the management of United States Fish and Wildlife Service (FWS). The FWS owns the acreage from a line that runs east to west and located 625 feet south of the Lighthouse Tower, which is located on the Key's north end. The U.S. Coast Guard owns the acreage north of this line, including the 15-acre Lighthouse Reservation and the three northern batteries. The Tampa Bay Pilots' Association owns a five-acre tract on the Key's east shore and leases an additional five acres from the FWS. In 1979, Fort Dade-Egmont Key was placed on the National Register of Historic Places. In 1990, the FWS, the U.S. Coast Guard, and the State of Florida negotiated a management agreement that created Egmont Key State Park. The park's land base centers on the northern end of the island that includes all of the Coast Guard's acreage and a portion of the National Wildlife Refuge (McCall 1996; Stafford 1980).

Historic Transportation Network

The majority of the structures built on Egmont Key were related to the development of Fort Dade. These included the five gun emplacements, numerous support structures and facilities, docking facilities, a railroad, and numerous buildings to house and serve the servicemen and their families living on the island. Most of the construction on the island ended by World War I, although a few facilities were built during World War II. By the 1970s, when the island became a National Wildlife Refuge, most of these buildings had been purposefully demolished or had disintegrated. Many of the structures formerly located on Egmont Key stood on portions of the island that have been entirely eroded away and now exist as open water (Figure 12). In addition, the positions of some structures are now located along the actively eroding beach of Egmont Key.

The Fort Dade brick road on Egmont Key was constructed between 1904 and 1909 from Copeland-Inglis bricks from Birmingham, Alabama. The sand was first compacted where the brick road would be laid, then the bricks were placed on edge and grouted with cement (Kanaski 1998a).

Most of the narrow-gauge railroad constructed to move supplies, coal, and munitions is now located in open water, as are a cluster of small structures located northwest of Battery Burchsted.

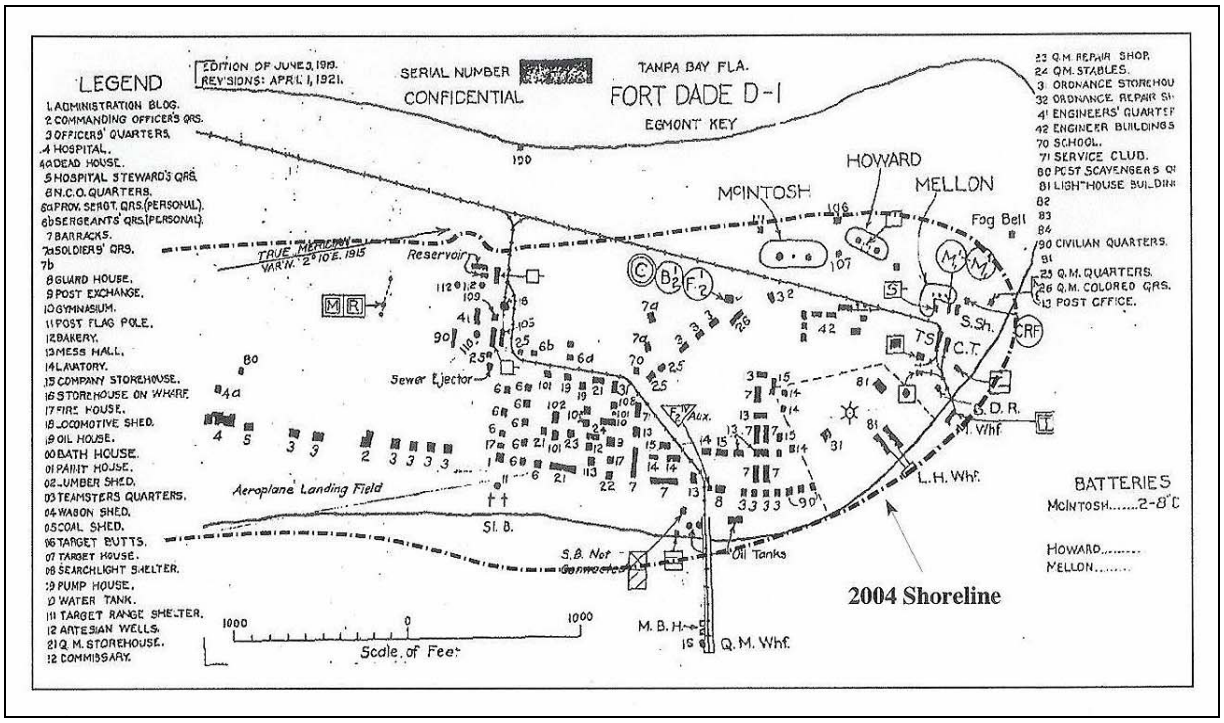

Figure 12. 2004 shoreline of Egmont Key overlaid on detail of 1919-1921 Corps of Engineers map showing the structures at Fort Dade at the northern end of the island (U.S. Army Corps of Engineers 1921; USGS 2004).

RESEARCH DESIGN

The current investigation involved mapping the remains of the Fort Dade historic transportation network on Egmont Key and the excavation of five 1-x-0.5-m test units to examine construction techniques associated with the brick road.

Procedures for Unexpected Discoveries

The majority of Egmont Key is owned by the U.S. Government, with the exception of the Tampa Bay Pilots Association tract. The northern portion of the island, although operated by the Florida State Parks, is owned by the Bureau of Land Management; the rest of the key is owned by the U.S. Fish &Wildlife Service. The Native American Grave Protection and Repatriation Act (NAGPRA) supersedes Chapter 872.05 of the Florida Statutes. In the event of the discovery of human skeletal remains and/or associated funerary objects, the Refuge Manager and the Refuge Federal Law Enforcement Officer (FLEO) will be contacted immediately. The Refuge Manager will then contact the U.S. Fish & Wildlife Service's Regional Historic Preservation Officer/Regional Archaeologist (RHPO/RA). The Refuge FLEO will contact the County Medical Examiner, who will ascertain whether the skeletal remains are part of a crime scene. If so, then jurisdiction and control will be turned over to the pertinent federal, state, and/or local law enforcement agencies. If deemed to be an unmarked Precolumbian or historic period burial, then the RHPO will consult the State Archaeologist and, if necessary, the NAGPRA contacts for the Miccosukees, the Seminole Tribe of Florida, the Seminole Nation, the Poarch Band of Creek Indians, and the Muscogee (Creek) Nation. The State Archaeologist, the tribal representatives and the RHPO will provide technical advice to the Refuge for the treatment of the unmarked burial that may include, but is not limited to, the development and implementation of a site treatment plan to protect the burial location during future management actions, an assessment of the site damage, and analysis and subsequent disposition of any recovered human skeletal remains and funerary objects.

METHODS

Background Research

General and specific documentary records were consulted to determine the importance of the archaeological material recovered during field investigations. Specific documentary records examined included local histories, historic maps, and previous research. Background and archival research efforts were designed to provide a comprehensive cultural overview of the project area. These research efforts supported fieldwork and provided a foundation and cultural/historical context to aid the analysis and understanding of recovered artifacts. The interplay between documentary records and archaeological data contributes significantly to the identification and clarification of site boundaries, augments relevant historic contexts to understand the study area, and allows for an assessment of the placement of the site within local and regional chronologies.

Field Methods

Historic Transportation Network Mapping

A Topcon GTS-226 Electronic Total Station was used to take 3,752 points to map the brick and concrete roads, concrete sidewalks (Figure 13), entrances, ramps, extant portions of the railroad (figures 14 and 15), and other relevant features associated with the Fort Dade transportation network (i.e., helicopter pad) (Figure 16) to create the base map. When possible, areas where former portions of the transportation network stood (i.e., the railroad, the majority of which was removed from the island in the early 1920s [McCall 1996, 1998] were investigated and mapped (see Figure 12). Portions of the brick road and concrete entrances covered in dense vegetation were also mapped when possible. The base maps of the historic transportation network created from this fieldwork are located in Appendix E.

Damage to the brick road was mapped and photographed. Three types of damage were recorded: patches (areas where the brick was covered in cement) (Figure 17), slumps (dips in the brick road) (Figure 18), and voids (areas of missing brick) (Figure 19). According to Florida Park Service (FPS) personnel (Watson 2006), damage to the road was caused mainly by heavy trucks used on the island after 1921. The U.S. Coast Guard patched some of the damage in the 1950s. Areas where the Florida Park Service had recently repaired the road by cementing bricks back into place (Watson 2006) were not recorded, as it was evaluated as not being damaged.

Figure 13. Concrete sidewalk that runs parallel to Palmetto Avenue near the eastern shoreline. Photograph taken facing south.

Figure 14. Photograph of an extant portion of the railroad track that led to the former location of the Quartermaster's Wharf on the eastern coast of the island, taken facing east.

Figure 15. Photograph of the railroad supports located immediately north of the former coal shed, taken facing east.

Figure 16. Photograph of the helicopter pad, taken facing southwest.

Figure 17. Photograph of typical patch found on the brick road.

Figure 18. Photograph of a typical slump in the brick road.

Figure 19. Photograph of a typical void found on the brick road, with a portion of the railroad visible in the background.

In addition, various points throughout the site were assigned UTM coordinates using a handheld GPS unit with Wide Area Augmentation System (WAAS) correction, set to NAD 83. Typical WAAS position accuracy is within three meters (9.8 ft.). UTM coordinates were taken from recorded datum points, intersections throughout the island, former railroad routes, and particular landscape features that might aid in the estimation of above mean sea level (amsl) elevations through comparison with the published topographic map.

Excavation of Test Units

Formal test units were excavated to explore and record techniques used to construct the historic brick road found on Egmont Key. Test units were placed within areas exhibiting the best potential for the recovery of significant data, based on the integrity of the brick road and its location near the ruins of historic structures.

Test units were excavated in arbitrary 10-cm (4-in.) levels. Due to the fact that stratigraphic breaks generally appeared gradually and were difficult to discern except in profile, level breaks were not made at natural stratigraphic breaks. All levels were excavated by hand with the use of trowels and shovels. Shoveling techniques included scraping the unit floors to remove soil a few centimeters at a time. The methodology called for the individual recording, photography, excavation, and content analysis of cultural features. Test unit profiles were drawn and photographed, with strata recorded by reference to Munsell soil colors. All excavated soils were dry screened through ¼-in. (0.64-cm) hardware cloth.

Separate provenience data was recorded for each unit by level. Test units were excavated past the bottom of the concrete curb associated with the majority of the brick road, or until no cultural material was recovered and the level was deemed sterile. All five test units measured 1-x-0.5-m (3.3-x-1.6-ft.) in size.

General Field Procedures

Some of the more general aspects of the field procedures implemented are outlined here. Standardized unit logs, level forms, feature forms, and photo logs were maintained throughout the project. Profile drawings were made to illustrate each excavation unit. High-resolution digital photographs were taken to illustrate each excavation unit, as well as general field conditions prior to and during fieldwork. Artifacts and ecofacts recovered were segregated by provenience (level and stratum) and bagged accordingly. All field measurements were made in metric terms. An FMSF survey log sheet and updated archaeological site form for 8HI117 were completed and submitted to the DHR (Appendix C). Tom Watson of the Florida Park Service made himself available for interview concerning any questions about Egmont Key and the historic transportation network (Watson 2006). All project maps, notes, records, and photographs are on file at PCI under accession number 26376.

Laboratory Methods

Field specimen (FS) numbers were assigned to each recovery provenance in the field. Artifacts recovered during the survey were returned to the laboratory of PCI, Tampa, Florida, for

processing. All artifacts that appeared sufficiently stable were washed and allowed to air dry. Once dry, the artifacts were separated into material types for analysis. Once the analysis was complete, the materials were then re-bagged in four-millimeter polyvinyl bags. Laboratory analysis was conducted by Dr. Anna Dixon, Ph.D., RPA, laboratory director. Material recovered included historic artifacts, faunal material, invertebrate remains, and natural material.

Vertebrate Faunal Materials

Non-shell faunal materials, such as animal bone, fish bones, and the carapaces of tortoises and turtles, are identified to the lowest taxonomic level possible (genus, species, or group; e.g. *Alligator mississippiensis*, Tetrapoda, or merely unidentified mammal). Elements are counted and weighed, and, if possible, a minimum number of individuals (MNI) is calculated in order to understand how the number of fragments relate to the actual number of individuals represented in the archaeological record.

Invertebrate Remains

Shells are divided into artifacts (possible tools, ornaments, etc.) and natural material (i.e., discard related to food procurement and processing). Taxon, possible function and relevant modifications are typically noted for shell artifacts. Natural shell is identified to the lowest taxonomic level possible (genus, species, or group; e.g. coquina, *Donax* spp.). Shells are counted and weighed, and, if possible, a minimum number of individuals (MNI) is calculated in order to understand how the number of fragments related to the actual number of individuals represented in the archaeological record.

Historic Artifacts

All historic artifacts are recorded according to material, count, and weight. Any distinguishing maker's marks are recorded and researched when present on historical materials. Historic artifacts are sorted and analyzed according to functional/ historic groups, following South's (1977) classification system. These groups include activities, architectural materials, arms, kitchen, personal, furniture and indeterminate. Some researchers add a tobacco category for smoking-related artifacts, although no smoking-related artifacts were recovered from this portion of 8HI117.

Examples of items that fall into these different groups include:

activities: coal, burned coal (a.k.a. "clinkers") and items related to technology;
architectural: nails, mortar, bricks, window glass;
arms: bullets, cartridge casings, gun parts;
kitchen: glass from bottles and jars, ceramics, food remains;
personal: items of clothing and adornment;
furniture: house furnishings, including items such as lamp chimney glass or lamp shades;
indeterminate: very fragmentary, corroded or unclassifiable materials

Laboratory Documentation

Standardized forms were used to record data concerning recovered cultural materials. This effort was geared toward the compilation of tabular summaries of recovery (i.e., Excel spreadsheets). All pertinent information including sample type, catalog numbers assigned, date of analysis, and initials of analysts are recorded on these forms. As analysis proceeds, summary tables are generated to provide data on diagnostic and other pertinent material recovered. This provides rapid access to cultural, temporal, and, in particular cases, functional information, thus aiding in interpretations. Eventually, all material recovered was tabulated by specific provenience. These data are presented by site, intrasite provenience, and analytical class.

During laboratory analysis, materials were catalogued in the following manner. Materials were grouped into lots by artifact type and provenience. Thus, materials from a single unit and level were grouped together into lots based on size, material, and other key classification distinctions and were provided sequential lot numbers within that particular provenience. Lot numbers were provided in catalog records and on bags and bag labels.

Materials were bagged by lot number in appropriately sized, four-millimeter polyvinyl bags with ziplock closures. Labels composed of provenience information, FS numbers, and lot numbers were produced on acid-free, archival quality paper and placed within each bag. In addition, the same provenience information, FS numbers, and lot numbers were written on the bags themselves using permanent ink markers. The individual lot bags were then placed in larger, 4-mm, polyvinyl bags with ziplock closures by individual provenience. Written on the outside of these bags with permanent ink were the FS number, provenience information, and the lot numbers included within the bag (e.g., lots 1-4 for a bag containing four individual lot bags).

Curation

Laboratory analysis was conducted by Anna Dixon, Ph.D. The artifacts recovered during this survey and the laboratory analysis forms will be returned to the Bureau of Archaeological Research in Tallahassee, Florida, as per the conditions of the FDHR Archaeological Research Permit. The Florida Division of Historical Resources Bureau of Archeological Research Collections Guidelines will be followed and serves as the curation plan for this project (Appendix D).

RESULTS OF LIMITED PHASE II TESTING (8HI117)

Test Unit Excavations

Five test units, each measuring 1-x-0.5 m, were excavated along the historic brick road (Figure 20). The main goal of these test units was to identify and examine the construction techniques associated with the brick road, hence the small size of the units and limited artifact assemblage recovered. Test units were excavated until sterile soil was reached. A total of 454 artifacts, weighing a total of 2,437.39 grams (g), was recovered from the test units excavated at site 8HI117 (Table 2).

Test units were excavated adjacent to former building location sites along historic transportation routes on the islands (Figure 21): one by Barracks No. 12, constructed in 1899 (Figure 22); one in front of the 1900 bakery (figures 23 and 24); one in front of the 1909 gymnasium (later used as a rifle range) (figures 25 and 26); one in front of Storehouse No. 43, which was formerly used as a pump and ice house with cold storage, dating to 1908 (figures 27 and 28); and one across the street from the hospital, which dates to 1899 (figures 29 and 30). A wide variety of archaeological materials was recovered. Although the most common materials found were construction materials related to the buildings themselves, each unit contained artifacts that reflected the unique nature of the activities carried out at each location. No prehistoric artifacts were identified: all materials found derive from historic activities on the island. The discussion below is organized by test unit and, if relevant, levels within test units. An inventory of all materials recovered from this project can be found in Appendix B.

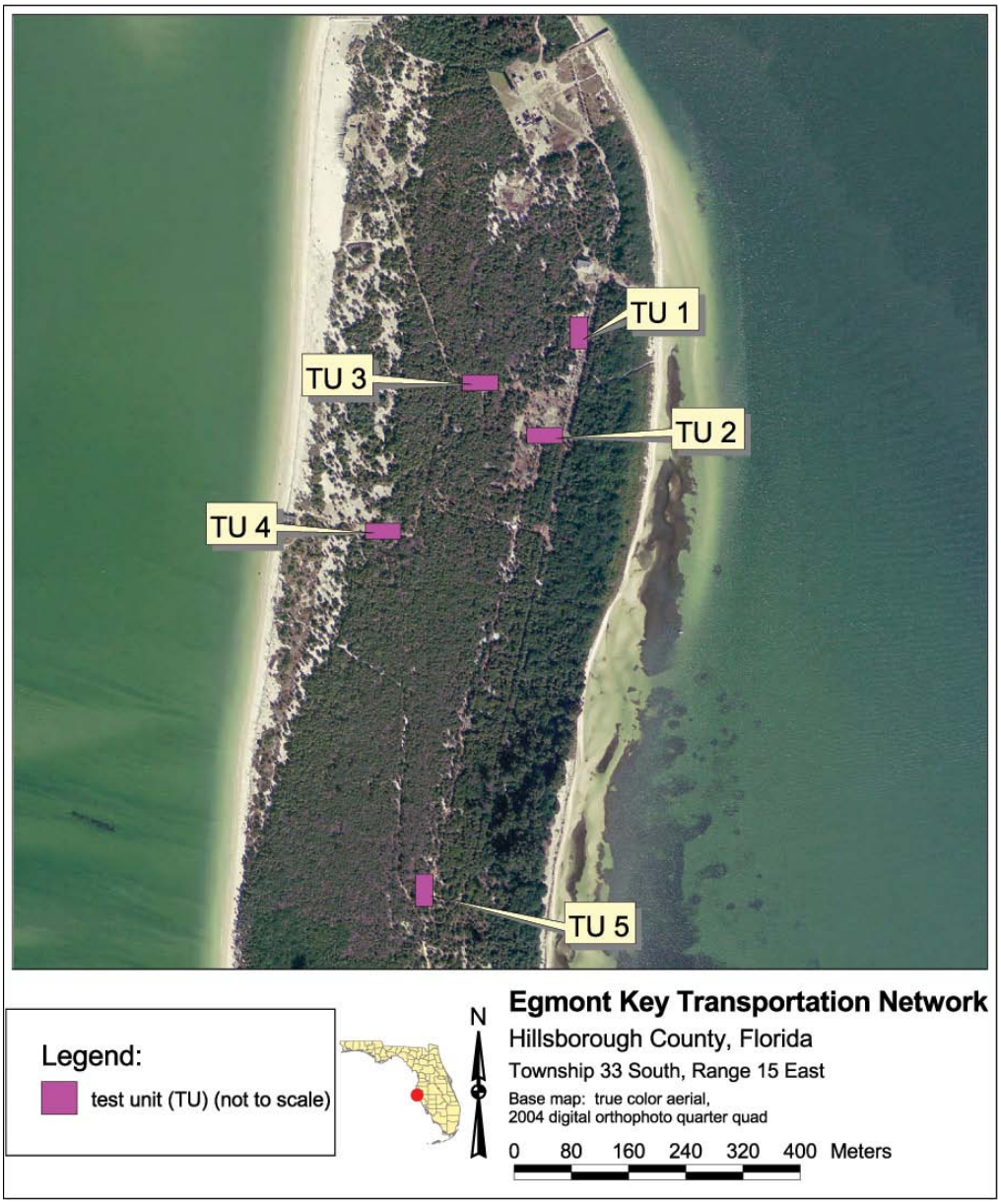

Figure 20. Aerial orthophoto (2004) showing the locations of test units at archaeological site 8HI117.

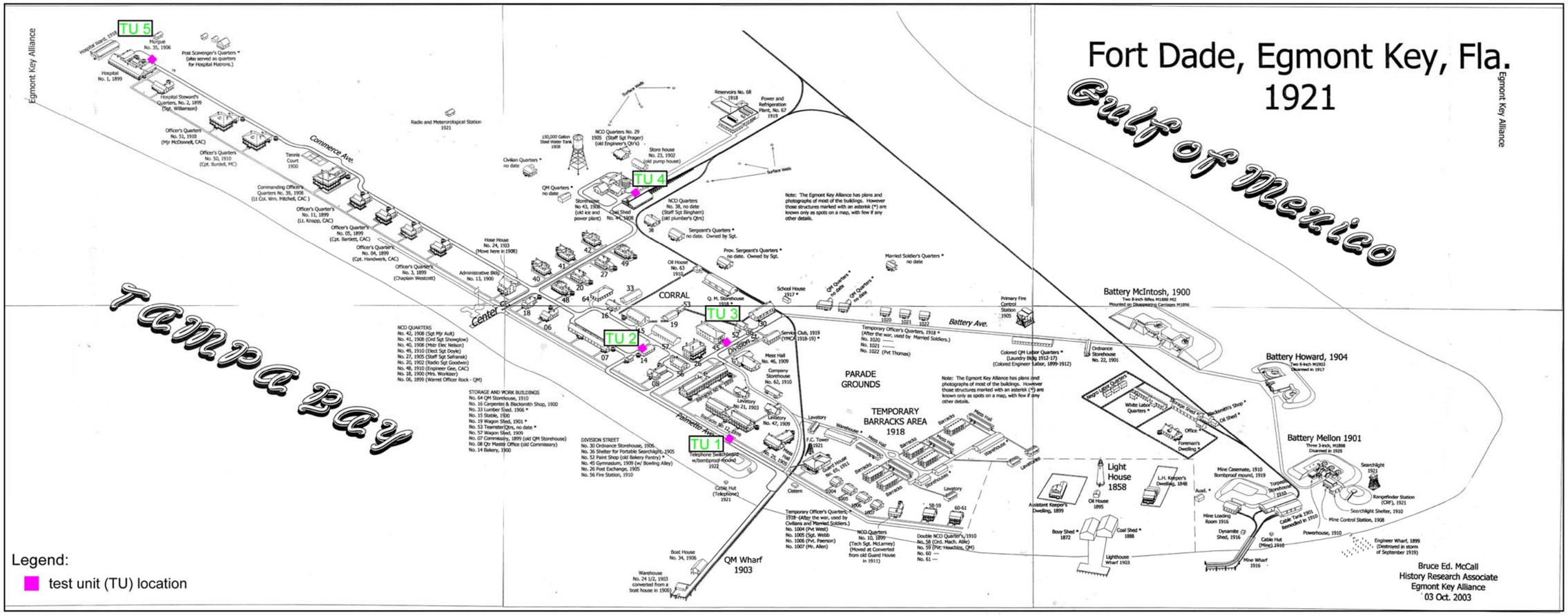

Figure 21. Map of Fort Dade, Egmont Key, Florida in 1921 (McCall 2003) showing the location of test units.

The most common category of historic materials was architectural remains (65.6 percent was brick, mortar, slate, window glass, nails, etc.), undoubtedly related to the demolition of much of the military base early in the twentieth century. Bottle glass and other kitchen-related materials were the next most common group of artifacts, comprising 9.7 percent of all materials by count. Most of this material was concentrated near the bakery (TU 2) and the gymnasium area (TU 3). Cartridge casings and bullets comprised 5.3 percent of all remains, and were concentrated exclusively near the former gymnasium, which was later converted to a firing range (TU 3). Materials classed as "indeterminate" comprised 13.7 percent of all materials, and were largely pieces of corroded metal or small pieces of glass; a high percentage of the indeterminate material derived from the test unit placed by the old bakery, and much of this metal is likely from cooking stoves or utensils. There were only a few items recovered from the personal and furniture categories.

Figure 22. Photograph of the former location of Barracks No. 12, taken facing west.

Figure 23. Photograph of the Fort Dade Bakery taken ca. 1921-1925. Courtesy of the USF Libraries Digital Collections (2006).

Figure 24. Photograph of the remains of Fort Dade Bakery as it looks today, taken facing north-northwest.

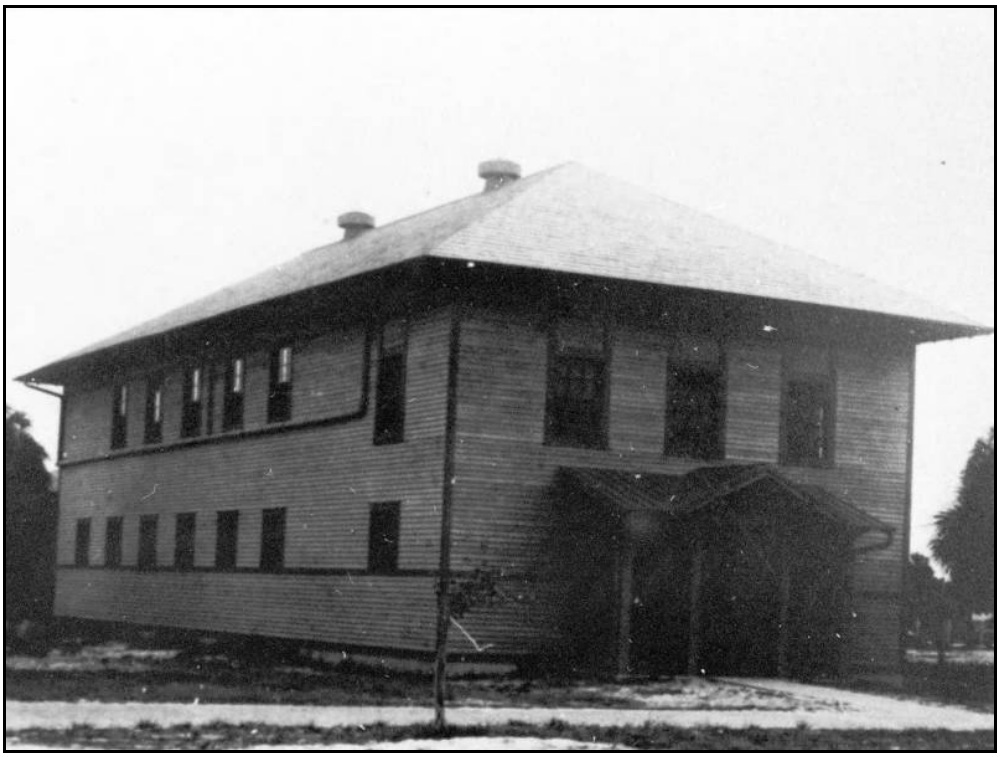

Figure 25. Circa 1921 to 1925 photograph of the Fort Dade Gymnasium. Courtesy of the USF Libraries Digital Collections (2006).

Figure 26. Remains of the Fort Dade Gymnasium foundation. Photograph taken facing southwest.

Figure 27. 1925 photograph of the Fort Dade Pump House with Ice House and Cold Storage. Courtesy of the USF Digital Collections (2006).

Figure 28. Photograph of the remaining foundation of the Fort Dade Pump House, taken facing southwest.

Figure 29. Fort Dade Hospital, photograph taken ca. 1910 – 1918. Courtesy of the USF Libraries Digital Collections (2006).

Figure 30. Former location of the Fort Dade Hospital. Photograph taken facing east.

Table 2. Counts/Percentages of Artifacts from 8HI117 by Test Unit and Historic Group.

	ACTIVITIES			ARCHITECTURE			ARMS			FURNITURE			KITCHEN			PERSONAL			INDET.			TOTAL	
TEST UNIT	**(n)**	**% GRP***	**% TOT**	**(n)**	**% GRP***	**% TOT**	**(n)**	**% GRP***	**% TOT**	**(n)**	**% GRP***	**% TOT**	**(n)**	**% GRP***	**% TOT**	**(n)**	**% GRP***	**% TOT**	**(n)**	**% GRP***	**% TOT**	**(n)**	**(%)**
1: BARRACKS (1899)	3	16.7%	0.7%	101	33.9%	22.2%	0	0.0%	0.0%	1	16.7%	0.2%	3	6.8%	0.7%	0	0.0%	0.0%	6	9.7%	1.3%	**114**	**25.1%**
2: BAKERY (1900)	12	66.7%	2.6%	102	34.2%	22.5%	0	0.0%	0.0%	2	33.3%	0.4%	5	11.4%	1.1%	0	0.0%	0.0%	39	62.9%	8.6%	**160**	**35.2%**
3: GYM/ RIFLE RANGE	1	5.6%	0.2%	24	8.1%	5.3%	24	100.0%	5.3%	2	33.3%	0.4%	29	65.9%	6.4%	2	100.0%	0.4%	12	19.4%	2.6%	**94**	**20.7%**
4: STOREHOUSE/ICE/ POWER (1908)	2	11.1%	0.4%	58	19.5%	12.8%	0	0.0%	0.0%	1	16.7%	0.2%	1	2.3%	0.2%	0	0.0%	0.0%	5	8.1%	1.1%	**67**	**14.8%**
5: HOSPITAL (1899)	0	0.0%	0.0%	13	4.4%	2.9%	0	0.0%	0.0%	0	0.0%	0.0%	6	13.6%	1.3%	0	0.0%	0.0%	0	0.0%	0.0%	**19**	**4.2%**
TOTAL	**18**	**100.0%**	**4.0%**	**298**	**100.0%**	**65.6%**	**24**	**100.0%**	**5.3%**	**6**	**100.0%**	**1.3%**	**44**	**100.0%**	**9.7%**	**2**	**100.0%**	**0.4%**	**62**	**100.0%**	**13.7%**	**454**	**100.0%**

* % GRP = percentage of historic group total; % TOT = percentage of site total

Test Unit 1

Test Unit (TU) 1 measured 1-x-0.5-m, was oriented north-south, and was placed in the northeastern portion of site 8HI117, directly to the west of the brick road in front of Barracks No. 12, which was constructed in 1899 (see Figure 21). This location was chosen to examine the construction techniques of the road, but also to find artifacts associated with the barracks. The UTM coordinates for the datum in the southwest corner are Zone 17, Easting 326345 and Northing 3053883 (NAD 83).

The excavation of TU 1 revealed four soil strata (figures 31 to 34). Stratum I consisted of very dark brown (10YR 2/2) very fine sand to a depth of 22 cm below datum (cmbd) (9 inches below datum [9 inbd]). Stratum II consisted of light gray (10YR 7/1) fine sand from 22 to 70 cmbd (9 to 26 inbd). Stratum III consisted of light brownish gray (10YR 6/2) fine sand that also extended from 22 to 70 cmbd (9 to 26 inbd). Stratum IV consisted of light gray (10YR 7/2) fine sand with heavy beach shell extending from 70 cmbd (26 inbd) to the base of the unit at 75 cmbd (30 inbd). Stratum III within the north wall of the test unit appears to have been previously excavated. This most likely occurred when the area was dug out to allow for the placement of the concrete curb when the brick road was being constructed (see Figure 32). The unit was excavated in 10-cm (4-in) arbitrary levels to a depth of 75 cmbd (30 inbd). Excavation of the unit was stopped after sterile sand with beach shell was reached at 70 cmbd (28 inbd). The east wall of the test unit, directly adjacent to the brick road, revealed a concrete curb that extended from the ground surface (15 cmbd [5 inbd] to 62 cmbd [24 inbd]), obscuring strata I through III within the wall profile. Stratum IV consisted of light gray (10YR 7/2) fine sand with heavy beach shell and was revealed at the base of the east wall, below the level of the concrete curb. Historic artifacts were recovered from strata I through III from 0 to 65 cmbd (0 to 26 inbd). Stratum IV was sterile of cultural material.

Figure 31. Photograph of the north wall of T.U. 1, taken facing north-northeast.

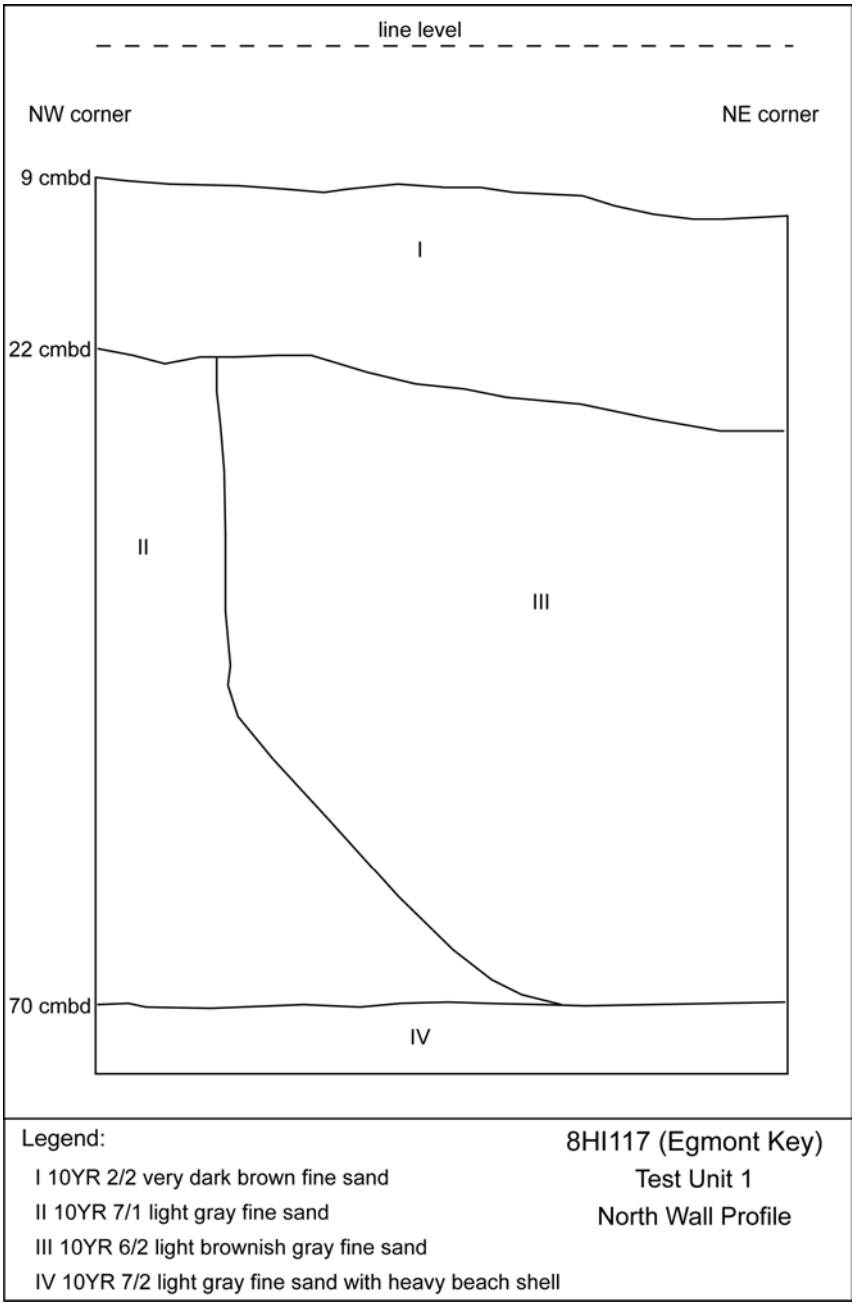

Figure 32. Sketch map of the north wall profile of Test Unit 1.

Figure 33. Photograph of the east wall of Test Unit 1, taken facing east-southeast.

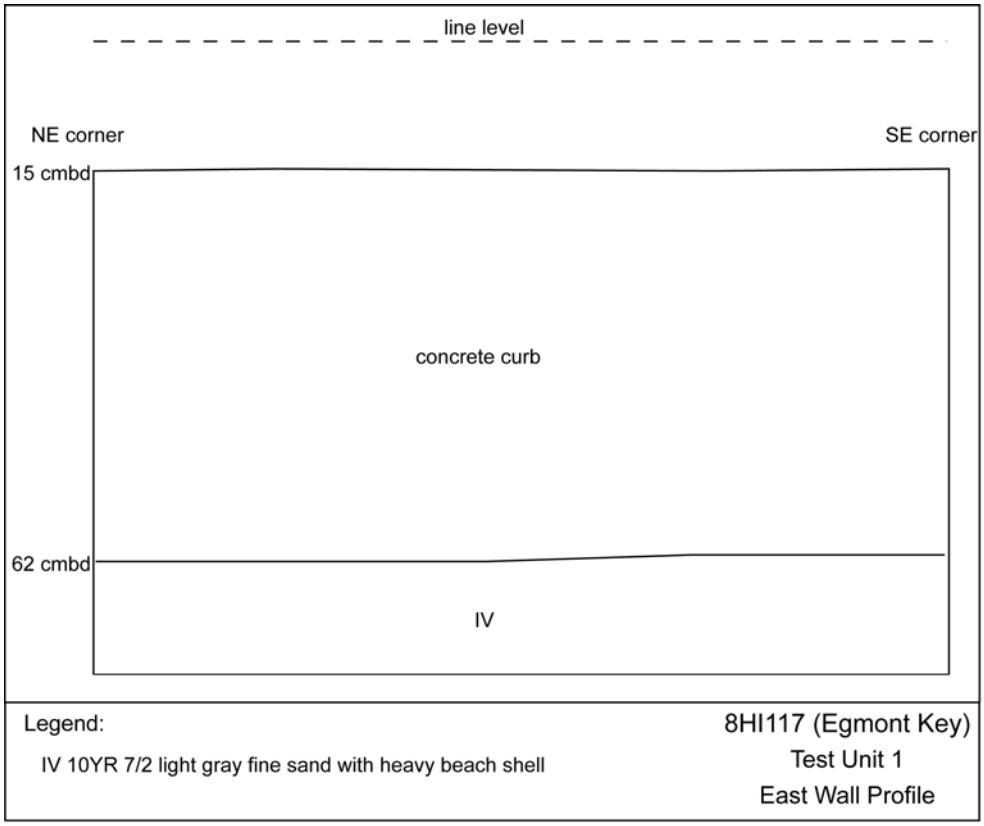

Figure 34. Sketch map of the east wall profile of Test Unit 1.

A total of 114 artifacts, weighing 470.91 g, was recovered from this test unit (Table 3). A variety of materials, primarily architectural materials such as brick, nails, window glass, slate and mortar fragments, were recovered from this unit. This material was distributed from the upper levels all the way to the base of the unit in Level 5. The architectural materials recovered are consistent with the construction and use of the barracks. Large, angular pieces of gravel were also recovered; these were probably components of mortar for building construction. The 1899 Report of the Chief of Engineers (in McCall 1998:12), noted that the foundations and supports for gun emplacements at Battery Burchsted were made of a mixture of "1 part cement, 3 parts sand, [and] 5 parts broken stone mixed with proper proportions of granolithic stone," adding that the this stone was brought to the island by ship from New York and New Jersey. It is likely that this mixture was employed in other construction projects on the island as well, and erosional processes wore away the cement and sand, leaving a large amount of gravel. Mortar was used in nearly all construction projects on the island, as the majority of the buildings had brick piers that had been mortared together. None of the brick fragments bore makers marks, which would have allowed them to be identified and assigned a date of manufacture (Gurke 1987).

In addition to the architectural materials, a single fragment of turtle bone, which could represent food debris, was recovered. Several metal objects, including a brass tab and a perforated lead weight, as well as several fragments of bottle glass, were also found. No artifacts that were representative of other historic groups, such as arms or personal items, were identified in this unit.

Table 3. Artifacts recovered from Test Unit 1.

FS	STRATUM	LEVEL	CMBD	ITEM	(n)	%	(g)	% I	DESCRIPTION
1	I	1	0-15	slate	2	1.8%	1.85	0.4%	
1	I	1	0-15	brick	1	0.9%	10.36	2.2%	no marks
1	I	1	0-15	rock/gravel	1	0.9%	9.37	2.0%	
2	I	2	15-25	brick	3	2.6%	2.76	0.6%	no marks
2	I	2	15-25	gravel	19	16.7%	56.43	12.0%	
2	I	2	15-25	slate tile frag	1	0.9%	0.37	0.1%	
2	I	2	15-25	glass, bottle, clear	1	0.9%	2.30	0.5%	flat-fronted ; no marks
2	I	2	15-25	lead weight	1	0.9%	63.20	13.4%	flat disc w/hole; 23.9 (.94")/diameter
2	I	2	15-25	metal frags UID	4	3.5%	2.47	0.5%	
2	I	2	15-25	charcoal, wood	1	0.9%	0.05	0.0%	
3	I/II	3	25-35	coal	1	0.9%	6.45	1.4%	
3	I/II	3	25-35	brick	3	2.6%	4.94	1.0%	
3	I/II	3	25-35	mortar	2	1.8%	6.50	1.4%	
3	I/II	3	25-35	gravel	19	16.7%	71.96	15.3%	
3	I/II	3	25-35	glass, aqua, window	2	1.8%	8.22	1.7%	no marks
3	I/II	3	25-35	bone, carapace, Testudines	1	0.9%	0.87	0.2%	cf. *Gopherus polyphemus*
3	I/II	3	25-35	glass, clear, bottle	1	0.9%	1.56	0.3%	no marks
4	II	4	35-45	clinker	1	0.9%	0.11	0.0%	
4	II	4	35-45	nail frag., corroded	1	0.9%	1.55	0.3%	11.4 (.44") X 8.6 (.33") X .3 (.01") mm
4	II	4	35-45	gravel	11	9.6%	47.33	10.1%	
4	II	4	35-45	glass, aqua,window	2	1.8%	2.16	0.5%	no marks
4	II	4	35-45	metal tab, flat	1	0.9%	0.47	0.1%	

FS	STRATUM	LEVEL	CMBD	ITEM	(n)	%	(g)	% I	DESCRIPTION
5	II/III	5	45-55	brick	3	2.6%	10.43	2.2%	
5	II/III	5	45-55	gravel	9	7.9%	23.43	5.0%	
5	II/III	5	45-55	mortar	5	4.4%	22.52	4.8%	
5	II/III	5	45-55	nails, corroded	2	1.8%	16.26	3.5%	fragments
5	II/III	5	45-55	nails, corroded	1	0.9%	15.15	3.2%	85.9 (3.38") mm/length
6	II/III	6	55-65	brick frags	3	2.6%	19.61	4.2%	
6	II/III	6	55-65	mortar frags	5	4.4%	36.73	7.8%	
6	II/III	6	55-65	gravel	3	2.6%	19.37	4.1%	
6	II/III	6	55-65	glass, aqua, window	3	2.6%	4.87	1.0%	no marks
6	II/III	6	55-65	glass, thin	1	0.9%	1.26	0.3%	thin glass; not bottle glass; maybe a glass shade; no marks
TOTAL					**114**	**100.0%**	**470.91**	**100.0%**	

Test Unit 2

Test Unit (TU) 2 measured 1-x-0.5 m, was oriented east-west, and was placed in the northeastern portion of site 8HI117, directly to the north of the brick road in front of the 1900 Bakery (see Figure 21). This location was chosen to examine the road construction techniques and possibly find materials related to the bakery. The UTM coordinates for the datum in the southwest corner are Zone 17, Easting 326264 and Northing 30553746 (NAD 83).

Excavation of TU 2 revealed three soil strata (figures 35 through 38). Stratum I consisted of very dark gray (10YR 3/1) very fine sand from a depth of 10 to 14 cmbd (4 to 6 inbd). Stratum II consisted of gray (10YR 6/1) fine sand from 14 to 47 cmbd (6 to 19 inbd). Stratum III consisted of very pale brown (10YR 7/3) fine sand with heavy beach shell extending from 47 cmbd (19 inbd) to the base of the unit at 60 cmbd (24 inbd). The unit was excavated in 10-cm (4-in) arbitrary levels to a depth of 60 cmbd (24 inbd). Excavation of the unit was stopped once sterile sand with beach shell was reached in Stratum III. The south wall of the test unit, which is directly adjacent to the brick road, revealed a concrete curb that extended from the ground surface (5 cmbd [2 inbd] to 48 cmbd [19 inbd]), obscuring strata I and II within the wall profile. Stratum III consisted of very pale brown (10YR 7/3) fine sand with heavy beach shell and was revealed at the base of the south wall, below the level of the concrete curb. An expansion joint can be seen in the exposed concrete curb (see Figure 38). This construction feature can also be seen in the north wall of TU 4.

Historic artifacts were recovered from every strata of the Test Unit. The final 10-cm level of Stratum III was sterile of cultural material. No prehistoric artifacts were recovered from this test unit.

One hundred and sixty artifacts, weighing a total of 992.55 g, were recovered from the area of the island's bakery, which dates back to 1900 (Table 4). Although the deposits in this test unit, like Test Unit 1, contained a large amount of building materials (brick, slate, mortar and nails), there were also artifacts that hint at this area's use as a bakery. For example, two fragments of crockery were recovered from Level 1. One fragment was brown-glazed and the other had a faint grey glaze on its exterior; both fragments were small and bore no makers' marks (Figure 39). Both pieces of earthenware were manufactured from a white, fine-grained paste. In addition to the crockery, "clinkers" (burned coal) and a variety of pieces of sheet metal

suggest cooking using iron stoves and metal pans. Because much of the metal was corroded and could not be precisely identified, a large number of fragments were placed in the "indeterminate" category, but it is probable that they are related to baking and cooking. For example, a total 22 corroded metal disks measuring an inch in diameter were recovered from Levels 2-4; although they could not be identified, they may be ingredient container closures of some sort (Figure 40). Cooking activities are also suggested by the presence of a large, sawn cow rib found in Level 4.

Figure 35. Photograph of the east wall of Test Unit 2, taken facing east.

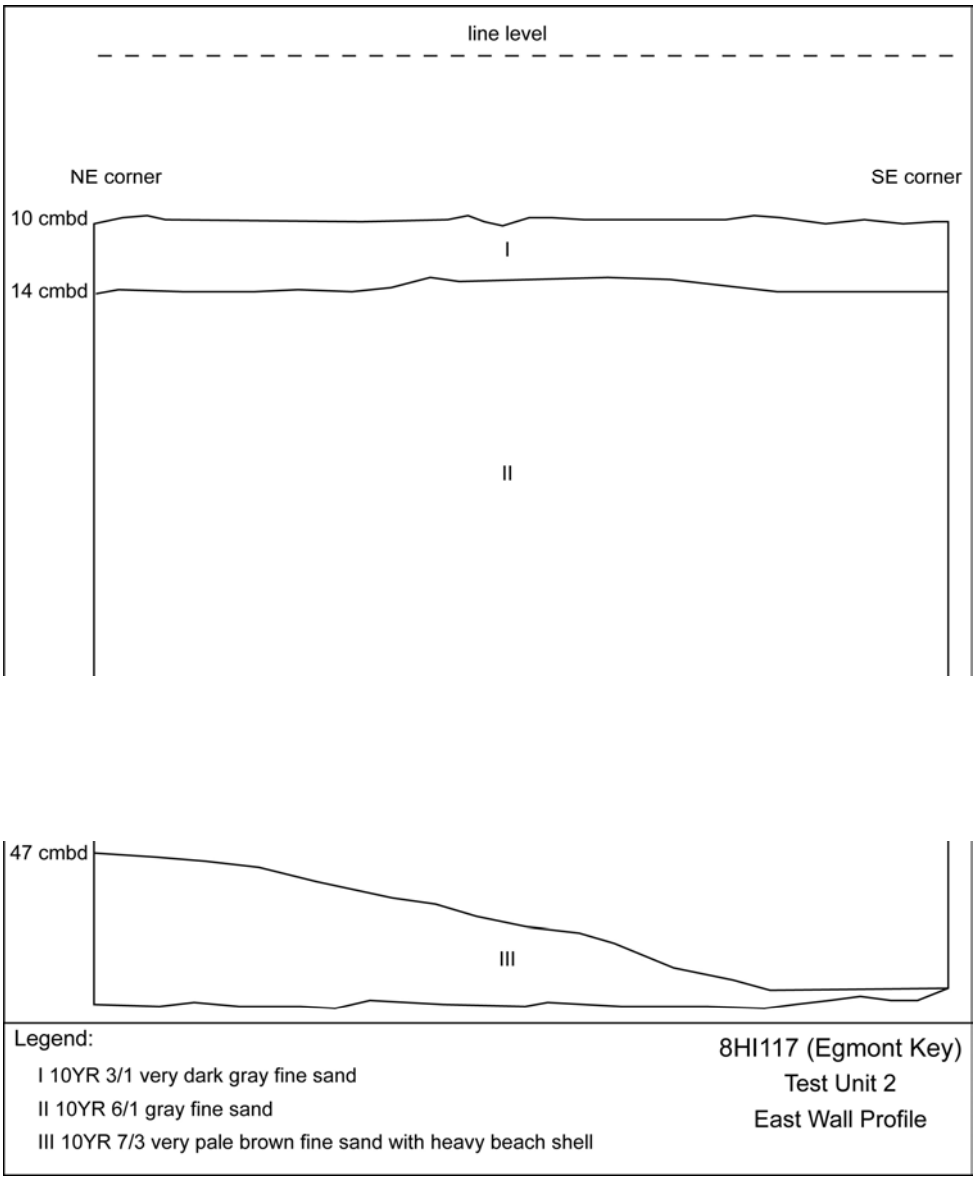

Figure 36. Sketch map of the east wall profile of Test Unit 2.

In addition to window glass, several fragments of non-architectural glass were recovered from Test Unit 2. Two of these fragments, found in Level 1, were from a green-over-white lamp shade (one brand of this glass was called Emeralite), of the sort seen in bankers' lamps. A single fragment of amethyst bottle glass was also found in Level 1. Glass from Levels 1 and 4 was partially melted, and could not be positively identified as window glass vs. kitchen or furniture glass.

Figure 37. Photograph of the south wall of Test Unit 2, taken facing south.

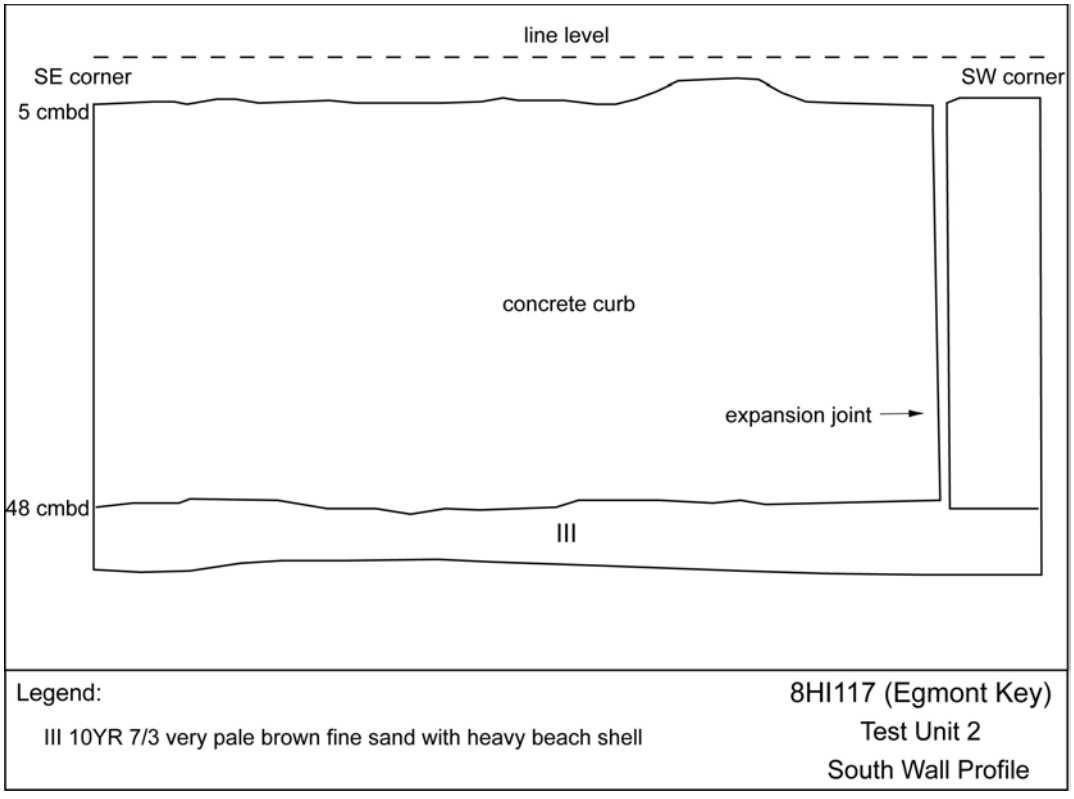

Figure 38. Sketch map of the south wall profile of Test Unit 2.

Table 4. Artifacts Recovered from Test Unit 2.

FS	STRATUM	LEVEL	CMBD	ITEMS	(n)	(%)	(g)	(%)	DESCRIPTION
7	I	1	10-20	brick frags	28	17.5%	356.27	35.9%	molded brick; 1 of the red-orange bricks marked with …A… (might be NATIONAL).
7	I	1	10-20	gravel/pebbles	6	3.8%	16.78	1.7%	
7	I	1	10-20	clinker	1	0.6%	6.18	0.6%	
7	I	1	10-20	nails, cut, frags	6	3.8%	14.15	1.4%	
7	I	1	10-20	earthenware, brown glazed	1	0.6%	2.41	0.2%	brown glazed exterior, white core; no marks
7	I	1	10-20	earthenware, grey glazed	1	0.6%	4.51	0.5%	very light glaze; light grey exterior, white core; no marks
7	I	1	10-20	mortar	6	3.8%	28.67	2.9%	
7	I	1	10-20	slate	4	2.5%	29.64	3.0%	slate tile frag
7	I	1	10-20	iron sheet/plate frags	10	6.3%	53.58	5.4%	
7	I	1	10-20	glass, amethyst, bottle, flat	1	0.6%	1.24	0.1%	flat-fronted bottle, eg. Medicine?; no marks
7	I	1	10-20	glass, shade, Emeralite	2	1.3%	4.77	0.5%	Emeralite = lamp shade
7	I	1	10-20	glass, light aqua	10	6.3%	12.06	1.2%	partially melted
7	I	1	10-20	glass, aqua, window pane	1	0.6%	0.46	0.0%	window glass
8	I	2	20-30	mortar frags	8	5.0%	101.99	10.3%	
8	I	2	20-30	brick frags	2	1.3%	1.73	0.2%	no marks
8	I	2	20-30	glass frag, clear, tiny	1	0.6%	0.57	0.1%	no marks
8	I	2	20-30	clinker	1	0.6%	0.81	0.1%	
8	I	2	20-30	nail frag., corroded	2	1.3%	5.49	0.6%	
8	I	2	20-30	nail, wire (bent)	1	0.6%	8.97	0.9%	75.5 (2.97")/ length
8	I	2	20-30	metal disks, UID, corroded	2	1.3%	4.12	0.4%	metal disks -- unidentified; 25 cm (1") diameter
9	I	3	30-40	mortar frags	9	5.6%	52.63	5.3%	
9	I	3	30-40	brick frags	7	4.4%	16.71	1.7%	
9	I	3	30-40	shell, bivalve	1	0.6%	3.42	0.3%	
9	I	3	30-40	nails, corroded	5	3.1%	43.63	4.4%	avg. length = 66.2 (2.6") mm
9	I	3	30-40	nail frag., corroded	5	3.1%	13.02	1.3%	
9	I	3	30-40	metal chunk, uid	1	0.6%	5.94	0.6%	
9	I	3	30-40	metal disks, UID, corroded	15	9.4%	40.05	4.0%	25 cm (1") diameter
10	I	4	40-50	brick frags	4	2.5%	10.78	1.1%	no marks
10	I	4	40-50	mortar frags	2	1.3%	18.41	1.9%	
10	I	4	40-50	bone, cow rib, sawn	1	0.6%	9.00	0.9%	cow rib, sawn as for shortribs; n= 1(2)

FS	STRATUM	LEVEL	CMBD	ITEMS	(n)	(%)	(g)	(%)	DESCRIPTION
10	I	4	40-50	metal disks, UID, corroded	5	3.1%	16.87	1.7%	25 mm (1") diameter
10	I	4	40-50	metal frags UID	4	2.5%	68.88	6.9%	
10	I	4	40-50	nails, cut, corroded	6	3.8%	37.82	3.8%	
10	I	4	40-50	glass, clear, partly melted	1	0.6%	0.99	0.1%	
TOTAL					**160**	**100.0%**	**992.55**	**100.0%**	

Figure 39. Earthenware artifacts recovered from test units 2 and 4. From left: FS no. 14 from TU 4, brown salt-glazed earthenware rim sherd; FS no. 7 from TU 2, grey-glazed earthenware body sherd; FS no. 7 from TU 2, brown-glazed earthenware fragment, transitional sherd.

Figure 40. Metal disc artifacts recovered from Test Unit 2 (FS no.10).

Test Unit 3

Test Unit (TU) 3 measured 1-x-0.5 m, was oriented north-south, and was placed in the northeastern portion of site 8HI117, directly to the south of the brick road in front of the 1909 Gymnasium (see Figure 21). This location was chosen to examine road construction and to find artifacts related to the gymnasium. The UTM coordinates for the datum in the southeast corner are Zone 17, Easting 326223 and Northing 3053807 (NAD 83).

The excavation of TU 3 revealed three soil strata (figures 41 through 44). Stratum I consisted of very dark gray (10YR 3/1) fine sand from a depth of 15 to 30 cmbd (6 to 12 inbd). Stratum II consisted of gray (10YR 6/1) fine sand from 30 to 57 cmbd (12 to 22 inbd). Stratum III consisted of very pale brown (10YR 7/3) fine sand with heavy beach shell and extended from 57 cmbd (22 inbd) to the base of the unit at 60 cmbd (24 inbd). The unit was excavated in 10-cm (4-in) arbitrary levels to a depth of 60 cmbd (24 inbd). Excavation of the unit was stopped after sterile sand with beach shell was reached in Stratum III. The north wall of the test unit, directly adjacent to the brick road, revealed a concrete curb that extended from the ground surface (13 cmbd [5 inbd] to 58 cmbd [23 inbd]), obscuring strata I and II within the wall profile. Stratum III consisted of very pale brown (10YR 7/3) fine sand with heavy beach shell and was revealed at the base of the north wall, below the level of the concrete curb.

Figure 41. Photograph of the east wall of Test Unit 3, taken facing east.

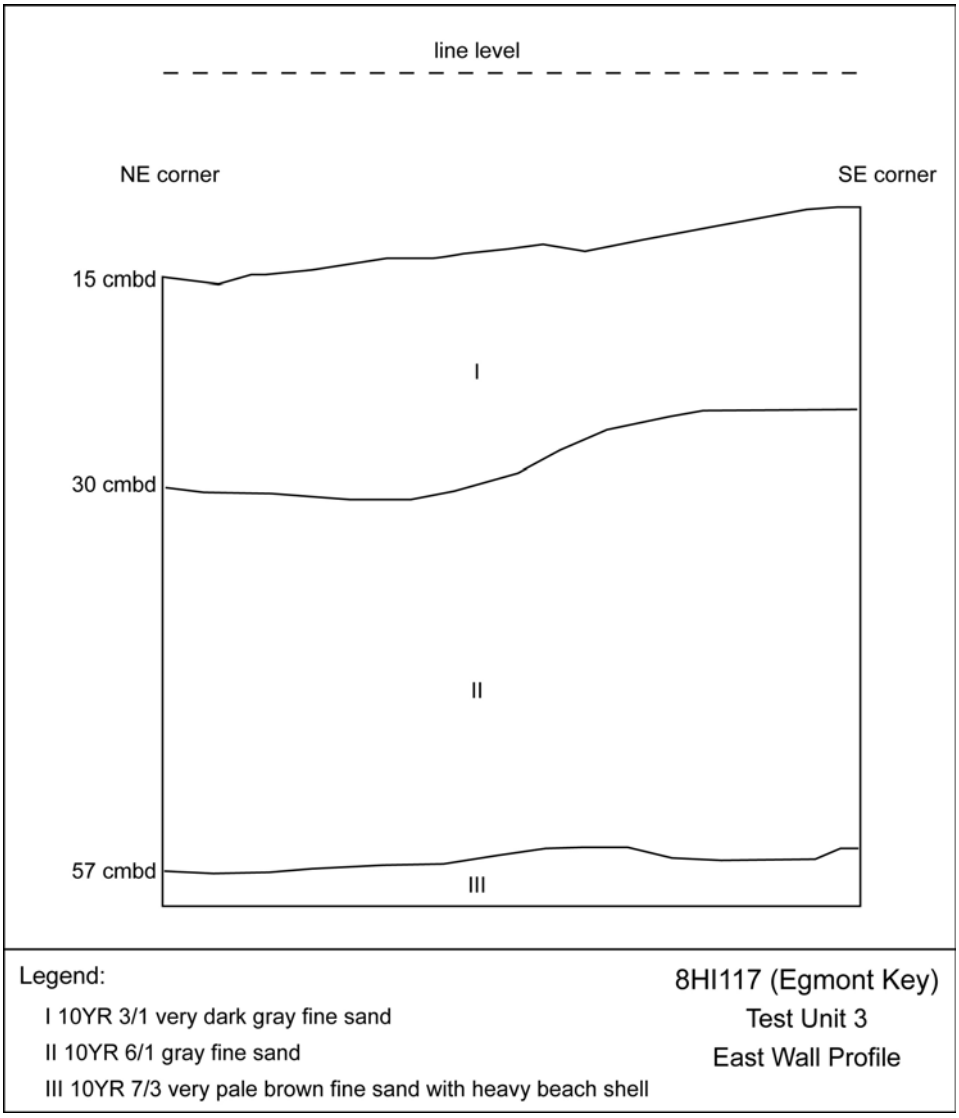

Figure 42. Sketch map of the east wall profile of Test Unit 3.

Test Unit 3 was placed in an area adjacent to the Gymnasium, which later was converted into a rifle range. Ninety-four artifacts were recovered from three levels excavated in this unit (Table 5). Test Unit 3 has one of the lowest percentages of materials from the architectural category: 5.3 percent of all artifacts versus over 20 percent for Test Units 1 and 2 and 12.8 percent for Test Unit 4. Only Test Unit 5, placed across the street from the old hospital, has a lower percentage of architectural remains (2.9 percent of total remains). The kitchen (bottle glass) and arms (bullets and cartridges) categories were the primary historic artifact groups represented in this test unit. Two personal items, a 4-hole button marked "U.S.A." and a shank button with the U.S. Army eagle on it, both uniform buttons, were also found in this unit (Figure 45). A precise date cannot be assigned to the shank button, although the Great Seal (eagle) has been the official Army button since 1919 (Vintage Buttons n.d.). Although one button bears a backstamp "Badger Manufacturing Company, Racine, Wisconsin", an extensive search failed to uncover any details about this company. Many metalworks (and other) companies in the state of

Wisconsin have "Badger" somewhere in their name, as a tribute to the state's nickname. The recovery of clothing-related items close to the gymnasium is consistent with the documented use and re-use of the building by the military over a span of 40 years for a number of activities, including as barracks. A small number of other items, such as lamp chimney glass, grommets/eyelets, and unidentifiable metal items, were also recovered.

Historic artifacts were obtained from strata I and II. The lower levels of Stratum II and Stratum III are sterile of cultural material. No prehistoric artifacts were recovered from this test unit.

This unit is the only unit excavated that yielded evidence of weaponry. Twenty-four bullets and/or cartridge casings from various caliber weapons were recovered from Levels 1 and 2 in Test Unit 3. Cartridge casings and bullets from small-caliber arms (.22 long and short) were most common (Figure 46), although several larger caliber cartridges were found (.30-06 and .45 automatic). The .30-06 "spitzer" (pointed) bullet was the standard military round until 1954, but remained in use until the 1970s (Boddington 2005; Cartridge Collectors 2006). The .30-06 was introduced in 1906 (as the –06 on the caliber indicates); after World War I, a boat tailed, full-metal-jacketed bullet was developed. The .30-06 bullet found in TU 3 does not have a headstamp, but it is a .30-06 boat tail and thus postdates WWI (Figure 47) (Punnett 2003). Headstamps on all cartridges from this unit indicate that ammunition came from a variety of manufacturers (Table 6).

Figure 43. Photograph of the north wall of Test Unit 3, taken facing north.

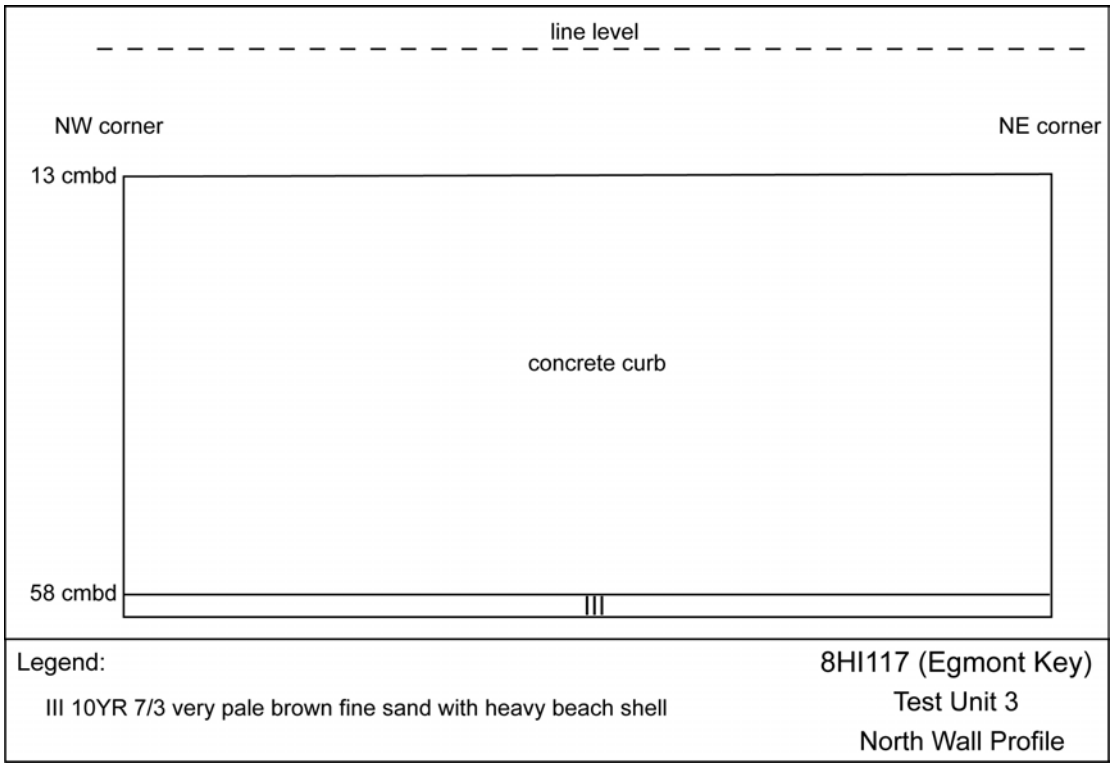

Figure 44. Sketch map of the north wall profile of Test Unit 3.

Table 5. Artifacts Recovered from Test Unit 3.

FS	STRATUM	LEVEL	CMBD	ITEMS	(n)	(%)	(g)	(%)	DESCRIPTION
11	I	1	0-20	cartridge case, .22 long	11	11.7%	9.44	3.0%	headstamps: H (1) (unknown date); U (6) (1941-1943); SUPER X (1) (1922-prensent); indet (2) (unknown date); diamond shape (1) (1920s-present)
11	I	1	0-20	bullet, .22 long	1	1.1%	3.38	1.1%	headstamp: diamond; unjacketed lead bullet; 1920s - present
11	I	1	0-20	cartridge case, .45 auto	3	3.2%	15.06	4.8%	headstamp= "32"; probably 1932
11	I	1	0-20	cartridge case, .30-06	1	1.1%	13.15	4.2%	no headstamp; unknown date
11	I	1	0-20	button, loop shank	1	1.1%	5.40	1.7%	US Army uniform button; front = U.S. eagle; back = "BADGER MFG CO RACINE WIS"; unknown date
11	I	1	0-20	metal arm, uid	1	1.1%	89.72	28.4%	arm for some mechanical item, have no idea what it is
11	I	1	0-20	nail, wire	1	1.1%	12.41	3.9%	93.3 (3.67") mm/length
11	I	1	0-20	screw eyelet	1	1.1%	2.82	0.9%	
11	I	1	0-20	loop or grommet	1	1.1%	0.44	0.1%	
11	I	1	0-20	wire loop w/toothed base	1	1.1%	1.00	0.3%	
11	I	1	0-20	rectangular plate with screw holes	1	1.1%	6.53	2.1%	

FS	STRATUM	LEVEL	CMBD	ITEMS	(n)	(%)	(g)	(%)	DESCRIPTION
11	I	1	0-20	tack, wire, roofing	1	1.1%	2.84	0.9%	23.5 (.027") mm/length
11	I	1	0-20	clinker	1	1.1%	12.32	3.9%	
11	I	1	0-20	porcelain, plain, body	1	1.1%	4.83	1.5%	
11	I	1	0-20	glass, dark brown, bottle, lip	1	1.1%	0.66	0.2%	
11	I	1	0-20	glass, amber, bottle, body	7	7.4%	2.63	0.8%	
11	I	1	0-20	glass, clear, flat, window, body	2	2.1%	0.63	0.2%	
11	I	1	0-20	glass, amethyst, transitional (corner)	1	1.1%	0.63	0.2%	
11	I	1	0-20	glass, clear, body	1	1.1%	3.05	1.0%	
11	I	1	0-20	glass, clear, indet	4	4.3%	1.22	0.4%	
11	I	1	0-20	glass, clear, lip	2	2.1%	3.33	1.1%	threaded lip
11	I	1	0-20	glass, clear	1	1.1%	0.73	0.2%	snap-on lid lip
11	I	1	0-20	glass, bottle, aqua body	10	10.6%	17.84	5.7%	Coca-Cola
11	I	1	0-20	glass, aqua, flat, window	3	3.2%	4.68	1.5%	
12	I	2	20-30	button, 4-hole shank,	1	1.1%	0.90	0.3%	marked “U.S.A.”
12	I	2	20-30	bullet, .30 cal	1	1.1%	11.16	3.5%	no headstamp; FMJ boat tail; unknown date
12	I	2	20-30	cartridge case, .45 auto	1	1.1%	6.07	1.9%	headstamp = :”F.A._.32”; 1932
12	I	2	20-30	bullet, .22 long,	1	1.1%	2.75	0.9%	headstamp = “U”; 1941-1943
12	I	2	20-30	cartridge case,.22 long;	4	4.3%	3.71	1.2%	headstamp: 2=”F” (1942-1944); 1=”U” (1941-1943); 1=none (unknown date)
12	I	2	20-30	cartridge case, .22 short	1	1.1%	0.75	0.2%	headstamp= “AL”; 1920s-present
12	I	2	20-30	nail frag., corroded	4	4.3%	5.07	1.6%	
12	I	2	20-30	nail, cut	1	1.1%	3.33	1.1%	45.9 (1.81”)mm/length
12	I	2	20-30	brick frags	3	3.2%	40.80	12.9%	
12	I	2	20-30	slate tile frag	1	1.1%	3.24	1.0%	
12	I	2	20-30	rock/gravel	1	1.1%	6.27	2.0%	
12	I	2	20-30	glass, clear, chimney, body	1	1.1%	0.26	0.1%	
12	I	2	20-30	glass, milk, indet portion, no marks	1	1.1%	0.29	0.1%	
12	I	2	20-30	glass, aqua, bottle, body, no marks	5	5.3%	5.16	1.6%	cf. Coca Cola
12	I	2	20-30	glass, aqua, flat, window	2	2.1%	2.43	0.8%	
12	I	2	20-30	glass, clear, bottle, body, no marks	2	2.1%	1.95	0.6%	
13	II	3	30-40	slate frag	1	1.1%	1.14	0.4%	

FS	STRATUM	LEVEL	CMBD	ITEMS	(n)	(%)	(g)	(%)	DESCRIPTION
13	II	3	30-40	brick frags, no marks	2	2.1%	0.69	0.2%	
13	II	3	30-40	glass, clear, indet frag, no marks	1	1.1%	0.27	0.1%	
13	II	3	30-40	glass, clear, flat	1	1.1%	0.17	0.1%	
13	II	3	30-40	glass	1	1.1%	4.55	1.4%	cf. Coca-Cola
TOTAL					**94**	**100.0%**	**315.70**	**100.0%**	

Figure 45. Buttons recovered from Test Unit 3. From left to right: brass shank button with US Army seal (FS no. 11); four-hole button with U.S.A. on front (FS no. 12).

Figure 46. .22 caliber short (top row) and long cartridges recovered from Test Unit 3 (F.S. no. 12).

Figure 47. .30-06 cartridge (left) (FS no. 11) and boat tail bullet (F.S. no. 12) recovered from Test Unit 3.

Table 6. Headstamps from Cartridges Recovered from Test Unit 3.

HEADSTAMP	(n)	CALIBER	MANUFACTURER	DATE RANGE
U	8	.22 long	Remington Arms, Bridgeport, CT /Utah Ordnance, Salt Lake City, UT	1941-1943
F	2	.22 long	Frankford Arsenal	1942-1944
◇ (diamond)	2	.22 long	Western Cartridge Co., E. Alton, IL	1920s-present
SUPER X	1	.22 long	Western Cartridge Co., E. Alton, IL	1922-present
H	1	.22 long	Winchester Repeating Arms, Co., New Haven CT	unknown
FA	1	.45 auto	Frankford Arsenal, Philadelphia, PA	1911 +
AL	1	.22 short	Federal Cartridge (Airline), Anoka, MN	1920s-present
32	1	.45 auto	unknown; probably a government cartridge	probably 1932
FA 32	1	.45 auto	Frankford Arsenal	1932
none/ indet.	5	.22 long (4); .30-.06 (1)	unknown	unknown
TOTAL	**24**			

The Frankford Arsenal was located in Philadelphia and was operated by the government. According to Frigiola (2002), the Frankford Arsenal opened in 1816 and "...was the leader in the WWII industrial mobilization plan and monitored operations at the other ordnance plants." Frankford Arsenal cartridges typically bear an "F" or "FA" headstamp (Carpetbagger Museum 2001-2). The Frankford Arsenal plant closed in 1977.

The Utah Ordnance plant was located in Salt Lake City, and was operated by the Remington Arms Company during the early years of WWII (1941-1943). The company's cartridge headstamp was originally "UT" but was changed to "U" in mid-1942 (Frigiola 2002).

Remington Arms, like the Frankford Arsenal, has been in operation since 1816 (Remington Arms 2006). Although its headquarters are currently located in Madison, North Carolina, the company had a plant in Bridgeport, Connecticut, where they filled government orders for a variety of small arms ordnance during WWII. In addition, Remington produced

shotshells, caliber .38 revolver, and .22 rim fire ammunition with commercial headstamps (Frigiola 2002).

Located in East Alton, Illinois, the Western Cartridge Company joined with the Equitable Powder Manufacturing Corporation (Olin Corporation) in 1892. During WWII, Western Cartridge Company was a contract provider of ammunition for the U.S. government. Western Cartridge Company and the Winchester Repeating Arms Company (see below) merged in 1931. The Super-X .22 caliber long cartridge was one of the company's most popular small caliber products (Winchester Ammunition 2006).

The Winchester Repeating Arms Company is located in New Haven Connecticut, and was founded in 1866. In 1931, it became a part of the Olin Corporation (Western Cartridge Company).

The Federal Cartridge Company of Anoka, Minnesota began producing .22 rimfire cartridges in the early 1920s; in 1941, Federal won a contract to build and operate the $30 million Twin City Ordnance Plant (TCOP), now called the Twin Cities Army Ammunition Plant (TCAAP) in New Brighton, Minnesota (Federal Cartridge Company 2006). The .22 short cartridge found at 8HI117 bears the headstamp "AL," which was one of the headstamps used by Federal; the "AL" stands for "airline" (Logan 1948). The .22 short bullet was developed in the late 1850s and used for purposes such as shooting vermin; today it is more commonly used in target shooting.

In aggregate, the headstamps on the cartridges from 8HI117 indicate a mean date range of the 1930s; they may be from as early as the 1920s and as late as the 1940s. Historic records show that the gymnasium area was converted to use as a firing range during the 1930s, which fits well with the ammunition that was identified from TU 3.

Aside from the ammunition, a large amount of bottle glass was found in the area of the gymnasium (n= 29). In fact, two-thirds of all the kitchen group (which includes glass) materials from the test units came from TU 3. The large amount of glass may have come from bottles that were set up as targets. Alternatively, some or all of the bottle glass may be from beverages consumed by patrons of the gymnasium when it was in use. The two uniform buttons may also date to the building's use as a gymnasium.

Test Unit 4

Unit (TU) 4 measured 1-x-0.5 m, was oriented north-south, and was placed in the northwestern portion of site 8HI117, directly to the south of the brick road nearby the 1908 Storehouse No. 43 (former pump and ice house with cold storage) (see Figure 21). This location was chosen to examine road construction techniques, and to find artifacts related to Storehouse No. 43. The UTM coordinates for the datum in the southwest corner are Zone 17, Easting 326055 and Northing 3053605 (NAD 83).

The excavation of TU 4 revealed four soil strata (figures 48 through 51). Stratum I consisted of very dark gray (10YR 3/2) fine sand from a depth of 10 to 22 cmbd (4 to 9 inbd). Stratum IIa consisted of gray (10YR 6/2) fine sand from 22 to 36 cmbd (9 to 14 inbd). Stratum

IIb consisted of dark gray (10YR 4/1) fine sand and extended from 36 cmbd (14 inbd) to 40 cmbd (16 inbd). Stratum III consisted of very pale brown (10YR 8/2) fine sand with beach shell and extended from 40 cmbd (16 inbd) to the base of the unit at 64 cmbd (25 inbd). A portion of Stratum IIa within the west wall of the test unit appears to have been previously excavated. This most likely occurred when the area was dug out to allow for the placement of the concrete curb when the brick road was being constructed (see Figure 49). The unit was excavated in 10-cm (4-in) arbitrary levels to a depth of 64 cmbd (25 inbd). Excavation of the unit was stopped after sterile sand was encountered in Stratum III. The north wall of the test unit, directly adjacent to the brick road, revealed a concrete curb that extended from the ground surface (13 cmbd [5 inbd] to 58 cmbd [23 inbd]), obscuring the wall profile. Stratum II consisted of light brownish gray (10YR 6/2) fine sand and was revealed at the base of the north wall, below the level of the concrete curb. Like TU 2, an expansion joint can be seen in the exposed concrete curb (see Figure 51).

Figure 48. Photograph of the west wall of Test Unit 4, taken facing west.

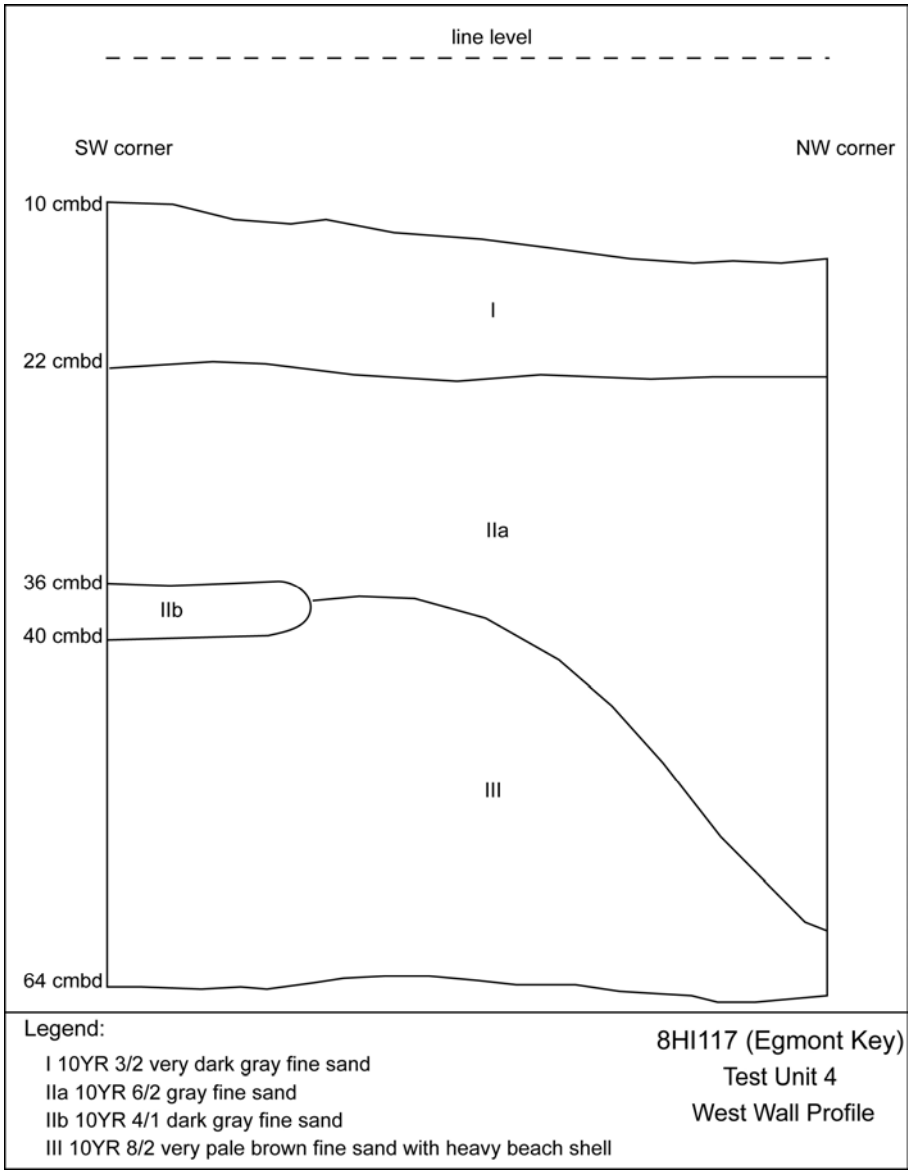

Figure 49. Sketch map of the west wall profile of Test Unit 4.

Historic artifacts were recovered from strata I and II. Stratum III was sterile of cultural material. No prehistoric artifacts were recovered from this test unit.

Sixty-seven artifacts, weighing a total of 590.04 g, were recovered from this test unit (Table 7). Building materials, such as window glass, brick, mortar and nails, were the most common artifact type in this unit, suggesting that demolition or construction debris was discarded in this area. Aside from the construction debris, the only other items found in this unit include a single sherd of salt-glazed earthenware (see Figure 39) and some glass fragments, including a piece of a glass rod, a fragment of melted glass, and a piece of chimney glass.

Figure 50. Photograph of the north wall of Test Unit 4, taken facing north.

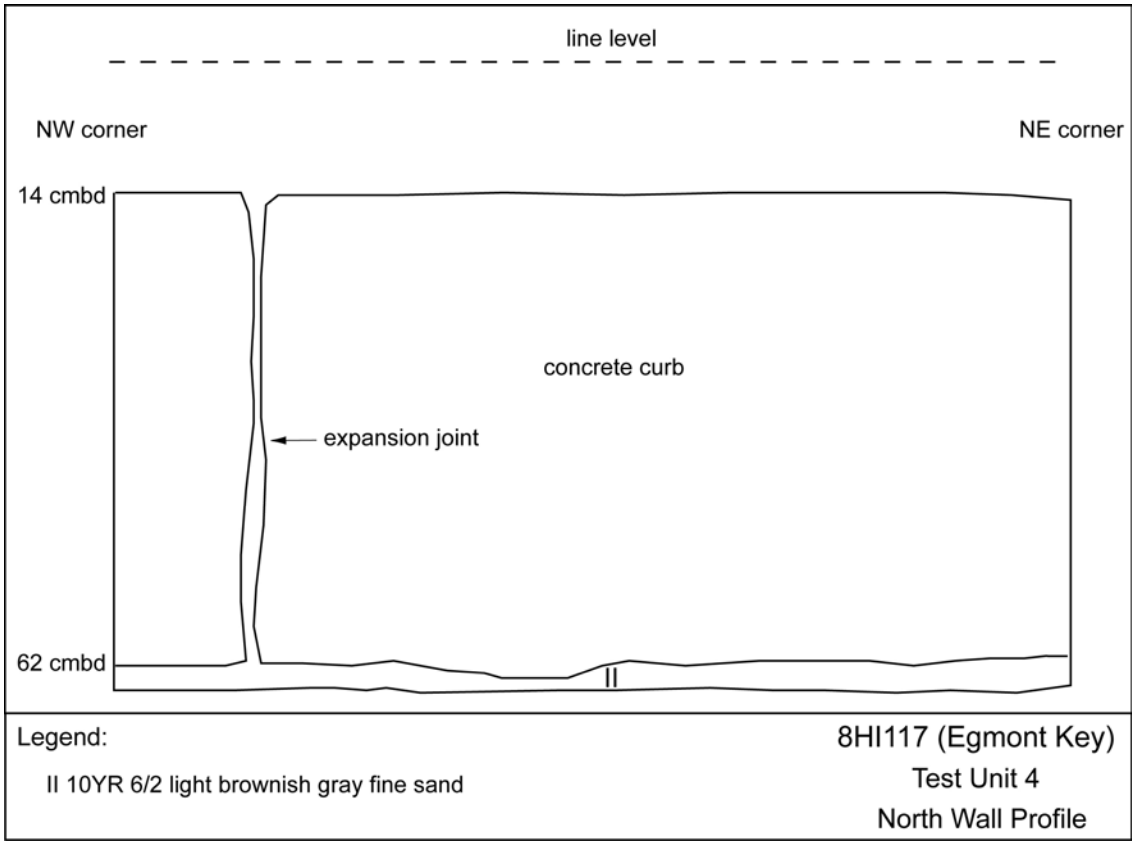

Figure 51. Sketch map of the north wall profile of Test Unit 4.

Table 7. Artifacts Recovered from Test Unit 4.

FS	UNIT	UNIT #	STRATUM	LEVEL	CMBD	ITEMS	(n)	(%)	(g)	(%)	DESCRIPTION
14	TU	4	I	1	10-20	brick frags, no marks	10	14.9%	32.75	5.6%	
14	TU	4	I	1	10-20	mortar frags	3	4.5%	21.99	3.7%	
14	TU	4	I	1	10-20	gravel	1	1.5%	8.25	1.4%	
14	TU	4	I	1	10-20	coal	1	1.5%	12.80	2.2%	
14	TU	4	I	1	10-20	clinker	1	1.5%	22.07	3.7%	
14	TU	4	I	1	10-20	melted glass	1	1.5%	0.79	0.1%	
14	TU	4	I	1	10-20	earthenware, salt-glazed, brown, rim	1	1.5%	8.02	1.4%	
14	TU	4	I	1	10-20	glass, clear	1	1.5%	0.57	0.1%	
14	TU	4	I	1	10-20	glass, clear, chimney, body	1	1.5%	0.12	0.0%	
14	TU	4	I	1	10-20	glass rod	1	1.5%	1.14	0.2%	
15	TU	4	II	2	20-30	brick frags, no marks	3	4.5%	28.93	4.9%	
15	TU	4	II	2	20-30	mortar frags	2	3.0%	31.96	5.4%	
15	TU	4	II	2	20-30	gravel	9	13.4%	170.08	28.8%	
15	TU	4	II	2	20-30	gutter spike	1	1.5%	47.30	8.0%	138.5 (5.45") mm/length
15	TU	4	II	2	20-30	tack, cut	1	1.5%	0.72	0.1%	bent; 23 (.91") mm/length
15	TU	4	II	2	20-30	nail, cut	1	1.5%	23.84	4.0%	102.3 (4.03") mm/length
15	TU	4	II	2	20-30	nail, wire	1	1.5%	8.11	1.4%	bent; 77 (3.03") mm/length
15	TU	4	II	2	20-30	nails, corroded	4	6.0%	35.12	6.0%	70.8 (2.78")mm/length
15	TU	4	II	2	20-30	nail, wire	1	1.5%	2.15	0.4%	36.0 (1.41") mm/length
15	TU	4	II	2	20-30	nail, corroded	1	1.5%	3.89	0.7%	39.3 (1.54") mm/length
15	TU	4	II	2	20-30	nail frag., corroded	9	13.4%	14.17	2.4%	
16	TU	4	II	3	30-40	brick frags, no marks	2	3.0%	38.22	6.5%	
16	TU	4	II	3	30-40	gravel	3	4.5%	32.03	5.4%	
16	TU	4	II	3	30-40	metal frags UID	2	3.0%	15.01	2.5%	
16	TU	4	II	3	30-40	nail, wire	1	1.5%	10.92	1.9%	83.3 (3.28") mm/length
16	TU	4	II	3	30-40	nail, wire	1	1.5%	2.05	0.3%	34.4 (1.35") mm/length
16	TU	4	II	3	30-40	nail, wire	4	6.0%	17.04	2.9%	53.3 (2.10") mm/ average length
TOTAL							**67**	**100.0%**	**590.04**	**100.0%**	

Test Unit 5

Test Unit (TU) 5 measured 1-x-0.5 m, was oriented east-west, and was placed in the central portion of site 8HI117, directly to the south of a void in the brick road, immediately west of the former location of the 1899 hospital (see Figure 21). This location was chosen because it is adjacent to the brick road and would provide an opportunity to examine the construction techniques of the road in an area where the concrete curb is missing. This location was also chosen because it is near a historic structure. The UTM coordinates for the datum in the southwest corner are Zone 17, Easting 326121 and Northing 305131 (NAD 83).

The excavation of TU 5 revealed two soil strata (figures 52 through 55). Stratum I consisted of gray (10YR 6/2) fine sand from a depth of 7 to 20 cmbd (3 to 8 inbd). Stratum II extended from 20 cmbd (8 inbd) to the base of the unit at 30 cmbd (12 inbd). The unit was excavated in 10-cm (4-in) arbitrary levels to a depth of 30 cmbd (12 inbd). Sterile soil was reached at 20 cmbd (8 inbd). Since there was no concrete curb in this test unit, it was only excavated to a depth great enough to expose the profile of the bricks located here and to examine the soil that they were originally placed upon. The north wall of the test unit, which is directly adjacent to the brick road, revealed an upper layer of bricks that extended from the ground surface (3 cmbd [1 inbd] to 13 cmbd [5 inbd]), obscuring part of Stratum I within the north wall profile. Stratum I consisted of gray (10YR6/2) fine sand and Stratum II consisted of very pale brown (10YR 8/2) fine sand.

Figure 52. Photograph of the east wall of Test Unit 5, taken facing east.

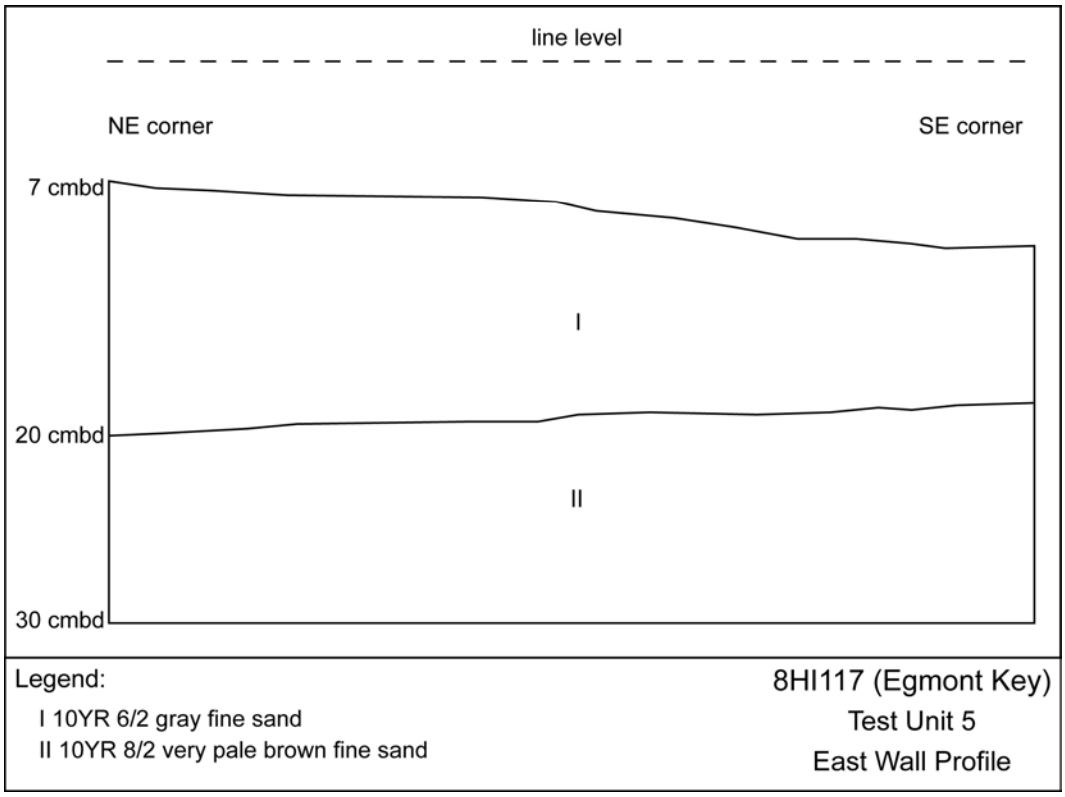

Figure 53. Sketch map of the east wall profile of Test Unit 5.

Figure 54. Photograph of the north wall of Test Unit 5, taken facing north.

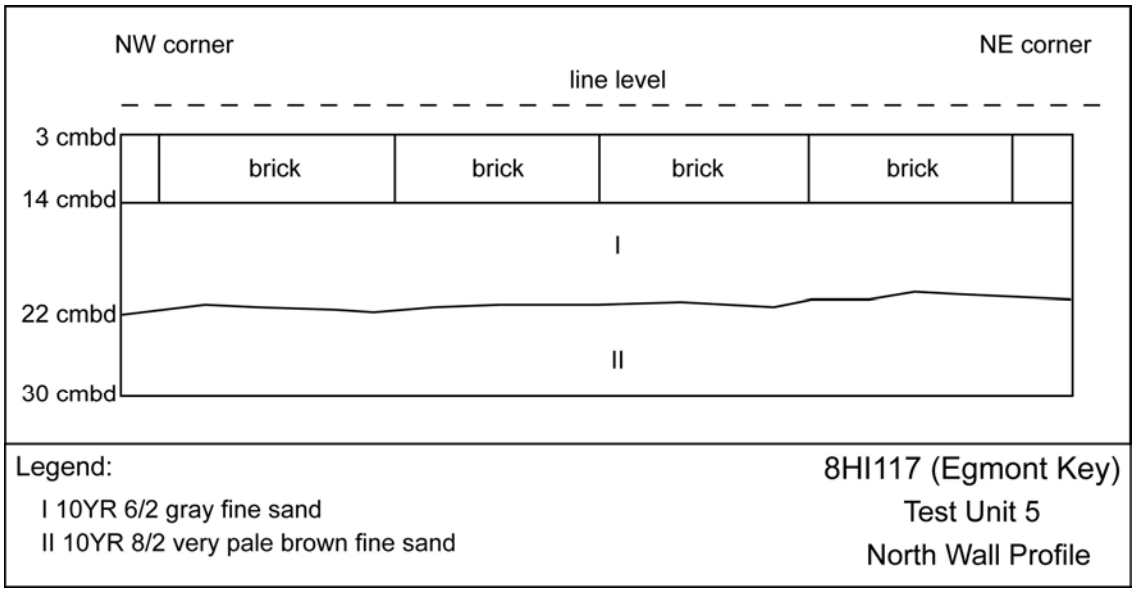

Figure 55. Sketch map of the north wall profile of Test Unit 5.

Historic artifacts were recovered from Stratum I. Stratum II was sterile of cultural material. No prehistoric artifacts were recovered from this test unit.

Test Unit 5 had the least amount of material of all the units; only 19 artifacts (68.19 g) were recovered from this location (Table 8). The bulk of this material was construction debris: brick fragments, nails, and window glass. Five fragments of clear or amber bottle glass and a single piece of plain whiteware (from a small saucer) were also found. This unit was located across the brick road from the hospital, a distance significant enough to explain why so few materials were recovered.

Table 8. Artifacts Recovered from Test Unit 5.

FS	STRATUM	LEVEL	CMBD	ITEMS	(n)	(%)	(g)	(%)	DESCRIPTION
17	I	1	0-20	brick frags	8	42.1%	39.46	57.9%	
17	I	1	0-20	mortar frags	1	5.3%	7.08	10.4%	
17	I	1	0-20	nail, wire	1	5.3%	7.57	11.1%	78.9 (3.1") mm/length
17	I	1	0-20	glass, amber, bottle, body	3	15.8%	2.75	4.0%	bottle frag; embossed dots on one frag; likely recent non-recyclable
17	I	1	0-20	glass, clear, bottle, no marks	2	10.5%	1.10	1.6%	
17	I	1	0-20	glass, clear, flat	2	10.5%	0.47	0.7%	
17	I	1	0-20	glass, lt. aqua, flat	1	5.3%	0.24	0.4%	
17	I	1	0-20	whiteware, plain, rim, no marks	1	5.3%	9.52	14.0%	saucer; est. rim diameter= 14cm; lip=simple
TOTAL					**19**	**100.0%**	**68.19**	**100.0%**	

DISCUSSION

Test Unit Excavations

Test units were placed alongside the brick road in the vicinity of historic structures within the project area, yielding a variety of historic artifacts that in large part reflect the function of the structures during the early - to mid-twentieth century of the island's occupation. For example, artifacts from TU 2 (the bakery) include coal and clinkers, probably from stoves, earthenware and food debris such as bone. Artifacts from the gymnasium/rifle range area (TU 3) fall into two clusters, reflecting the dual nature of this area's use over time. Bottle glass and two uniform buttons may relate to the period when the area was used as a gymnasium, while its later use as a rifle range is clearly supported by a variety of ca. 1930s-era bullets and cartridge casings. Construction debris was found in all units, reflecting different phases of construction and demolition of historic structures at the site.

The cartridge headstamps from the rifle range provide the best temporal contextual information from the site; few other diagnostic artifacts were recovered from the site. An analysis of the headstamps on ammunition cartridges fall between an early date of around the 1920s and possibly through the 1940s, providing a mean date in the range of the 1930s. The gymnasium building itself burned in 1949, suggesting a terminal date of 1949 for use of this area of the site.

Brick Road Construction

As Kanaski (1998a) previously mentioned, the brick road appears to have been laid directly on top of a compacted layer of sand. This is a common type of construction that was used on other brick roads built around the same time. The Old Brick Road, which extends for a distance of 11 miles between State Road 204 and the rural community of Espanola in St. Johns and Flagler counties, was constructed in a similar way to the brick road on Egmont Key according to documentation provided by Flagler County (2006a) (figures 56 and 57). In the early twentieth century, when both of these roads were constructed, the process of building brick roads consisted of selecting an alignment, clearing the area of vegetation and roots, moistening and packing the subgrade, then rolling it for firmness and uniformity before laying down the concrete curbing. The bricks were then laid in uniform courses. A crowbar was often inserted against the curb and used to push the bricks together (Flagler County 2006b). Two of the five test units excavated during this project (TU 1 and TU 4) revealed that the soil immediately adjacent to the brick road had been previously excavated to allow for the placement of the concrete curb.

Many of the concrete curbs that lined the historic brick roads of Florida were built with joints to prevent cracking from expansion and contraction as a result of temperature change. This was generally accomplished by laying pieces of 3/8- to 1-in. thick lumber with metal removal straps inside of the curbs. The lumber was removed once the brick road was laid and rolled (Flagler County 2006b). Expansion joints were found in the concrete curb within two test units (TU 2 and TU 4).

Figure 56. Photograph of the historic brick road on Egmont Key, taken facing west from the intersection of Division Street and the unnamed road to Quartermaster's Wharf.

Figure 57. Early twentieth-century photo of the Dixie Highway. Image courtesy of Flagler County (2006c).

The specific brand of brick used to build the road on Egmont Key was Copeland-Inglis. Copeland-Inglis Shale Brick Company was a Birmingham, Alabama business that made brick in the late-nineteenth to early-twentieth centuries. Their brick was used to pave roads throughout Florida (Marder 1998), and in 2005 they were found under Florida Avenue in Palm Harbor when workers began removing asphalt on what was once part of County Road 1 (Isbitts 2005). None of the bricks or brick fragments recovered from the five test units could be identified as Copeland-Inglis or any other specific brand of brick, as they all lacked maker's marks.

Historic Transportation Network Mapping

The survey of the historic transportation network on Egmont Key resulted in the mapping of approximately 1,710 linear meters (5,610 ft.) of brick road, 1,660 m (5,446 ft.) of concrete road, and 1,320 m (4,331 ft.) of concrete sidewalk. Not included in these totals are various lengths of concrete walkways representing entryways to previously existing structures, nor are various ramps and concrete pads. Greater than 50 such additional features were visible throughout the network, but these for the most part were not cleared of sediment to the same extent that the roadways had been. Within this discussion, the roads are referred to with their historic names, although no street names could be found for the group of roads within the central portion of the network. These are referred to herein as the town square area (Figure 58).

The brick roads were easily defined and visible over most of the Fort Dade area. Throughout the transportation network, the brick roads were delimited by concrete curbs which were nearly entirely in place. The test units placed beside sections of concrete curb showed the curbs to extend down about 45 cm (18 in.) into the ground, making for a very stable road boundary. In fact, sections of curbs were found leaning slightly out of place in only a few locations, and in only one location (in the area of the Quarter Master's Wharf at the northern end of Palmetto Avenue) were they potentially missing entirely. The only real problem encountered in the field with definition of the brick roads were areas where the roads were buried by sediment. This was the case within the area of Storehouse No. 43 (the old Fort Dade Pump House) at the west end of Center Street. The map by McCall (2003) suggests that the brick road continues around the south side of this structure (see Figure 21). Probing with a metal stadia rod encountered the continuation of the brick road beyond what could be mapped, buried under 2 to 10 cm (0.8-3.9 in.) of soil. This area was very thick with Brazilian pepper which tends to root on thin sheets of soil such as this.

The various forms of damage mapped throughout the system of brick roads amounted to a total of 106 patches, 128 slumps, and 22 voids. The patches ranged in size from very small areas of only two or three bricks to extensive areas between 8 and 17 m (26 and 56 ft.) long and 2 to 5 m (7 to 16 ft.) wide at the western extreme of Center Street. An average slump measured about 1 m (3 ft.) wide by 2 m (7 ft.) long, although they ranged up to approximately 9 m (30 ft.) in length. Slumps smaller than about 0.5 m (2 ft.) diameter were typically not mapped. The depressed centers of the slumps ranged between approximately 5 and 15 cm (2 and 6 in.) in depth. The smallest void mapped was equivalent to a single missing brick, while the largest was an extensive area at and continuing northwest of the intersection of Commerce Avenue and Center Street which measured the full width of the road and 22 m (72 ft.) long. The voids were extremely variable in size.

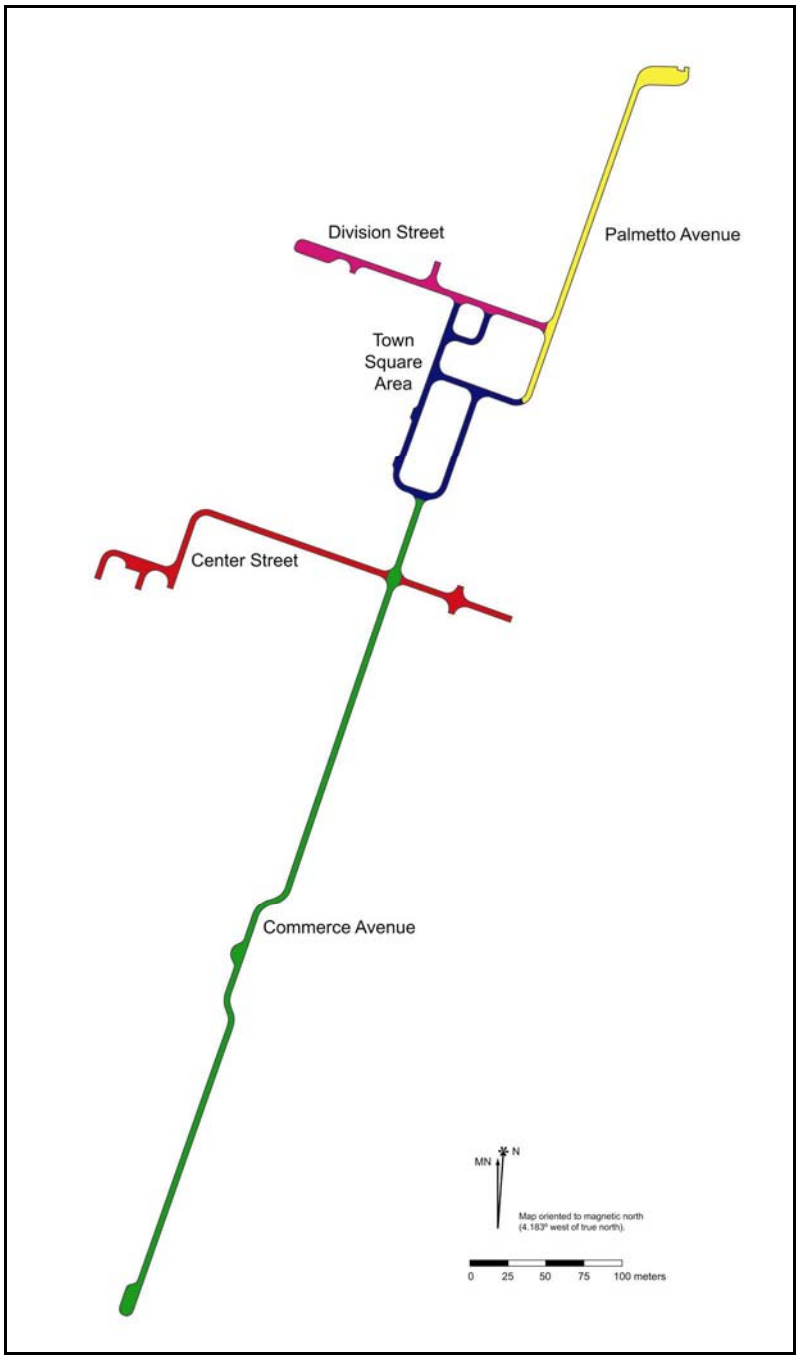

Figure 58. Map showing names of brick roads and brick road groupings used in text.

Table 9 shows the distribution of types of damage according to individual streets as both raw numbers and frequency per 100 linear m (328 ft.). The areas where slumps appear to be the biggest problem are Commerce Avenue and the town square area. Within the town square area, the slumps are concentrated along the northeast-southwest running road in the south-central portion of the area. Patching by the Coast Guard was fairly evenly distributed across the brick road network, especially when considering the size of patches. The voids tend to be found near road intersections and at road ends.

Table 9. Frequencies of types of damage along brick roads.

Street	RAW FREQUENCIES			FREQUENCY PER 100 LINEAR METERS		
	Patches	Slumps	Voids	Patches	Slumps	Voids
Center Street	20	15	5	6.3	4.7	1.6
Commerce Avenue	35	66	3	6.0	11.4	0.5
Division Street	12	12	3	6.0	6.0	1.5
Palmetto Avenue	21	7	7	8.1	2.7	2.7
Town Square Area	18	28	4	5.1	8.0	1.1
TOTAL	**106**	**128**	**22**	**6.2**	**7.5**	**1.3**

Most of the concrete roads including the sections along Palmetto Avenue, Battery Avenue, and the road running from Division Street towards the Quarter Master's Wharf all appeared in fairly good shape and had easily defined edges. The roads running north-south west of the reconstructed Guard House and east-west in the area of the helipad were in much worse shape and tended to have edges obscured by tree roots and sediment. The road in the area of the helipad was especially bad, being very cracked and slumping to either side in many areas. It also seemed to continue for an unknown distance to the west under low sand dunes. Also, the concrete road running westward from the area of Storehouse No. 43 currently runs under replenished beach sand and presumably out into the Gulf of Mexico. Two heavily damaged portions of concrete roads, where the concrete was ripped out and missing completely, were located at the intersection of the road to the Quarter Master's Wharf and the northern running road, and towards the northern end of Palmetto Avenue. These areas are shown on the overview map in Appendix E in Volume II of this report.

The concrete sidewalks were generally less cleared and the edges less visible then the concrete roads, although in certain areas they were easily defined, particularly along the northern half of Palmetto Avenue and within the town square area. In these particular areas, the concrete walkways representing entryways to former structures could be followed for significant distances as well. Along many other portions of sidewalks, only the very beginnings of the entryways could be discerned and mapped, the rest largely being obscured by sediment. Overall though, the sidewalks appeared in fairly good condition throughout the Fort Dade area. Some sections of sidewalks were nearly completely covered by sediment. One such segment was that running along the west side of Palmetto Avenue south of Center Street. Only very small patches of this sidewalk could be seen in a few locations, although probing with a metal stadia rod demonstrated it's presence beneath a 5-cm (2-in.) or more thick layer of soil. Much of the sidewalk along the south side of Center Street between Commerce and Palmetto avenues was also buried by sediment, but beginning and ending points were clearly visible, allowing confident mapping in this location. Within the general area of the helipad, only small sections of sidewalk were noted on the surface, and those were very damaged. Finally, the concrete entryways along Commerce Avenue appeared both obscured and very broken, particularly at the southern end in the vicinity of the hospital remains.

The least preserved portions of the historic transportation network on Egmont Key were the railroad segments and wharves. Physical evidence of the railroads was noted in only a few places throughout the island. This is predominantly because the metal rails were mostly removed for salvage during World War II (Tom Watson, personal communication, 2006). A short segment of metal rails was located at the northern end of the brick section of Palmetto

Avenue near the former location of the Quarter Master's Wharf (see Figure 14). This track once ran out onto the wharf, but no portions of this wharf currently remain. The concrete supports for the train tracks running out onto the Mine Wharf near the northern tip of the island still exist and were mapped. The only thing that remains of the Mine Wharf are its concrete supports, which are crumbling in many locations. The course of the railroad could in places be discerned by observing vegetation growth. At the southern bend of the road near the western end of Center Street, a straight line of dead Brazilian pepper was flanked by much taller and older palm trees running north-northeast. Crushed rock, shell, and small fragments of coal were visible on the surface of this area, which represents the overgrown railroad corridor. This corridor could be followed farther north to some extent, although not well enough to map clear edges. The final remaining physical evidence of the railroad was found to the north of Storehouse No. 43. Two converging lines of concrete supports were visible running parallel to the brick and concrete roads. Some of these supports rested on a large concrete platform, which according to the McCall (2003) map represents the remains of a coal shed for the railroad. The individual concrete supports were rectangular in shape with four sides sloping inward. At their summit each measured 75-x-30 cm (30-x-12 in.) and had a threaded steel bar protruding the summit on one side (see Figure 15). The westernmost support, where the two lines converged, was larger, measuring 171-x-31 cm (67-x-12 in.) at the summit and containing two threaded steel bars. Approximately one-third of the supports are no longer visible and are buried by sand dunes in the area, and five of the supports that were visible were partially obscured by sand.

CONCLUSIONS AND RECOMMENDATIONS

Mapping of the Egmont Key Historic Transportation Network used a Topcon GTS-226 Electronic Total Station to take 3,752 points to map in the brick and concrete roads, concrete sidewalks, entrances, ramps, extant portions of the railroad, and other relevant features associated with the Fort Dade transportation network. In an effort to aid the U.S. Fish & Wildlife Service in the proposed rehabilitation and subsequent maintenance of the brick road, the survey also focused on the mapping of damaged portions of the brick road throughout the transportation network Damaged areas were classified as to type of damage with three categories being defined: patches, slumps, and voids. In all, 106 patches, 128 slumps, and 22 voids were mapped throughout the network of brick roads. Detailed plans of the brick road showing damaged areas appears in Volume II of this report.

Four-hundred-fifty-four identifiable artifacts were recovered from the five 1-x-0.5-m test units excavated along the brick road to examine the construction techniques associated with this resource. No prehistoric material was recovered or observed during the course of this project. The historic materials recovered were consistent with the previously recorded time frame of 8HI117 from 1821 to the present. No new cultural components were identified at 8HI117 and no intact features from historic or prehistoric contexts were encountered. The artifacts and copies of the field notes, maps, and other paperwork generated during the course of this survey will be returned to Bureau of Archaeological Research in Tallahassee, Florida, as per the conditions of the FDHR Archaeological Research Permit. No further archaeological work is recommended concerning the mapping of the historic transportation network on Egmont Key.

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APPENDIX A:
U.S. FISH & WILDLIFE SERVICE SPECIAL USE PERMIT AND FDHR ARCHAEOLOGICAL RESEARCH PERMIT

APPENDIX B: TABLE OF MATERIAL RECOVERED

FS	Test Unit	Stratum	Level	Cmbd	Items	Count	Weight (g)	Historic Group	Material	Color	Curved/Flat	Portion	Description
1	1	I	1	0-15	slate	2	1.85	architecture	slate				
1	1	I	1	0-15	brick	1	10.36	architecture	brick	red/orange			
1	1	I	1	0-15	rock/gravel	1	9.37	architecture	breccia				
2	1	I	2	15-25	brick	3	2.76	architecture	brick	red			
2	1	I	2	15-25	gravel	19	56.43	architecture	chert				
2	1	I	2	15-25	lead weight	1	63.20	unident	lead				flat disc w/hole; 23.9 (.94")/diameter
2	1	I	2	15-25	glass, bottle	1	2.30	kitchen	glass	clear		body	flat-fronted
2	1	I	2	15-25	metal frags UID	4	2.47	unident	iron				
2	1	I	2	15-25	slate tile frag	1	0.37	architecture	slate				slate tile frag
2	1	I	2	15-25	charcoal, wood	1	0.05	unident	wood char				
3	1	I/II	3	25-35	brick	3	4.94	architecture	brick	dark purple-red			
3	1	I/II	3	25-35	mortar	2	6.50	architecture	mortar				
3	1	I/II	3	25-35	gravel	19	71.96	architecture	chert?				
3	1	I/II	3	25-35	bone	1	0.87	kitchen	bone			carapace	cf. *Gopherus polyphemus*
3	1	I/II	3	25-35	coal	1	6.45	activities	coal				
3	1	I/II	3	25-35	glass, window	2	8.22	architecture	glass	aqua	flat	body	
3	1	I/II	3	25-35	glass, bottle	1	1.56	kitchen	glass	clear	curved	body	
4	1	II	4	35-45	glass, window	2	2.16	architecture	glass	aqua	flat	body	
4	1	II	4	35-45	clinker	1	0.11	activities	clinker				
4	1	II	4	35-45	nail frag., corroded	1	1.55	architecture	iron				11.4 (.44") X 8.6 (.33") X .3 (.01") mm
4	1	II	4	35-45	metal tab, flat	1	0.47	unident	brass?				
4	1	II	4	35-45	gravel	11	47.33	architecture	chert?				
5	1	II/III	5	45-55	nails, corroded	1	15.15	architecture	iron				85.9 (3.38") mm/length
5	1	II/III	5	45-55	brick	3	10.43	architecture	brick	2 = orange/red; 1 = dk purple-red			
5	1	II/III	5	45-55	gravel	9	23.43	architecture	chert?				

FS	Test Unit	Stratum	Level	Cmbd	Items	Count	Weight (g)	Historic Group	Material	Color	Curved/Flat	Portion	Description
5	1	II/III	5	45-55	mortar	5	22.52	architecture	mortar				
5	1	II/III	5	45-55	nails, corroded	2	16.26	architecture	iron				fragments
6	1	II/III	6	55-65	brick frags	3	19.61	architecture	brick				
6	1	II/III	6	55-65	mortar frags	5	36.73	architecture	mortar				
6	1	II/III	6	55-65	gravel	3	19.37	architecture	chert				
6	1	II/III	6	55-65	glass, window	3	4.87	architecture	glass	aqua	flat		
6	1	II/III	6	55-65	glass, thin	1	1.26	kitchen	glass	clear	curved		thin glass; not bottle glass; maybe a glass shade
7	2	I	1	10-20	brick frags	28	356.27	architecture	brick	1=dk purple-red; 3=red/orange			molded brick; 1 of the red-orange bricks marked with …A… (might be NATIONAL).
7	2	I	1	10-20	gravel/pebbles	6	16.78	architecture	chert/quartz/quartzite				
7	2	I	1	10-20	clinker	1	6.18	activities	clinker				
7	2	I	1	10-20	nails, cut, frags	6	14.15	architecture	iron				
7	2	I	1	10-20	earthenware, glazed	1	2.41	kitchen	earthenware	brown-glazed		transitional	brown glazed exterior, white core
7	2	I	1	10-20	earthenware, glazed	1	4.51	kitchen	earthenware	grey-glazed		body	very light glaze; light grey exterior, white core
7	2	I	1	10-20	mortar	6	28.67	architecture	mortar				
7	2	I	1	10-20	slate	4	29.64	architecture	slate				slate tile frag
7	2	I	1	10-20	iron sheet/plate frags	10	53.58	activities	iron				
7	2	I	1	10-20	glass	1	1.24	kitchen	glass	amethyst	flat	body	flat-fronted bottle, eg. Medicine?
7	2	I	1	10-20	glass	2	4.77	furniture	glass	emeralite (gr/wh)	curved	1 rim, 1 body	Emeralite = lamp shade
7	2	I	1	10-20	glass	10	12.06	unident	glass	light aqua	indet	indet	partially melted
7	2	I	1	10-20	glass	1	0.46	architecture	glass	light aqua	flat	body	window glass

FS	Test Unit	Stratum	Level	Cmbd	Items	Count	Weight (g)	Historic Group	Material	Color	Curved/Flat	Portion	Description
8	2	I	2	20-30	mortar frags	8	101.99	architecture	mortar				
8	2	I	2	20-30	brick frags	2	1.73	architecture	brick	light red			
8	2	I	2	20-30	glass frag, tiny	1	0.57	unident	glass	clear	indet	body	
8	2	I	2	20-30	clinker	1	0.81	activities	clinker				
8	2	I	2	20-30	nail frag., corroded	2	5.49	architecture	iron				
8	2	I	2	20-30	nail, wire (bent)	1	8.97	architecture	iron				75.5 (2.97")/ length
8	2	I	2	20-30	metal disks, UID, corroded	2	4.12	unident	iron				metal disks -- unidentified; 25 cm (1") diameter
9	2	I	3	30-40	mortar frags	9	52.63	architecture	mortar				
9	2	I	3	30-40	brick frags	7	16.71	architecture	brick	2 = red; 3= purple-red; 2 = light pink			
9	2	I	3	30-40	shell, bivalve	1	3.42	unident	shell				
9	2	I	3	30-40	nails, corroded	5	43.63	architecture	iron				avg. length = 66.2 (2.6") mm
9	2	I	3	30-40	nail frag., corroded	5	13.02	architecture	iron				
9	2	I	3	30-40	metal chunk, uid	1	5.94	unident	iron				
9	2	I	3	30-40	metal disks, UID, corroded	15	40.05	unident	iron				25 cm (1") diameter
10	2	I	4	40-50	glass, partly melted	1	0.99	unident	glass	clear	indet	indet	partially melted
10	2	I	4	40-50	brick frags	4	10.78	architecture	brick	3= lt orange-red; 1 = dk purple-red			
10	2	I	4	40-50	mortar frags	2	18.41	architecture	mortar				
10	2	I	4	40-50	bone, NHB	1	9.00	kitchen	bone				cow rib, sawn as for shortribs; n= 1(2)
10	2	I	4	40-50	metal disks, UID, corroded	5	16.87	unident	iron				25 mm (1") diameter
10	2	I	4	40-50	metal frags UID	4	68.88	unident	iron				

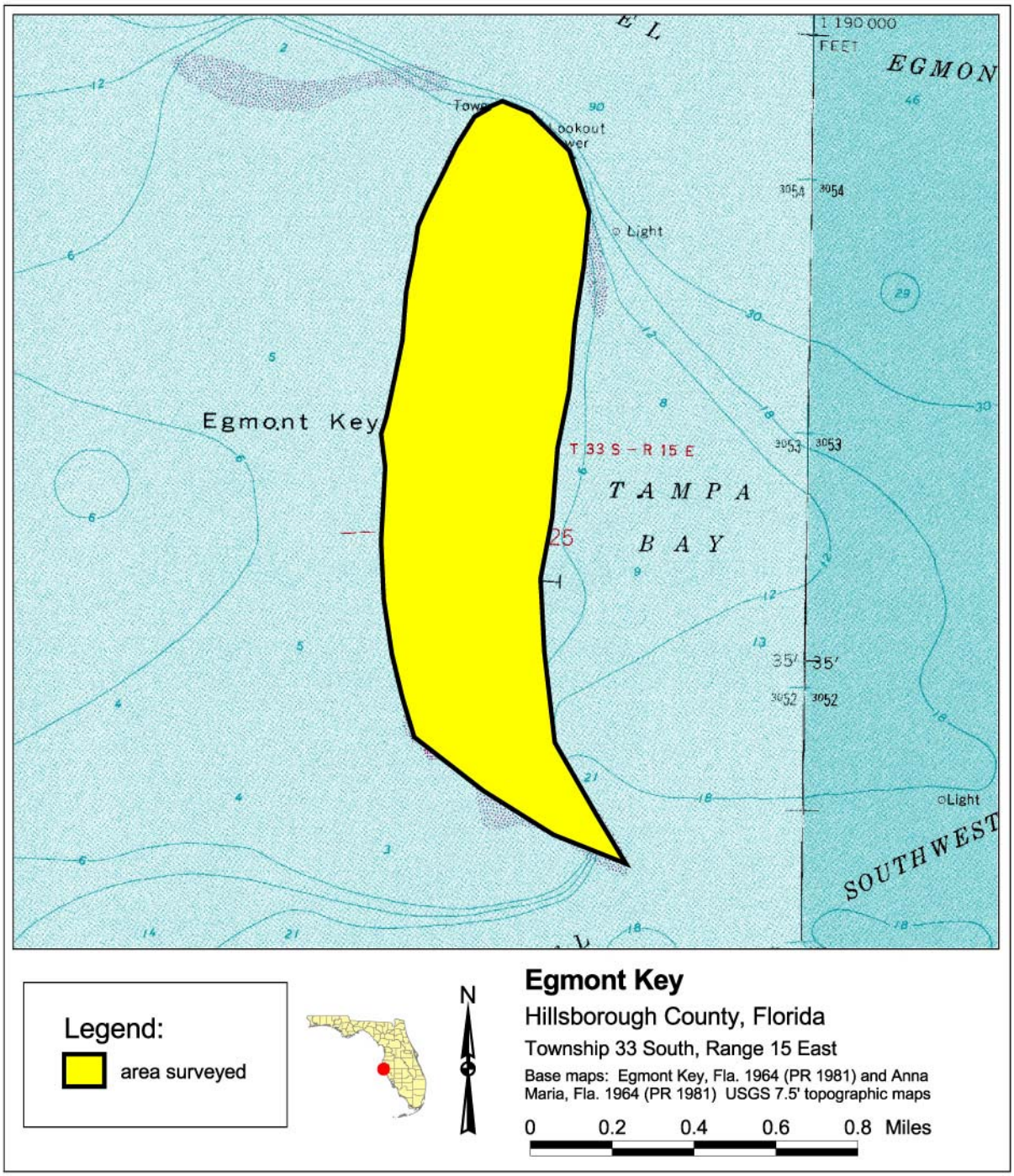
FS	Test Unit	Stratum	Level	Cmbd	Items	Count	Weight (g)	Historic Group	Material	Color	Curved/Flat	Portion	Description
10	2	I	4	40-50	nails, cut, corroded	6	37.82	architecture	iron				
11	3	I	1	0-20	cartridge case, .22 long	11	9.44	arms	10 brass; 1 steel				headstamps: H (1); U (6); SUPER X (1); indet (2); diamond shape (1)
11	3	I	1	0-20	bullet, .22 long	1	3.38	arms	brass/lead				headstamp: diamond; unjacketed lead bullet
11	3	I	1	0-20	cartridge case, .45 auto	3	15.06	arms	brass				headstamp= "32"
11	3	I	1	0-20	cartridge case, .30-06	1	13.15	arms	brass				no headstamp
11	3	I	1	0-20	button, loop shank	1	5.40	personal	brass				US Army uniform button; front = U.S. eagle; back = "BADGER MFG CO RACINE WIS"
11	3	I	1	0-20	metal arm, uid	1	89.72	unident	iron				arm for some mechanical item
11	3	I	1	0-20	nail, wire	1	12.41	architecture	iron				93.3 (3.67") mm/length
11	3	I	1	0-20	screw eyelet	1	2.82	architecture	brass/alloy				
11	3	I	1	0-20	loop or grommet	1	0.44	architecture	iron				
11	3	I	1	0-20	wire loop w/toothed base	1	1.00	unident	brass/alloy				
11	3	I	1	0-20	rectangular plate with screw holes	1	6.53	unident	brass/alloy				
11	3	I	1	0-20	tack, wire, roofing	1	2.84	architecture	iron				23.5 (.027") mm/length
11	3	I	1	0-20	clinker	1	12.32	activities	clinker				
11	3	I	1	0-20	porcelain	1	4.83	furniture	porcelain	white/white	flat	body	
11	3	I	1	0-20	glass, bottle	1	0.66	kitchen	glass	dk brown	curved	lip	

FS	Test Unit	Stratum	Level	Cmbd	Items	Count	Weight (g)	Historic Group	Material	Color	Curved/Flat	Portion	Description
11	3	I	1	0-20	glass, bottle	7	2.63	kitchen	glass	amber	curved	body	
11	3	I	1	0-20	glass, flat	2	0.63	kitchen	glass	clear	flat	body	
11	3	I	1	0-20	glass, amethyst	1	0.63	kitchen	glass	amethyst	curved	trans (corner)	
11	3	I	1	0-20	glass, clear	1	3.05	kitchen	glass	clear	curved	body	
11	3	I	1	0-20	glass, clear	4	1.22	kitchen	glass	clear	indet	indet	
11	3	I	1	0-20	glass, clear	2	3.33	kitchen	glass	clear	curved	lip	threaded lip
11	3	I	1	0-20	glass, clear	1	0.73	kitchen	glass	clear	curved	lip	snap-on lid lip
11	3	I	1	0-20	glass, aqua	10	17.84	kitchen	glass	aqua	curved	body	Coca-Cola
11	3	I	1	0-20	glass, aqua	3	4.68	architecture	glass	aqua	flat	body	
12	3	I	2	20-30	button, 4-hole shank	1	0.90	personal	brass				"U.S.A."
12	3	I	2	20-30	bullet, .30 cal	1	11.16	arms	lead/brass				.30 cal boat-tail, FMJ (full metal jacket) bullet
12	3	I	2	20-30	cartridge case, .45 auto	1	6.07	arms	brass				"F.A. _.32"
12	3	I	2	20-30	bullet, .22 long	1	2.75	arms	brass				"U"
12	3	I	2	20-30	cartridge case,=.22 long	4	3.71	arms	brass				2="F"; 1="U"; 1=none
12	3	I	2	20-30	cartridge case, .22 short	1	0.75	arms	brass				"AL"
12	3	I	2	20-30	nail frag., corroded	4	5.07	architecture	iron				
12	3	I	2	20-30	nail, cut	1	3.33	architecture	iron				45.9 (1.81")mm/length
12	3	I	2	20-30	brick frags	3	40.80	architecture	brick				
12	3	I	2	20-30	slate tile frag	1	3.24	architecture	slate				
12	3	I	2	20-30	rock/gravel	1	6.27	unident	chert?				
12	3	I	2	20-30	glass, chimney	1	0.26	furniture	glass	clear	curved	body	
12	3	I	2	20-30	glass, milk	1	0.29	kitchen	glass	milk	flat	indet	
12	3	I	2	20-30	glass, aqua	5	5.16	kitchen	glass	aqua	curved	body	cf. Coca Cola
12	3	I	2	20-30	glass, aqua	2	2.43	architecture	glass	aqua	flat	body	
12	3	I	2	20-30	glass, clear	2	1.95	kitchen	glass	clear	curved	body	
13	3	II	3	30-40	slate frag	1	1.14	architecture	slate				

FS	Test Unit	Stratum	Level	Cmbd	Items	Count	Weight (g)	Historic Group	Material	Color	Curved/Flat	Portion	Description
13	3	II	3	30-40	brick frags	2	0.69	architecture	brick				
13	3	II	3	30-40	glass frag	1	0.27	kitchen	glass	clear	indet	indet	
13	3	II	3	30-40	glass frag	1	0.17	architecture	glass	clear	flat	indet	
13	3	II	3	30-40	glass - Coca Cola bottle	1	4.55	kitchen	glass	aqua	curved	body	cf. Coca-Cola
14	4	I	1	10-20	brick frags	10	32.75	architecture	brick	orange-red and purple-red			
14	4	I	1	10-20	mortar frags	3	21.99	architecture	mortar				
14	4	I	1	10-20	gravel	1	8.25	architecture	chert				
14	4	I	1	10-20	coal	1	12.80	activities	coal				
14	4	I	1	10-20	clinker	1	22.07	activities	clinker				
14	4	I	1	10-20	melted glass	1	0.79	indet	slag				
14	4	I	1	10-20	earthenware, salt-glazed	1	8.02	kitchen	earthenware	brown salt-glazed		rim	
14	4	I	1	10-20	glass, clear	1	0.57	indet	glass		indet	body	
14	4	I	1	10-20	glass, clear, chimney	1	0.12	furniture	glass		curved	body	
14	4	I	1	10-20	glass rod	1	1.14	indet	glass		curved	body	
15	4	II	2	20-30	brick frags	3	28.93	architecture	brick	purple-red			
15	4	II	2	20-30	mortar frags	2	31.96	architecture	mortar				
15	4	II	2	20-30	gravel	9	170.08	architecture	chert?				
15	4	II	2	20-30	gutter spike	1	47.30	architecture	alloy				138.5 (5.45") mm/length
15	4	II	2	20-30	tack, cut	1	0.72	architecture	iron				bent; 23 (.91") mm/length
15	4	II	2	20-30	nail, cut	1	23.84	architecture	iron				102.3 (4.03") mm/length
15	4	II	2	20-30	nail, wire	1	8.11	architecture	iron				bent; 77 (3.03") mm/length
15	4	II	2	20-30	nails, corroded	4	35.12	architecture	iron				70.8 (2.78")mm/length
15	4	II	2	20-30	nail, wire	1	2.15	architecture	iron				36.0 (1.41") mm/length
15	4	II	2	20-30	nail, corroded	1	3.89	architecture	iron				39.3 (1.54") mm/length
15	4	II	2	20-30	nail frag., corroded	9	14.17	architecture	iron				

FS	Test Unit	Stratum	Level	Cmbd	Items	Count	Weight (g)	Historic Group	Material	Color	Curved/Flat	Portion	Description
16	4	II	3	30-40	brick frags	2	38.22	architecture	brick	dk purple-red			
16	4	II	3	30-40	gravel	3	32.03	architecture	chert				
16	4	II	3	30-40	metal frags UID	2	15.01	indet	iron				
16	4	II	3	30-40	nail, wire	1	10.92	architecture	iron				83.3 (3.28") mm/length
16	4	II	3	30-40	nail, wire	1	2.05	architecture	iron				34.4 (1.35") mm/length
16	4	II	3	30-40	nail, wire	4	17.04	architecture	iron				53.3 (2.10") mm/ average length
17	5	I	1	0-20	brick frags	8	39.46	architecture	brick	dk purple-red			
17	5	I	1	0-20	mortar frags	1	7.08	architecture	mortar				
17	5	I	1	0-20	nail, wire	1	7.57	architecture	iron				78.9 (3.1") mm/length
17	5	I	1	0-20	glass, amber	3	2.75	kitchen	glass	amber	curved	body	bottle frag; embossed dots on one frag; likely recent non-recyclable
17	5	I	1	0-20	glass, clear	2	1.10	kitchen	glass	clear	curved	indet	
17	5	I	1	0-20	glass, clear	2	0.47	architecture	glass	clear	flat	indet	
17	5	I	1	0-20	glass, lt aqua	1	0.24	architecture	glass	light aqua	flat	indet	
17	5	I	1	0-20	whiteware	1	9.52	kitchen	ceramic	white/white	curved	rim	saucer; est RDIA = 14cm; lip=simple

APPENDIX C: FLORIDA MASTER SITE FILE FORMS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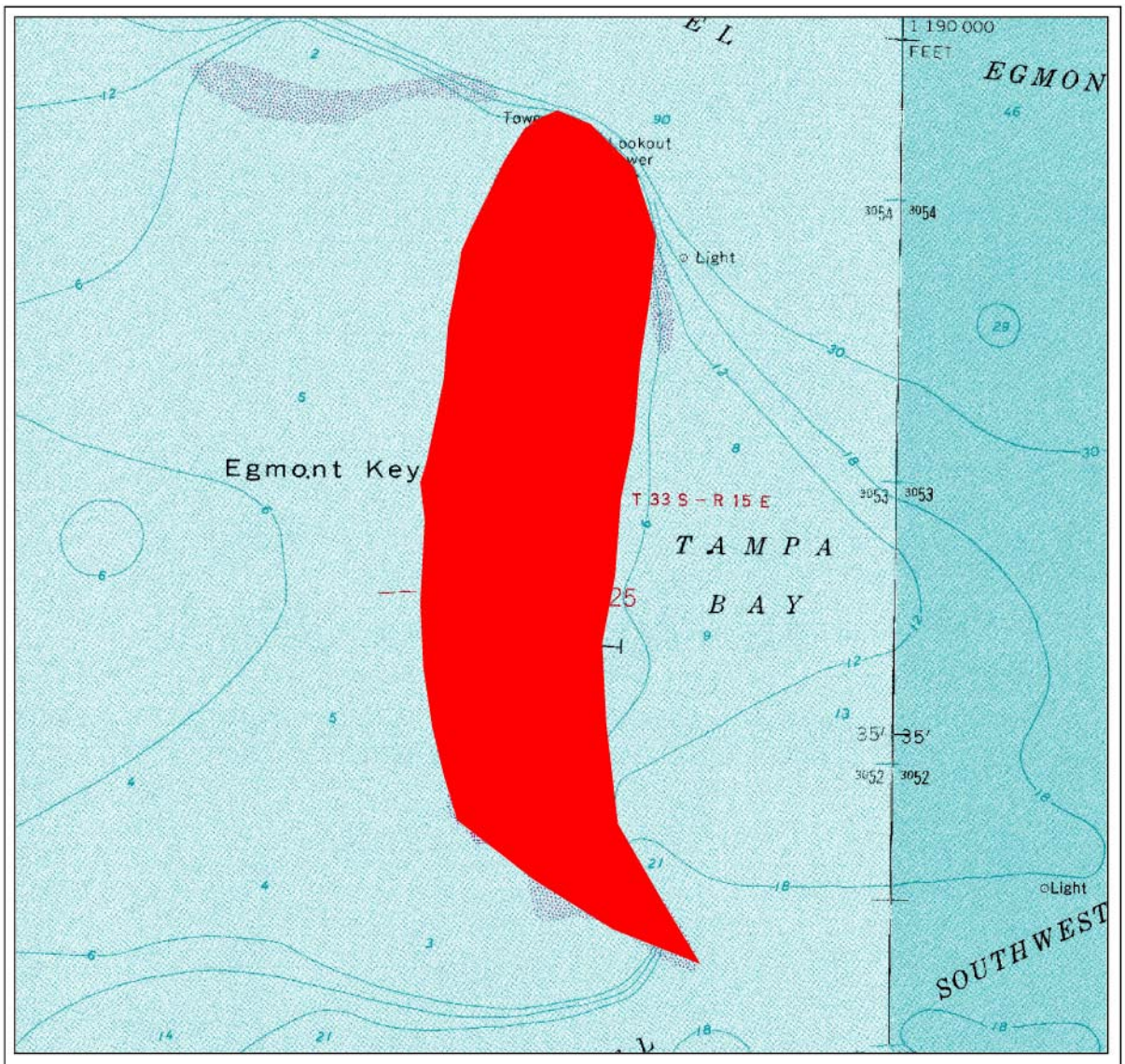
EGMON
Egmont Key
T 33 S – R 15 E
TAMPA
BAY
Light
Light
SOUTHWEST
3054
3053
3052
35'
25
Legend:
area surveyed
N
Egmont Key
Hillsborough County, Florida
Township 33 South, Range 15 East
Base maps: Egmont Key, Fla. 1964 (PR 1981) and Anna Maria, Fla. 1964 (PR 1981) USGS 7.5' topographic maps
0 0.2 0.4 0.6 0.8 Miles


1 190 000
FEET
EGMON
Egmont Key
T 33 S – R 15 E
TAMPA
BAY
Light
Light
SOUTHWEST
3054
3053
3052
35'
25
Legend:
8HI117
N
Egmont Key
Hillsborough County, Florida
Township 33 South, Range 15 East
Base maps: Egmont Key, Fla. 1964 (PR 1981) and Anna Maria, Fla. 1964 (PR 1981) USGS 7.5' topographic maps
0 0.2 0.4 0.6 0.8 Miles

APPENDIX D: CURATION PLAN