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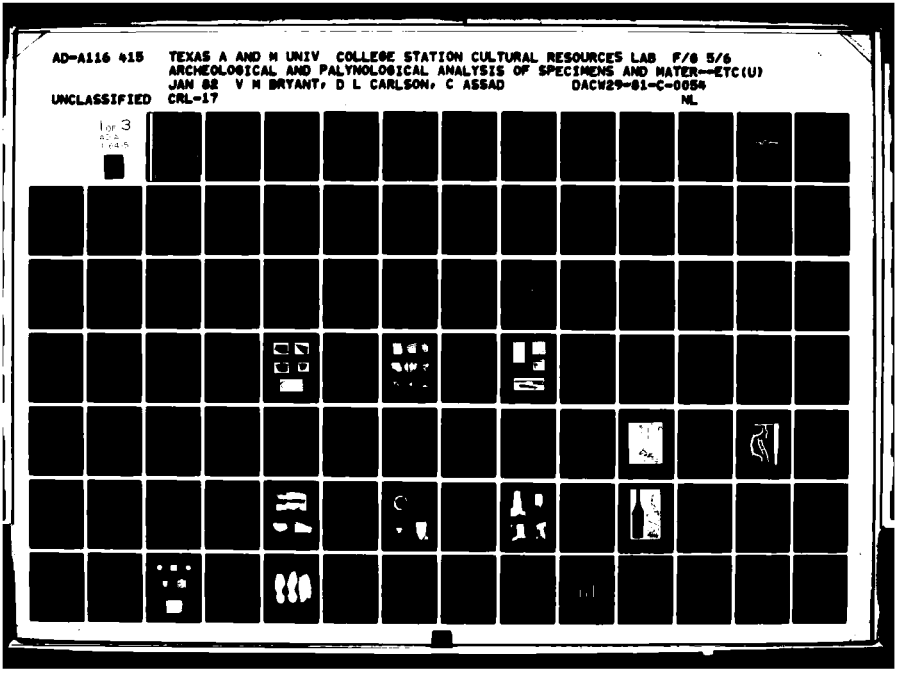

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REPORT PD-RC-82-03

ARCHEOLOGICAL AND PALYNOLOGICAL ANALYSIS OF SPECIMENS AND MATERIALS RECOVERED IN TWO HISTORIC PERIOD PRIVIES AND A WELL IN THE ST. ALICE REVETMENT, ST. JAMES PARISH, LOUISIANA

CULTURAL RESOURCES LABORATORY
TEXAS A & M UNIVERSITY
COLLEGE STATION, TEXAS 77843

JANUARY 1982

FINAL REPORT

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U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
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The historical background, environmental setting, and the previous archeological investigations at the Welcome Plantation site along the St. Alice Revetment, St. James Parish, Louisiana is summarized. Fieldwork by Coastal Environments, Inc. on two historic privies and a well resulted in a variety of historic period cultural material which is analyzed in this report. Dating of the features was based upon ceramic and glass artifacts and confirmed the hypothesis that the site was late 19th century. The ceramics, glass, and metal artifacts were all common on farmsteads and plantations at that time. Faunal remains present in the features indicated a dependence on domesticated cow and pig, although eggs, fish, and oysters were also present. Botanical studies indicated that plant foods in the diet included anise (or caraway), tomato?, chili pepper, squash, watermelon, grape, hackberry, and maize. Socioeconomic status of the privy users was ambiguous because of the relatively sparse quantity of artifacts and because of a lack of comparative data for the area. The suggestion is made that the dietary differences in the two privies may reflect seasonal differences in the availability of certain foods.

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PREFACE

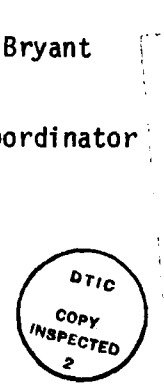
The staff of the Cultural Resources Laboratory of Texas A & M University would like to thank Thomas M. Ryan, District Archaeologist, U. S. Army Engineer District, New Orleans, Corps of Engineers for his advice and support throughout this project. In addition, we would like to thank Dr. George Castille of Coastal Environments, Inc. for assisting us in the interpretation of the fieldnotes and profiles assembled during the original excavations in the St. Alice Revetment. It is seldom an easy task for a second party to enter a project at the conclusion of the fieldwork and write up the site based on another's records. Dr. Castille eased the complexities of this necessarily difficult undertaking.

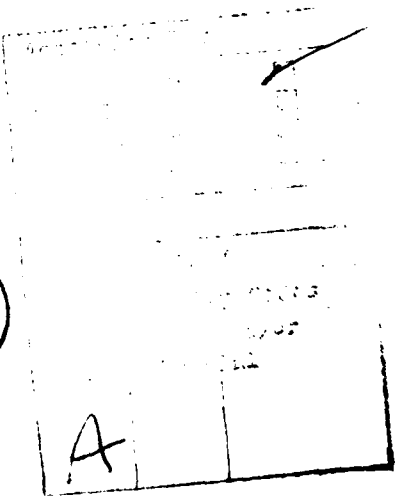
Others who are acknowledged and thanked for their support and effort on this project include: Stephen James who aided in the identification and description of the ceramics; Bruce Thompson who assisted in the analysis of the metal and glass artifacts; Cristi Assad who examined and identified the faunal remains and Robert Murry who conducted the pretesting and analysis of the pollen samples. The profile drawings were constructed and drafted by Kathy Roemer; the photographs were taken by Kay McWilliams and the typing completed by Kelly Shea.

Special thanks is also extended to Drs. Don L. Hamilton, Ervan G. Garrison, and D. Bruce Dickson for their valuable suggestions and assistance in the preparation of the final report. Michele Kennedy coordinated this project and did much of the editing and proofreading; without her devoted effort and patience the project could not have been completed.

Vaughn M. Bryant

Project Coordinator





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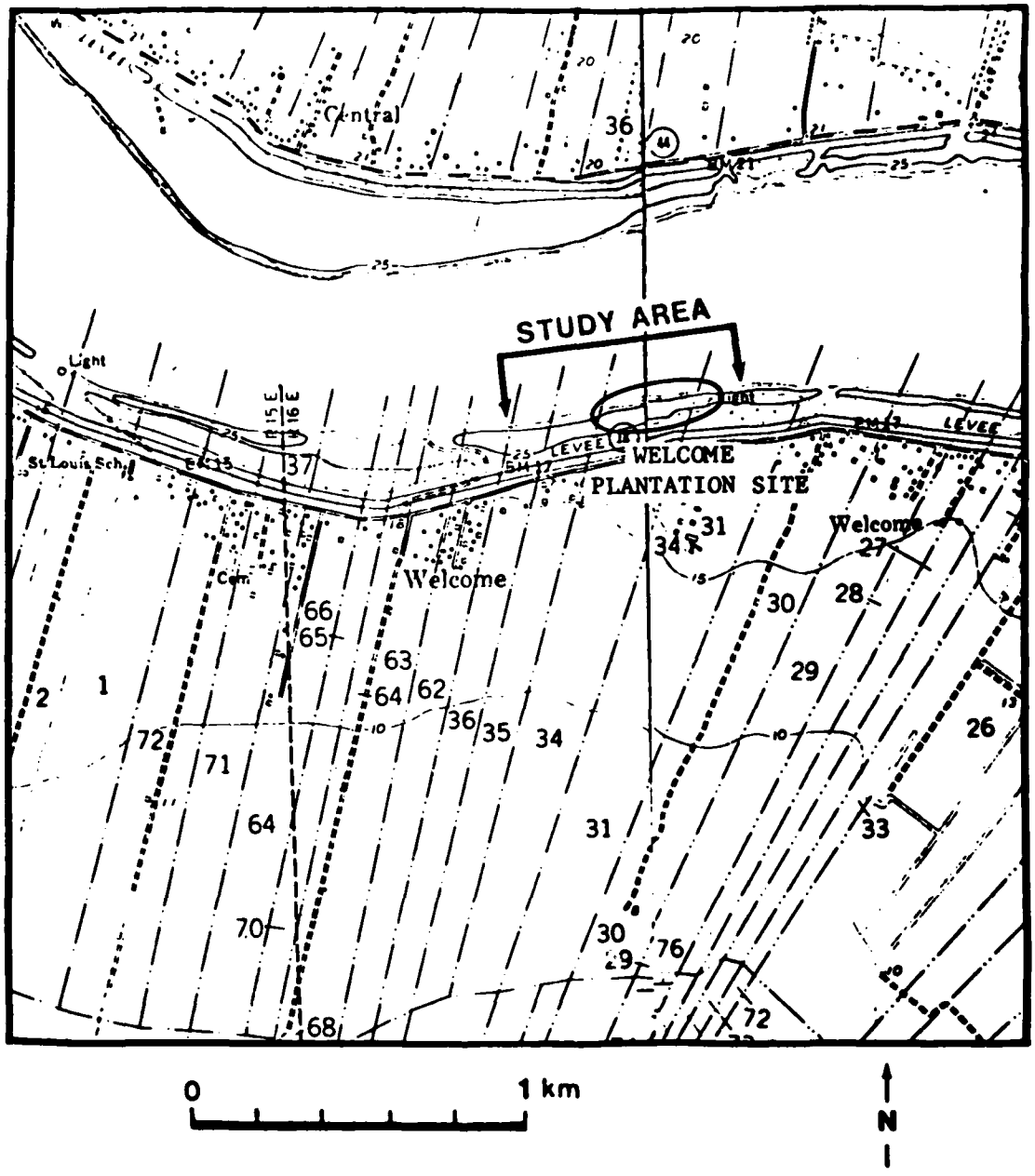
CHAPTER I: INTRODUCTION TO THE STUDY AREA AND STUDY PROBLEM

This report describes the analysis and research undertaken by the Cultural Resources Laboratory of Texas A & M University under a contract from the U. S. Army Engineer District, New Orleans, Corps of Engineers. Archeological and palynological laboratory analysis was conducted on materials and specimens recovered from two historic period privies and a well excavated within the boundaries of the St. Alice Revetment of the Mississippi River in St. James Parish, Louisiana. This revetment lies on the right descending bank of the Mississippi River about 50 miles downstream from Baton Rouge. It includes sections 31, 34, 35, and 36 of 12 South, Range 16 East and is located between river miles 162 and 165 near the modern settlement of Welcome, Louisiana (Figure 1-1).

The Welcome Plantation site (16SJ17, also called the St. Alice Revetment site) was located in 1978 during a cultural resources survey of the area by archeologists from the Department of the Army, New Orleans District, Corps of Engineers. The survey was undertaken in compliance with the National Historic Preservation Act of 1966 and the Advisory Council on Historic Preservation regulations (36FR800). The goal of the survey was to identify potentially significant cultural resources which would be adversely affected by the construction of a revetment along the Mississippi to halt bank erosion. Coastal Environments, Inc. was subsequently contracted to conduct a program of surface survey and subsurface testing in order to evaluate the significance of the site. In their report (Castille 1979) the Welcome Plantation site was recommended as eligible for the National Register of Historic Places. On December 27, 1978 the site was determined to be eligible by the Keeper of the National Register. On September 25, 1979 a determination of no adverse effect for the Welcome site was executed with the Louisiana State Historic Preservation Officer and the Advisory Council on Historic Preservation. This determination provided for adequate excavation and analysis of the material from the two privies at the site. From October to November 1979, excavations were conducted by Coastal Environments, Inc. and summarized in their report (Coastal Environments, Inc. 1979b) in partial fulfillment of the determination of no effect. This report contains the analysis of the materials recovered and completes the requirements of that determination.

Figure 1-1

Map of Study Area after Castille 1979: Figure 1-1


Central
36
STUDY AREA
Light
LEVEE
WELCOME
PLANTATION SITE
St Louis Sch
37
Welcome
Welcome
Cem
66
65
63
64
62
36
35
34
31
30
28
27
29
26
33
2
1
72
71
64
70
68
31
30
29
76
72
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1 km
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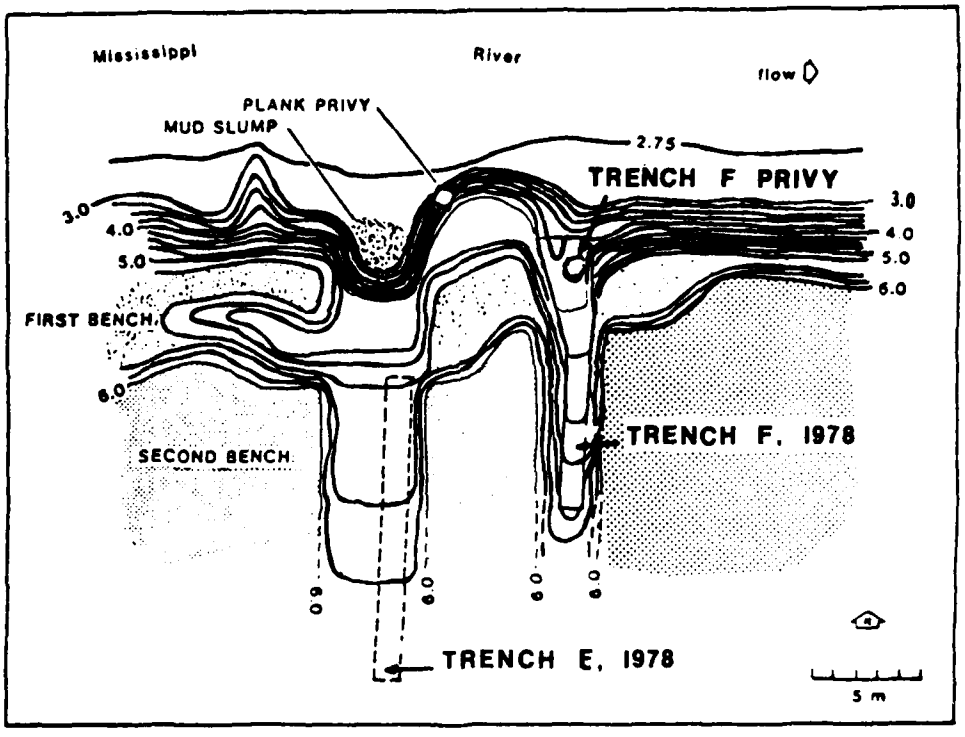
Figure 1-2
Map of Excavations after Coastal Environments, Inc. 1979b


Mississippi
River
flow
PLANK PRIVY
MUD SLUMP
2.75
TRENCH F PRIVY
3.0
4.0
5.0
6.0
FIRST BENCH
SECOND BENCH
TRENCH F, 1978
TRENCH E, 1978
5 m

The Study Problem

The initial survey and testing at the Welcome Plantation site was conducted with three basic research goals:

1. To identify in the archeological record the settlement shift from a single large plantation to smaller landholdings.
2. To examine the differential bankline erosion between the upstream and downstream ends of the study area.
3. To make intrasite comparisons of artifacts in order to identify functional/behavioral area within the site (summarized from Castille 1979: 1-4).

The settlement shift was documented by an examination of a series of late nineteenth and early twentieth century maps; however, this shift to smaller holdings was not demonstrable archeologically (Castille 1979: 7-1). The second goal was based upon the expectation that the upstream end of the project area would contain earlier material as a result of lower bankline erosion rates. In fact, however, the earliest materials came from the downstream end of the site where erosion had been greater, but there was no systematic temporal progression of the material along the bankline (Castille 1979: 7-1, 7-2). The third goal involving the indentification of functional area did manage to identify distinctions between domestic and non-domestic activities which corresponded well with building locations of the late nineteenth century maps (Castille 1979: 7-2).

By drawing on the results of the Welcome site investigations and information from other sites along the river bank, Castille developed a general model of initial settlement by Europeans, artificial levee construction, and subsequent settlement shifts and levee setbacks necessitated by bank erosion (1979: 7-2-7-8).

The analyses presented here were conducted on material from the plank privy, a privy located by Coastal Environments, Inc. during their survey and testing at the site (the Trench F privy), and a board-lined well also located by Coastal Environments, Inc. According to Castille (1979: 1):

> the privies were located about 6 meters apart near the downstream end of the Welcome Plantation site (16SJ17), in the vicinity of backhoe Trench F. Both privies had been partially damaged by the high water stage of the river during the spring of 1979.

The privies were located in an area where seven structures of unknown function had stood (Coastal Environments, Inc. 1979b: 1). The nineteenth century living surface was located on the natural levee deposits of the river, and the privy pits had been dug through these deposits and into the underlying backswamp clays. In 1902, all structures were removed from the area; the ground was graded, and an artifical setback levee was constructed directly above the two privies (Coastal Environments, Inc. 1979b: 1,2). The Trench F privy, simply a hole in the ground, was discovered during backhoe excavations in 1978. The plank privy, which was plank lined, was discovered eroding out of the riverbank in 1978 (Coastal Environemnts, Inc. 1979b: 2). The board-lined well was also washing out of the riverbank, in an area where early nineteenth century artifacts had been exposed. The well was constructed prior to the 1902 levee construction, as determined by its relationship to a gravel road (Coastal Environements, Inc. 1979b: 23,24).

Both of the privies were excavated in arbitrary levels. Pollen samples and soil matrix samples were taken; the analysis of which is discussed in Chapter V of the present report. Slumping and water seepage caused problems for the Coastal Environment excavators, as noted in Coastal Environments, Inc. (1979a, 1979b). The board-lined well was also excavated in arbitrary levels; in comparison to the large amount of materials recovered from the two privies, very few artifacts were encountered in the well (Coastal Environments, Inc. 1979b).

Analysis of the cultural material recovered from the privies and the well at the Welcome site was organized around a series of four questions:

1. When were the privies in use and for how long? Were they in use contemporaneously?
2. What was the socioeconomic status of the people who utilized the privies?
3. What kind of diet is indicated by the privy contents?
4. Are there significant differences between the privy fill and the post-abandonment fill?

The results of these analyses are presented in the following five chapters of this report. Following this brief introduction to the study area and the study problem, we present a discussion of the environmental setting of the study area. Next, we describe the history of the Welcome Plantation (16SJ17) with which the three features were apparently associated. In the fourth chapter, we discuss the analysis of the archeological materials recovered

at the site; this chapter is divided into five sub-sections including historic ceramics, glass, metal and miscellaneous artifacts as well as faunal remains. In the fifth chapter, we present the results of Robert Murry's analysis of the pollen and soil specimens recovered from the study area. Finally, in the concluding section, we discuss the results of our analysis and provide a management recommendation to the Corps of Engineers.

CHAPTER II: THE ENVIRONMENTAL SETTING

The St. Alice Revetment is located at the southern end of the Mississippi Alluvial Plain Section of the Atlantic and Gulf Coastal Plains Province as defined by Hunt (1974: 224). This physiographic section lies south and east of the Ozark Plateau and Ouachita physiographic provinces, and south and west of the Interior Low Plateau and Appalachian Provinces. True to its name, the surficial deposits of this physiographic section are characterized chiefly by alluvial and deltaic sedmients derived from the cutting and filling of the ancestral and recent Mississippi River and its tributaries. These alluvial deposits have been uncomfortably deposited on top of early seabed and estuarial deposits, characteristic of the coastal plain, and these deposits "in turn overlie and conceal the Paleozoic and other rock formations" of still earlier ages (Hunt 1974: 224).

The present character of the Mississippi alluvial plain has also been shaped by the meltwater derived from the successive continental ice sheets which have advanced and retreated across Canada and the northern portions of the United States perhaps six or more times during the Pleistocene epoch of the last three million years (Flint 1971; Boellstorff 1978). The sequential advances and retreats of these ice sheets closely correlate with changes in sea level at the mouth of the Mississippi and corresponding alternation in the gradient of the river's course. That is, during periods of glacial advance, the sea level dropped, the river gradient steepened and the river downcut along its channel and widened its valley. During periods of glacial retreat or interglaciation, the sea level rose and the river gradient was reduced. Such periods were characterized by slower river regimes and by deposition, rather than downcutting. According to Lenzer (1979: 19),

> a wave of aggradation moved up the entrenched valleys, filling them initially with sand and gravel, then with meander belt and backswamp sands, silts and clays as floodplain slopes decreased.

During periods of subsequent glacial advance, it was these interglacial alluvial formations which were eroded by the associated downcutting of the river. In addition, the Mississippian alluvial section experienced gradual uplift throughout the Pleistocene epoch. Since this uplift elevated the alluvial plain as a whole, each successive episode of downcutting and alluviation occurred at a level lower than that of the episodes that preceded it.

The erosion of each of these successively lower interglacial floodplains created the stairstep terraces visible today along Mississippi River's course (Haag 1962). Fisk (1944) correlated each of these terraces with a major period of glacial advance and retreat. Although some of his specific local correlations can be questioned, his overall identification of the erosion of the highest Williana terrace formation with the Nebraskan glacial stage, the next-highest Bently terrace formation with the Kansan glacial stage, the third-highest Montgomery terrace formation with the Illinoisan glacial stage, and the lowest Prairie terrace formation with the Wisconsian glacial stage, is generally accepted (Saucier 1971). This last formation is between twenty and fifty feet thick, and is generally located about twenty feet above the Holocene alluvial floodplain of the current river.

St. James Parish is located entirely with the "level and nearly level Mississippi River deltaic plain" and is neatly bisected by the river. It is not surprising, therefore, that the soils of the parish and the St. Alice Revetment study area within it are all, ultimately, alluvial in origin. Further, these soils are found in basically three physiographic settings, which are determined by the nature of the river regime: natural levees, swamps and marshes. The elevation of these physiographic features "ranges from about 20 feet near the river to less than 1 foot above sea level in the marshes" (Cockerham et al 1973: 1, 39-42).

Climate

Based on temperature and rainfall data collected at Reserve, Louisiana by the U. S. Weather Bureau (Cockerham et al 1973: 42-44), the climate in the study area may be classed according to Koeppen's climatic scheme as a type "Cfa" which means it is humid and subtropical with mild winters, uniformly distributed seasonal moisture and long hot summers (Critchfield 1966: 148-151). In terms of Thornthwaite's slightly different scheme, the climate there would fall in class "BB'r" which means that it is humid and mesothermal with rainfall adequate in all seasons (Critchfield 1966: 151-155).

Rainfall during the 37-year record period maintained at Reserve, Louisiana in nearby St. John the Baptist Parish averages 60.8 inches per year. These records indicate that rainfall is fairly evenly distributed throughout the year with a slight decrease characteristic of October and November. However, as Cockerham et al (1973: 42) notes, "precipitation may be deficient

or excessive in some years. One of the driest years of record was 1938, when precipitation was 38.37 inches. One of the wettest years of record was 1926 when precipitation was 84.26." Although snow rarely fell and hail is unusual, fog is a common occurence in the area and heavy tropical storms and hurricanes occur there once or twice in every three to seven years (Cockerham et al 1973: 43-44).

Mean monthly temperature recorded at Reserve ranges from an average high of 91° F during July and August to a low average of 43° F in January. Extreme temperatures are not common; however, summer temperatures rarely exceed 100° F and winters generally see temperatures below 32° F on only about 14 days per year (Cockerham et al 1973: 42).

Potential Vegetation of the Lower Mississippi Floodplain

Although the natural ecology of the lower Mississippi Valley floodplain has been extensively altered over the last 200 years by logging, land clearance and large-scale farming, the "potential" vegetation and wildlife in the region have been reconstructed by Shelford (1954: 1963: 89-119) on the basis of the field examination of relict forests and second-growth communities at various locations along the Mississippi floodplain. According to him (Shelford 1963: 56-59), the native flora and fauna of the region are part of the "Temperate Deciduous Forest Biome (Southern and Lowlands Regions)." This biome is characterized by a variety of tree species. Shortleaf, loblolly, longleaf, and slash pines grow principally on sandy uplands, while post, white, black, blackjack, and scarlet oaks, as well as longleaf pine, black, red, sand and pignut hickories, basswoods and various elm and cedar species characterize other upland areas. On the alluvial bottoms and swampland, this biome is characterized by cottonwood and willow; sweetgum and tupelo; water, laural, live, overcup and Texas oaks; southern cypress; pecan; water and swamp hickories; river birch; ash, honey locust; southern magnolia and a variety of other tree species (Shelford 1954, 1963; Hunt 1974: 232-233, U. S. Forest Service 1968).

Using relict stands and recently-flooded study areas along the Mississippi, Shelford was able to reconstruct the probable relative order of species and community succession along the Lower Mississippi floodplain. In areas of "short seasonal submergence," the plant succession generally begins with either the sandbar willow associes or the black willow-cottonwood associes. After about 28 to 30 years of growth, the mature black willow-cottonwood forests

begins to be invaded by hackberry and sweetgum and after about 65 years, are eventually replaced by what Shelford has designated the hackberry-sweetgum forest community. After about 175 years, the hackberry and sweetgum become subordinate to the newly-arriving elm and oak species. In the next 75 to 100 years, these and additional species of oak and hickory become dominant. The "oak-hickory forest community" may remain in domination or be surplanted after about 200 or more years by the "'tulip-deer-oak' biotic community," which is the climatic climax in the region. Shelford states the entire succession, from pioneer willow and cottonwood to the tulip-deer-oak climax, probably takes about 450 to 620 years (Shelford 1963: 103; 1954: 141). However,

> the constantly shifting channels, islands, and bars in the floodplain or rivers provide continuous new ground for the intiation of succession, the resulting series often stop short of the climatic climax of the region due to the regular flooding that occurs (Shelford 1963: 89).

Areas of long submergence, such as the alluvial bottomlands and swamps, are characterized by a somewhat different assemblage, referred to by Hunt (1974: 153) as the "riverbottom-cypress-tupelo-sweetgum" association, and characterized by those species, as well as water, laurel, live, Texas, and swamp white oaks; water and swamp hickories; river birch and cottonwood.

Finally, Shelford (1963: 105-106) notes that the floodplain is characterized by numerous small ponds and oxbows, which are both temporary, post flood season phenomena and permanent year-round features of the landscape. These ponds support a variety of tree species on their banks, including: black willow, cottonwood, and water locust, as well as a large and biologically complex mat of vegetation on their surfaces.

Modern Vegetation in the St. Alice Revetment Area:

A modern vegetational transect study was undertaken in the study area by Robert Murry of Texas A & M University during the fall of 1980. The focal area of this vegetation study was the batture land adjacent to the St. Alice Revetment. The modern vegetation of the batture was found to be typical of the younger pioneer type (less than about 40 years of age) Mississippi River cut-bank vegetation. The study area within the batture was bounded by the river on the east and a levee on the west. It included four vegetational zones which consisted of the revetment area, the disturbed zone, and the treeline zone, and the cleared batture area.

A typical cross-section of the St. Alice study area batture contained approximately 30 to 40 meters of concrete and stone revetment sloping up from the river's edge to the beginning of the disturbed area. The disturbed zone, the area apparently cleared during the revetment construction, typically extended another 25 to 30 meters inland and ended at the treeline edge. Typically, the treeline zone would extend another 13 meters inland and would be separated from the beginning of the levee slope by a band of cleared batture area about 7 meters in width (Figure 2-1).

Zone 1: Zone 1, the concrete and stone revetment area, contained very little vegetation. Among the rocks and concrete of the revetment, only a small amount of soil had been trapped since the 1979 construction of the revetments. The sparse vegetation in Zone 1 consisted mainly of an occasional young willow tree (Salix sp.) and patches of dewberry vines (Rubus) which were able to grow between some of the rocks. In this zone the actual vegetation cover was less than 1% of the revetment area.

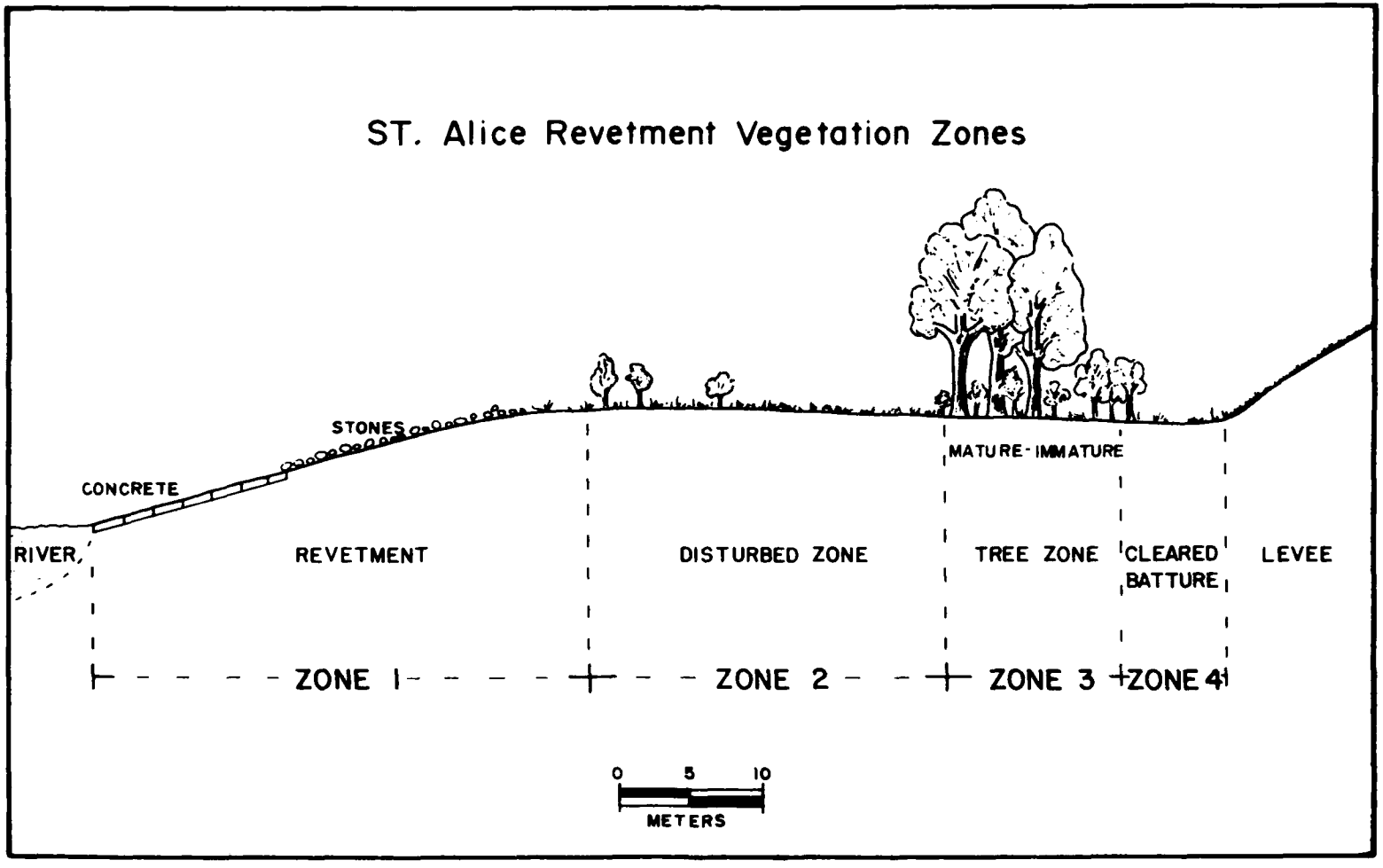
Zone 2: The relative age of the vegetation in the disturbed zone coupled with other signs of disturbance, such as rotting piles of bulldozed trees, indicated that this area was cleared of most vegetation very recently, probably during the 1979 revetment construction. The dominant vegetation in Zone 2 was weedy-type plants even though some recent pioneer tree species were beginning to establish themselves. The dominant vegetation varied throughout the area of the disturbed zone, yet, the major plant taxa represented were bermudagrass (Cynodon), dewberry (Rubus), smartweed (Polygonum), partridge pea (Cassia), cocklebur (Xanthium), and willow (Salix). Young marshmallow (Hibiscus) plants and tree seedlings of cottonwood (Populus), hackberry (Celtis), and sycamore (Plantanus) were common in some areas as well.

Zone 3: The treeline zone averages 13 to 18 meters in width and is composed of an older mature section nearest the river and an immature bank of younger trees bordering the cleared batture and levee (see Figure 2-1). This immature tree zone is composed almost entirely of young willow trees with occasional young sycamore and cottonwood trees. This band of younger trees averages 2 or 3 meters in width and 2 to 4 meters in height and represents a recent encroachment of the present treeline into the cleared batture zone.

Figure 2-1

Typical Batture Cross Section in the St. Alice Revetment

Figure 2-1


ST. Alice Revetment Vegetation Zones
STONES
CONCRETE
MATURE-IMMATURE
RIVER
REVETMENT
DISTURBED ZONE
TREE ZONE
CLEARED BATTURE
LEVEE
ZONE 1
ZONE 2
ZONE 3
ZONE 4
0 5 10
METERS

This area is wetter than the rest of the treeline zone; this is reflected by the herbaceous vegetation which is mostly "wet site" species such as sedges (Cyperaceae), lizard' tail (Saururus), and smartweek (Polygonum).

The mature portion of the treeline zone averages 10 to 15 meters in width and is primarly composed of cottonwood, hackberry, willow and sycamore trees of 20 years of age or older. The canopy compostion of most of the treeline zone is a mixture of hackberry, cottonwood, willow, and sycamore, but the upstream and downstream ends do not fit into this category. The downstream end of the treeline is mostly mature willow trees while the upstream end is mostly sycamore and cottonwood trees.

The vegetation beneath the tree canopy is composed mostly of dewberry, trumpet creeper (Campsis), daisy fleabane, butterweed, peppervine (Ampelopsis), elderbery (Sambucus), poison ivy (Rhus), greenbriar (Smilax), grape (Vitis), honeysuckle (Lonicera), and young sycamore, cottonwood dogwood (Cornus), hackberry and pecan and hickory (Carya) trees.

Zone 4: The cleared batture zone averages five to seven meters in width between the treeline and the slope of the levee, but is narrower in some places due to encroachment of the treeline zone (in the form of young willow trees). In some places, the cleared batture is wet and supports typical wet site plants such a smartweed, lizard's tail and sedges. In drier areas, the vegetation is much the same as that on the levee being composed mostly of grasses, clovers (Trifolium), and bur clover.

The vegetation remaining at the St. Alice Revetment is typical of the highly disturbed batture areas along the Mississippi River in southern Louisiana. All the trees encountered in the area were probably about 40 years or less in age and presumably became established after the last major levee construction. This vegetation is exemplary of the pioneer species that become established soon after severe disturbances in such areas. For example, all of these tree species have already become established in portions of the disturbed zone from the recent (1979) construction.

Fauna in the Lower Mississippi Floodplain

The southern regions of the Temperate Deciduous Forest Biome are exceedingly rich in animal life. Important species present in the biome today include: deer, bobcat, gray fox, raccoon, fox muskrat, opposum, eastern cottontail, brown or common mink, otter, groundhog, and beaver. Formerly,

such species as mountain lion, black bear, wolf, and wapiti or elk were present there as well (Shelford 1963: 23, 59). Shelford (1954: 136) also notes that "There is good evidence that bear and elk had a preference for the floodplain or areas adjacent to large rivers."

Dagget and Hennings (1974: 465-469) suggest that the jaguar (Felix onca or Panthera onca), known over much of southern and western North America during the Pleistocene, may have survived there as late as protohistoric times. Although a number of sites containing jaguar remains have been recovered in Pleistocene-age contexts in Tennessee (C.F., McGrady et al 1951; Parmalee 1961; Guilday and McGinnis 1972), jaguar remains unequivocally of post-Pleistocene date have yet to be encountered. Parmalee (personal communication) suggests that it is far more likely that the jaguar, like its presumed prey the tapir and the peccary, became regionally extinct in the Southeast at the close of the Pleistocene.

According to Bordkorb (1957), the birds in the study area are numerous and highly varied as to species. Common passerine birds there include such species as the blue jay, the yellow-billed cuckoo, and the red-bellied woodpecker. Raptorial species include: sparrow, hawk, duckhawk, screech owl, turkey vulture, and, more rarely, the golden eagle and bald eagle. A number of bird species would have been of special economic importance to the aboriginal and early historic inhabitants of the study area. Economic species which have been available the year round in the area include the wood duck, bobwhite, ruffed grouse, and the prairie chicken. The Reelfoot Lake area was formerly within the range of the now-extinct passenger pigeon (Schorger 1955), and the now-rare wild turkey (Schorger 1966). Aside from the passenger pigeon, numerous migratory species are present in the study area on a seasonal basis. Among those species which presumably would have been of particular economic importance are the Canadian goose, mallard duck, black duck, gadwall, green-winged teal, American pigeon, ring-necked duck, scaup duck, ruddy duck, hooded merganser, and a number of others. The importance of these seasonally-abundant faunal resources in aboriginal and early historic subsistence can probably not be overstated.

Conant (1975) records an abundant reptile and amphibian life in the lower Mississippi floodplain region. According to him, the inventory of species there includes: the common garter snake, southern copperhead, western cottonmouth, canebrake rattlesnake, speckled kingsnake, along with numerous

species of frogs, turtles, salamanders, and lizards. Fish resources in the lower Mississippi valley area are especially rich. According to G. A. Moore (1957), some of the more important species include: the freshwater drum, gourdhead buffalo, small buffalo, white crappie, blue catfish, channel catfish, smallmouth bass, largemouth bass, spotted gar, longnose gar, and sunfish. In addition, numerous molluscan species are known from the area; some of which were, and are, of economic significance.

CHAPTER III: HISTORY OF THE AREA

Any interpretation of the three features excavated in the St. Alice Revetment study area must begin with an understanding of the nature of the historic period occupation there. However, no comprehensive review of the area's history will be presented here. The interested reader is referred to the work of French (1979) and Castille (1979: 3-1--3-21) for detailed overviews of the entire historic period in the study area. This chapter summarizes those overviews.

General History

The initial human settlement in the St. James Parish were by Amerindians who migrated from Asia between 12 and 20 thousand years ago. When Europeans entered the area, they found small villages of Indians living on natural levees along the Mississippi River. As late as the eighteenth century, the Houma and Chetimach Indians were present (French 1979: 14-15).

French colonial settlement of Louisiana began with settlements in Natchitoches in 1714 and New Orleans in 1718. Most of the French confined themselves to these two settlements until 1760 when French Canadians began moving to Louisiana after Canada surrendered to the English (French 1979: 16-17). Although the area came under Spanish rule in 1763, the Spanish honored the original French grants and continued to encourage the French Canadian (Acadians) to settle in the region. The cultural ties of the Acadians remained strongly French despite the presence of the Spanish and that strong heritage remains even today (French 1979: 18-21).

Acadian settlements grew and expanded along the Mississippi. In 1766 there were only 266 whites in St. James Parish. By 1803 there were 2200, eight times the level of 37 years earlier (French 1979: 24).

Louisiana became a U. S. possession as a result of the Louisiana Purchase and in 1812 became a state (French 1979: 28-29). A series of government land surveys attempted to sort out land ownership in the state. Four surveys were conducted between 1829 and 1854, but some of the land claims based on French and Spanish grants were not resolved until an act of Congress was passed in 1897 (French 1979: 29-40).

Settlement and Agriculture

The initial Acadian settlers built houses of standing timbers plastered with mud on the natural levees of the Mississippi River. The first economic crop was indigo, but around 1800 disease destroyed the crops and sugar cane became the economic basis for the settlers. In 1844 12.5 million pounds of sugar were produced on the west bank of St. James Parish by 28 planters (French 1979: 46). Between 1844 and 1862 production fluctuated, but rose gradually to 25 million pounds.

Technological advances such as steam engines to grind the cane and improved equipment to process the cane juice stimulated increased production. These advances and the need for negro slave labor led to a consolidation of the formerly scattered small landholding into large plantations. The formerly linear pattern of settlement along the river shifted to one of nucleated structures (French 1979: 50).

The Civil War and the emancipation of the slaves destroyed the labor base of the plantations and many folded. Sugar production in 1868-69 fell to a fourth of what it had been in 1861-62. Rice was added to sugar cane as a second cash crop (French 1979: 51-57).

Welcome Plantation

The Welcome Plantation centered on section 35 of Township 12S Range 16E. Throughout much of its history it encompassed sections 31 and 34 as well and at times it covered sections 36, 62, 63, 64, 65, 66, and 37 (French 1979: 93).

Ownership: The first historical record of the study area occurs on the 1829 plat map (French 1979: 107). Welcome Plantation was reportedly founded in 1833 by Francois Ganier (Campbell 1977: 67), although, the specific name "Welcome Plantation" does not appear until 1879-80 on a Mississippi River Commission Map. This plantation lies within Township 12 South, Range 16 East on the west bank of the Mississippi River, upstream from Brilliant Point. There is a discrepancy between our historical sources as to whether Welcome Plantation was located within Section 34 or Section 35 (French 1979; Coastal Environments, Inc. 1979b). One of the earliest detailed sketches of the Brilliant Point area dates to 1858 (Persac, 1858); a cluster of buildings, which came to be known as Welcome Plantation, appears on this map.

According to French (1979: 107), the Welcome Plantation area was claimed

by Matthew Bergeron, at the time of the 1829 U. S. Survey; however, there is no evidence supporting the confirmation of Bergeron's claim. The official U. S. Survey of 1854, lists F. Ganier as claiming this area "under T. B. Bergeron," indicating that Ganier's claim was based on earlier rights awarded Bergeron. On February 10, 1897, an Act of Congress gave legal claim to the area in question to Ganier. Welcome Plantation was occupied by the Ganier family from 1839 until 1896-97, at which time C. and A. Roussel took up residence on the plantation.

During the span of occupation by the Ganier family, the property became divided by inheritance. F. Ganier died in 1862 leaving one-seventh of the property to each of his heirs: his sons, Joseph, Prosper, Jules, and Francois; and his daughters: Elis, Marie, wife of E. Waux, and Elodie, wife of E. Loren. Joseph inherited the sugar plantation, but subsequently sold it to his brothers, Prosper and Jules, in November of 1870 (French 1979: 111).

In 1883, Prosper and Jules Ganier sold an undivided five-seventh of their sugar plantation to John B. Levert of New Orleans for $16,000; Prosper and Jules, upon reimbursing Levert the purchase price, could redeem this property. When Jules Ganier died, however, the $16,000 had not been repaid. In March of 1886, Jules' widow, Mrs. Marie LeBoeuf, his six children and his brother, Prosper, reimbursed John Levert $16,000 and regained possession of the property (French 1979: 114-115).

In March of 1893, following suit for an unpaid debt of $5,500, Welcome Plantation was sold at a Sheriff's auction. The plantation was bought for $7,500 by Jean Pierre Bayron. In April of that same year, George Ganier purchased the plantation back from Bayron for $11,000 (French: 1979: 115-166). In May of 1895, the property was again put up for Sheriff's auction; Eugene Laich paid $7,500 and obtained possession of Welcome Plantation from George Ganier (French 1979: 116-118).

In 1895-96, the first signs of the plantation's decline appeared; no crops were produced on Welcome Plantation. In that year, C. and A. Roussel were the occupants of the plantation. A. Roussel remained in residence until 1908, when Welcome Plantation ceased to be mentioned in sugar reports (French 1979: 118).

Economic Activities: Sugar was produced on the plantation every year from 1844 to 1895. Production rose in the 1850s, but dropped again by 1868 (French 1979: 118-127). In 1860 73 slaves lived on the plantation. After the Civil

War the Ganier family experimented with corn and rice in addition to sugar cane. In the late nineteenth century, the plantation ran into hard times as attested to by the sale of the property at sheriff's auctions in 1893 and 1895. From 1895 to 1898 no crops were produced on the plantation (French 1979: 128-129).

The plantation also provided a landing for steamboats moving supplies and commodities up and down the river. Two stores were located on the plantation in 1876. The Welcome Store provided dry goods, boats, shoes, groceries, wines, liquors, etc. In addition Jean Rey manufactured sugar hogsheads and molasses barrels (French 1979: 149).

Settlement Patterns: In 1882, the sugar house and its four associated outbuildings were located in Section 34, near the border with Section 31. At this time the plantation was being operated by Prosper and Jules Ganier. Along the sugar house road near the river was an isolated structure. Near the levee in Section 34, immediately west of this isolated structure, was a cluster of ten buildings. Another cluster of ten buildings was situated near the levee in Section 35; six additional buildings were located to the west of these, in Section 36 (Castille 1979: 3-5--3-7).

A major settlement pattern shift, which was probably instigated by the construction of the 1883 setback levee, occured between 1882 and 1894 (Anon. 1882, 1894). The sugar house remained intact but two of the outbuildings were removed. Some of the structures near the levee in Section 34 were moved along the sugar house road. The remainder of the buildings were either moved back due to levee construction or remained in the same location. One large structure, possibly a barn or the Ganier "big house," was added to Section 35 (Castille 1979: 3-7--3-9). At this time, George Ganier owned the property.

In 1902 (Anon. 1902), levee setback was proposed; appropriate buildings were moved within the confines of this new levee. On the 1902 map, only one structure was located near the levee in Section 34; several structures were located near the levee in Section 35. The large building which appeared in Section 35 on the 1894 map was not indicated on the 1902 map (Castille 1979: 3-9--3-11). The privies and well were buried by a portion of this 1902 levee.

With the advent of the modern era, Welcome Plantation slipped into oblivion; however, levee construction within the area continued into the 1970s. In 1931, (Anon. 1930), another setback levee, the U. S. Donaldsonville-St. James setback, was completed. By 1934 (Anon. 1934), all of the 1931 quarters had

been relocated. The sugar mill from the 1882 and 1894 maps appeared as a grove of trees on the 1934 map. By 1976 (Anon. 1976), all of the quarters and the Ganier house were in ruin (Castille 1979: 3-11--3-16).

The 1882 and 1884 maps show several structures, presumably cabins in section 34 in the vicinity of the two privies. Several structures are also shown in section 36 in the vicinity of the board-lined well.

Conclusion: St. James Parish is known for its rich Acadian heritage. The economic development of the area came with the establishment of large sugar plantations which depended upon slave labor to plant and harvest the cane. After the Civil War, this labor source was lost and nearly three decades passed before the pre-Civil War production levels were again reached. The plantations themselves were like small communities in that rich and poor, owner and slave or later tenant were present. The plantation was part agricultural and part industrial. As a result, both imported and local ceramic wares are to be expected. In addition a variety of material items reflecting farming, cane processing and everyday domestic activities can be expected.

CHAPTER IV: THE ANALYSIS OF THE ARCHEOLOGICAL MATERIAL RECOVERED FROM THE TRENCH F PRIVY, THE PLANK PRIVY, AND THE BOARD WELL

Excavation Procedures

Excavation of the two privies and the well was undertaken by Coastal Environments, Inc. in 1979. The plank privy and the Trench F privy were excavated in 5cm levels whenever natural stratigraphy was not visible. The fill was trowelled out and matrix samples were collected for later screening through quarter inch mesh to recover a sample of the material missed by trowelling. In addition pollen samples and sediment samples were collected for laboratory analysis (Coastal Environments, Inc. 1979b: 3).

Trench F. Privy: The Trench F privy was located during the excavation of backhoe Trench F in 1978. The overlying artificial levee fill was removed by the backhoe and hand excavation began in the cultural fill zone overlying the privy. This cultural fill may be *in situ* trash deposited prior to the construction of the levee in 1902 or may represent a deposit reworked by grading prior to the construction of the levee. The privy fill was not visible until 15cm of the cultural zone had been removed (Coastal Environments, Inc. 1979b: 4).

Excavation of the privy fill halted at a depth of 22cm. The privy was tarped and partially backfilled but the flood of 1979 removed the tarp and fill and disturbed the upper portion of the privy fill (Coastal Environments, Inc. 1979b: 4). A new datum was established at 4.55m above mean sea level (MSL) which was 5 cm below the temporary datum used in 1978.

The first level in 1979 was 15-20cm below the datum (4.40-4.35m above MSL). Only the western third of the privy was excavated at first in order to expose and map the profile. The privy ended at 3.15m above MSL (1.40m below datum). Water seepage complicated excavation in the lower 50cm of the fill (Coastal Environments, Inc. 1979b: 8).

The profile recorded after the removal of one third of the fill (Figure 4-1) shows a concentration of brick, metal, and leather at 35-55cm below datum. A possible soil slump stain was also noted (Figure 4-1, Zone B-1). In addition, a possible post mold along the outer north edge of the privy was recorded (Figure 4-1, left side of profile). No other natural levels were noted (Coastal Environments, Inc. 1979b: 8).

Excavation of the remainder of the privy was in 5cm levels. At 30cm the privy diameter was 1.6m with a dense concentration of artifacts in the center (1.2m in diameter). This inner artifact concentration may represent a "backfill deposit associated with the abandonment of the privy pit" (Coastal Environments, Inc. 1979b: 11) or it may represent slumping of the overlying cultural fill zone into the pit as the privy fill subsided. The outer fill presumably represents organic matter and soil accumulated as the privy was being used (Coastal Environments, Inc. 1979b: 11). Below 30cm the inner and outer privy fill material was bagged separately. Most of the artifacts are from the inner privy fill.

At 105cm the privy fill was shoveled out of the pit and examined by trowel because of water seepage.

The Trench F privy was funnel-shaped in cross section with a diamter of 1.6m at the top and 35cm at the bottom. The maximum depth was 1.6m (2.95m above MSL; Coastal Environments, Inc. 1979b: 13).

Plank Privy: The plank privy was located 6 meters northwest of the Trench F privy. Planks were observed protruding 10cm out of the bank and the northwest corner had been damaged by wave action to a depth of 1.0 meters below the top of the privy (Coastal Environments, Inc. 1979b: 14).

An access trench was excavated along the north outer face and the planks were recorded in place. Then the planks were removed in order to excavate one-third of the privy fill as in the Trench F privy, but slumping of the fill necessitated backfilling the access trench. The privy profile was exposed in 50cm sections and recorded after which the remaining two-thirds of the fill was excavated (Coastal Environments, Inc. 1979b: 14).

The northern third of the privy was excavated in 5cm levels and the remainder of the fill in 5cm levels within natural levels. Most of the artifacts came from the top 1.0 meters of the fill. "Post-abandonment backfilling . . . is suggested by the larger numbers of artifacts recovered in the upper meter of privy fill" (Coastal Environments, Inc. 1979b: 22). Figure 4-2 illustrates the profile of the plank privy. Zones B through F contained the bulk of the artifacts and may represent post-abandonment fill. In addition a 20cm stain representing the privy construction pit is visible as Zone N.

The plank privy was 2.5 meters deep and 85cm by 90cm across. The frame was constructed of vertical boards 1.8 to 2.2 meters (5.9 to 7.25 feet) in

Figure 4-1

East Profile of Trench F Privy, after Removal of Western One-third of Privy

(After Coastal Environments, Inc. 1979b: Figure 6).

A: Firm, dark gray brown (10YR 4/2) silty clay

B-1: General privy fill above 40 centimeters. Dark gray brown (2.5Y N 4/2) clay with some silt. Artifact concentration.

B-2: Outer and lower privy fill. Dary gray brown (2.5Y N 4/2) clay with some silt. Few artifacts.

C: Gray brown (5Y N 4/1 to 4/2) silty clay

D: Firm, gray brown (2.5Y N 5/2) heavily oxidized silty clay

E: Firm, black (5Y N 2/1) clay

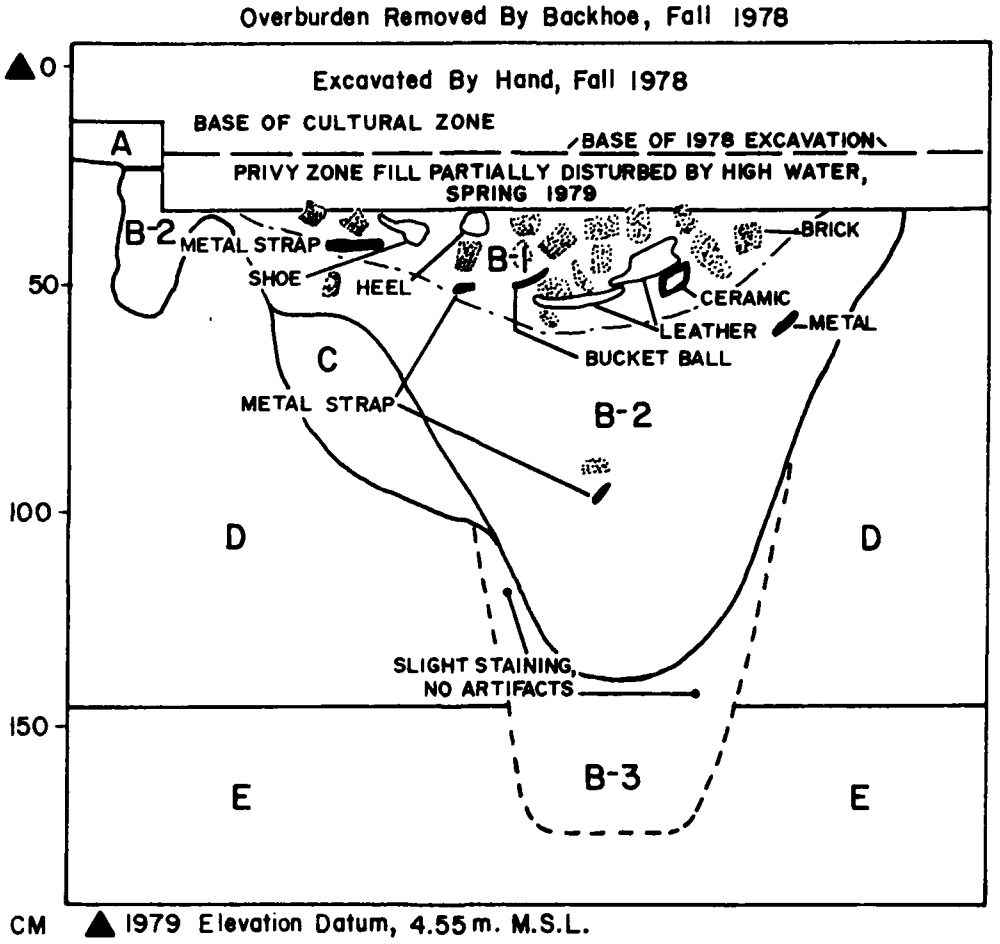

Overburden Removed By Backhoe, Fall 1978
0
Excavated By Hand, Fall 1978
BASE OF CULTURAL ZONE
BASE OF 1978 EXCAVATION
A
PRIVY ZONE FILL PARTIALLY DISTURBED BY HIGH WATER, SPRING 1979
B-2
METAL STRAP
SHOE
HEEL
B-1
BRICK
CERAMIC
LEATHER
METAL
BUCKET BALL
50
C
METAL STRAP
B-2
100
D
D
SLIGHT STAINING, NO ARTIFACTS
150
B-3
E
E
CM
1979 Elevation Datum, 4.55 m. M.S.L.

Figure 4-2

Southern Profile of Plank Privy After Removal of Northern One-third of Privy Fill (After Coastal Environments, Inc. 1979b: Figure 16).

A. Firm dark gray brown (10YR N 4/2) silty clay

B. Firm, very dark gray brown (10YR N 3/2) silty clay mottled with dark gray brown (10YR N 4/2)

C. Friable, pale brown (10YR N 6/3) sandy silt

D. Firm, very dark gray brown (2.5Y N 3/2) silty clay

E. Firm, very dary gray (5Y N 3/1) slightly silty clay with oxidized inclusions

F. Firm, very dark gray brown (10YR N 3/2) silty clay

G. Firm, very dark gray brown (10YR N 3/2) silty clay with dark gray brown (2.5Y N 4/2) clay

H. Firm, gray (5Y N 5/2) silty clay mottled with dark gray (7.5YR N 4/1) slightly silty clay

I. Firm, dark gray (7.5YR N 4/1) clay laminated with friable olive (5Y N 4/4) clayey silt

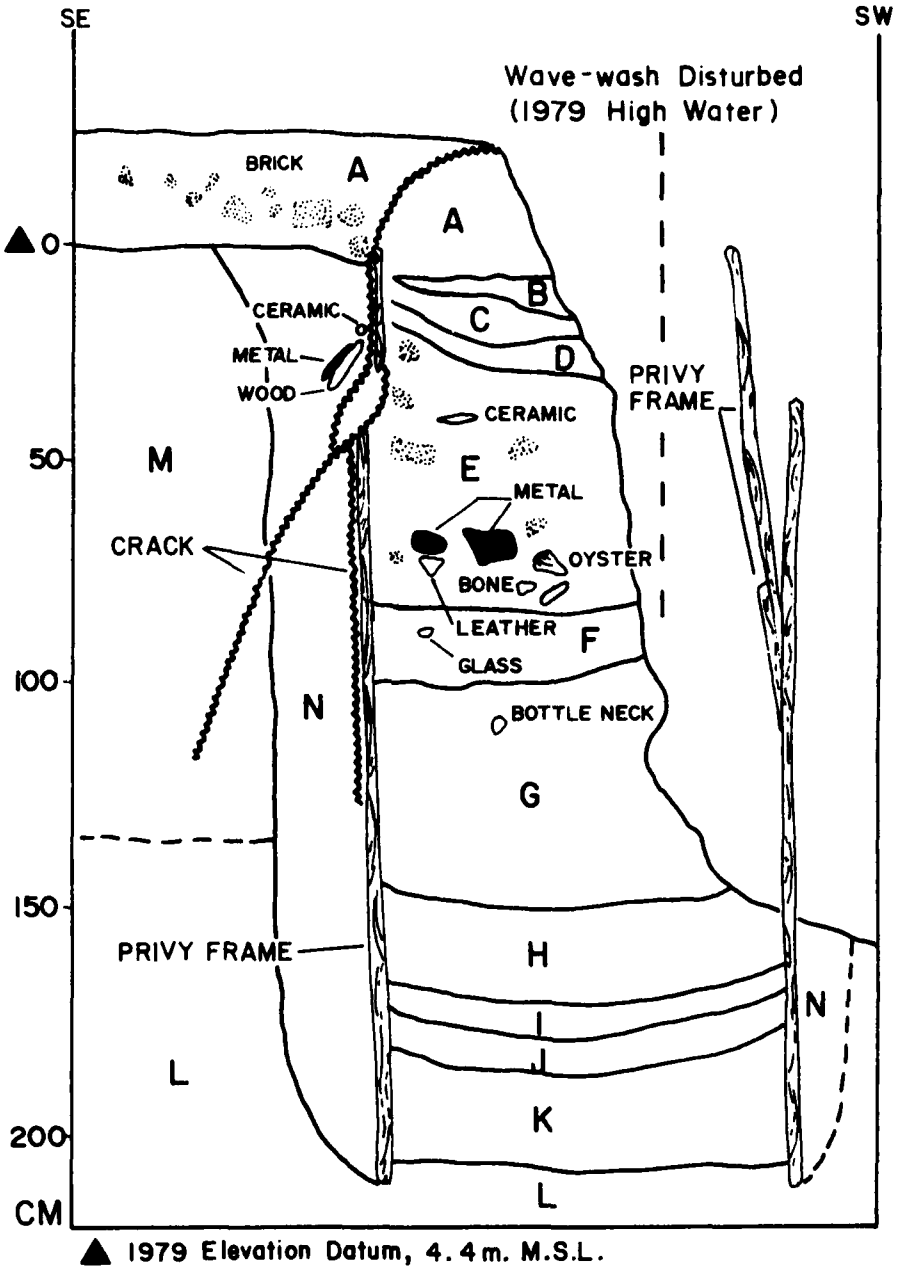
J. Firm, dary gray (7.5YR N 4/1) clay

K. Firm,pale olive (5Y N 6/3) silty clay mottled with black (5Y N 2/1) clay, sparsely laminated with friable olive (5Y N 4/4) clayey silt

L. Firm, black (5Y N 2/1) clay

M. Firm, dark gray (2.5Y N 2/1) silty clay

N. Firm, gray brown (2.5Y N 5/2) heavily oxidized silty clay


SE
SW
Wave-wash Disturbed
(1979 High Water)
BRICK
A
A
0
B
C
D
CERAMIC
METAL
WOOD
PRIVY
FRAME
CERAMIC
50
M
E
METAL
CRACK
OYSTER
BONE
LEATHER
F
GLASS
100
N
BOTTLE NECK
G
150
PRIVY FRAME
H
N
L
J
200
K
CM
L
1979 Elevation Datum, 4.4 m. M.S.L.

length. A 2 by 4 inch post was present in each corner (5 x 10cm). The planks were re-utilized lumber. On the south side of the privy, two boards extended 5-12cm into the cultural fill zone. The upper end of the highest board was burned (Coastal Environments, Inc. 1979b: 22).

Board-Lined Well: The board-lined well was observed washing out of the bank 380 meters upstream from the plank privy where early nineteenth century ceramics had been located. The well was square, 4 feet on a side (1.2m) with horizontal boards 1 inch thick (2.5cm) and 7 - 10 inches wide (18-25cm). Each corner had a 4 by 4 post (10 x 10cm; Coastal Environments, Inc. 1979b: 24).

The well was excavated in 15cm levels to a depth of 130cm. A test pit was excavated to 185cm. Few artifacts were recovered from the fill. The relative age of the well was determined by its stratigraphic position. It originated at a lower elevation than a gravel road which documentary data indicated ran parallel to the 1902 levee. For this reason the well is assumed to predate the construction of the levee (Coastal Environments, Inc. 1979b: 24).

The excavations of the two privies and the well produced a moderately large collection of archeological material including historic ceramics, metal objects, glass, miscellaneous artifacts, and faunal remains. These materials were analyzed and studied in the Cultural Resources Laboratories of Texas A & M University in accordance with standard archeological procedures and methods. The results of these studies are presented below.

Ceramics

A total of 143 ceramic sherds were recovered from the various proveniences and features in the study area. These ceramics were identified by Mr. Steven James of the Nautical Archeology Program of Texas A & M University. His work seems to confirm the interpretation presented by Coastal Environments, Inc. (1979b: 1) that the three features were associated with the nineteenth century occupation of the study area.

The ceramic analysis drew from a number of published sources, particularly Hume (1969), Lofstrom (1976), Price (1979), and Smith (1976). Early in the analysis it was decided to employ the classificatory system established by Castille (1979) for the surface material from the Welcome Plantation site in order to assure comparability between the two data sets.

Castille's classificatory system first sorts ceramic sherds into porcelain, stoneware, and earthenware. This distinction is based upon the hardness

and porosity of the pastes (Hardness determination on a sample of the sherds is reported in Appendix A). Porcelain is a dense, white, translucent ceramic that is impermeable to water (Castille 1979: 5-16). Subdivisions of porcelain are based upon surface decoration (see Figure 4-3). Stoneware is hard, dense, and almost impermeable. Stoneware paste color ranges from yellowish to dark brown, grayish or bluish (Castille 1979: 5-16). Paste color determinations on a sample of the sherds is reported in Appendix B. Stoneware sherds are subdivided on the basis of slip, glaze, and decorative technique (Figure 4-3). Earthenware has a heavy porous body and can be subdivided according to hardness of paste, paste color, and glaze. Soft paste earthenwares with buff or red colored pastes are most common on sites predating the nineteenth century (Castille 1979: 5-16). The medium/hard paste earthenwares: creamware, pearlware, and whiteware are cream to white in color and form a historical sequence with creamware beginning in the late nineteenth century, pearlware coming slightly later, and whiteware beginning about 1830. Earthenware paste color shifts from cream to white and hardness from medium to hard between the late eighteenth and early nineteenth centuries (Castille 1979: 5-17). Creamware is characterized by an off-white paste and a clear, yellowish lead glaze. Pearlware has a slightly whiter paste and a lead glaze containing cobalt blue to mask the yellow color. The blue and yellow tints combine to give pearlware a greenish cast (Castille 1979: 5-17). Whiteware lacks this greenish cast and represents a shift from a head glaze to a lead-free glaze during the 1830s (Castille 1979: 5-18; Lofstrom 1976: 7-8). Yellow ware is a medium/hard paste earthenware with a yellowish or buff-colored body and a clear lead or alkaline glaze (Castille 1979: 5-18). Creamware, pearlware, whiteware, and yellow ware are further subdivided on the basis of decorative treatment (see Figure 4-3).

Trench F Privy: The ceramic assemblage recovered from the Trench F Privy consisted of 94 sherds. The proveniences within the Trench F Privy can be combined into two units:

1. The upper 55 centimeters of fill (including the inner fill) which Coastal Environments, Inc. interprets as due to back-filling at the time of the privy's abandonment (Figure 4-4).
2. The zone surrounding the inner privy fill which possibly represents the accumulation of organic matter and sediment while the privy was in use and the lower levels of the privy pit which certainly represent accumulated human fecal matter and other debris resulting from the use of the privy (Figure 4-5).

Figure 4-3: Summary of Castille's Ceramic Typology for the St. Alice site (Castille 1979: 5-6--5-38).

Porcelian
- polychrome transfer print
- plain

Stoneware
- Brown, lead-glazed
- Yellow, lead-glazed
- Unglazed
- Brown, slat-glazed
- Yellow-brown, salt-glazed
- Gray, salt-galzed, blue hand-painted and incised.

Earthenware: Soft Paste

Buffware
- Lead-glazed, clouded 1788-1940
- Lead-glazed, unclassified 18th & 19th Century?
- Tin-enameled blue or green 18th & 19th Century
- Brown & White tin-enameled 1755-1800
- Hand-painted, tin-enameled 18th Century?
- Unclassified tin-enameled 18th Century?

Redware
- Mottled lead-glazed 18th Century
- Unclassified lead-glazed 18th Century?
- Brown slipped ?
- Embossed, slipped ?

Earthenware: Medium/Hard Paste

Creamware
- Annular: 1) Banded 1780-1815
  2) Mocha 1795-1820
- Royal pattern 1765-1820
- Transfer-printed: 1) mulberry 1765-1815
- Unclassified: 1) Light yellow 1775-1820

Pearlware
- Annular: 1) banded 1790-1830
  2) combed "
  3) dot "
  4) marbled "
  5) mocha "
  6) trailed "
- Blue-edged: 1) bead & oak 1800-1830
  2) Rope & Plume "
  3) shell banded, plain 1780-1830
  4) shell banded, scalloped "
  5) shell, plain "
  6) shell, scalloped "

Figure 4-3 (cont)

Earthenware: Medium/Hard Paste (cont)

Pearlware (cont)

Green-edged:	1) bead & crescent	1800-1830
	2) floral	"
	3) tree	"
	4) shell banded, plain	"
	5) shell banded, scalloped	"
Hand-painted:	1) blue broad floral	1810-1830
	2) blue linear floral	1780-1830
	3) monochrome edge band	1780-1830
	4) polychrome broad floral	1810-1825
	5) polychrome linear floral	1780-1830
Sponged:	1) Monochrome	1825-1835 ?
Transfer-printed:	1) blue	1790-1820
	2) green	1828-1835 ?
	3) purple	1828-1835 ?
Unclassified:		1780-1830

Whiteware

Annular:	1) banded	1830-1860
	2) dot	"
	3) marble	"
	4) mocha	"
	5) trailed	"
Bas relief:	1) blue sprig	?
Blue edged:	1) band with groove	1830-1860
	2) shell handed, plain	"
	3) shell banded, scalloped	"
	4) shell, plain	"
	5) shell, scalloped	"
Plain embossed:		1845-1880
Hand-painted:	1) blue broad floral	1830-1860
	2) blue linear floral	"
	3) blue	"
	4) flow blue	1844-1860
	5) monochrome edge band	1830-1860
	6) ploychrome broad floral	"
	7) polychrome linear floral	"
	8) polychrome	"
Sponged:	1) monochrome dot	1830-1860
	2) monochrome with polychrome hand-painting	"
	3) monochrome	"

Figure 4-3 (cont)

Whiteware (cont)

Stenciled (stamped):	1) monochrome	1845-?	
	2) polychrome	"	
Transfer-printed:	1) black	1830-1850	
	2) black with polychrome hand-painted		
	3) blue	1830-1860	
	4) brown	1830-1850	
	5) flow blue	1844-1860	
	6) green	1830-1850	
	7) green with red hand-painting	1840-1850	
	8) purple	1830-1860	
	9) purple with polychrome hand-painting	1850-1860	
	10) red	1830-1850	
Unclassified (plain):	1840-1890		

Yellow ware

Annular:	1) banded	1830-1940
	2) mocha	"
	3) trailed	"
Unclassified:	1830-1940	
Semiporcelain:	1) embossed	1880-?
	2) plain	"

Figure 4-4: Trench F Privy, Upper Unit
Inner Privy Fill and above 30 cm.

Earthenware	
Pearlware	
Unclassified	1
Whiteware	
Annular, banded	3
Blue-edged, shell-banded	2
Embossed, plain	4
Stamped, monochrome	2
Stamped, polychrome	1
Transfer-print, black	1
Unclassified, plain	36
Unclassified, burned	3
Yellow ware	
Annular	3
Unclassified	3
Stoneware	
Brown-glaze	1
Porcelain	2
Unclassified	
Annular	3
Blue-edged	2
Unclassified	2
	69

Figure 4-5: Trench F Privy, Lower Unit
Outer fill and below 60cm

Earthenware	
Pearlware	
Green-edged, shell-banded	1
Whiteware	
Annular, banded	1
Blue-edged, shell-banded	5
Unclassified, plain	7
Yellow ware	
Annular	1
Unclassified	1
Stoneware	
Gray	2
Salt-glazed	1
Unclassified	1
Unclassified	5
Total	25

The types represented include one fragment of green-edged pearlware (Figure 4-6, d), blue-edged whiteware (Figure 4-6, a-c), stamped polychrome whiteware (Figure 4-7, e), annular banded whiteware (Figure 4-7, c), embossed whiteware (Figure 4-8, c), plain whiteware (not illustrated), stamped monochrome whiteware (not illustrated), black transfer-printed whiteware (Figure 4-7, g), plain yellow ware (not illustrated), annular banded yellow ware (Figure 4-8, d), salt-glazed stoneware (not illustrated), lead-glazed stoneware (Figure 4-8, a and b), and one fragment of a porcelain kerosene lamp base (not illustrated). The date ranges for these types are 1820-1900+ with a mid-point date range of about 1853. The presence of a solitary pearlware fragment in the same context as later whiteware and yellow ware types seems to indicate that the privy dates to the mid- or latter part of the date range. Identification of the maker's mark on a lead glazed stoneware base fragment could help in dating the privy more precisely (Figure 4-8, b).

Vertical distribution of the ceramics in the two fill zones is ambiguous, but suggests a later date for the upper unit. The proportion of plain whitewares (a relatively late type) is 52% in the upper unit and only 28% in the lower unit. Also, all of the stamped and embossed whiteware (relatively later types) are in the upper unit. Mean ceramic dates (cf. South 1977) on the upper and lower units give 1864 and 1857 respectively, but samples sizes are low (53 and 16). The terminus post quem for the two units (the latest initial manufacturing date) is 1845 for the upper unit and 1830 for the lower unit. It should be noted that Castille's initial date for plain whiteware should actually be adjusted to 1830 rather than 1840 since body sherds from blue-edged whitewares are indistinguishable from plain whitewares. The initial date has been left at 1840 for the computation of the mean ceramic date so that the results will be comparable to Castille's (1979). The analysis confirms the interpretation by Coastal Environments, Inc. that the upper unit represents fill deposited sometime after the privy was no longer in use.

It is tempting to see some sociological implications in the distribution of these ceramic wares; however, the sample size is very small (only 25 sherds for the lower unit). For example, we might conclude that the absence of porcelain vessel fragments (aside from the lamp base fragment), coupled with the relatively high proportion of cheaper whitewares and yellow wares in the assemblage might indicate that the people using the privy were of low or middle class origins. Unfortunately such a conclusion ignores the greater abundance of whitewares and yellow wares during the latter half of the century, as well

Figure 4-6

a. Blue-edged, shell-banded, scalloped whiteware rim sherd, Trench F. Privy, Level B 60-65cm.

b. Blue-edged, shell-banded, scalloped whiteware rim sherd, Trench F Privy, Level DD 30-35cm.

c. Blue-edged, shell-banded, plain whiteware rim sherd, Trench F Privy, Level DD 30-35cm.

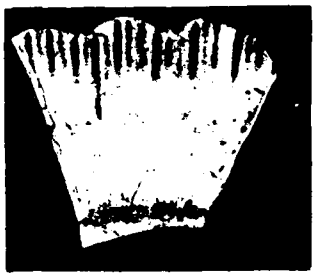
d. Green-edged, shell-beaded, scalloped pearlware rim sherd, Trench F Privy, 90-95cm.

e. Blue-edged, shell-banded, plain plate fragment, Plank Privy, Zone 5 35-40cm.

a

b

c



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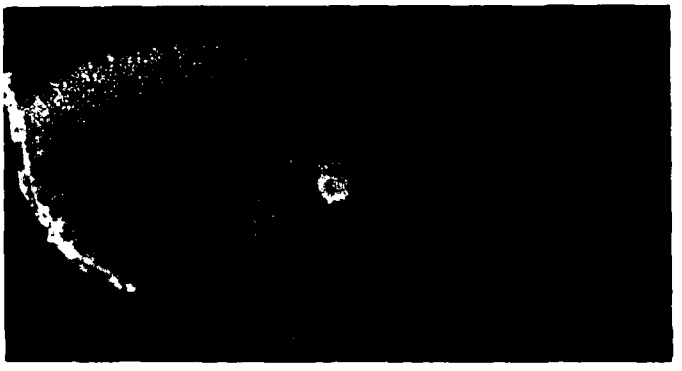


e

Figure 4-7

a. Annular marbled pearlware rim sherd, Plank Privy, Zone 6 125-130cm.

b. Annular mocha pearlware body sherd, Board-Lined Well, 60-75cm.

c. Annular banded whiteware body sherd, Trench F Privy, Levell EE 35-40cm.

d. Annular banded pearlware rim sherd, Plank Privy, Level D.

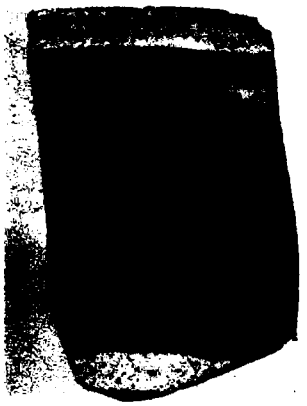
e. Polychrome whiteware rim sherd, Trench F Privy, Level CC 25-30cm.

f. Green transfer-print whiteware body sherd, Plank Privy, Cultural Zone south or privy.

g. Black transfer-print whiteware body sherd, Trench F Privy, Level EE 35-40cm.

h. Blue hand-painted floral pearlware handle fragment, Plank Privy, Zone 60-65cm.

i. Purple hand-painted floral pearlware body fragment, Plank Privy, Level F 25-30cm.



a

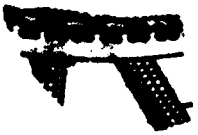
b

c

d

e

f



g

h

i

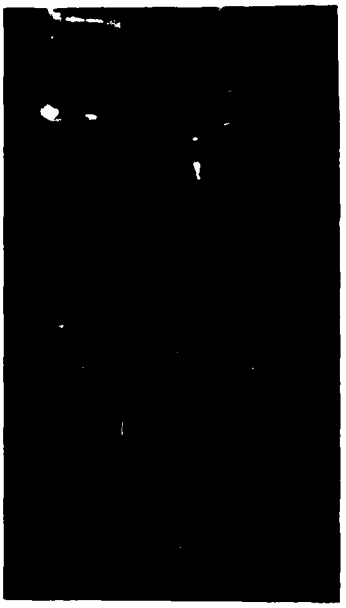
Figure 4-8

a. Brown lead-glazed stoneware bottle fragment, Trench F Privy, Level FF, 40-45cm.

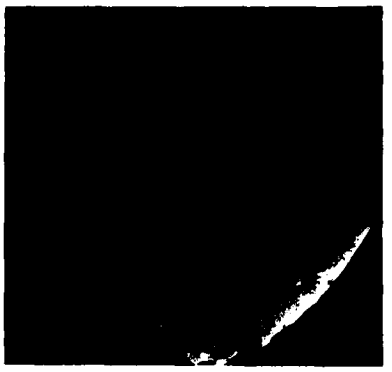
b. Clear lead-glazed stoneware base fragment with maker's mark, "Murray & ..., Potter..., Portabell..., " Trench F Privy, Level D, 70-75cm.

c. Whiteware rim fragment embossed with the letter H, Trench F Privy, Level CC, 25-30cm.

d. Annular banded yellow ware rim fragment with a rim diameter of 22cm., Trench F Privy, Level HH, 50-55cm.



a



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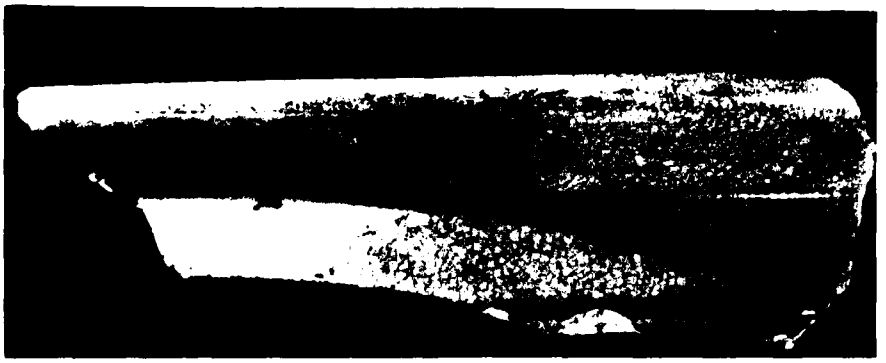


d

as the probability that porcelain would not be carelessly treated and broken. Further, in order to draw such sociological conclusions from them composition of the privy ceramic assemblage, we must presume that the privy received a representative sample of the ceramic materials in use on the plantation at the time.

Plank Privy: The ceramic assemblage from the Plank Privy consisted of 46 sherds exclusively from earthenware vessels. The analysis confirms the interpretation by Coastal Environments, Inc. that the upper unit represents fill deposited sometime after the privy was no longer in use.

As before, the sherds were combined into two groups for analysis:

1) Sherds found near the plank privy and in the overlying cultural fill zone (Figure 4-9).
2) Sherds found in the plank privy fill (Figure 4-10).

The types represented include plain whiteware (not illustrated), annular banded whiteware (not illustrated), blue-edged whiteware (not illustrated), green transfer-print whiteware (Fig. 4-7, f), plain pearlware (not illustrated), hand-painted blue floral polychrome (Fig. 4-7,i), hand-painted purple floral (Fig. 4-7,h), annular marbled pearlware (Fig. 4-7, a) and annular banded pearlware (Fig. 4-7,d). A blue-edged banded plate fragment is illustrated in Figure 4-6, e. This fragment had been too badly burned to allow us to classify it as to ware.

The ceramic types were homogenous throughout the privy. The date range for these types is 1780-1900+ with an average mid-point date of 1829. As would be expected, the unit containing ceramics from near the plank privy dates later than the plank privy fill (mean ceramic dates 1862 and 1841 respectively). In addition 85% of the sherds found near the privy are undecorated whiteware while only 48% of the sherds in the privy fill were. The terminus post quem dates for both units is 1830. Coastal Environments, Inc. (1979b) suggested that approximately the upper meter of the plank privy fill was post-use deposition. Unfortunately, only two sherds, an annular whiteware and a plain pearlware, were recovered below 1.0m in the privy. Therefore, the ceramics cannot support or reject this interpretation. The extremely low sample of sherds from the privy (24) makes interpretation regarding the socio-economic status of the users highly speculative.

Board-Lined Well: The ceramic assemblage from the board-lined well consisted of only 26 sherds (Figure 4-11). Identifiable types included plain creamware,

Figure 4-9: Near the Plank Privy

Earthenware	
Buffware, lead-glazed	1
Whiteware	
Annular	1
Blue-edged, shell-banded, plain	1
Transfer-print, green	1
Unclassified, plain	17
Unclassified	1
Total	22

Figure 4-10: Plank Privy

Earthenware	
Pearlware	
Annular	
banded	1
marbled	1
Hand-painted	
blue floral ploychrome	1
purple floral	1
Slip-decorated	1
Unidentified, Plain	3
Whiteware	
Annular	3
Blue-edged, shell banded, plain	1
Unclassified, plain	11
Unclassified	
Olive green sherd	1
Total	24

Figure 4-11: Board-Lined Well

Earthenware	
Creamware, unclassified, plain	2
Pearleare	
Annular, banded	1
Annular, mocha	3
Slip-decorated	2
Unclassified, plain	2
Whiteware	
Annular, banded	1
Annular, marbled	1
Annular, trailed	1
Blue-edged, shell-banded, scalloped	1
Unclassified, plain	3
Unclassified ware	
Annular	5
Hand-painted, blue	1
Hand-painted, polychrome	1
Plain	2
Total	26

annular pearlware (Figure 4-7, b), slip-decorated pearlware, plain pearlware, annular whiteware, blue-edged whiteware, and plain whiteware. Vertical distribution of the ceramic types shows creamware (the earliest type) present in the 15-30cm level and the 100-115cm level. Plain whiteware (a later type) is present only in the 115-130cm level. The mean ceramic date for the well is 1825. The terminus post quem is 1830.

During the excavation of the board-lined well, the archeologists noted that the mottled nature of the well fill, along with the absence of visible stratigraphy, indicated that the well was backfilled over a short period of time (Coastal Environments, Inc. 1979b: 24). The presence of creamware above plain whiteware tends to confirm this interpretation and suggests that the fill used in backfilling the well included midden material from an early nineteenth century occupation at the site. As before, the paucity of ceramics precludes a reliable socioeconomic interpretration.

Discussion: Analysis of the ceramics from the two privies and the well suggests that the fill from the board-lined well is the oldest (mean ceramic date of 1825) although the terminus post quem is 1830 indicating that the well was filled sometime after that date. The plank privy ceramics yielded a mean ceramic date of 1841 and contained no embossed or stamped whitewares and no yellow wares, all mid-to-late nineteenth century types. The lower unit of the Trench F privy dated to 1857 according to the ceramics. The sherds found near the plank privy and the upper unit of the Trench F privy date to 1862 and 1864 respectively. These temporal placements must be considered tentative, however, because they are based on very small samples. Only the upper unit of the Trench F privy contained over 50 datable sherds.

The overall temporal sequence can be further checked by examining the sherd counts for pearlware, decorated whiteware, and plain whiteware for the five proveniences (Figure 4-12 shows both the observed and the expected frequencies). A Chi-square test indicates that the differences observed are significantly greater than one would expect by chance. A Chi-square test for the plain and decorated whitewares only is not significant (Chi-square=6.66 with 4 degrees of freedom). Significantly more pearlware sherds were found in the board-lined well and the plank privy than would be expected due to chance alone. The differences in the mean ceramic dates for the two units in the Trench F privy and the material found near the plank privy was based primarily on the differing proportions of plain whitewares. The Chi-square

Figure 4-12: Distribution of major ceramic types by provenience.

OBSERVED

	Pearlware	Decorated Whiteware	Plain Whiteware	Total
Board-Lined Well	8	4	3	15
Plank Privy	8	4	11	23
Trench F Privy (lower)	1	6	7	14
Trench F Privy (upper)	1	13	36	50
Near Plank Privy	0	3	17	20
Totals	18	30	74	122

EXPECTED

	Pearlware	Decorated Whiteware	Plain Whiteware
Board-Lined Well	2.21	3.69	9.10
Plank Privy	3.39	5.66	13.95
Trench F Privy (lower)	2.07	3.44	8.49
Trench F Privy (upper)	7.38	12.30	30.33
Near Plank Privy	2.95	4.92	12.13

Chi-square = 41.65
degrees of freedom = (5-1)(3-1) = 8
$p<.001$

test indicated that these differences could be due to chance.

Socioeconomic interpretations are difficult with sample sizes so small. The variability between the five units seems to relate entirely to temporal differences and random factors. The absence of fine porcelain may be an indication of lower or middle class status, however; the surface collections from the whole site contained only one piece of transfer-printed porcelain and 81 plain porcelain sherds out of 2503 sherds analyzed (Castille 1979: 5-7). Until there are ceramic samples with known contexts (for example, a privy associated with a slave or tenant's quarters or a privy associated with a plantation "great house"), speculation concerning socioeconomic status cannot be measured against an established baseline.

Metal

A total of 601 metal objects were recovered from the three features in the study area. These items were analyzed and identified by Ms. Robbin Woodward of the Nautical Archeology Program of the Texas A & M University. Figures 4-13, 4-14, and 4-15 list the metal artifacts recovered from the plank privy, Trench F privy and board-lined well respectively. Figure 4-16 summarizes these data by grouping the material into six classes: construction materials, container hardware, household items, barn and stable items, and miscellaneous items. Seventy-two percent of the metal came from the upper unit of the Trench F privy.

Construction Materials: Approximately 15 percent of all the metal recovered during the excavation of the study area were square-cut construction nails. These nails ranged in size from 1.5 centimeters to 48 centimeters in length; the latter size group referable to the "spike" category. As all of these nails were in an advanced state of corrosion, it was not possible to determine whether they had early machine cut heads (which would date to between 1815 and 1830) or modern machine cut heads (which would place them in the post-1830 time range). Wire nails, which came to prominence after about 1895, were completely absent from this assemblage. Thus, the nature of the nail assemblage would suggest that the privies were abandoned before the turn of the century.

The only other construction materials recovered were a rivet, three square spikes (Figure 4-17, c), and a strap hinge (Figure 4-18, d). Altogether, construction materials accounted for 16 percent of the metal.

Figure 4-13: Metal Objects Recovered from the Plank Privy

Provenience	Description
Above privy	2 square-cut nails
10-15cm	1 square-cut nail
15-20cm	2 square-cut nails
20-25cm	2 square-cut nails
25-30cm	2 square-cut nails
30-35cm	2 square-cut nails
35-40cm	7 square-cut nails
40-45cm	3 square-cut nails
50-55cm	4 pcs. iron strap 2 square-cut nails
55-60cm	3 square-cut nails 1 iron washer
60-65cm	2 square-cut nails 3 pcs. iron fragments
70-75cm	4 fragments 1 square-cut nail
80-85cm	1 square-cut nail 1 fragment
90-95cm	1 square-cut nail
95-100cm	2 square-cut nails 1 fragment of iron strapping
100-105cm	1 square-cut nail
115-130cm	2 square-cut nails
200cm	2 square-cut nails

Total = 52
Nails = 38 (73%)

Figure 4-14: Metal Objects Recovered from Trench F Privy

Provenience	Description
Profile cleaning	1 iron buckle--harness?
	1 square-cut nail
	2 strap fragments
15-20cm	1 strap fragment
	3 unid. -iron fragments
	3 square-cut nails
	1 round wire rim
	4 wire fragments
	30 (approx.) misc. metal fragments
	1 andiron end
20-25cm	2 straps
	1 large metal hoe blade socket
	1 square-cut nail
25-30cm	3 square-cut nails
	8 unid. fragments
	1 small metal hook
	1 large conical rod with square head
	1 large rectangular iron pig
30-35cm	4 square-cut nails
	2 wire strap fragments
	2 pc. wire fragments
	1 large square spike
35-40cm	1 iron pot handle
	6 square-cut nails
	2 wire fragments
	4 strap fragments
	1 large square spike
	5 unid. fragments
40-45cm (OF)	3 square-cut nails
	2 pc. wire
	3 wire fragments, 18mm thick
	1 square piece lead
40-45cm (IF)	1 iron pig
	1 square can
	1 unid. fragment
	1 wire bottom to bucket 18cm dia.
	1 wire rod 45cm long
	12 metal bucket fragments
	1 square-cut nail
	1 shovel attachment
	2 bundles of wire
	2 kettle fragments
	1 cm. stud or rivet

(IF) - Inner privy fill
(OF) - Outer privy fill

Table 4-14 (cont)

Provenience	Description
40-45cm (IF) (cont)	8 strap fragments
	5 bucket scraps
	4 misc. metal fragments
45-50cm (IF)	8 pcs. metal scraps, 30-40cm
	1 thick iron ring, 1.6cm deep, 2-3cm diam.
	1 spike 8.6cm long
	7 pcs. wire
	20 misc. fragments
45-50cm (OF)	2 square-cut nails
50-55cm (IF)	2 square-cut nails
	1 round fragment
	6 barrel straps
	3 bucket rim wires
	1 iron cog or gear fragment
	1 strap hinge
	35 misc. metal fragments
50-55cm (OF)	2 square-cut nails
55-60cm (IF)	3 wire fragments to metal bucket
	2 large (wide) strap fragments, 30cm
	7 1.8cm wide metal strap fragments
	1 large square-cut nail
	1 shovel attachment to handle
	Approx. 200 misc. metal fragments
55-60cm (OF)	2 square-cut nails
	misc. fragments
60-65cm	1 wire bucket handle
	4 square-cut nails
	4 1.5cm wide metal strap fragments
	Approx. 30 misc. metal fragments
70-75cm	5 square-cut nails
	2 wire fragments
	1 small rivet
	1 intertwined wire
75-80cm	1 square-cut nail
	1 fragment of graphite
80-90cm	1 metal horse bit
	2 square-cut nails
	2 strap fragments
	1 metal bar (misc)
	1 thick metal bar fragment
90-95cm	3 misc. fragments
	1 flat wire--from sardine can?
95-100cm	1 brass washer
	1 tubing or casing fragment
	1 misc. fragment
105-110cm	1 square-cut nail
115-120cm	1 corroded can
130-135 cm	1 large nail

Table 4-14 (cont)

Provenience	Description
140-145cm	2 square-cut nails
	3 misc. fragments
160-165cm	1 snuff can lid
170-175cm	5 bucket fragments
	1 square-cut nail
	5 misc. fragments
	1 square-cut nail

Figure 4-15: Metal Objects Recovered from the Board-Lined Well

Provenience	Description
15-30cm	1 square-cut nail
45-60cm	1 wire encased in copper sheathing
75-90cm	1 square-cut nail

Total = 3
Nails = 2

Figure 4-16: Summary of Metal Artifacts

	Trench F Privy (Upper Unit)	Trench F Privy (Lower Unit)	Plank Privy	Board-Lined Well	Total
Construction Materials					
Rivet	1				1
Square-cut nails	22	28	38	2	90
Square spike	3				3
Strap hinge	1				1
Totals	27	28	38	2	95
Container Hardware					
Bucket fragments	17	17			34
Bucket, rim wire	8	1			9
Iron strap fragments	34	6	5		45
Totals	59	24	5	0	88
Household Items					
Andiron end	1				1
Can, flat	1				1
Can, fragment		1			1
Hook	1				1
Kettle fragment	2				2
Pot handle	1				1
Snuff can lid		1			1
Totals	6	2	0	0	8
Farm Tools					
Hoe	1				1
Shovel attachment	2				2
Totals	3	0	0	0	3
Barn & Stable					
Horse bit		1			1
Iron buckle	1				1
Iron pig	2				2
Totals	3	1	0	0	4
Miscellaneous					
Brass Casing		1			1
Brass Washer		1			1
Conical Rod	1				1
Flat wire		1			1
Fragments	315	42	8	0	365
Graphite		1			1
Iron cog	1				1
Iron ring	1				1
Metal bar		1			1
Square piece of lead		1			1
Washer			1		1

Figure 4-16 (cont)

	Trench F Privy (Upper Unit)	Trench F Privy (Lower Unit)	Plank Privy	Board-Lined Well	Total
Miscellaneous (cont)					
Wire, bundles	2				2
Wire, fragments	15	8		1	24
Wire rod	1				1
Totals	337	56	9	1	403
Grand Totals	435	111	52	3	601

Figure 4-17

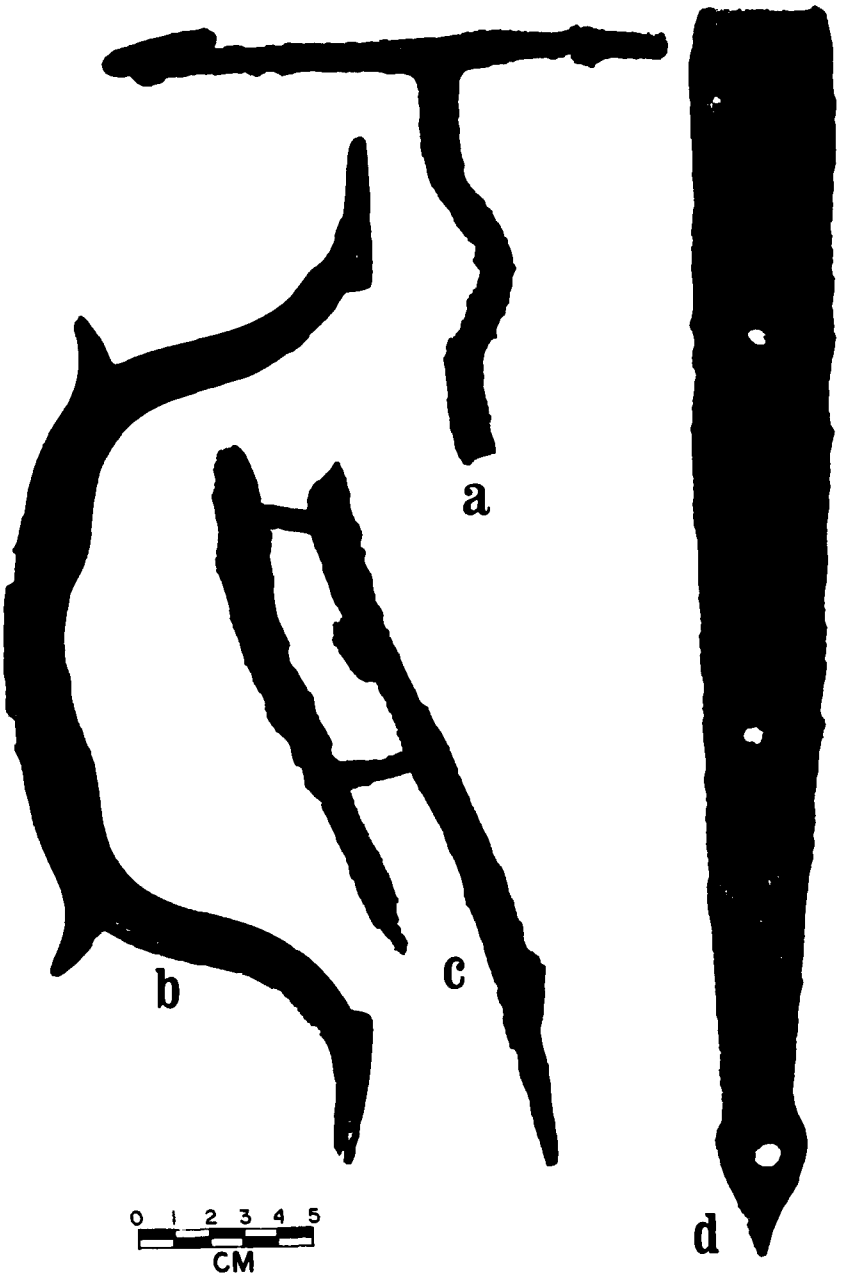
a. Treaded brass casing or valve
b. Shovel socket
c. Long square spike
d. A conical rod
e. A pot handle
f. A flattened partially galvanized bucket

0 1 2 3 4 5

CM

Figure 4-18

a. An iron horse bit (fragmentary)
b. A brass andiron
c. A shovel socket with two rivets
d. A large strap hinge


a
b
c
d
0 1 2 3 4 5
CM

Container Hardware: Fifteen percent of the metal objects consisted of iron strap fragments, presumably used as barrel hoops, and bucket fragments (Figure 4-17, f). In addition many of the miscellaneous metal fragments were probably iron straps.

Household Items: Only one percent of the metal items were household items. A pot handle (Figure 4-17, e) and a brass andiron (Figure 4-18, b) are examples. The flat can from the Trench F privy came into use in the early nineteenth century. However, a tapered can fragment was identified in the field which was not introduced until 1875 (Castille 1979: 5-66).

Farm Tools: Only three items were represented. Two of them were shovel handle attachments (Figure 4-17b and 4-18c). The third item was a hoe.

Barn and Stable: Only four items were placed in this group. A horse bit (Figure 4-18a), an iron buckle, and two iron pigs (each weighing over 25 pounds).

Miscellaneous: Of the 403 miscellaneous items, 365 were identifiable fragments (61 percent of the total). The remaining items included a brass casing (Figure 4-17) and a long square spike (Figure 4-17c).

Discussion: Of the metal items found in the Trench F privy 79 percent are in the upper unit which is interpreted as post-abandonment fill. Of the items in the plank privy 90 percent are in the top meter although the interpretation of this unit as post-abandonment fill is not as secure. Few of the metal items can be dated and the bulk of them are unidentifable fragments (61 percent). The remainder of the assemblage includes household items and other items which would be expected on a farm or plantation.

Glass

Excavations at the Welcome Plantation site recovered 465 glass fragments. About 94 percent of this assemblage represents bottle fragments and the remainder represents glassware, jars, and unrecognizable forms. FIgure 4-19 shows the vertical distribution of the glass from the site. Figure 4-20 summarizes this information for each analysis unit. In general the aqua blue glass represents soda or mineral water bottles (Figure 4-23d and 4-24a) although at least one fragment is probably a pickle or preserve jar (Figure 4-22).

Figure 4-19: Glass Categories by Provenience

	Clear	Aqua Blue	Aqua Green	Light Green	Olive Green	Amber	Smokey Black	Total
Cultural Zone South of Plank Privy	2	1			19	1		24
Cultural Zone Above Plank Privy	1			1	9			11
Plank Privy								
5-10cm				1				1
25-30cm					2			2
35-40cm					2			2
60-65cm					2			2
70-75cm					1			1
75-80cm	1							1
80-85cm					1			1
100-105cm		1						1
125-130cm		1						1
Cultural Zone Adjacent to Trench F Privy		1						1
Trench F Privy								
Profile	2	1			3			6
15-20cm					8			8
20-25cm					40			40
25-30cm		1	1		178			180
30-35cm	1				40			41
35-40cm	1	3			32	4		40
40-45cm	1							1
40-45cm (OF)					2	3		5
40-45cm (IF)	4	1		1	4	9		19
45-50cm (OF)						2		2
45-50cm (IF)	3	4		1		9		17
50-55cm (OF)						2		2
50-55cm (IF)		1			1	10		12
55-60cm (OF)					2			2
55-60cm (IF)		2			5	3		10
60-65cm	1						1	2
70-75cm					1			1
115-120cm				1				1
170-175cm					1			1
Board-Lined Well								
15-30cm					5			5
30-45cm					1			1
45-60cm					2	1		3
60-75cm					6			6
75-90cm				1	1	3		5
100-115cm					3			3
115-130cm			1		3			4

Figure 4-19 (cont)

	Clear	Aqua Blue	Aqua Green	Light Green	Olive Green	Amber	Smokey Black	Total
Totals	17	17	2	6	374	48	1	465
Percentages	3.7	3.7	0.4	1.3	80.4	10.3	0.4	

(OF) = outer privy fill
(IF) = inner privy fill

Figure 4-20: Summary of Glass Categories

	Near Plank Privy	Plank Privy	Trench F Privy (upper)	Trench F Privy (lower)	Board Lined Well	Total
Clear	3	1	10	1		15
Aqua blue	1	3	12			15
Olive green	28	8	317	6	21	380
Amber	2		26	7	4	39
Miscellaneous	1	1	3	2	2	9
Totals	35	12	368	16	27	458

Note: Totals do not match Figure 4-19 because Trench F Profile Cleaning and Cultural Zone adjacent to Trench F privy are not included.

Figure 4-21

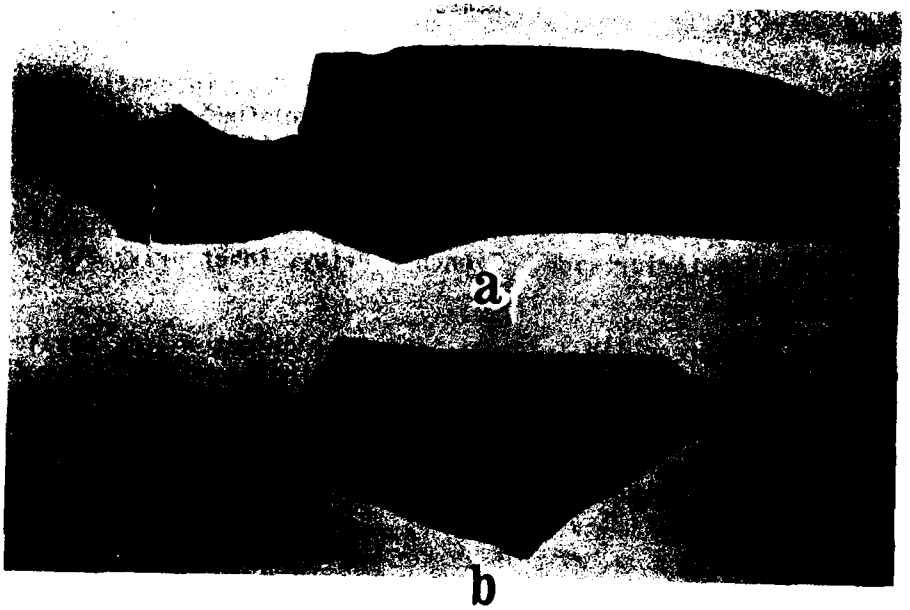
Glass

a. Amber panel bottle fragment, 11.5cm x 3cm, embossed side panel "Brown Chemical Co." No parallels were found for manufacturer's name. Trench F Privy, Inner privy fill (50-55cm).

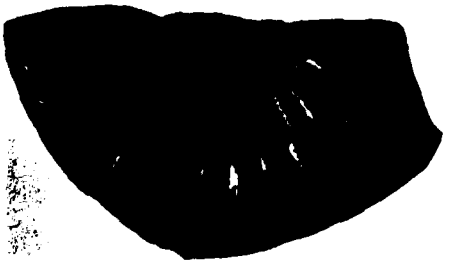
b. Amber square panel bottle fragment, 6.5cm x 3cm, embossed "bitter". Parallels for amber square panel Bitter bottles are found in Putnam (1965: Figs. 161, 162, and 163). Trench F Privy (35-40cm).

c. Smokey black bottle base, diameter 6cm, turn mold no seam, with molded scallop base pattern, rough pontil. No parallel found. Trench F Privy (60-65cm).

d. Light amber case bottle shoulder fragment 7cm wide and 2.5cm high, one seam on corner, some patina, flat side panels and rounded corners. Some similarity to Putnams Enbalming Fluid bottles which have chamfered corners rather than rounded. Trench F Privy, inner privy fill (45-50cm).



b



c

d

Figure 4-22

Glass

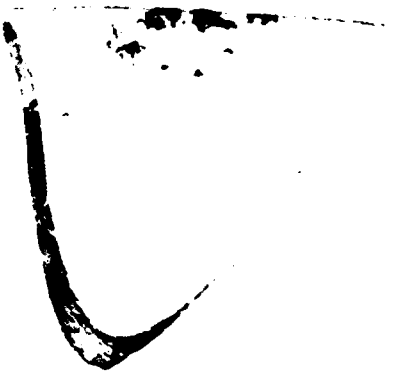
a. Aqua blue neck and lip fragment, diameter 6cm, internal diameter 4.5cm, seam below lip, laid on lip with smoothed finish. Similar to Putnam's wide mouth pickle and preserve jars (Putnam, 1965: Fig. 203 and 206). Trench F Privy, inner privy fill (45-50cm).

b. Light blue drinking glass rim fragment, 8cm diameter, floral embossing on exterior side. Trench F Privy, inner privy fill (50-55cm).

c. Small olive green lip fragment, internal diameter 2cm, applied irregular ring, sheared lip. Manufacturing techniques date this fragment at between 1840-1870. Trench F Privy (15-20cm).

d. Large olive green bottle neck fragment, 5cm diameter, 3cm internal diameter, irregular applied ring, no seams, sheared lip. Trench F Privy (35-40cm).

a



b

c

d

Figure 4-23

Glass

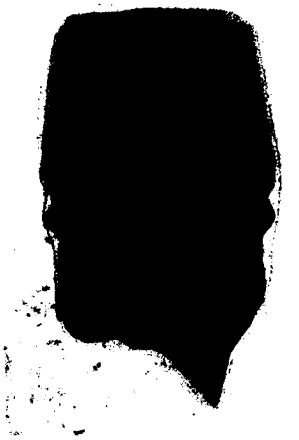
a. Dark olive green neck and lip fragment, 1.65cm internal diameter, 10cm long, laid on lip and ring, crudely adhered. Newman dates this type at 1815 to 1870 (Newman, 1970). Parallels to sweet wine bottles (Switzer, 1974). Trench F Privy, inner privy fill (45-50cm).

b. Dark amber lip fragment, 1.90cm internal diameter, applied lip and rim, seam to lip. Similar to Putnam's Brandy finish type (Putnam 1965: Fig. 20). Trench F Privy, inner privy fill (55-60cm).

c. Amber neck, shoulder and lip fragment, 1.75cm internal diameter, neck length 2.5cm, lip length 2cm, seams on two sides up to lip, heavy patina over surface. Similar to Putnam's oil finish Gin Bottles (Putnam, 1965); Trench F Privy, inner privy fill (40-45cm).

d. Aqua blue neck and lip fragment, internal diameter 1.75cm, crudely applied lip and ring, glass over flow on interior of neck, tears on neck, some patina. Similar to Putnam's open-neck, paste mold Bar Bottles (Putnam, 1965: Fig. 126). Trench F Privy, (35-40cm).

a



b

c

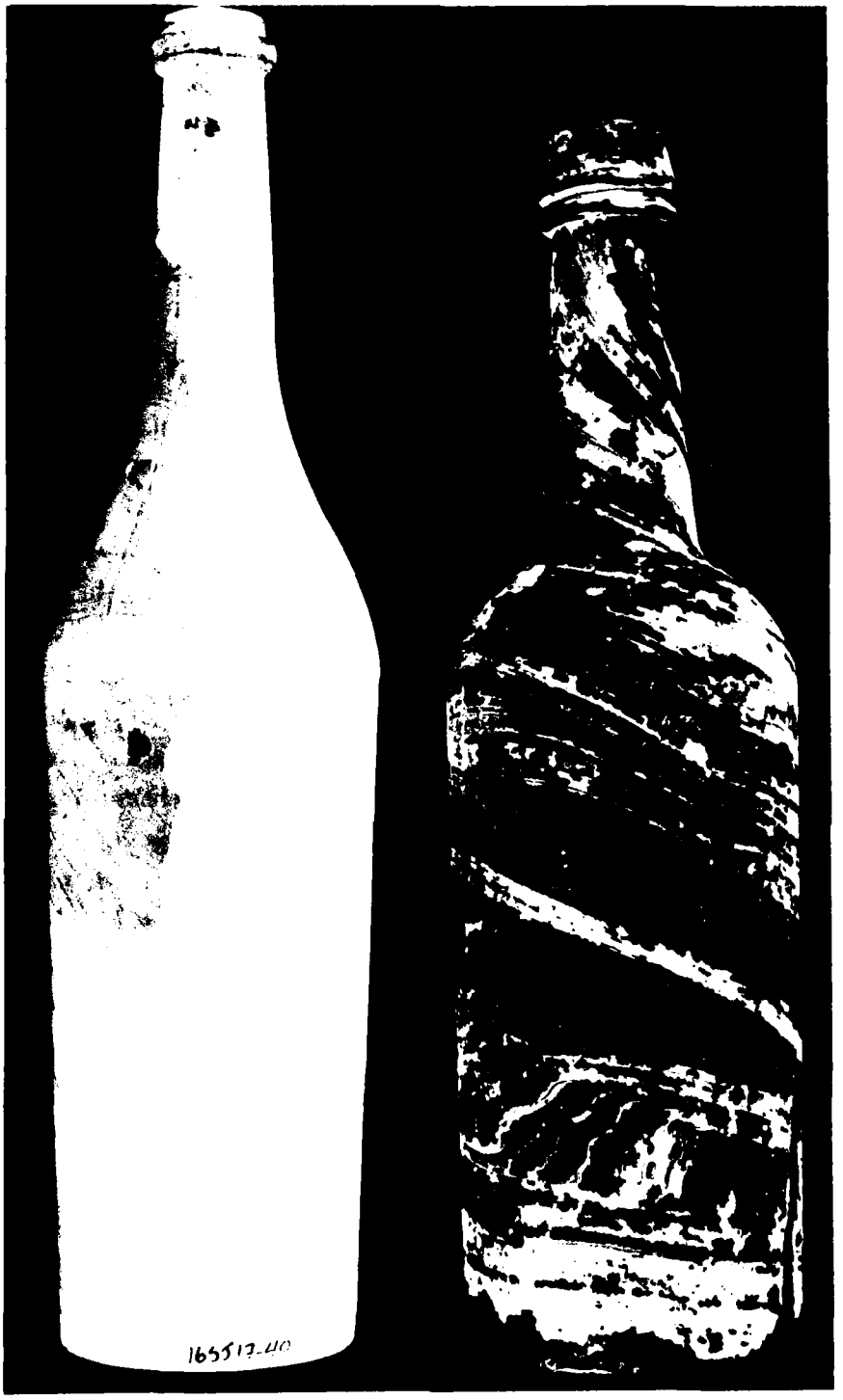
d

Figure 4-24

Glass

a. Aqua blue complete bottle, 30cm tall and 8cm maximum width, internal orifice diameter 1.65cm, three-piece mold, applied ring, sheared lip, twisted in mold patterns apparent, some tears, heavy patina, shallow kick-up with know, rough pontil, upper seam to ring. Dated to 1860-1880 (Kendrick, 1971). Plank Privy (100-105cm).

b. Dark amber complete bottle, 27.5cm tall, 8cm maximum width, internal orifice diameter 1.9cm, two piece mold, seam on two sides, twisted in mold, seam to lip, applied lip and ring, smoothed lip, heavy patina, deep kick-up with improved pontil and finished base. Dated to between 1840-1913 (Newman, 1970). Plank privy (60-65cm).



a b

Olive green sherds probably represent wine or champagne bottles (Figures 4-22c and d, and 4-23a). Amber bottles often contained bitters, ale, or even liquor (Figures 4-21a, b, and d, 4-23b, and c, and 4-24b). Most of the clear glass appears to have come from glassware (Figure 4-22b is colored a light blue, however). In addition one smokey black bottle base was found for which no parallel could be discovered (Figure 4-21c).

Many bottle neck and base fragments can be accurately dated because of technological improvements in bottle manufacturing during the nineteenth and twentieth centuries. Figure 4-25 lists the datable items from the Welcome site. Mean dates were computed for each of the four analysis units. The cultural zone above the plank privy produced a mean date of 1880 and a terminus post quem (TPQ) of 1855. The plank privy was dated to 1873 with a TPQ of 1860. All of the datable glass came from the upper meter of the fill. The upper unit of the Trench F privy was dated at 1860 with a TPQ of 1880. The lower unit dated to 1900; however this was based upon a single specimen at a depth of 40-45cm in the outer fill zone. Since the distinction between the inner and outer privy fill was based upon the concentration of artifacts in the inner privy fill (Coastal Environments, Inc. 1979b: 11), the possibility must be considered that this specimen actually belongs to the post-abandonment fill. The board-lined well glass produced the earliest date, 1869, with a TPQ of 1850. The TPQ provides us with a date after which the deposit must have occurred, whereas the mean date indicates what the average is for the assemblage as a whole. The TPQ dates for the cultural zone, the plank privy and the board-lined well are all earlier than the mean date. The Trench F privy, upper unit TPQ date is twenty years later. In other words, although the bulk of the glass dates to around 1860, at least one specimen (two if we include the piece from the outer fill) could not have been deposited until 1880. The glass indicates that all of the features were filled in the later half of the nineteenth century.

Miscellaneous Artifacts

Various artifacts which did not fall into the above categories were classified as miscellaneous and dealt with separately by Ms. Denise Lackey of the Nautical Archeology program of Texas A & M University.

Figure 4-25

Datable Glass

Provenience	Method of Dating	Date Range	Ref.
Above Plank Privy	Snap Case	1855-1913	2
	No seams	1840-1910	1
Plank Privy			
55-60cm	Sheared Lip	1840- ?	2
60-65cm	Laid-on Ring	1840-1913	2
100-105cm	3-Piece Mold	1860-1880	1
Trench F Privy			
30-35cm	Applied Lip	1815-1870	1
35-40cm	No seams	1840-1870	2
	Improved Pontil	1840-1870	2
40-45cm (OF)	Depth of Kick-up	1880-1920	2
40-45cm (IF)	Depth of Kick-up	1880-1920	2
	Applied Lip	1860-1880	1
45-50cm (IF)	No Seams	1815-1870	2
	Applied Lip	1860-1880	1
	No Seams	1815-1870	1
55-60cm (IF)	Improved Pontil	1840-1870	2
	Applied Lip	1860-1880	1
Board-Lined Well			
15-30cm	Depth of Kick-up	1840-1870	2
75-90cm	Case Bottle	1850-1915	2

(OF) = outer privy fill
(IF) = inner privy fill

References: 1) Kendrick 1971
2) Newman 1970

Arms: The single specimen relating to weaponry from the site is the brass butt end of a shot gun shell casing. The end is stamped W.R.A. Co. (No. 12 RIVAL). Remains of the paper wadding can still be seen inside (Figure 4-26a). The specimen is from the 120-125cm level in the Trench F privy.

Personal Items: Two buttons were recovered from the 75-80cm level of the plank privy. One is a mother-of-pearl flat button, 24mm in diameter (Figure 4-26b). The four holes of the button are in an inset circle of 8mm in diameter. The other button is a domed, two-piece, brass button (Figure 4-26c). The front has the American eagle with shield. Around the central motif are the words "Colegium Georgio Politanun DC." Around the outside is the laural wreath design. The back consists of the soldered wire forming the eye and "Scoville Extra Super Fine" surrounded by concentric circles. The button colsely parallels South's type 27 (1964a: 123) which he dates to between 1847 and 1865.

Smoking Items: A single pipe bowl fragment of red clay was recovered from the construction pit for the plank privy (Figure 4-26d). The bowl diameter was about 23mm. The mouth is decorated with a series of evenly spared circles enclosing a central dot. The mouth is lipped and a raised line 10mm below the lip encircles the bowl.

Furniture: A small decorative, tin hinge with one of the attaching tacks remaining was recovered from the 70-75cm level in the Trench F privy (Figure 4-26e). The hinge is 37 by 33 by 1mm in size.

Brick: One brick end fragment with the letter "J" crudely marked on one surface (Figure 4-26f). The specimen is from the 15-20cm level of the Trench F privy (upper unit). Most studies of bricks deal with size, and the general belief is that brick size may be a valid date indicator (Lazarus 1965: 69; South 1964b: 67). Lazarus (1965: 73) indicates that brick thickness in relation to length and width is not constant, but because of the brick-laying tradition, the ratio of width to length is 1:2. In that case, the length of this brick would be about 190mm (7 1/2 inches). The other brick fragments were classified according to whether or not they were handmade, low-temperature fired, high-temperature fired, vitrified, or unclassifiable. The results of this analysis are shown in Figure 4-28.

Leather: The leather fragments from the two privies (no leather was found in the board-lined well) consisted of 210 pieces. The bulk of the pieces were parts of shoes. The distribution of the leather was disproportionate with 193 (92 percent) pieces coming from the upper unit of the Trench F privy. Only 11 pieces were found in the lower unit of the Trench F privy. The cultural zone above the plank privy contained one piece of leather and the plank privy contained five pieces. All of the leather from the plank privy came from the upper meter of fill. The soles of the shoes were sewm to the uppers while the heels were nailed onto the bottom (Figure 4-27 a-c). Nailed soles became common only after 1862 following the patenting of G. C. Parrott's shoe nailing machine (Anderson 1968: 61). Additional shoe fragments are illustrated in Castille's analysis of the Welcome site material (1979: 5-78, 5-79).

Faunal Remains

The faunal remains from the St. Alice Revetment study area were analyzed by Ms. Christi Assad of the Anthropology Program of Texas A & M University. These remains came primarily from the Trench F and Plank privies. Each faunal specimen was visually examined and positive identification to species was determined when the specimen was matched to that species in the zooarcheology comparative faunal collection housed at Texas A &M University. If identification to species was not possible, then each specimen was identified to the closest taxonomic unit (family, class, etc.).

The analysis of the hand collected materials from the excavations involved visual examinations of the specimens. The faunal remains from the soil matrix samples required sorting through the artifactual residue left from the processing followed by visual examination of each specimen. The methods used to process the soil matrix samples are described in detail in the ethnobotanical section (Murry, Chapter V, this volume).

Trench F Privy: Four species have been identified from Trench F privy, including cow (Bos taurus), pig (Sus scrofa), Barred owl (Strix varia) and oysters (Crassostrea virginica). All other remains consist of unidentified mammal bones that were separated into uncut fragments and cut or sawed bones. Figure 4-29 lists the vertical provenience, elements present for each of the above species and the distribution of uncut and cut/sawed mammalian bones from Trench F privy.

Figure 4-26

Miscellaneous

a. Shot gun shell

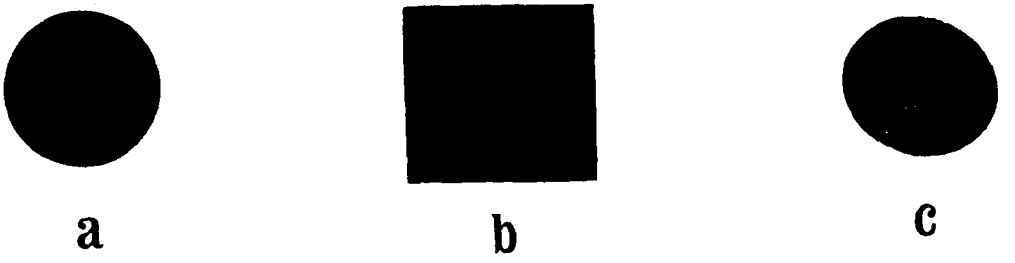
b. Mother-of-pearl button

c. Two-piece brass button

d. Clay pipe bowl

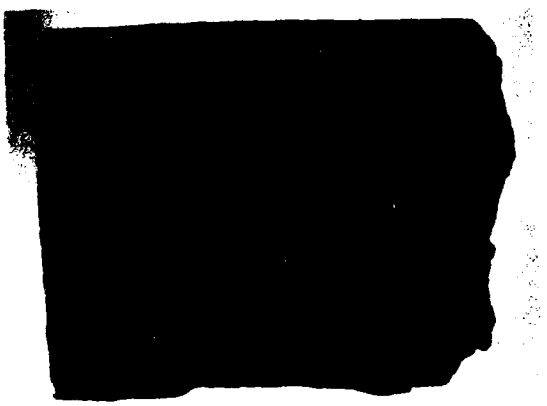
e. Tin hinge fragment

f. Red brick fragment



a b c

d e



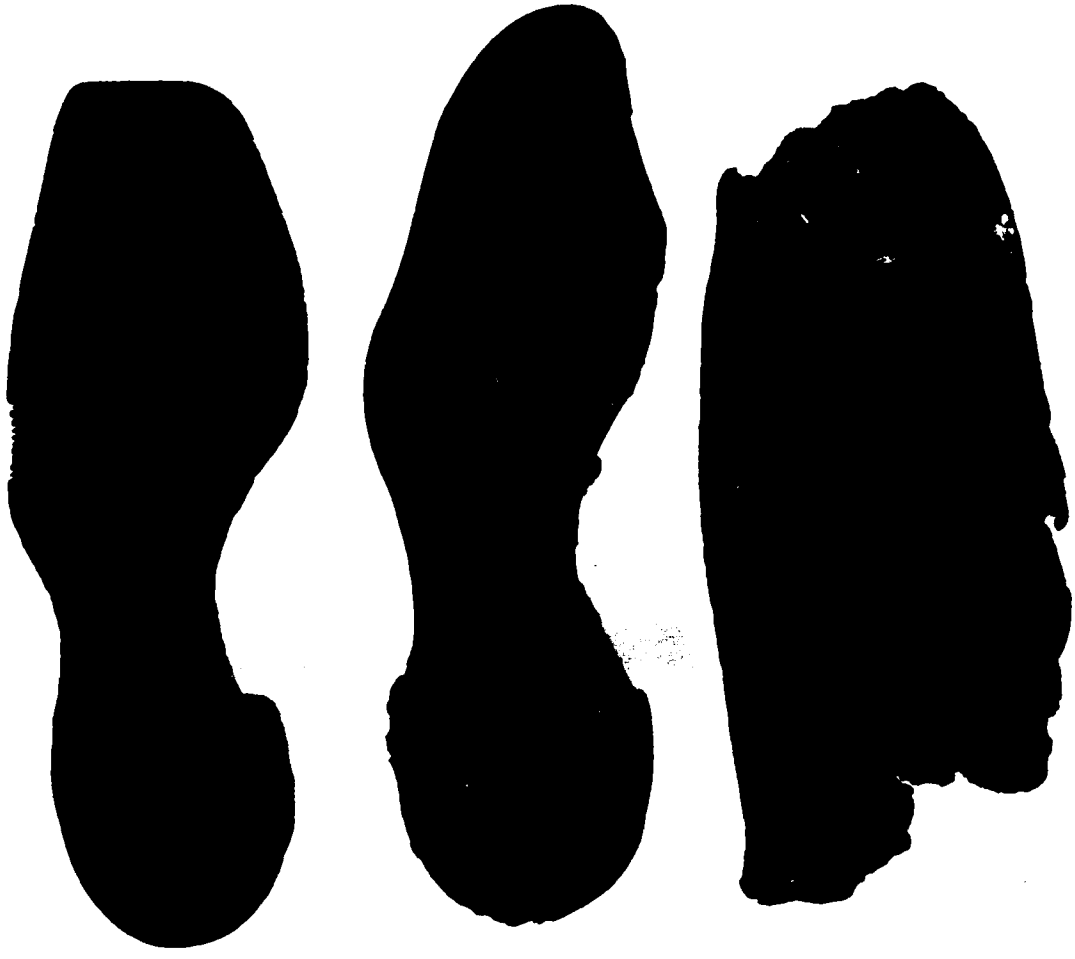
f

Figure 4-27

a. leather sole

b. leather sole

c. leather upper



a b c

Figure 4-28

Brick Fragments

	Board-Lined Well	Plank Privy	Trench F Privy (Upper)	Trench F Privy (lower)	Total
Handmade		19	28	7	54
Low-fired	5		256	64	325
Well-fired	2		16	3	21
Vitrified			21	4	25
Unclassifiable	—	6	—	1	7
Totals	7	25	321	79	432

Figure 4-29: Faunal Remains from the Trench F Privy

Provenience:	*Bos taurus*	*Sus scrofa*	Aves	*Crassostrea virginica*	Mammalian Uncut	Mammalian Uncut/Sawed
15-20 cm	none	none	none	1 valve	none	none
25-30 cm	none	none	1 fragment	2 valves	1 fragment	1 piece
30-35 cm	L P_4 Adult L radius--distal epiphysis L calcaneus fragment	R lower canine-Adult male	none	5 valves	1 fragment	1 piece
35-40 cm	none	L M_1-M_2-Sub-Adult L humerus shaft	none	2 valves	7 fragments	1 piece
40-45 cm	none	R M_3-unerupted	none	none	none	none
outer fill	none	none	*Strix varia*--L tarsometatarsus	none	1 fragment	none
inner fill	none	none	none	6 valves	3 fragments	2 pieces
45-50 cm outer fill	none	R lower canine-Adult male	none	none	1 fragment	none
inner fill	R pubis fragment R scapula fragment cut	none	none	3 valves	none	none

Figure 4-29 (con't)

Provenience:	Bos taurus	Sus scrofa	Aves	Crassostrea virginica	Mammalian Uncut	Mammalian Cut/Sawed
50-55 cm						
outer fill	none	none	none	2 valves	none	none
inner fill	L astragalus	none	none	1 valve	none	none
55-60 cm						
outer fill	none	none	none	none	3 fragments	2 pieces
inner fill	none	none	none	3 valves	none	none
60-65 cm	none	none	none	1 valve	none	1 piece
70-75 cm	none	none	none	none	2 fragments	1 piece
75-80 cm	R occipital condoyle	none	none	none	2 fragments	none
80-85 cm	none	none	none	none	2 fragments	1 piece
85-90 cm	none	none	none	1 valve	none	none
90-95 cm	none	none	none	none	1 fragment	none
105-110 cm	none	none	none	none	2 fragments	none
110-115 cm	none	none	none	1 valve	none	none
130-135 cm	L ischium fragment	none	none	none	none	1 piece
140-145 cm	none	none	none	1 valve	none	none

Faunal remains in Trench F privy were found to 145 centimeters deep; however, below 50 centimeters only Bos taurus, Crassostrea virginica and unidentified mammalian remains were found. The concentration of faunal remains of all species found in the upper portion of the privy tends to support the suggestion by Coastal Environments, Inc. (1979b: 2) that upper 30-50 centimeters represents post-abandonment fill.

The two mammalian species from the Trench F privy, Bos taurus (cow) and Sus scrofa (pig), are typical domesticates associated with historic sites. The Bos taurus remains are represented by cranial and post-cranial elements, some of which have been cut or sawed. Bos remains are distributed throughout the privy but are more concentrated in the upper post-abandonment fill levels. Although the bones in the unidentified mammalian category are two small to make positive identification of species, it is probable that most are Bos taurus and many similar to cross cut longbone pieces found in round steak cuts today. As stated earlier, all Sus scrofa remains were found above 50 centimeters; no butchering marks were visible on any of these bones.

One bird species, Strix varia, the Barred owl was recovered from the outer privy fill at 40-45 centimeters deep. This species is a common resident of southern swamps and river bottoms and ranges throughout the eastern two-thirds of North America (Robbins et al 1966). The presence of Strix varia was not unexpected in the area; however, its association with the site was probably due to indirect circumstances. One other unidentified bird bone was recovered from the post-abandonment fill.

The oyster shells (Crassostrea virginica) in Trench F privy were distributed throughout nearly all levels to a depth of 145 centimeters. Their presence at a historic site is not unexpected because their food value was appreciated and historic populations of the area. Oysters require a more saline environment than the Mississippi river provides (Andrews, 1971); therefore, they must have been imported from the Gulf of Mexico.

The remainder of the faunal remains from Trench F privy consisted of unidentified mammalian bone fragments that were divided into uncut and cut/sawed categories. Both categories were vertically distributed at relatively equal quantities to 115 centimeters deep. Little can be said about the nature of the uncut bone because of their fragmented condition; it has already been suggested that the majority of the cut bone is Bos taurus.

In the Trench F privy, 54% of the hand-picked bone was identifiable to species. Figure 4-30 indicated the percentages for each species in both

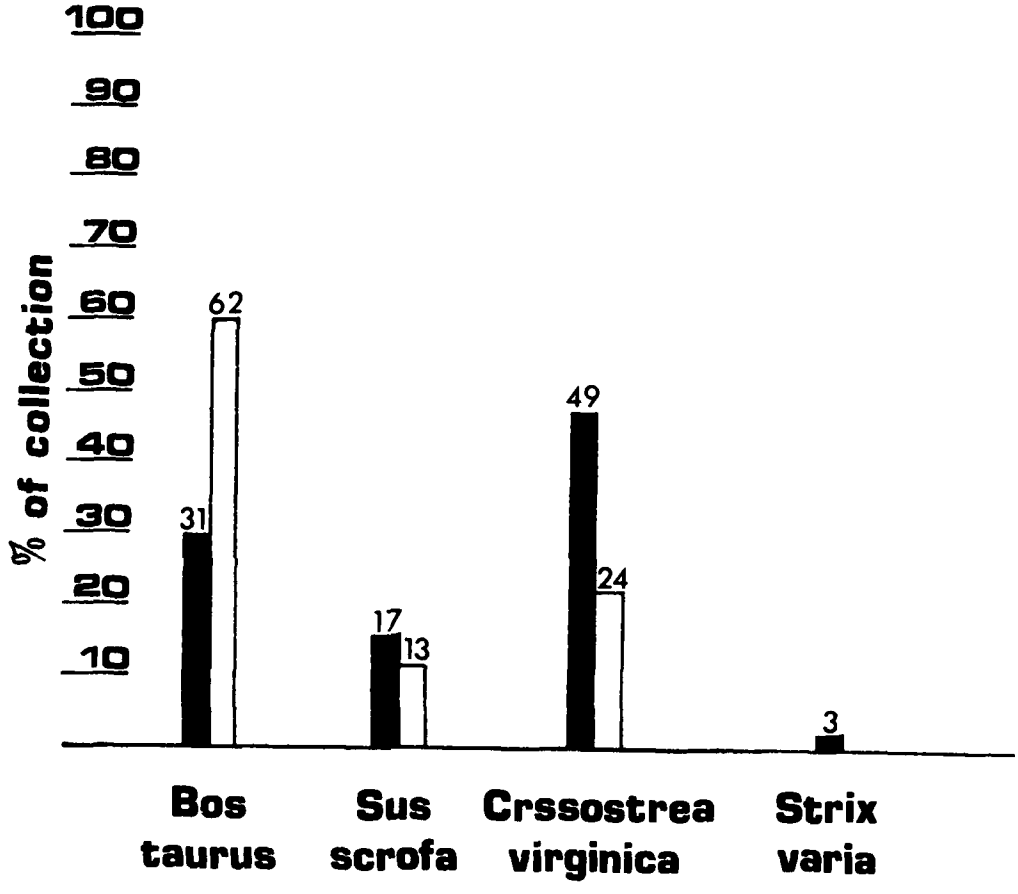


Figure 4-30: Percentages of identified species from the Trench F and Plank privies. The Trench Privy material is represented in black, the Plank Privy material in white. The actual frequencies of each species is noted above each bar on the graph.

privies. The value count was divided by two to represent the number of whole oysters. The most common species was Crassostrea virginica (49%) followed by Bos taurus (31%), Sus scrofa (17%) and Strix varia (3%), respectively, for Trench F privy. These percentages do not include the faunal remains recovered from the soil matrix samples.

The faunal remains recovered from the soil matrix samples taken from the Trench F privy consisted of only five specimens, found scattered between the surface to 145 centimeters deep. These materials included a cat tooth (Felis catus), two oyster shells (Crassostrea virginica), one unidentified mammal bone fragment and a bird egg shell fragment. The vertical distribution of these items are provided in Figure 4-31.

Plank Privy: Only three species were identified from the plank privy: cow (Bos taurus), pig (Sus scrofa) and oyster (Crassostrea virginica); unidentified mammalian fragments were recovered as well. As with the Trench F privy materials, these unidentified mammalian remains have been separated into uncut and cut/sawed categories. Figure 4-32 lists the vertical provenience, elements present for each species and the distribution of uncut and cut/sawed mammalian bones from the plank privy.

Included in the faunal sample are bones found in a cultural zone above the plank privy and just to the south of it. The remains in the privy itself were only found as deep as 105 centimeters. It is suggested by Coastal Environments, Inc. (1979b: 22) that post-abandonment fill was approximately 100 centimeters deep. If this interpretation is correct, all of the faunal remains represent post-abandonment deposition in contrast to the Trench F privy.

The two mammalian remains from the plank privy were cow (Bos taurus) and pig (Sus scrofa). The Bos taurus remains far outnumber the Sus scrofa which are represented by two elements. Both cranial and post-cranial remains of Bos are present. No cut or saw marks to indicate butchering are visible on any of these bones. As seen in the Trench F privy, oysters (Crassostrea virginica) were being consumed and disposed of in the plank privy throughout the upper 90 centimeters of fill.

The distribution and quantity of occurence of uncut verses cut/sawed unidentified mammalian bone differs markedly between the plank and the Trench F privies. There are only five pieces of cut bone, all from between 75-90 centimeters in depth while more numerous uncut bone fragments range from 25-105 in depth in the plank privy.

Figure 4-31: Faunal Remains from the Soil Matrix Samples of Trench F Privy

Soil Matrix Number/Depth	Taxonomic Unit	Element (s)
1, zone above privy	*Felis catus*	L P^3-Adult
5, 30-35 cm	*Crassostrea virginica*	1 valve
8, 35-40 cm	*Crassostrea virginica*	1 valve
12, 45-50 cm	Mammalia	1 fragment
19, 140-145 cm	Aves	1 egg shell fragment

Figure 4-32: Faunal Remains from the Plank Privy

Provenience:	Bos taurus	Sus scrofa	Crassostrea virginica	Mammalian Uncut	Mammalian Cut/Sawed
Cultural Zone Above Privy	R M^3-Adult Medical phalange	none	1 valve	7 fragments	none
Cultural Zone South of Privy	L astragalus	R humerus shaft	1 valve	8 fragments	2 pieces
Outside Planking	none	none	none	none	1 piece
Privy fill					
15-20 cm	L M^3-Adult	none	none	none	none
20-25 cm	Carpal Lumbar vert.	none	1 valve	8 fragments	none
25-30 cm	none	none	1 valve	none	none
35-40 cm	Lumbar vert.	none	none	5 fragments	none
40-45 cm	none	none	2 valves	4 fragments	none
50-55 cm	none	none	none	3 fragments	none
55-60 cm	Proximal phalange	none	none	none	none
60-65 cm	none	none	2 valves	none	none
65-70 cm	R metatarsal fragment-proximal Medical phalange	none	1 valve	1 fragment	none
70-75 cm	none	Lower canine-Male	none	none	none
75-80 cm	none	none	1 valve	none	1 piece
80-85 cm	L mandible fragment	none	none	7 fragments	2 pieces
85-90 cm	L M_2-M_3-Adult R occipital condyle	none	2 valves	5 fragments	2 pieces

Figure 4-32 (con't)

Provenience:	*Bos taurus*	*Sus scrofa*	*Crassostrea virginica*	Mammalian Uncut	Mammalian Cut/Sawed
90-95 cm	Atlas fragment	P_3-P_4-Adult	none	none	none
95-100 cm	R mandible fragment	none	none	1 fragment	none

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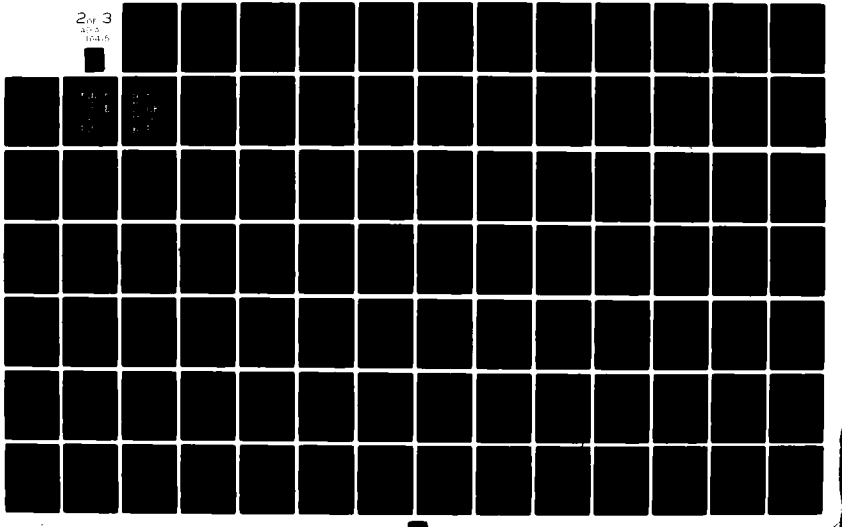


In the plank privy, only 29% of the faunal remains present were identifiable to species. The percentages of species from this privy are provided in Figure 4-30. The most common species in the plank privy were Bos taurus (62%) followed by Crassostrea virginica (25%) and Sus scrofa (13%).

The faunal remains recovered from the soil matrix samples taken from the plank privy contained markedly larger quantity of specimens than those recovered from the Trench F privy. These remains were found throughout the upper 95 centimeters. In addition, two fish scale fragments were recovered at 180-200 centimeters deep in the Trench F privy. The identified taxa and their vertical distributions are provided in Figure 4-33.

The mammal remains included bones of bovids (probably cows) and Sus scrofa. Some oyster shells were present as well. The taxa found in the soil matrix samples that were recovered from the hand-picking operation include members of the Classes Aves, Osteichthyes and Gastropoda. The majority of the recovered faunal remains were small fragments of mammal bone with approximately 38% of those being burned. Most of the fish remains were scale fragments; all of the bird remains were egg shell fragments. The only Gastropoda present were two snail specimens of undetermined species. Unfortunately, the vertical location for many of the specimens was unknown because of loss of information or soil slumping problems encountered during the excavations.

The faunal remains from the soil matrix samples tend to be very fragmented and probably represent garbage associated with the post-abandonment fill of the plank privy. The presence of the snail shells and possibly the fish scales is probably not related to cultural activities of the historic site but to natural distribution along the Mississippi River.

Board-Lined Well: Faunal remains were only found at two levels within the fill of the well. An oyster shell (Crassostrea virginica) was found at 45-60 centimeters deep and at 115-310 centimeters deep, a mammal bone fragment and another oyster shell was recovered.

Discussion: Murry (this volume) has suggested that the plank macrofossils and pollen found in the two privies could reflect dietary differences in the populations that used the privies. The faunal remains recovered from the two privies may also support the idea that there was a difference of utilization of the privies prior to abandonment. There was no bone found below 105 centimeters, the approximate post-abandonment fill level, in the plank privy, while mammal

Figure 4-33: Faunal Remains from the Soil Matrix Samples of the Plank Privy

Soil Matrix Number/Depth	Taxonomic Unit	Element (s)
22, none	Bovidae	R lower incisor, very worn
	Mammalia	7 fragments (2 burned)
	Crassostrea virginica	1 valve
29, 0-5 cm	Mammalia	2 fragments
23, none	*Sus scrofa*	L humerus shaft fragment-Sub-Adult
	Mammalia	50 fragments (11 burned)
	Aves	2 egg shell fragments
	Unknown	1 bone
	Osteichthyes	1 vertebra
	Gastropoda	2 snail shells
31, 10-15 cm	Mammalia	2 fragments (1 burned)
24, none	Mammalia	11 fragments (6 burned)
	Aves	1 egg shell fragment
	Unknown	1 fragment
33, 15-20 cm	Mammalia	31 fragments (7 burned)
34, 20-25 cm	Mammalia	7 fragments (2 burned)
35, 25-30 cm	Osteichthyes	1 fish scale fragment
25, none	Mammalia	25 fragments (all burned)
26, 25-30 cm	Bovidae	tooth fragment
	Mammalia	19 fragments (all burned)
27, none	Osteichthyes	1 fish scale fragment
28, 25-30 cm	Bovidae	L metacarpal fragment-distal end
	Mammalia	200+ fragments (only 5 not burned)
37, 30-35 cm	Osteichthyes	2 fish scale fragments
40, 50-55 cm	Osteichthyes	3 fish scale fragments
41, 55-60 cm	Osteichthyes	2 fish scale fragments
42, 60-65 cm	Osteichthyes	1 fish scale fragment
	Aves	1 egg shell fragment
43, 65-70 cm	Mammalia	1 fragment
44, 70-75 cm	Osteichthyes	3 fish scale fragments
46, 90-95 cm	Unknown	1 bone button
56, 180-200 cm	Osteichthyes	2 fish scale fragments

Figure 4-33 (con't)

Soil Matrix Number/Depth	Taxonomic Unit	Element (s)
58, matrix slump	Mammalia	1 large pelvis fragment
59, matrix slump	Crassostrea virginica	1 valve
61, matrix slump	Mammalia	7 fragments
65, matrix slump	Osteichthyes	3 fish scale fragments
	Aves	1 egg shell fragment
68, matrix slump	Bos taurus	2 femur shaft fragments
	Mammalia	70+ fragments--most are exfoliated from the femur fragment
	Osteichthyes	3 fish scale fragments
32, 10-30 cm outside privy fill	Mammalia	3 small fragments

bone was recovered well below the post-abandonment fill level of the Trench F privy. When the Trench F privy was in use as a privy, bone was being discarded in it while that does not appear to be the case during similar use of the plank privy.

Utilizing the data from Figure 4-30, a Chi-square test was used to determine if there was any difference in the importance of cow, pig, and oysters in the two privies. The value of the statistic was 3.17 with two degrees of freedom which is not significant at the .05 level.

The faunal remains from the St. Alice site privies represent domesticates: cow and pig, and an imported food, item, the oysters, that are typical of the area even today. The occurrence of most of the other faunal remains found in the privies is probably due to natural distribution of these species along the Mississippi River or associated with the garbage dumped into the privies by the site's occupants, or both.

Summary

Analysis of the cultural material from the Welcome Plantation site has provided information concerning the time of occupation, diet, and daily activities of the historic occupants at the site.

Dates for the two privies and the well were derived principally from ceramics and glass. The dates can be summarized as follows:

Provenience	Ceramics	Glass	Terminus Post Quem
Board-Lined Well	1825	1869	1850
Plank Privy	1841	1873	1860
Trench F Privy (lower unit)	1857	1900?	1880?
Trench F Privy (upper unit)	1864	1860	1880
Cultural Zone near Plank Privy	1862	1880	1855

The question mark following the glass and TPQ date for the lower unit of the Trench F privy refers to the fact that these dates are based on a single specimen from the outer fill of the privy.

Examination of the dates reveals that the glass dates are more recent than the ceramic dates except for the upper unit of the Trench F privy. The same

tendency was noted in the surface collections from the site (Castille 1979: 5-40, 5-53). Several factors may account for this discrepancy. The first involves a greater time lag between acquisition and disposal for ceramics (Castille 1979: 5-53). Whereas bottles may be discarded after their contents have been used, ceramics are retained until accidently broken. A second factor is that the dating of late nineteenth century ceramics is not secure. For example, although Castille (1979: 5-36) gives a date of 1890 for plain whiteware (citing Lofstrom 1976: 10), two of the maker's marks for whiteware date after 1890 (Castille 1979: 5-41, 5-42). Since 44 percent of the sherds are plain whiteware, an error in dating this type would have a significant impact on the ceramic dates. As Castille notes (1979: 5-54) glass is probably a more accurate dating tool for sites occupied in the latter half of the nineteenth century.

Using the glass dates and the terminus post quem dates the following occupational sequence can be suggested. The board-lined well and the plank privy were probably filled in between 1865 and 1875, shortly after the Civil War. The early ceramic dates may partly reflect the Union blackade of the south which cut off supplies during the Civil War. The cultural zone near the plank privy and the upper unit of the Trench R privy presumably date sometime shortly after 1880 and the use of the Trench F privy (lower unit) probably dates to sometime shortly before 1880 (since the ceramic dates for the upper and lower units of the Trench F privy are quite close).

Faunal data from the two privies suggest the beef, pork, and oysters were part of the diet. The plank privy also contained fish and egg shells. Whether this distinction relates to preferences, temporal differences, or seasonal differences is uncertain.

Activities reflected in the assemblage emphasize food preparation and serving. Most of the glass (83 percent) is olive green in color and presumably represents wine bottles. Amber bottles, often used for ale, bitters, or liquor are only 8.5 percent of the assemblage. The majority of the metal items (72 percent) are unidentifiable fragments. Square-cut nails make up 15 percent of the metal while iron strap fragments and bucket parts make up another 15 percent. The iron strap fragments were presumably from barrel hoops. If this is so, these items are the only ones recovered which might be related specifically to sugar production. In general the assemblage resembles that of nineteenth century farmstead.

Part of the difficulty in deriving more information from the privy fill materials is that the privies are not associated with any definite household. Both privies are located in the vicinity of a cluster of houses on the 1882 and 1894 Mississippi River Commission maps (Castille 1979: 3-6, 3-8), but foundation remains of these houses were not discovered during testing.

CHAPTER V: POLLEN AND MACROFLORAL REMAINS FROM THE PLANK PRIVY AND TRENCH F PRIVY

During the excavation of the Trench F privy and the plank privy in the St. Alice Revetment, personnel from Coastal Environments, Inc. collected pollen and soil matrix samples for later analysis from each zone. Mr. Robert Murry of the Anthropology Program of Texas A & M University undertook the analysis of these samples.

According to the excavation report submitted by Coastal Environments, Inc. (1979b), 41 pollen and 61 soil matrix samples were collected from the natural levels and arbitrary 5 centimeter levels. However, the contract for analysis of these samples between Texas A & M University and the U. S. Army Engineer District, New Orleans called for the processing and analysis of 43 pollen samples and 69 matrix samples collected from the two privy pits excavated in St. James Parish. Only 41 pollen samples were received and analyzed. The absence of a sample log with numbered samples may account for mistakes in counting samples which resulted in the differing totals.

Methods and Materials

The purpose of the archeobotanical analyses of 69 fill samples and 41 pollen samples from the Welcome site privies (16SJ17) was primarily intended to recover evidence of human diet at the site which would have otherwise been destroyed by traditional artifact recovery techniques. In addition to standard soil grain size and mineral content analyses, soil matrix samples from the privies were sampled for macrofloral remains by flotation. These remains were then examined for traces of economic (food) plant remains. The 41 pollen samples from the privy excavations were collected, processed and analyzed for pollen evidence of possible vegetal components in the diets of the Welcome Plantation inhabitants.

Mr. Robert Murry processed the 110 soil samples and examined them for pollen and/or macrofloral contents. Prior to processing, the 69 soil matrix samples were split into three portions to permit a series of different analyses. One portion of approximately 300 cubic centimeters from each sample was sent to the U. S. D. A. Extension Service Soil Laboratory at Texas A & M University for soil mineral analyses (Appendix C). A second portion of approximately 400 cubic centimeters from each sample was sent to Soil Mechanics Inc.,

Bryan, Texas, for soil particle size analysis (Appendix D). The remaining portion of each matrix sample was processed in our laboratory using water separation (flotation) in an attempt to recover macrofloral remains.

We had hoped that soil tests could, also, be conducted for each of the 43 pollen samples sent to us by the U. S. Army Engineer District, New Orleans. However, since there was overlapping information already available from the 69 soil matrix samples, and there was an extremely small volume of soil in most of the pollen samples, no soil tests were attempted.

Pollen extraction and analysis: The pollen samples were processed using an extraction procedure similar to the one used on pollen samples collected from historic well locations near Lucy, Louisiana (Murry 1981). This pollen extraction procedure included the use of concentrated hydrochloric acid to remove carbonates, 70% hydrofloric acid to dissolve silicates, and screening with a 150 micron mesh brass screen to remove large matrix debris.

Like the "Lucy Well: samples, those from the St. Alice privies contained much cellulose and lignin making adequate concentration of pollen impossible without the use of nitric acid to oxidize these contaminants. All of the privy samples required two nitric acid treatments to sufficiently delete these non-pollen organic remains. These acid treatments were short, 30-60 seconds each in nitric acid, followed by treatment with a base, ammonium hydroxide.

Heavy density flotation was used to separate the pollen and spores, which have a specific gravity less than 1.9, from other organic and inorganic detrius with a specific gravity heavier than 1.9. This procedure consisted of thoroughly mixing the sample into a solution of zinc chloride having a specific gravity of 1.9. This heavy liquid solution was then centrifuged at 2,000 revolutions per minute for 30 minutes. This permitted the pollen remains to rise to the top of the sample, where they could be decanted and saved. The heavier remains were then checked for pollen and discarded. The pollen fractions of the samples were then rinsed and checked for their organic compostion to determine whether further oxidation treatments would be needed.

After this, the samples were rinsed, dehydrated, and mixed into optically transparent silicone oil. They were next mounted on slides and examined at magnifications of 400 X. Most samples contained more than 200 pollen grains which is the minimum needed as determined by Barkley (1934) for valid statistical analysis. The provenience of the samples and the pollen counts (analyzed)

are presented in Figures 5-1 and 5-2.

Flotation sample processing and analysis: The 69 flotation samples were initially examined to determine what type of flotation sampling procedure would be needed. The 11 "slump" samples from the plank privy were chosen as the first test group of samples to be processed. We hoped that the results from this test would enable us to determine a processing procedure which could be used on the remaining 58 samples.

During processing, however, we found that these 11 slump samples had a high clay content which made traditional flotation methods ineffective. The hard, almost concrete-like nature of these dry soils resisted water absorption to such an extent that they broke down only after being submerged in water for more than 48 hours. Based on this observation, we decided to presoak all of the matrix samples while they were still in the woven plastic bags used to collect field samples. After initial testing of this procedure, we determined that the weaving pattern of the plastic bags was sufficiently tight so that no macrofloral parts would be lost from the soil matrix inside each bag. The samples were first presoaked by repeated applications of water to each bag during the first 24-hour period. After that, each sample was broken down further by using a high pressure hose and the addition of water during a second 24-hour period.

Because of the necessity of using a presoaking period, many of the organic plank remains in each matrix sample became saturated and thus lost their natural buoyancy. For this reason, the following procedures were used to recover macrofossil materials:

1. Preflotation
    a. Samples were initially wetted with a fine spray from a water hose while they were still inside their plastic sacks. This procedure was repeated six to eight times during the initial 24-hour period.
    b. Samples were next softened by addition of more water from a high pressure nozzle. This was repeated six to eight times during the second 24-hour period and resulted in dissolving the larger clumps of soil matrix in each sample.
2. Flotation
    a. The presoaked sample bags were once more wetted down in preparation for flotation and were individually placed into a

Figure 5-1: St. Alice Pollen Samples
Laboratory Log

***Report Profile Zone	**Pollen Sample Number	*Zone or Level	*Depth	*Date	*Personnel
Trench F					
Zone A	P-1	Cultural Zone Above Privy	None	11-09-79	GC & CP
Zone B	P-2	Gray clay Zone 4 in East Profile of Trench	None	11-09-79	GC & CP
	P-4	BB	None	None	None
	P-5	None	20-25 cm	11-06-79	None
	P-6	None	25-30 cm	11-06-79	None
	P-7	DD	30-35 cm	10-29-79	GC
	P-8	None	30-35 cm	11-06-79	None
	P-9	EE	35-40 cm	10-29-79	GC
	P-10	None	35-40 cm	10-06-79	WG & CP
Zone B-1	P-12	None	40-45 cm	11-06-79	WG & CP
	P-13	None	45-50 cm	None	WG & CP
	P-15	None	50-55 cm	11-06-79	WG & CP
Zone B-2	P-11	FF Outer Privy Fill	43 cm	None	None
	P-14	GG Outer Privy Fill	50 cm	None	None
	P-16	HH Outer Privy Fill	55 cm	None	None
	P-17	Level A Outer Privy Fill	60 cm	None	None
	P-18	Level D	75 cm	None	None
	P-19	Level F	85 cm	None	None
	P-20	Level H	95 cm	None	None
	P-21	Level J	105 cm	None	None
	P-22	Level L	115 cm	None	None
	P-23	Level R	140-145 cm	11-06-79	CP & WG
Zone D	P-3	Soil Zone 5 in East Profile Wall of Trench--subsoil	None	11-09-79	GC & CP

* Entries appear as copied from sample bags
** Texas A & M University assigned number
*** Information supplied by George Castille (personal communication)

***Report Profile Zone	** Pollen Sample Number	*Zone or Level	*Depth	*Date	* Personnel
Plank					
Zone A	P-24	Zone 1, Cultural Zone	None	11-01-79	None
Zone B	P-25	Zone 2	(unreadable)	11-01-79	None
Zone C	P-26	Zone 3	15-20 cm	11-01-79	GC & SM
Zone D	P-27	Level 4	(unreadable) 35 cm?	11-01-79	GC & SM
Zone E	P-28	Zone 5	(10-15 cm, 25-30 cm below nail)	11-02-79	RW
	P-29	Zone 5, Regular fill	45-50 cm	11-05-79	None
	P-30	Zone 5, gray area along south wall	45-50 cm	11-05-79	GC
	P-31	Zone 5	55-60 cm	11-05-79	GC
	P-32	Zone 5	65-70 cm	11-05-79	GC
	P-33	Zone 5	70-75 cm	11-06-79	None
Zone F	P-34	Zone 6	80-85 cm	11-06-79	GC
	P-35	Zone 6	90-95 cm	11-07-79	GC
Zone G	P-43	(an oyster shell) Level J	100-105 cm	None	None
Zone G	P-40	Level (unreadable)	120-125 cm	None	None
Zone H	P-41	None	155-160 cm	11-08-79	WG & GC
Zone I	P-36	Zone 9	None	None	None
Zone J	P-37	Zone 10	None	None	None
Zone K	P-38	Zone 11	None	None	None
Zone L	P-39	Zone 12	None	None	None
?	P-42	Zone (unreadable)	None	None	None

1.5 millimeter mesh basket for flotation.

b. The high pressure water hose was inserted through the open top of each sample bag and directed downward. The water pressure ware then adjusted to a velocity that would agitate the matrix sample and break the remaining lumps of clay into fine-grained particles. For some samples it was necessary at this point to repeat the presoak procedure.

c. As each bag became full of water, the mud and clay lumps were rapidly agitated to aid the release of organic plant remains. Any accidental overflow was caught and saved in the 1.5 millimeter mesh basket.

d. When a bag was nearly full of water, the upper liquid contents containing the lighter floating organic fraction was quickly poured into the 1.5 millimeter mesh basket. By using this procedure, the water was allowed to pass freely through the mesh leaving behind the macrofloral remains on the screen surface.

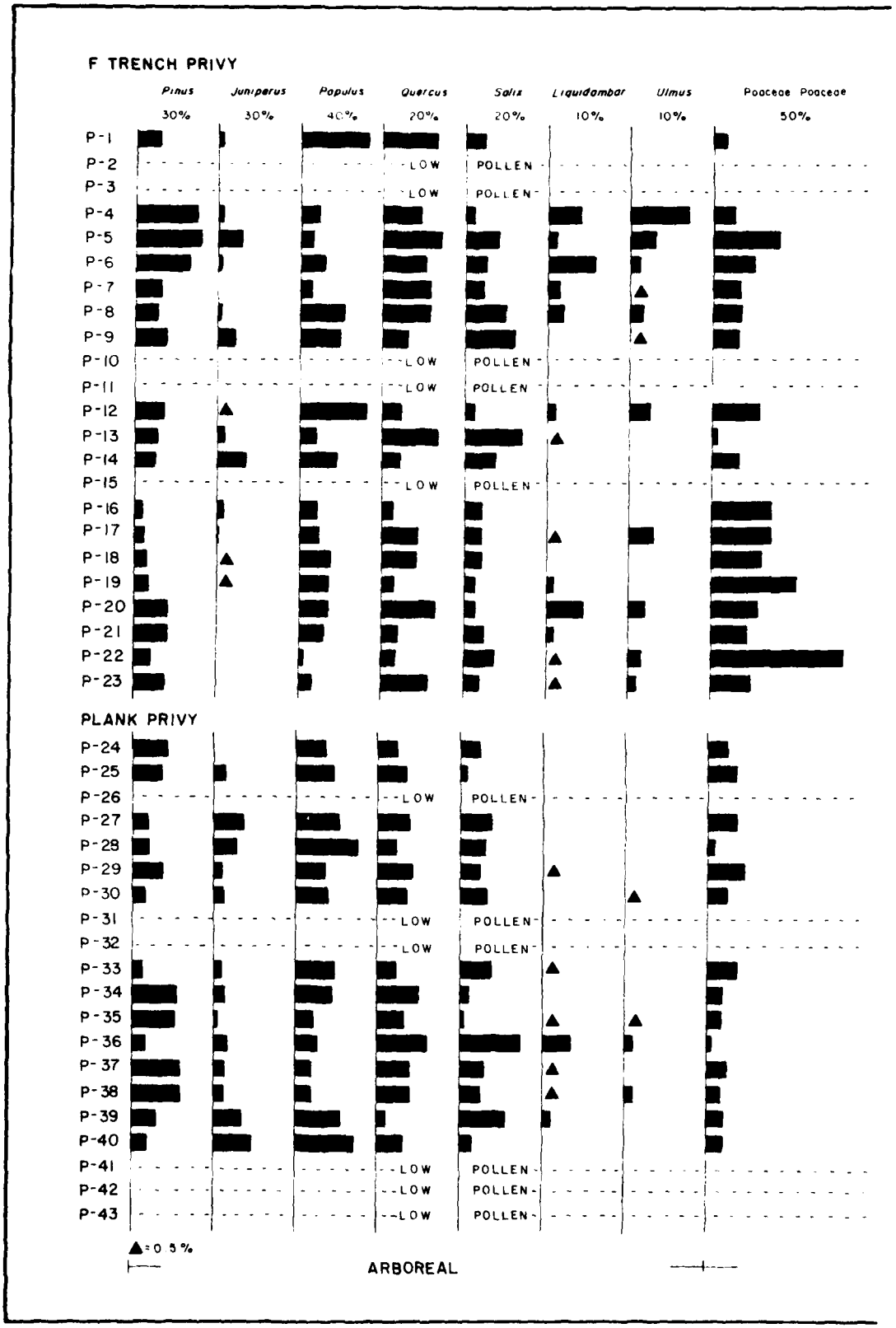
e. A small plastic fork, tweezers and fingers were used to gather the macrofloral specimens on the surface of each screen. These collected items were then placed in a "zip-lock" plastic bag containing alcohol to inhibit fungal and bacterial growth.

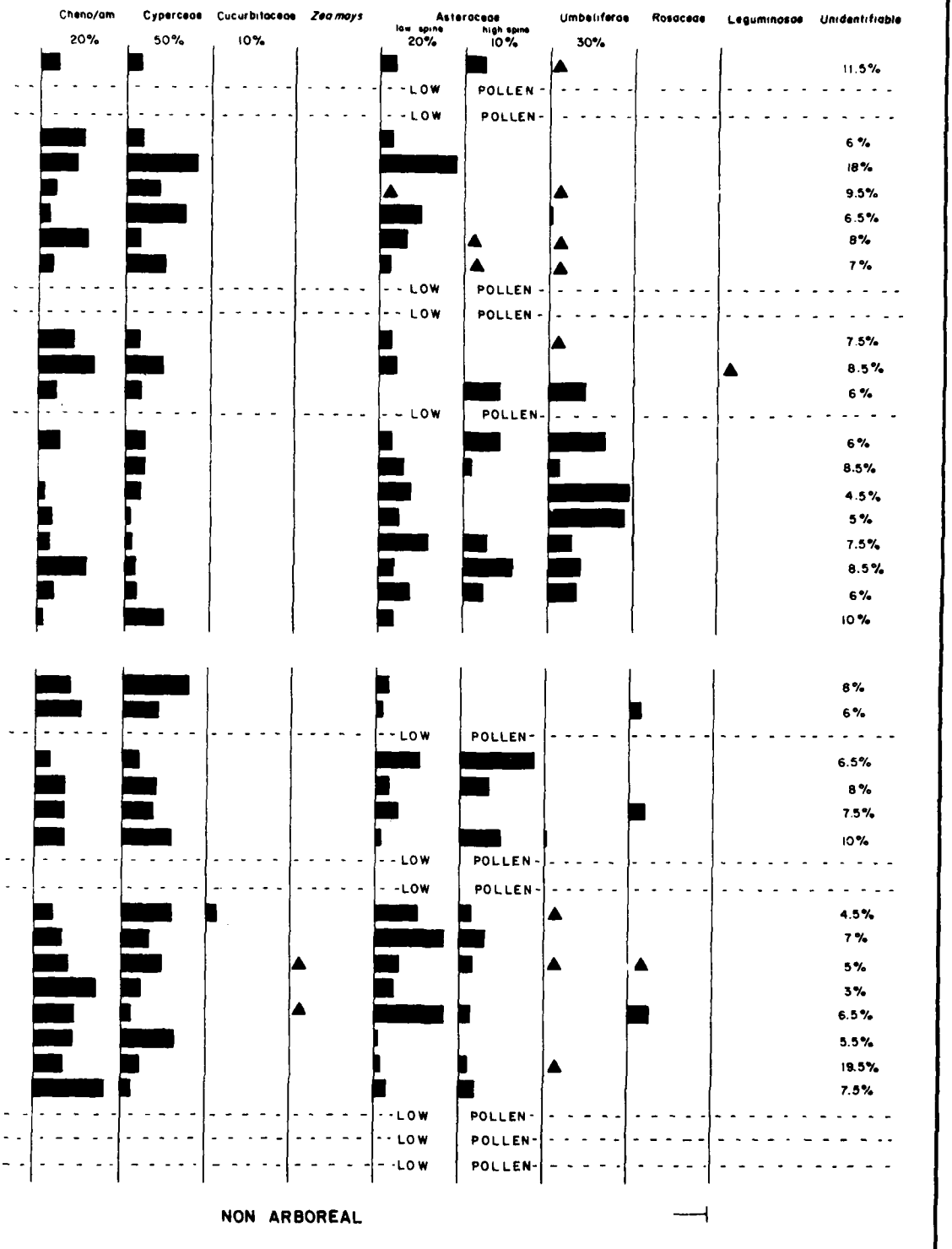
f. Steps a through e were repeated for each sample until no further organic remains were present. The remaining dirt, artifacts (such as small lumps of clay) and other inorganic materials were washed from each sample bag into a 1.5 millimeter mesh screen and examined. Fragile organic materials such as fish scales, egg shells, pieces of leather and glass were then bagged separately. One of the artifactual material or other inorganic debris was discarded.

3. Macrofloral Analysis

Although the majority of economic vegetal remains were recovered during the flotation process, the entire light fraction recovered for each sample was microscopically examined to locate and identify any other remains which might have been present. In addition to the economic plant remains, other plant

Figure 5-2
Trench F Privy and Plank Privy Pollen Diagram


F TRENCH PRIVY
Pinus 30%
Juniperus 30%
Populus 40%
Quercus 20%
Salix 20%
Liquidambar 10%
Ulmus 10%
Poaceae Poaceae 50%
P-1
P-2
P-3
P-4
P-5
P-6
P-7
P-8
P-9
P-10
P-11
P-12
P-13
P-14
P-15
P-16
P-17
P-18
P-19
P-20
P-21
P-22
P-23
LOW POLLEN
PLANK PRIVY
P-24
P-25
P-26
P-27
P-28
P-29
P-30
P-31
P-32
P-33
P-34
P-35
P-36
P-37
P-38
P-39
P-40
P-41
P-42
P-43
▲=0.5%
ARBOREAL


Cheno/am
20%
Cyperceae
50%
Cucurbitaceae
10%
Zea mays
Asteraceae
low spine
20%
high spine
10%
Umbelliferae
30%
Rosaceae
Leguminosae
Unidentifiable
11.5%
LOW POLLEN
LOW POLLEN
6%
18%
9.5%
6.5%
8%
7%
LOW POLLEN
LOW POLLEN
7.5%
8.5%
6%
LOW POLLEN
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4.5%
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4.5%
7%
5%
3%
6.5%
5.5%
19.5%
7.5%
LOW POLLEN
LOW POLLEN
LOW POLLEN
NON ARBOREAL

materials such as wood and charcoal were also examined and identified whenever possible. The samples were kept moist during sorting and analysis to avoid warping and splitting which sometimes occurs while drying fragile, waterlogged materials.

Results: Trench F Privy

The stratigraphic zone of the Trench F privy (Figure 4-1) were provided by Coastal Environments, Inc. and consisted of:

Zone B--general privy fill above 40 centimeters excavation depth; artifact concentration (inner privy) appears to spread over entire privy.

Zone B-1--inner privy (artifact concentration); rapidly filling debris; easily discernable from outer and lower privy fill.

Zone B-2--outer and lower privy fill; few artifacts.

All of the samples labeled in the field as level A through level R as well as those labeled outer privy fill were part of Zone B-2. All samples between 40-55 centimeters not labeled as outer privy fill and the samples labeled inner privy fill were included in Zone B-1. Zone B included all samples between 20 centimeters and 40 centimeters, those labeled in the field as levels BB through EE, and the samples labeled Zone 4.

These zones provided by Coastal Environments, Inc. are used throughout this report to interpret the sample data. Pollen sample numbers are preceeded by a "P" (eg. P-2) while matrix (flotation) samples are preceeded by a "#" (eg. #2).

Zone B-2: Zone B-2 contained most of the economic plant remains found in the privy (Figures 5-3, 5-4). The analysis of the material recovered from the deepest sample in Zone B-2, Sample #21 (175-180cm), contained no economic vegetal remains. In fact, only one small, unidentifiable wood fragment was recovered. The lack of economic remains in this sample suggests that it was collected below the lower limits of the actual privy pit. The soil matrix sample in Zone B-2, #20 (160-165cm), did contain economic vegetal remains and suggests that the maximum depth of the privy was probably 160-165 centimeters. In sample #20, 14 fragments of Umbeliferae schizocarps which are hard, two-seeded fruits similar to the Umbeliferae seeds

Figure 5-3: Trench F Privy Matrix Samples
Laboratory Log

***Report Profile Zone	**Lab Sample Number	*Level or Zone	*Depth	*Date	*Personnel
Zone A	#1	Cultural Zone above privy, E. profile of Trench, Zone 2, matrix sample	None	11-09-79	CP & GC
Zone B	#2	Zone 4 on drawing, E. profile wall, gray clay privy fill, matrix sample	None	11-09-79	CP & GC
	#69	Zone 5, Level BB, matrix sample	20-25 cm	11-06-79	WG & CP
	#3	Level CC	(25-30 cm below upper stake)	10-26-79	GC, KM, & LL
	#4	Level CC	25-30 cm	10-06-79	WG & CP
	#5	Level DD, soil sample	(30-35 cm below upper stake)	None	None
	#6	Level DD, matrix sample	30-35 cm	11-06-79	WG & CP
	#7	Level EE	35-40 dm	11-06-79	WG & CP
	#8	Level EE soil	35-40 cm	10-29-79	GC & WC
Zone B-1	#10	Level FF, matrix sample	40-45 cm	11-06-79	WG & CP
	#12	Level GG, matrix sample	45-50 cm	11-06-79	WG & CP
	#13	Level GG, matrix sample inner privy fill	45-50 cm	None	None
	#16	Level HH, soil sample	50-55 cm	None	None
	#17	Level A, inner privy fill, screen	55-60 cm	None	NOne
Zone B-2	#9	Level FF, outer privy fill matrix	40-45 cm	None	None
	#11	Level GG, soil matrix, outer privy fill	45-50 cm	None	None

* entries appear as copied from sample bags
** Texas A&M University assigned number
*** *Information supplied by George Castille (personal communication)*

Figure 5-3 (con't)

***Report Profile Zone	**Lab Sample Number	*Level or Zone	*Depth	*Date	*Personnel
Zone B-2	#14	Level HH, soil matrix samples, outer privy	50-55 cm	None	None
	#15	Level HH, outer privy fill soil matrix	50-55 cm	None	None
	#18	Level L, matrix sample	110-115 cm	11-06-79	CP & WG
	#19	Level R, matrix soil sample	140-145	11-06-79	WG, CP & GC
	#20	Level V, matrix sample	160-165	11-06-79	WG, CP & GC
	#21	Level Y, matrix sample	175-180	11-06-79	WG, CP &GC

Figure 5-4: Table of Macrofloral and Other Remains From the Trench F Privy

Zone	Soil Matrix Sample Number	Seeds	Wood	Charcoal	Other
Zone A	#1	none	unidentifiable (2)	none	ceramic fragment (1) brick fragment (1) iron concretion (3) animal tooth (cf. Felis) (1)
Zone B	#2	none	none	none	none
	#69	none	none	none	leather shoe sole fragment (1) brick fragment (1)
	#3	cf. Polygonum (9)	none	none	brick fragment (1) leather fragment (5)
	#4	cf. Polygonum (1)	none	none	brick fragment (1) leather fragment (1)
	#5	none	none	none	brick fragment (1) iron concretion (1) glass fragments (3) leather fragments (1) oyster shell (1) lead bullet (1)
	#6	none	cf. Taxodium (1)	none	glass fragments (2)

Figure 5-4 (con't)

Zone	Soil Matrix Sample Number	Seeds	Wood	Charcoal	Other
Zone B	#6		unidentifiable (2)		
	#7	none	none	Salicaceae (12)	iron oxide concretions (13)
	#8	none	cf. Taxodium (1)	unidentified (1)	leather fragments (3)
			ring porous hard-wood		brick fragments (2)
					glass fragments (2)
					oyster shell fragment (1)
	#10	none	none	none	brick fragment (1)
					square nail (1)
	#12	none	none	none	brick fragments (3)
					animal bone (1)
	#13	none	none	none	iron concretions (12)
	#16	none	cf. Taxodium (1)	none	crumpled aluminum (or lead) foil (1)
			cf. Quercus (1)		
			unidentifiable (3)		iron concretions (3)
	#17	Xanthium (1) (Cockleburr)	unidentifiable (5)	none	small iron fragments (7)
		Umbeliferae fragment (1)			amber glass fragment (1)
					brick fragment (1)
					sulphur lump (1)

Figure 5-4 (con't)

Zone	Soil Matrix Sample Number	Seeds	Wood	Charcoal	Other
Zone B-2	#9	Umbeliferae (1)	none	none	rock (1) brick fragment (1)
	#11	none	unidentifiable (5)	none	brick fragments (2) glass fragments (2) iron fragments (4)
	#14	none	cf. Taxodium (2) unidentifiable (6) unknown root and stem (2)	none	brick fragments (2) clear glass fragment (1)
	#15	none	none	none	none
	#18	none	very, small unidentifiable (15)	none	brick fragment (1)
	#19	Umbeliferae fragments (15) Solanceae (3) Unknown (1)	none	none	straight pin (1) possible chicken egg shell fragment (1)
	#20	Umbeliferae fragments (14) Solanceae (1)	none	none	none
	#21	none	unidentifiable (1)	none	none

of caraway and anise were recovered. The level directly above sample #20 also contained Umbeliferae schizocarps. In that sample, sample #19 (140-145cm), 15 seeds similar to the ones found in sample #20 were recovered.

In addition to the Umbeliferae schizocarps, the samples from Zone B-2 contain numerous Solanaceae seeds similar to those found in the modern tomato. However, since none of these Solanaceae seeds compared precisely with reference materials present in our laboratory collections, it is not possible at this time to definitely confirm these seeds as being those of the domesticated tomato. In general, the macrofloral contents of these samples (Levels R and V) were very similar and were better preserved than most of the other macrofossils recovered from the Trench F privy.

Trench F privy Zone B-2 pollen sample P-23 did not contain any recognizable economic pollen. This may have been because the macrofloral remains were not deposited into the privy in conjunction with any economic pollen from the same plants. An alternative might be that the pollen from those plants did not preserve well in these deposits. However, if pollen was originally present from these plants, it would be expected to be preserved since soil conditions in the privies generally were condusive to the preservation of most organic materials. It is also possible that the slight difference in location of these samples accounts for the discrepancy between the pollen and macrofossil remains. Still another possible reason for the difference between these samples might be linked to the process used to obtain the lower most soil matrix samples. For example, the original field notes (Coastal Environments, Inc. 1979a) report that in the lower 50 centimeters of privy fill, "excessive water seepage complicated the excavation process." The summary report goes on to state that below the 105 centimeter level, "it was necessary to use a shovel to conduct the excavation rather than a trowel." The soil was shoveled out of the privy and onto the bank where it was "examined for artifacts and subsampled for pollen, soil matrix and screening samples" (Coastal Environments, Inc. 1979b).

No soil matrix or pollen samples were apparently collected between the 140-145 centimeter levels in the Trench F privy. The sample #18 level of Zone B-2 (110-115cm) was examined yet it did not contain any traces of economic macrofloral remains. However, the corresponding pollen sample (P-22) collected from the same level in the Trench F privy contained a large quantity of Umbeliferae pollen grains. The precise source of the economic pollen in

sample P-22 is not known, yet several possibilities exist. Previous work conducted on the length of time pollen remains in the human digestive tract (Williams-Dean 1978) indicates that certain pollen types, especially small-sized grains such as Umbeliferae, very often remain in the human digestive tract for many days after the actual eating of foods containing this type of pollen. If this privy was used as a locale for the deposition of human fecal materials, then it would have been possible that certain individual coprolites may have contained only pollen residue of previous meals which originally contained both the Umbeliferae plant and pollen sources. Since this level in the privy was below the water table, none of the fecal remains were recognizable as distinct coprolites. Thus, as the original coprolites dissolved, the pollen from them could mix with the surrounding soil and thus become the source of the Umbeliferae pollen in sample P-22. Yet another possibility is that locally growing Umbeliferae flowers or pollen may have blown into the privy or been discarded into the privy site.

No soil matrix samples exist for the levels between 55-110 centimeters. Therefore, our only information for those levels of Zone B-2 must come from then four pollen samples collected within this 45 centimeter gap in the macro-floral record. All four of the pollen samples contain large amounts of economic pollen, primarily of the Umbeliferae type. The deepest of these four samples (P-21, 105cm) contained 12% Umbeliferae pollen. Those above it contained Umbeliferae 9% pollen in P-20 (95cm), 28% in P-19 (85cm), and 29% in P-18 (75cm).

The upper portion of Zone B-2 is called the outer privy fill since it flanks the inner zone of artifacts (Zone B-1). As a result, the depths of these two zones may overlap one another. Pollen sample P-17 from the 60 centimeter level, "outer privy fill", contained 4.5% Umbeliferae pollen. Sample P-16 from the "outer privy fill" (Level HH, 55cm) also contained substantial amounts of economic pollen (21% Umbeliferae) as did pollen sample P-14 from the 50 centimeter level "outer privy fill" (13.5% Umbeliferae).

The two uppermost samples from Zone B-2 were collected between the 40-50 centimeter level. One of the matrix samples (#11) was collected from the 45-50 centimeter level and was labeled "matrix outer privy fill". Cultural debris in that sample included five wood fragments too small to be indentified, pieces of brick, glass, and iron fragments. The other matrix sample (#9) was collected 5 centimeters above #11. It only contained one economic fruit fragment (an Umbeliferae schizocarp); a pollen sample (P-11) was, also, collected

from within the same general level (43cm). However, the pollen sample contained no economic pollen.

Zone B-1 & B: The deepest sample in Zone B-1 was sample #17 collected from the 55-60 centimeter level. This matrix sample contained one fragment of an Umbeliferae schizocarp that is suspected to be associated with the "privy" function of this pit. Also noted in this same matrix sample were a cocklebur (Xanthium sp.) seed, 16 grams of tin can fragments, pieces of glass, broken bricks and fragments of sulphur. The presence of such a variety of remains in this matrix sample suggests that there may have been a mixing of the original material with post-abandonment fill; the Louisiana Division of Archeology and Historic Preservation Permanent Catalogue Record reveals that many similar artifacts were found in this level and shallower levels in the privy. There was no pollen sample collected from the lowest level of Zone B-1.

A matrix sample (#16) collected from the 50-55 centimeter level did not contained any economic vegetal remains but the sample did contain five small charcoal fragments. An examination of the samples revealed that only one of them closely resembled the wood of cypress (Taxodium) and one was similar to oak (Quercus) wood. This matrix sample also contained concretions and a small piece of aluminum or lead foil. The fossil pollen in the corresponding pollen sample from this level (P-15) was inadequately preserved for analysis.

The other three soil matrix samples from Zone B-1, sample #13 (45-50cm), sample #12 (45-50cm) and sample #10 (40-45cm) were examined but did not contain any vegetal remains. There were two pollen samples collected from the upper portion of Zone B-1. The uppermost pollen sample collected from the 40-45 centimeter level (P-12) contained a trace of Umbeliferae pollen. However, pollen sample P-13 from the 45-50 centimeter level included no economic pollen types.

All of the privy fill samples from the 40 centimeter level up to the base of the overlying cultural zone (Zone B) were included in Zone B. According to notes pertaining to the actual field collection of these samples, the distinction between these two zones was based mainly upon their artifactual content. For example, In Zone B the artifact concentration within the actual inner privy pit appeared to spread throughout the entire deposit, whereas in Zone B-1, outside the actual inner privy pit, the artifacts were not as concentrated.

Eight soil matrix samples from Zone B were examined for fossil plant remains. During the flotation of most of these samples, large quantites of artifactual remains such as pieces of broken bricks, rocks and pieces of broken glass, were encountered. On the other hand, none of these eight soil matrix samples contained any plant remains.

Significant quantities of fossil, economic pollen were, also lacking from the deposits in Zone B. All four of the pollen samples collected between the 30-40 centimeter level, however, contained at least a trace of Umbeliferae pollen. Just below these, the lowermost pollen sample from Zone B (P-10) contained very little fossil pollen of any type and thus, was not condusive to analysis. Near the top of Zone B, pollen samples P-4 and P-3 collected from the 20-25 centimeter level contained adequately preserved pollen; however, none of it was of economic types. Finally, the uppermost pollen sample from Zone B, P-2, contained weak concentration of fossil pollen and could not be used for an adequate analysis of that stratigraphic zone.

One fossil pollen sample was collected from the overlying cultural Zone A. Analysis of this sample revealed that it contained adequate pollen for anlaysis but the only evidence of economic pollen was a trace of Umbeliferae pollen.

Discussion: The above data suggest that the people who were using Trench F privy were making extensive use of various types of Umbeliferae seeds such as caraway or anise; perhaps in baked goods such as bread (eg. caraway in rye bread) or used as a seasoning. The remains of Solanceae type seeds (resembling the tomato) indicate that possibly tomatoes also were eaten by the people who used the Trench F privy.

The levels containing the highest quantities of Umbeliferae schizocarps (145-160cm) were not intensively sampled for pollen. The eight pollen samples containing high levels of Umbeliferae pollen were between 50-115 centimeter depth. Only one additional Umbeliferae schizocarp was found above 50 centimeters (40-45cm) and above 50 centimeters, the soil samples did not contain sufficient pollen for analytical purposes.

Causes for the absence of Umbeliferae above the 50 centimeter level may be due to the abandonment of the privy and the suspected subsequent dumping of garbage into the privy pit.

The absence of sweetgum (Liquidambar)and elm (Ulmus) pollen in the soils

of the overlying cultural zone (Zone A) indicate a period of possible vegetational change between these and the underlying soil deposits.

The questions of seasonality of the span of time this privy was used is not clear. The absence of Juniperus pollen in the lower soil levels of the Trench F privy deposits could be due to seasonal (possibly spring and summer) use or to factors of pollen preservation. The pine to Juniper ratio between the lower portions of Zone B-2 and the upper portions of Zone B-2 suggest a possible overall use span of about one year between the 50 and 115 centimeter level. Fluctuations in Quercus and Ulmus pollen throughout the entire deposits imply a total use period of three years or more. However, the lack of pollen samples from the 115 centimeter and 140 centimeter levels make these speculations only tentative at best. If such a minor vegetational shift did occur away from a previous importance of sweetgum and elm, the suspected cause is attributed to flooding and/or activities of man rather than large scale regional climate shifts.

Results: Plank Privy

The Excavation Summary Report (Coastal Environments, Inc. 1979b: 10) also shows a silty clay zone (Zone N) immediately outside the board walls which define the privy (Figure 4-2). This system of zone is followed throughout the present report. The designations for pollen and flotation (matrix) samples, for this section, follow those of the Trench F privy section of this report; matrix samples, for example, are indicated by a "#" and pollen samples are referenced by a "P" (Figure 5-5, 5-6).

The zone of clay underlying the privy fill (Zone L) was sampled at the 210 centimeter level for macrofloral remains, but the sample (#57) contained no artifacts or plant remains. The accompanying pollen sample for Zone L was examined and found to contain a variety of fossil poller including a trace of an economic type, Umbeliferae. It is possible that this lowermost pollen sample was sufficiently close to cultural Zone K above to have contained pollen from the privy fill. Even though there were not other pollen samples collected from Zone L for comparison, it is more reasonable to assume that the pollen in this sample is representative of the actual pollen deposited in Zone L. The trace of Umbeliferae pollen (0.5%) was too slight to be attributed to economic factors.

The deepest cultural fill in the privy, Zone K (180-200cm), contained

Figure 5-5: Plank Privy Matrix Samples
Laboratory Log

***Revised Privy Zone	**Lab Sample Number	*Level or Zone	*Depth	*Date	*Personnel
Zone A	#22	Natural Level 1, Cultural Zone, matrix	None	11-01-79	SM & GC
	#29	Level A matrix sample	0-5 cm	10-31-79	GC
Zone B	#23	Zone 2, below CZ, uppermost privy fill, matrix	None	11-01-79	SM & GC
	#30	Level B matrix sample	5-10 cm	10-31-79	None
	#31	Level C matrix sample	10-15 cm	10-31-79	GC
Zone C	#24	Zone 3 matrix	None	11-01-79	SM & GC
	#33	Level D matrix sample	15-20 cm	10-31-79	GC
Zone D	#34	Level E matrix sample	20-25 cm	10-31-79	GC
	#35	Level F matrix sample	25-30 cm	10-31-79	GC
	#25	Level 4A, Bag #2 matrix	None	11-01-79	SM & GC
	#26	Level 4A, (also) Bag #2 matrix	25-30 cm	11-01-79	SM & GC
	#27	Level 4A	None	11-01-79	SM & GC
	#28	Level 4B matrix	25-30 cm	11-01-79	SM & GC
Zone E	#36	Level G matrix sample	30-35 cm	10-31-79	GC
	#37	Zone 5 10-15 cm matrix sample, not adjusted for settling, from gray area along south wall	30-35 cm below nail	11-02-79	

* Entries appear as copied from sample bags
** Texas A & M University assigned number
*** Information supplied by George Castille (personal communication)

Figure 5-5 (con't)

***Revised Privy Zone	**Lab Sample Number	*Level or Zone	*Depth	*Date	*Personnel
	#38	Zone 5 Level 1 matrix sample	40-45 cm	11-05-79	GC
	#39	Zone 5 normal privy fill matrix	40-45 cm	11-05-79	GC
	#40	Zone 5 Level K matrix	50-55 cm	11-05-79	GC
	#41	Zone 5 Level L matrix sample	55-60 cm	11-05-79	GC
	#42	Zone 5 Level M soil matrix	60-65 cm	11-05-79	GC
	#43	Zone 5 Level N soil matrix	65-70 cm	11-05-79	GC
	#44	Zone 5 Level O soil matrix	70-75 cm	11-06-79	GC
	#45	Zone 5 soil matrix	85-90 cm	11-07-79	GC
Zone F	#46	Zone 6 matrix sample	90-95 cm	11-07-79	GC
	#47	None	100-105 cm	11-07-79	GC & WG
	#48	None	100-105 cm	11-07-79	None
	#49	None	(100-105 cm marked through) 105-110 cm (Added)	11-07-79	None
Zone G	#50	None	120-125 cm	11-08-79	WG & GC
	#51	None ("Soil matrix sample screen" marked through)	140-145 cm	11-08-79	None
Zone H	#52	Zone 8 soil sample	145-170 cm	11-08-79	WG & GC
	#53	None Soil Matrix	155-160 cm	11-08-79	WG & GC
Zone I	#54	Zone 9 matrix	170-175 cm	11-08-79	WG & GC
Zone J	#55	Zone 10 ("screen marked through") matrix	175-180 cm	11-08-79	WG & GC

Figure 5-5 (con't)

***Revised Privy Zone	** Lab Sample Number	* Level or Zone	* Depth	* Date	* Personnel
Zone K	#56	Zone 11 matrix	180-200 cm	11-08-79	WG & GC
Zone L	#57	Zone 12 at base of privy ("screen" marked through)	below 2.1 m	11-08-79	WG & GC
Zone N	#32	Outside privy board, matrix sample, privy hole fill	10-30 cm	11-07-79	GC
Slump	#58	General slump matrix	None	None	None
Slump	#59	Plank privy slump	None	None	None
Slump	#60	Plank privy slump	None	None	None
Slump	#61	Plank privy slump	None	None	None
Slump	#62	Plank privy slump	None	None	None
Slump	#63	Plank privy slump	None	None	None
Slump	#64	Plank privy slump	None	None	None
Slump	#65	Plank privy slump	None	None	None
Slump	#66	Plank privy slump	None	None	None
Slump	#67	Plank privy slump	None	None	None
Slump	#68	Plank privy slump	None	None	None

Figure 5-6: Table of Macrofloral and Other Remains From the Plank Privy

Zone	Soil Matrix Sample Number	Seeds	Wood	Charcoal	Other
Zone A	#22	none	none	very small unidentifiable (7)	brick fragments (21) animal bone fragments (7) oyster shell (1) green glass fragments (3) white ceramic sherds (3) artiodactyl tooth (1) rootlets (20)
	#29	none	none	unidentifiable (6)	brick fragments (12) square nail (1) animal bone fragments (2) small snail (1)
Zone B	#23	none	none	cf. Quercus (3) cf. Celtis (3) Salicaceae, rotten before charring (2) Salicaceae, normal (2)	brick fragments (72) chicken (?) eggshell fragments (2) glass fragments (3) animal bone fragments (51) square nail (1)
	#30	none	none	unidentifiable (2)	very large pieces of brick (3) small brick fragments (20+)
	#31	none	none	Salicaceae (2)	charred animal bone fragments (2) brick fragments (9) square nails (5)
Zone C	#24	Celtis (1) Zea mays (2) charred	none	cf. Celtis (4) Salicacea (4), all rotten prior to charring	brick fragments (30) burned clay lumps (6) square nails (3) green glass fragments (2) animal bone fragments (11)

Figure 5-6 (con't)

Zone	Soil Matrix Sample Number	Seeds	Wood	Charcoal	Other
Zone C	#24			unidentifiable (20)	
	#33	none	none	unidentifiable (4)	roots and rootlets (10+) burned and unburned animal bone fragments (31) green bottle fragment (1) iron and nails (5)
Zone D	#34	none	none	none	burned clay lump (1) brick fragment (1) rock (1) animal bone fragments (7)
	#35	Possible *Carya aquatica* fragment (1)	none	unidentifiable (5)	fish scale (1) very small brick fragments (4) iron oxide fragments (2)
	#25	none	none	very small flecks (many)	brick fragments (7) burned animal bone (25) burned clay fragments (8) ceramic fragment (1) square nail (1) roots (10)
	#26	none	none	ring porous hardwood (2) unidentifiable (10+)	button fragment (1) animal tooth and bone fragments, burned (20) iron fragment (1) glass fragment (1) brick fragments (9) ceramic fragment (1)

Figure 5-6 (con't)

Zone	Soil Matrix Sample Number	Seeds	Wood	Charcoal	Other
Zone D	#27	none	none	Salicaceae (3) Quercus (3) unidentifiable (20)	fish scale (1) large brick fragments (8) white ceramic sherd (1) green glass fragments (2) copper eyelet (1) square nail (1)
	#28	Possible Carya aquatica fragment (1)	none	Salicaceae (3) Quercus (3) unidentified (50) (very small)	burned and unburned animal bone fragments (200+) copper rivet (1) iron pieces (9) ceramic sherds (2) copper eyelet (1)
Zone E	#36	none	none	ring porous hardwood (1)	iron oxide fragment (1) large piece of brick (1)
	#37	Cucurbita fragment (1)	none	Salicaceae (1) unidentifiable (6)	fish scale fragments (2)
	#38	none	none	unidentifiable (2)	none
	#39	Cucurbita fragment (1)	none	Pinus (6)	brick fragment (1)
	#40	none	none	unidentifiable (11)	fish scale fragments (3) small brick fragments (3)
	#41	none	none	unidentifiable (9)	fish scale fragments (2) small brick fragments (6) charred grass stem (1)
	#42	none	none	unidentifiable (8)	possible chicken egg shell fragment (1) fish scale (1) roots and rootlets (6) brick fragment (1)

Figure 5-6 (con't)

Zone	Soil Matrix Sample Number	Seeds	Wood	Charcoal	Other
Zone E	#43	none	unidentifiable (1)	unidentifiable (7)	brick fragment (1) animal bone fragment (1)
	#44	Cucurbita fragments (2) Capsicum fragments (2) Vitis fragment (1)	unidentifiable (4)	unidentifiable (10)	fish scales (3) small roots and rootlets (20+)
	#45	Cucurbita (1)	cf. Taxodium (10) unidentifiable (10+)	cf. Taxodium (2)	small brick fragments (5) leather fragment (1)
Zone F	#46	Vitis (1) unknown (1)	cf. Taxodium (5) Pinus (5) unidentifiable (10+)	unidentifiable (6)	bone button (1) small brick fragments (3)
	#47	Cucurbita (1) cf. Carya aquatica fragment (1)	cf. Taxodium (10) unidentifiable (10+)	unidentifiable (9)	small brick fragments (10+) irom oxide fragments (10+)
	#48	Cucurbita fragments (2)	cf. Taxodium (10) unidentifiable (10+)	unidentifiable (3)	small brick fragments (4)
	#49	unknown (1)	cf. Taxodium (10) cut wood chips, (cf. Taxodium), (1) unidentifiable (10)	none	brick fragments (4)
Zone G	#50	none	cf. Taxodium (2) cut wood chips, cf. Taxodium (3) unidentifiable (6)	unidentifiable (6)	small brick fragments (3) small iron oxide fragments (10+)
	#51	Vitis (1)	cf. Taxodium (6)	none	iron oxide fragments (6)
Zone H	#52	none	none	none	iron oxide fragments (2)
	#53	none	cf. Taxodium (1) unidentifiable (1)	none	none
Zone I	#54	Citrullus (1) unknown (1)	cf. Taxodium (2) unidentifiable (5)	cf. Taxodium (2)	iron oxide concretions (3)
Zone J	#55	Citrullus (1) Cucurbita (1) unknown (1)	cf. Taxodium (11)	unidentifiable (1)	iron oxide concretions (8)

Figure 5-6 (con't)

Zone	Soil Matrix Sample Number	Seeds	Wood	Charcoal	Other
Zone K	#56	*Citrullus* (1) *Vitis* (2)	cf. *Taxodium* (6)	unidentifiable (1)	iron oxide concretions (17) large fish scale fragments (2)
Zone L (Below Privy)	#57	none	none	none	none
Zone N (outside of Privy)	#32	none	none	none	small brick fragments (2) animal bone fragments (2)
Slump	#58	none	large pieces cf. *Taxodium* (4) Salicacea (2)	none	Padlock (1) bucket bail fragments (2) iron fragments (4) green bottle fragments (2) large animal bone fragment (1)
	#59	none	cf. *Taxodium* (1) cut wood chip (cf. *Taxodium*) (1)	none	large brick fragments (4) square nail (1) brick fragment (1) oyster shell fragment (1)
	#60	none	cf. *Taxodium* (20+)	none	small brick fragments (6) ceramic fragments (2) clear glass fragment (1)
	#61	none	unidentifiable (4)	unidentifiable (5)	ceramic sherd (1) large iron pieces (3) small iron fragments (10+) animal bone fragments (7)
	#62	none	cf. *Taxodium* (1) unidentifiable (7)	unidentifiable (4)	iron oxide concretions (6) small brick fragments (9) cf. *Quercus* leaf, possibly modern (1)
	#63	none	cf. *Taxodium* (2) very small, unidentifiable (20+)	very small, unidentifiable (20+)	small brick fragments (7) small roots (10+)
	#64	none	cf. Taxodium (10)	unidentifiable (2)	small roots (4)

Figure 5-6 (con't)

Zone	Soil Matrix Sample Number	Seeds	Wood	Charcoal	Other
Slump	#65	Cucurbita (1) unknown (1)	cf. Taxodium (10+) unidentifiable (10+)	none	small brick fragments (10+) small iron concretions (10+) green glass fragment (1) fish scales (3) Possible chicken egg shell fragment (1)
	#66	Vitis (1)	cf. Taxodium (5)	unidentifiable (1)	small copper eyelet (1)
	#67	none	cut chips (cf. Taxodium) (3) cf. Taxodium (4)	none	brick fragment (1) iron concretions (4) rocks (4) green glass fragment (1)
	#68	none	cf. Taxodium (2)	unidentifiable (4)	large animal bone fragments (2) small fragments of animal bone (70+) brick fragments (20+)

positive evidence of economic plant remains in the form of two watermelon (Citrullus) seeds and two grape or muscadine (Vitis) seeds in the matrix fill sample (#56). Other possible dietary evidence recovered from this matrix sample included two fish scale fragments which could not be identified to species. The accompanying pollen sample (P-38) from Zone K contained no economic pollen.

In the next two zones above, Zone J (175-180cm) and Zone I (170-175cm), matrix samples #55 and #54 were examined and were found to contain watermelon seeds. In addition, the Zone J sample (#55) had a fragment of squash (Cucurbita) seed. The pollen sample from Zone J (P-37, 175-180cm) contained a trace of corn (Zea mays) pollen, yet, no other economic types were encountered during the analysis. The pollen sample from Zone I (P-36, 170-175cm) had no economic pollen types present.

Two matrix samples (#52 and #53) and one pollen sample (P-41) were collected from Zone H. None of these samples were productive. The pollen in sample P-41 was inadequately preserved for analytical purposes and only two small pieces of wood and two iron oxide fragments were recovered in the flotation results from samples (#52 and #53). In general, Zone H differed from the three lower zones in that it contained no charcoal, insufficient fossil pollen, and no economic plant macrofossil remains.

In Zone G, six iron oxide fragments, six pieces of wood (cf. Taxodium) and one grape or muscadine seed were found in the matrix sample #51 collected from the 140-145 centimeter level. Further up in Zone G, sample #50 (120-125cm) contained no identifiable food remains but did have many small iron oxide and broken brick fragments mixed in association with six charcoal and six wood fragments. Close examination of three of the wood fragments revealed that they were "cut" chips. Comparisons with reference samples showed that they were probably cypress (Taxodium) in origin. The other three wood fragments and the six charcoal samples were too distorted or lacked diagnostic features which could be used to classify them to the genus level. The brick and numerous wood fragments in this matrix sample suggest possible evidence of garbage dumping, contamination from floodwaters, or a possible combination of both. A pollen sample examined from this same 120-125 centimeter level (P-40) contained no traces of economic fossil pollen. Pollen sample P-43, taken from inside an oyster shell, from the 100-105 centimeter level in Zone G contained an insufficient number of fossil pollen grains for analysis.

The three deepest matrix samples from Zone F (#49 105-110cm; #48 100-105cm; and #47 100-105cm) contained only a few traces of economic plant remains. The lowermost of these samples (#49) contained no economic remains but #47 and #48 each contained a squash or pumpkin seed (Cucurbita).

The upper matrix sample from Zone F (#46) was collected from the 90-95 centimeter depth and contained one grape or muscadine seed and an unknown seed. In a pollen sample from this same depth, P-35 (90-95cm), a trace of corn (Zea mays) pollen and a trace of Umbeliferae pollen was encountered. Above this, the uppermost pollen sample in Zone F, P-34 (80-85cm), contained no economic pollen.

The increasing amount of artifact debris in Zone F and above Zone F combined with possible evidence of flood-deposited wood tends to support the original field observation (Coastal Environments, Inc. 1979b: 22) that the upper meter of privy fill deposit may have resulted from "post-abandonment backfilling" after the privy was no longer in active use. However, the presence of economic pollen and economic seed remains throughout most of Zone E (30-90cm) could have resulted from a combination of garbage dumping and privy use, a mixing of garbage with earlier privy fill, or the addition of garbage by natural means during the post-abandonment phase. The soil matrix and pollen samples from Zone E which contained economic macrofloral or pollen remains were:

#45, 85-90cm which contained a Cucurbita seed.

#44, 70-75cm containing remains of two Cucurbita, one Vitis and and two chile pepper (Capsicum) seeds.

P-33 70-75cm with a trace of Cucurbitaceae pollen (1%) and a trace of Umbeliferae pollen (0.5%).

P-30 45-50cm containing a trace (1%) of Umbeliferae pollen.

#39, 40-45cm which contained one fragment of Cucurbita seed.

#37, 30-35cm below nail, "not adjusted for settling", contained a Cucurbita seed fragment.

In Zone D, more artifactual debris was found in the flotation (matrix) samples than had been recovered from the lower seven zones. The deepest sample collected from Zone D was matrix sample #28 (25-30cm) which contained evidence that suggested garbage was being burned either before or after its deposition in the privy (Figure 5-5, 5-6). This apparent burning resulted in charcoal and/or charred artifactual material in all of the Zone D samples. Charcoal fragments from matrix sample #28 were identified as three pieces of willow or cottonwood (Populus) and three pieces of oak (Quercus). Several other

archeobotanical remains in #28 were found and consisted of one "leaf bud" of unknown origin, one charred grass culm, two unknown root bulbs or culms, and one probable hickory nut shell fragment (Carya aquatica).

Three samples (#27, #25, #34) from the 23-30 centimeter level in Zone D were collected. Matrix sample #27 (no depth) contained five pieces of willow or cottonwood charcoal, one fish scale, and numerous pieces of broken bricks and charcoal flecks. Matrix sample #26 collected from the 25-30 centimeter level contained two pieces of hardwood (ring porous) charcoal, and one charred grass culm. Sample #25 (no depth) contained quantities of what may have been cultural refuse. However, none of the charcoal was large enough to identify. The sample from the 25-30 centimeter level (#35) had one fish scale, four small pieces of charcoal, and one shell fragment (cf. Carya aquatica). Sample #34 (20-25cm) contained one medium-sized brick one sandstone rock, one piece of burned clay, a small piece of broken animal bone, numerous charcoal flecks, and pieces of roots and rootlets.

A pollen sample (P-27) was also collected from Zone D; however, no depth was given. This sample probably came from the upper 20-25 centimeter level of Zone D but its exact provenience cannot be determined. Sample P-27 did contain pollen, but no economic types were found.

No pollen was available from the pollen sample (P-26) collected in Zone C (15-20cm). The Zone C matrix sample (#33) from the same depth contained only broken artifact debris and charcoal. Another matrix sample from Zone C was labeled "Zone 3 matrix" (no depth was given) and contained one hackberry (Celtis) seed and two charred corn kernels in addition to significant amounts of charcoal and burned artifact refuse.

Zone B was the uppermost fill in the plank privy and contained artifact debris as did the rest of the upper zones. The only macrofloral remains from the Zone B matrix samples #31 (10-15cm), #30 (5-10cm) and #23 (uppermost privy fill, Zone 2") were 14 pieces of charcoal. The single pollen sample (P-25) from Zone B (no depth was given) contained no economic pollen types.

Zone A, the cultural zone overlying the privy and the surrounding area, also, contained no economic pollen in its single pollen sample P-24 (no depth). Two matrix samples were also taken from this level; #29 (0-5cm), and #22, (from "Natural level 1"). These two samples did not contain any charcoal large enough for identification but did have a large amount of discarded artifact refuse (bricks, nails, bones and glass).

Discussion: The fossil pollen found in the plank privy samples suggests that the privy may have been originally constructed during the winter or spring, since the pollen of spring flowering plants such as Populus and Salix are well represented and combined with fossil pollen from late flowering Juniperus in the Zone L soil sample from the lowermost deposits of the privy. The later increase of pine and oak pollen in Zone K-J along with the corresponding decrease of pollen from spring flowering plant types may represent a later transition period from spring to summer use. Watermelon and grape seeds in Zone K and the presence of watermelon seeds, and squash (or pumpkin) seeds, and a trace of corn pollen in Zone J also support these suggested change in seasons of privy use.

Zone I deposits in the plank privy may represent a spring deposition period. However, the seasonality of the next level (Zone H) is unclear because of its lack of preserved fossil pollen. In addition to the lack of fossil pollen, Zone H, also, lacked any economic macrofloral remains. Thus, some of the data support the possibility that during the Zone H deposition the privy may have been subjected to a brief flood from the nearby river.

Zone G contained a grape seed at the 140-145 centimeter level (possibly the result of a springtime deposit). At the 120-125 centimeter level in Zone G, winter (Juniperus) and spring (Populus) fossil pollen dominated the deposits. Deposits in an oyster shell from Zone G were also sampled for pollen, but due to the small size of the sample insufficient pollen was present for an analysis.

Zone F (80-110cm) deposits contained traces of economic plants in all but its lowest level. These seeds (Cucurbita and Vitis) are from plants which indicate a summertime deposition period for this zone. The two pollen samples P-34 and P-35 from Zone F support this interpretation of seasonality.

The lowest sample from Zone E was not sampled for pollen but a Cucurbita seed was found in the accompanying matrix sample. Ten centimeters above this at the 70-75 centimeter level, the pollen consisted of a configuration of early spring plants including a trace of fossil Cucurbitaceae pollen. The 70-75 centimeter level matrix sample contained squash, grape, and chili pepper seeds. The fossil pollen record from the 65-70 centimeter and 55-60 centimeter levels was destroyed, probably by a flood. No economic plant remains were found in the four matrix samples (50-70cm) from the suspected flood deposits.

Above the lower section of Zone E at the 45-50 centimeter level, two

pollen samples contained fossil pollen from late spring to early summer flowering plants. One of these pollen samples contained a trace (1%) of Umbeliferae pollen, however the small percentage of this economic type may have been naturally deposited due to the privy's location rather than being pollen from true economic origins. Two flotation samples were taken near the upper portion of Zone E (30-35cm). However, the only economic remains consisted of one Cucurbita seed fragment. A pollen sample was also analyzed from near the top of Zone E and is considered to probably be a winter and spring deposit.

Six matrix soil samples and one pollen sample were collected from Zone D, yet, none of them contained any economic remains. This level, like the ones above it was full of artifactual debris. Zone C deposits may have been burned since it contained two charred corn kernels and other burned debris. Except for the corn kernels, no other economic remains were recorded for this zone. The pollen sample from Zone C contained insufficient pollen for analysis.

Zone B was also full of artifactual debris, however, it contained no economic remains. Juniperus, a favored ornamental in southern Louisiana, accounted for 4.5% of the pollen. Above Zone B, the Zone A matrix sample contained no economic pollen or Juniperus pollen.

Conclusions

The botanical evidence recovered from the Trench F privy and the plank privy support the hypothesis that these structures were used originally as privies and perhaps later as dumping areas for general garbage and water materials. This suggested use for these features is strengthened by the types of debris recovered during the pollen and macrofossil analysis of samples collected from these areas and from the field notes taken during the original field excavations. Items found in both sites, which may have had their origin as diet items eaten by the early inhabitants of the area include broken pieces of animal bone, egg shell fragments, fish scales, various types of plant remains and certain types of economic pollen.

Despite the many similarities in background ("non dietary") pollen and sediments from both privies, there were significant differences in the types of economic plant ("dietary") remains found in each of the privies. The plank privy, for example, contained watermelon (Citrullus sp.) and grape or

muscadine (Vitis sp.) seeds as well as the seeds of squash or pumpkin (Curcurbita) and chili pepper seeds (Capsicum). The Trench F privy, on the other hand, contained numerous umbeliferous seeds similar to those of anise or caraway and several solanaceous (possibly tomato) seeds.

The economic pollen content of the two privies also was different. The plank privy had traces of Umbeliferae pollen in only four levels, Zea mays pollen in only two levels, and Curcurbitaceae pollen grains in only one level. The Trench F privy, on the other hand, contained significant quantities of Umbeliferae pollen (a plant family which contains many economically important plants such as carrots, parsley, celery, cumin, anise, dill, caraway, and fennel) but contained no other economic pollen types like those found in the plank privy. However, some of the grass pollen in the plank privy samples may be of economic origin. Williams-Dean (1978) found both large and small grass grains in modern feces where even small quantities of wheat flour were ingested.

The difference in the economic plant remains of the two privies may reflect significant dietary differences in the populations who used the privies. For example, although we cannot be certain, it is possible that the two privies reflect the dietary remains of at least two different social and economic classes of users. After all, both privies were located close to each other and until very recently rest rooms and privies were often segregated by one's race and/or economic and social status, as well as by sex.

Alternatively the absence of fresh, seasonally available foods such as watermelon, grape and squash in the Trench F privy may indicate that the privy was utilized in the winter. The abundant seasonality evidence for the plank privy suggests that it was used during the spring and summer.

In order to interpret the information recovered from the flotation and pollen samples from both privies, we had to try to distinguish between economic (Dietary) inclusion, background (environmental) inclusions, and non-dietary cultural inclusions. The "cut" wood chips found in the plank privy (samples #49 and #50) are examples of non-dietary macrofloral remains that may have been washed into the privy during flooding. Other macrofloral remains, such as small pieces of charcoal and small, highly weathered pieces of wood were possibly introduced environmentally by flooding, or could have been accidently dropped into the privy.

Any interpretation suggesting flooding as a source of the debris should

consider relative quantities of these remains as well as pollen ratios for any given deposit. Preserved seeds, such as those from grapes or watermelons, are considered economic since they are easily swallowed while eating these fleshy fruits, are not digested and thus, become incorporated into feces. In a privy level where potential contamination from the dumping garbage may be ruled out, these types of seeds should be considered as evidence of dietary remains.

Pollen in the privy samples also may have entered the fill through the above mentioned pathways while other pollen types undoubtedly settled out of the air and into the privy fill. All of the pollen from the privy samples belong in one or the other of the two major categories used by palynologists. The smaller of these two categories is the entemophilous type (insect carried) pollen which is represented in these privy samples by economic types such as Curcurbitaceae and Umbeliferae and the non-economic types such as Rosadeae, Leguminosae and Asteraceae. The other major category of pollen in the privy samples is anemphilous (wind carried) pollen which includes all of the arboreal (tree) pollen and a majority of the non-arboreal (weed, grass and shrub) pollen, Species of Poaceae (the grass family) pollen is inseparable at the light microscope level (except for corn, Zea mays) because among species of grasses there is too much similarity between their pollen types to allow for precise species identification. Cheno/Am pollen (Martin, 1963) is an artificial category which genus Chenopodium and the family Amaranthaceae, since their grains are too similar to separate into taxa. Cyperaceae pollen, another wind pollinated type, comes from weeds of the sedge (rush) family which commonly grow in moist to wet areas and release their pollen primarily in the spring and summer.

Sedge pollen is well represented in most samples of the two privies and may provide an indication of seasonality, flooding, or changing local moisture conditions. Low-spine Asteraceae pollen represents a wide variety of weeds (such as ragweed), which is also present in almost every one of the privy samples. Umbeliferae pollen is the most common economic pollen type found in the privy samples. This pollen would not likely be ingested with carrots, parsley, or celery since usually it is the non-flowering portions of the plant that are eaten. Parsley and celery, like most other "greens", would not usually contain pollen since they are harvested when young and tender, before flowering occurs. Thus, the most likely source of the Umbeliferae pollen in the privy samples would be some type of Umbeliferae schizocarp (fruit) since

seeds are often covered by resinous secretions which are ideally suited for trapping and holding pollen onto the fruit. Although seed preservation was not ideal enough to allow for identification to species, numerous Umbeliferae schizocarps compared favorably to caraway and anise in the lower samples of the Trench F privy (Zone B-2). Unfortunately, those same lower samples were not sampled for pollen. Eight samples above these in the Trench F privy, high levels of Umbeliferae pollen were found.

When examining privy samples, such as the ones in this study, it should be remembered that most foods leave no evidence in feces (coprolites). Under ideal conditions, such as in dry caves (Bryant 1974), discarded leafy and soft plant tissues may be preserved, even after the ravages of chewing and digestion have distorted them beyond recognition.

Many plants that are eaten do not carry with them traces of their pollen. For example, typical plant foods that would not contain pollen remains when eaten are: most types of root crops (potatoes, turnips, carrots, etc.); most species of leafy greens (mustard, collard, turnip greens, cabbage, peaches, and tomatoes).

Harvested cereal grains usually do contain pollen although corn is one of the few grass pollens that can be reliably separated from the other species of grass. If corn or cornmeal were major diet items, then corn pollen would be plentiful in coprolites from those types of meals. Use of other cereal grains as food such as wheat, barley, rye or rice would also introduce these pollen types into coprolites but they are often too difficult to separate from environmental sources of grass pollen.

Thus, what emerges in an analysis of any privy samples is only a partial picture of past diet represented by those plant foods which contain distinctive pollen or contain seeds small enough to swallow and tough enough to remain preserved. Presence or absence can also be used as a guide to diet. For instance, the lack of corn pollen in the Trench F privy and its scarcity in the plank privy strongly suggest that corn was not an important dietary staple for the populations using either privy.

Seasonality studies of feces may be attempted through the use of background pollen. People constantly inhale pollen from the atmosphere which by way of post nasal drip is swallowed and reaches our stomach and then is eventually excreted. Pollen can also land on food sources and be ingested. Williams-Dean (1978) found large quantities of ligustrum pollen (in a carefully

controlled study of modern coprolites) which had been inadvertently inhaled or ingested with food eaten by the subject who produced coprolites for study. Knowledge of the flowering times of wind pollinated plants can similarly be used in determining seasonality of feces. This method is not alwasy accurate since pollen can sometimes land on storable foods and thus be eaten all year long in bread from stored wheat. Even in a discrete fecal sample, the pollen record can thus be distorted.

Because of the factors discussed above, mixed (multiple) fecal deposits are even more complicated to interpret. In the case of the two privies studied, these factors coupled with unknown variables such as past flooding (Which would cause secondary pollen deposition) and potential pollen contamination through the dumping of garbage, make absolute and accurate interpretations difficult yet not impossible. There are many possible interpretations for the differences in diet, as represented by the contents of the two privies. Speculation into possible reasons for these differences, such as the differences in social status, ethnic background or seasonality are interesting, yet archeologically or historically we could not find any definite support for this hypothesis at this site.

Analysis of the privy fill contents is a fairly new concept in archeology. In the past most archeologists who encountered privy remains did not use careful or systematic methods for recovering the original deposits. Thus, the attempt to sample these privies and the suspected privies at the Lucy Site (Murry, 1981) represent some of the initial attempts to uncover dietary data from the historic period in America. Hopefully, these privy analyses will serve as guides to the types of potential data that can be derived from systematic analyses of such deposits. Also, it is hoped that as future privy sites are located by archeologists, they will realize the vast potential for data that is available through this avenue of research. It is only by these types of careful analyses that we will ever learn the precise insights into the actual eating habits of our recent ancestors. Finally, the real value of privy content reconstruction is that it often tells us aspects about human diets that were not recorded in the existing historical documents.

CHAPTER VI: CONCLUSIONS

Historical records trace the origins of the Welcome Plantation back to 1833. The plantation was actively involved in sugar production and remained in the hands of the Ganier family from 1833 to 1895. During this time the owners of the plantation had to adapt from a production system based on slave labor to one based on tenant labor. The Ganier family also had to adapt to continual loss of property as a result of bankline erosion. A series of levees were constructed, each one requiring that plantation structures be moved back from the river's edge. A levee constructed in 1902, shortly after the plantation fell into other hands sealed many of nineteenth century cultural deposits.

Surface collections and testing by Coastal Environments, Inc. (Castille 1979; Coastal Environments, Inc. 1979b) demonstrated the diversity of historic materials present at the Welcome Plantation site and identified three cultural features: a plank privy, a Trench F privy, and a board-lined well. All of the features came from areas in which late-nineteenth century domestic structures were present on the levee district maps. Analysis of the surface materials likewise suggested that most of the cultural material represented domestic activities. Partial excavation of the board-lined well and complete excavation of the plank and Trench F privies resulted in the recovery of the historic cultural materials which are reported in this study.

Analysis of the data from the privies and the well at the Welcome Plantation site focused on four basic questions:

1. When were the privies in use and for how long?
2. What was the socio-economic status of the household using the privy?
3. What type of diet is reflected in the pollen, fauna, and floral remains from the privies?
4. What are the differences between the privy fill and the post-abandonment fill?

In answering the first question, the ceramic and glass artifacts were found to be the most useful. Based on mean ceramic dates, mean glass dates and terminus post quem dates the following chronological sequence was suggested:

1865-1875 Filling of the board-lined well. Construction, use, and filling of the plank privy.

1870-1880 Construction and use of the Trench F privy.

1880-1902 Post-abandonment deposition in the Trench F privy. Deposition of the cultural zone above the plank privy.

The data suggest that the plank privy may be slightly earlier than the Trench F privy. The pollen data regarding seasonality and length of use for the Trench F privy are ambiguous. The data for the plank privy suggest a spring and summer use or a timespan of six to nine months.

The socioeconomic status of the household using the privy is difficult to evaluate because of a lack of documented comparative data. For example, excavation of a privy associated with a plantation "great house" would provide data on the upper end of the socio-economic scale. Likewise, excavation of a privy associated with tenants' or slaves quarters would provide data on the lower end of the scale. Nothing in the cultural material from the privies suggests great wealth or great poverty. The question of socio-economic status is further complicated by the fact that the privies are not definitely associated with domestic structures. For example, if the privies were located somewhere between the tenant farmers' cabins and the barns and outbuildings of the plantation, individuals of several socio-economic classes would have access to the privies.

The diet of the privy users was overwhelmingly based upon domesticated foods as would be expected. Fish and oysters were the only wild foods definitely used. The plank privy contained a wider range of foods than the Trench F privy. Since the privies are probably not more than ten years apart in age and the soil ph is similar (Appendix C), temporal differences and preservation differences can be ruled out as explanations. The only foods indicated in the data from the Trench F privy are beef, pork, oysters, anise (or caraway), and perhaps tomato. The plank privy contained evidence of beef, pork, oysters, eggs, fish, anise (or caraway), squash, grape, chili pepper, and maize (pollen). The proportions of the faunal remains are also different; however, most of the fauna from the Trench F privy is post-abandonment fill and all of the fauna from the plank privy is less than one meter deep (possibly post-abandonment fill). Two possible explanations may account for this difference: 1) socio-economic differences, or 2) seasonal differences. The first explanation is not supported by any differences in the material culture represented in the two privies; however, the construction of the plank privy clearly involved more effort.

While the pollen present in the plank privy suggests spring and summer use, the Trench F privy pollen is ambiguous. A tentative explanation for the differences in diet for the two privies is that the plank privy represents the spring and summer seasons while the Trench F privy represents the late fall or winter seasons. The only other information concerning diet is the presence of can fragments in the Trench F privy and the abundance of olive green glass, probably from wine bottles.

The differences between the privy fill and the post-abandonment fill in the Trench F privy were identified in the field primarily on the basis of a difference in the density of cultural material (Coastal Environments, Inc. 1979b: 11). The difference in the amount of material was confirmed by the analyses presented here. Furthermore, except for a few traces, no economic pollen or plant remains were identified in the post-abandonment fill samples. The plank privy data are not as clear cut. The bulk of the cultural material and all of the animal bone line within the upper one meter which was suggested as post-abandonment fill (Coastal Environments, Inc. 1979b: 22). Economic pollen and plant remains are found in these levels, however. Furthermore the quantity of trash deposited in the plank privy is not as great. A more reasonable interpretation of the upper meter of the plank privy deposits is that as the privy began to fill, trash was deposited in it with greater frequency. Post-abandonment filling is only the top 30 centimeters in which no economic pollen or plant remains were found. The board-lined well was interpreted as having been rapidly filled by the field archeologists (Coastal Environments, Inc. 1979b: 24). The ceramics span a considerable period, however. Creamware sherds were found only in the board-lined well, but the distribution of the ceramic types does not indicate gradual filling since early and late types are intermixed. The board-lined well was located in an area where early nineteenth century ceramics were present in the surface collections (Coastal Environments, Inc. 1979b: 24). Evidently earlier, midden deposits were utilized for part of the board-lined well fill. This analysis of the cultural material from the well supports the original field interpretation.

It has been suggested that privies are a sort of "time capsule" (Coastal Environments, Inc. 1979b: 26). They are obviously different from time capsules, however, in that they represent a non-deliberate source of information. For this reason, they represent everyday life. The information present in

privies is biased, however. Only resistant parts of plants or animals are preserved and only small, portable items are likely to be disposed of in them. Since they are used for only a short time, the amount of material present is often small. This makes it difficult to demonstrate statistical differences between privies. The Trench F and plank privies are quite similar in contents although they are quite distinct in size and shape. Only the pollen and plant remains indicated substantial differences and these may relate to seasonal differences in diet. The privy contents reflect both domestic household and farming activities. Of some interest is the fact that only the iron strap fragments could be even tentatively associated with sugar processing. The size and complexity of a nineteenth century plantation was such that a series of privies, wells, and other features would have to be excavated in order to understand the spatial organization, activity structure, and socioeconomic class distinctions present.

Examination of the information from the Welcome Plantation site (Castille 1979; Coastal Environments, Inc. 1979b; and this report) and the White Castle Gap site (Bryant et. al. 1982) indicate that the archeological information on Louisiana plantations along the Mississippi River has been severly disturbed by levee construction and bank erosion. This suggests that the best preserved data will lie along relatively straight stretches of the river and on the inside bank of bends in the river. In these areas lateral migration of the river is either substantially less or it is moving away from the nineteenth century river bank. For this reason levee setbacks are apt to be much less frequent. Unfortunately, these are also areas which do no require revetments so that funding for survey and excavation is not as readily available.

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APPENDIX A: The Hardness Determinations Run on the Historic Ceramics Recovered from the Welcome Plantation Site, Louisiana.

This appendix was prepared in accordance with the requirements from the U. S. Army Engineer District, New Orleans that: "In addition to standard analysis procedures, the contractor shall perform on all ceramics hardness tests on the paste, using a standard materials hardness test deemed appropriate by the contractor:" it is further stated that sherds will be tested and recorded according to the form used (base, body, rim, etc.). It should also be noted at this point that the number of sherds to be tested was indeed considerable. Once again the contract makes allowance for this situation and a "statistically valid sample from each ceramic type" was tested. A 2.5% sample was selected according to the number of each ceramic type.

The first method of testing for hardness which was attempted was the Moh's hardness scale. This method employs the use of several types of materials in an etching porcess. The range of hardness is measured from softest (talc) to hardest (diamond). A microscope of this type of test is far too broad to be of any value to our studies, and for this reason was rejected.

A second method employed the use of a mobile Rockwell hardness tester. This type of tester allows the user to read one of three scales (A, B, C). The A and C scales are differential measurements of depressions made on the ceramic sample by a diamond tip forces into the sample and released. Approximately 60% of the sherds tested in this manner were destroyed and the readings varied to such a degree as to make them highly questionable. After many fruitless attempts it was decided to set the samples in plaster molds and epoxy molds. Although the breakage rate was somewhat reduced, replicable readings were still unattainable.

A third more complicated procedure was suggested by Dr. Cornwell of the Mechanical Engineering Program at Texas A & M University. This method required several steps in processing a single sample. The first step involves the use of mounting premold apparatus by Buehler Ltd., Evanston, Illinois. A newer version of this machine is available, called the Simplimet II. Both machines are referred to as speed presses. A sample of the material to be tested is set in Diallyl Phythalate or an epoxy then heated and molded. The process required 20-25 minutes per sample. Once the sample has been prepared

it can then be tested in one of the following two manners: 1) an electrically operated Rockwell Superficial Tester using an N Brale point, or 2) a Tukon Tester model LL by Wilson and employing the Knoop Hardness Scale. This second step involves 5-10 minutes per sample according to the operator's skill. Since the processing of 248 samples from Bayou Goula and St. Alice Revetments would require between 103 and 140 hours to complete, using this process, it was decided that this method would be inefficient and expensive. Repeatability would also be difficult, should other laboratories wish to use this same process. Additionally, further time would be necessary to shave the sherds in order to obtain samples small enough to be molded in the first place. (10mm min., 20mm max.).

Finally, it was decided to use a fourth machine, the Clark Hardness Tester. The machine used for these tests was a 1935 version of Clark Hardnexx Tester by Clark Instrument Inc., Dearborn, Michigan. This apparatus is basically the same as other Rockwell hardness testers previously mentioned, but demands less time be expended in preparation and testing.

To use this machine, a small patch 1mm square is buffed on the sample surface. The 248 samples from Bayou Goula and St. Alice required one day for this step. Once prepared, the sample is placed on an anvil portion of the apparatus. A brale point is weighted onto the sherd then allowed to penetrate the paste which is exposed due to buffing.

The machine itself is basically a simple fulcrum, weighted at one end and fixed with a penetrating head at the other end. The weight is applied to the head (containing diamond point) which penetrates the material. When the weight is released the depth of penetration is measured and recorded on the pressure meter. The representative samples selected from each ceramic type underwent the "Canter" Test process and readings were recorded according to form and type.

Figure A-1 presents the hardness determinations for the Welcome site. Figure A-2 summarizes these data by ware. Several observations are readily apparent. The soft paste earthenwares vary enormously with no obvious mode. This is partly because of the catchall nature of this category, but also probably indicates that firing temperatures are not as precisely controlled for these wares. The remaining wares show in increase in hardness from creamware through porcelain as would be expected. The only exception to this trend is that the whitewares seem less hard than the pearlwares which is contrary to

Figure A-1: Hardness Determinations by Sherd (Provenience follows Castille 1979: 4-3, 4-7).

	Provenience	Form	Sherd Position: Rim	Body	Base
Earthenware (soft paste)					
Plain	C-1			19	
	B-15			2	
	D-9			69	
	C-6			11	
	G-1			14	
	Tr. F privy (50-55cm)	bottle		76	
Lead Enameled	D-5	cup or bowl		69	
	C-3	bowl?		20	
	D-12	bowl?		30	
	B-12	?		23	
	B-10	bowl?		6	
Rockingham Glaze	C-4	?		50	
	E-10	?		*	
	Creamware Locality	?		*	
	D-5	?		78	
Earthenware (medium-hard paste)					
Creamware					
	Creamware Locality B	plate		62	
	D-10	plate	67		
	Trench F	plate		56	
	Creamware Locality A	plate?			51
	Creamware Locality A	plate	77		
	Creamware Locality A	?		34	
	Creamware Locality A	plate	61		
	Creamware Locality A	?	58		
	G-1	plate	31		
	Creamware Locality A	plate		46	
	Creamware Locality A			*	
Pearlware					
Undecorated	H-5	plate			86
	E-2	bowl or vase	76		
	D-5	plate	75		
	G-1	platter			63
	B-13	?			60
	H-5	?		59	
	C-2				74
	B-14	plate			49
		?		59	
	Trench F	plate?		50	

Figure A-1 (con't)

	Provenience	Form	Sherd Position: Rim	Body	Base
Earthenware (medium-hard paste) (con't)					
Pearlware					
Undecorated (con't)	D-9	cup	84		
	D-2	plate	74		
	E-7				40
	H-5	plate	71		
	B-14	plate			70
	B-12	?			79
	Trench F	?		64	
	E-9	plate	71		
	G-1	plate w/base ring	69		
	H-2	?			70
	Profile F	?	72		
	Trench D	plate	79		
	D-8	plate?			72
	Trench M	?		70	
	C-3	?			
	Trench D	?		54	
	E-9	?	64		
	E-12	plate	78		
	Trench D	?			63
	F-17	platter or bowl	77		
	G-2	?			
	G-4	plate	65		
	Trench D	plate	72		
	H-4	?			62
	D-6	plate	88		
	Conc. A	bowl	59		
	Trench K	plate	72		
	Tr. F Privy (555-60cm)	plate?	70		
	Cultural Zone South of Plank Privy	?		68	
	Cultural Zone South of Plank Privy	?		78	
	C-6	?		56	
	C-6	?		52	
	E-3	?		82	
	Creamware Locality A	?		*	
	B-13	?		*	
	E-1	?	*		
	D-3	?		*	
	Creamware Locality A	?		*	
Green-Edged	D-13	plate	52		
	D-13	plate	72		

Figure A-1 (con't)

	Provenience	Form	Sherd Position: Rim	Body	Base
Earthenware (medium-hard paste)(con't)					
Pearlware					
Green-Edged (con't)	E-4	plate	46		
	Spot/find	plate	61		
	G-1	plate	58		
Blue-Edged	E-9	plate	65		
	G-1	plate	63		
	G-4	plate	58		
	D-10	plate	68		
	D-12	plate	66		
	B-5	plate	50		
Transfer Print	D-1	plate?		*	
	E-5	?		56	
	D-12	?		38	
	D-13	?		*	
	Creamware Locality A	plate?	*		
	E-7	?		70	
	Creamware Locality B	?		*	
	Cultural Zone South of Plank Privy	plate	64		
Stamped	D-13	?		55	
	C-3	?		57	
	Conc. C	?	*		
	C-1	?		54	
Handpainted	D-5	?	79		
	C-4	?	*		
	Plank Privy (25-30cm)	?			53
Annular	D-13	bowl	56		
	E-9	?		73	
	D-1	?		77	
	E-8	?		71	
	B-12	?		67*	
	E-7	bowl	70		
	D-10	?		77	
	D-5	?		55	
	D-16	?		60	
	D-13	?		71	
	D-7	?	73		
	Board-Lined Well (115-130cm)	cup or bowl		39	
	Plank Privy (125-130cm)	cup or bowl	69		
	Tr. F. Privy (30-35cm)	cup or bowl		47	
	Board-Lined Well (60-75cm)	cup or bowl		*	

Figure A-1 (con't)

	Provenience	Form	Sherd Position Rim	Body	Base
Earthenware (medium-hard Paste)(con't)					
Polychrome	D-9	?		*	
	E-5	?	68		
	E-10	?		57	
	D-15	saucer	59		
	B-12	?	*		
	B-14	?	*		
	Creamware Locality B	bowl	81		
	D-12	?			54
	Privy Surface				68
	D-13				66
	F-20	bowl or cup	71		
	Tr. F Privy (10-20cm)	bowl or cup	*		
Whiteware					
Undecorated	G-1	?	66		
	Creamware Locality	?		*	
	H-3	plate	72		
	Tr. F. Privy fill (10-20cm)	?		*	
	Creamware Locality	plate		73	
	H-7	plate		70	
	Creamware Locality B	plate			31
	E-4	plate		49	
	Trench S	?		61	
	Creamware Locality A	plate		38	
	H-7	cup or bowl	38		
	Trench S	?		*	
	Cultural Zone Above Tr. F Privy	bowl		69	
	Trench F	plate?		58	
	Creamware Locality A	?	*		
	Trench T	?		53	
	H-5	plate	55		
	Tr. F. Privy fill	plate	63		
	Tr. F. Privy (35-40cm)	plate?	60		
	Cultural Zone Above Plank Privy	plate	63		
	Cultural Zone Above Plank Privy	plate	52		
	Board-Lined Well (60-75cm)	plate		63	
	Tr. F. Privy (25-30cm)	plate	70		
	Creamware Locality	?		48	
	Tr. F. Privy (50-55cm)	cup	75		
	B-10	?	57		
	Creamware Locality	plate?		61	

Figure A-1 (con't)

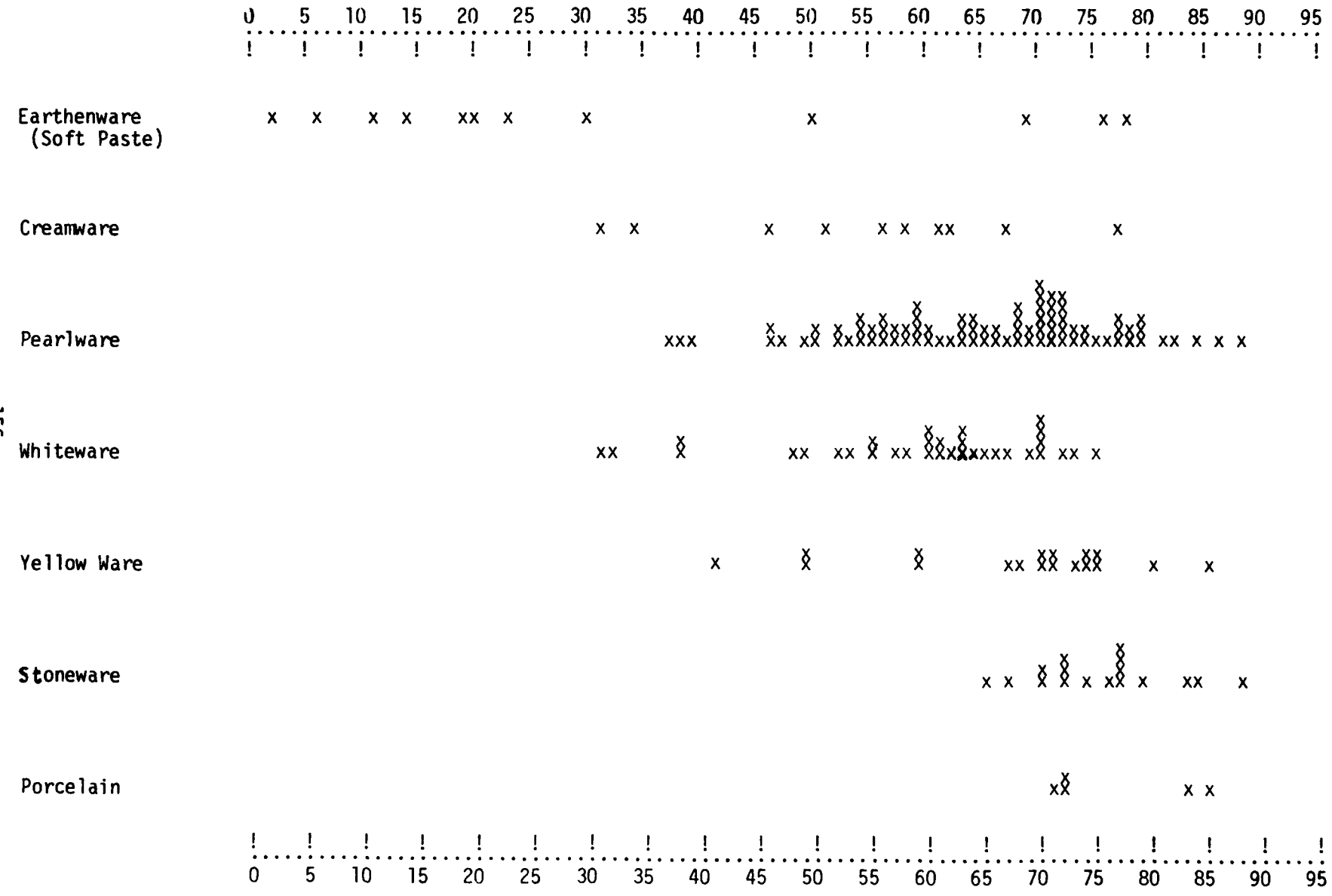
	Provenience		Form	Sherd Position: Rim	Body	Base
Earthenware (medium-hard paste)(con't)						
Whiteware						
Undecorated (con't)						
	Creamware Locality		plate?		61	
	Creamware Locality A		plate?		32	
	Creamware Locality B		bowl?		60	
Blue-Edged Sponged	Tr. F. Privy (75-80cm)		plate	70		
		D-6	?		70	
		B-13	bowl?	*		
		D-5	bowl	64		
		H-6	?	*		
		D-13	bowl	67		
		B-15	bowl	60		
		D-2	?		55	
		D-9	?		65	
		D-13	plate or bowl	62		
Yellow Ware						
		G-4	cup or bowl		49	
		C-3	cup or bowl		70	
		D-1	cup or bowl w/ handle		73	
		H-4	plate?		76	
	Creamware Locality A		cup or bowl		41	
		E-2			*	
		D-13	cup or bowl		85	
		E-10	cup		80	
		D-6	?		76	
		B-8	?		75	
		Conc A.	plate?		68	
		D-1	cup or bowl		71	
		D-2	cup or bowl		59	
		C-4	?		75	
		Trench D	cup or bowl		71	
		E-8	plate?		70	
		C-8	cop or bowl	67		
		B-13	cop or bowl		59	
	Tr. F. Privy (55-60cm)		?			49
Stoneware						
Lead Glazed	spot find		bottle?		83	
		G-1	bottle		88	
Salt Glazed		C-1			74	
		D-13				70

Figure A-1 (con't)

	Provenience	Form	Sherd Position Rim	Body	Base
Stoneware (con't)					
Salt glazed (con't)	E-5			77	
	C-1				76
	B-9			72	
	C-5			79	
	B-10				70
	B-11			72	
	D-9			84	
	H-7			72	
	B-10			77	
	C-4			65	
	F-20	?		77	
	Creamware Locality A	?		67	
Porcelain					
	E-3	?			72
	E-5	?		72	
	E-7	?		83	
	D-4	?	85		
	Cultural Zone South of Plank Privy	cup?		71	

Figure A-2

Hardness Determinations by Ware



our expectations. Pearlware and whiteware are difficult to distinguish and grade into one another temporally. The hardness tests confirm the overall similarity of the two wares.

Figure A-3 presents the descriptive statistics for the various wares. The soft paste earthenwares have the lowest mean, but the standard deviation is twice the next largest (for creamware). As a result, the soft paste earthenwares were excluded from further statistical tests. The statistics for pearlware, whiteware, and yellow ware were calculated after outlier observations had been removed. The means and standard deviations on the original data were computed and observations falling outside two standard deviations were excluded. Removing the outliers affected the overall statistics only slightly. Four observations were removed from pearlware, two from whiteware, and one from yellow ware. The revised statistics confirmed that the mean hardness for whiteware was less than the mean hardness for pearlware. Figure A-3 also shows the two standard deviation ranges for each ware. As can be seen, there is considerable overlap.

Figure A-4 presents the results of a series of T-tests for the various wares. Only three pairs failed to show significance at the .05 level (in contrast to the smaller sample from White Castle where only one pair was significant. Bryant et al 1982). Surprisingly, however, pearlware is significantly harder than whiteware according to these data.

The results of the hardness determinations indicate that ceramic wares do vary in hardness; however, the the overlap between the wares indicates that sorting cannot rely on hardness alone. The tests also emphasize the problems in distinguishing between pearlware and whiteware. Since this distinction is important in dating nineteenth century sites, more objective criteria must be developed.

Figure A-3
Descriptive Statistics for Hardness Determinations

	Mean	No.	Standard Deviation (sd)	Mean + 2sd	Mean - 2sd
Earthenware (soft)	35.92	13	28.36	93	0
Creamware	54.3	10	14.27	83	26
Pearlware *	65.64	80	9.63	85	46
Whiteware *	61.19	32	9.27	80	43
Yellow ware *	69.0	17	9.93	89	49
Stoneware	75.19	16	6.24	88	63
Porcelain	77.75	4	7.27	92	63

* Descriptive statistics after outliers had been removed

Figure A-4

T-tests for Hardness Determinations

	Creamware	Pearlware	Whiteware	Yellow ware	Stoneware
Pearlware	3.26 * 88				
Whiteware	1.73 * 40	2.21** 110			
Yellow ware	3.03 * 25	1.29 95	2.68** 47		
Stoneware	4.92 * 24	3.77 * 94	5.34 * 46	2.06* 31	
Porcelain	2.90 * 12	4.94 * 82	3.35 * 34	1.58 19	0.67 18

Degrees of freedom is shown beneath each value of the T-statisic.

* Significant at the .05 level, One-tailed test

** Significant at the .05 level, Two-tailed test (see text)

APPENDIX B: Munsell Color Analysis of the Ceramics Recovered from the Welcome Plantation site, Louisiana.

This appendix was prepared in accordance with the requirements from the U. S. Army Engineer District, New Orleans that the paste color of the ceramics be recorded in terms of the Munsell Color Chart values. Bruce Thompson of the Nautical Archeology Program of Texas A & M University undertook this analysis. Two Munsell color charts were used in determining the paste colors:

1. Ceramic Color Comparison Chart. (Values 8.5 to 9.5, Neutral. Hue 5Y Chroma/0.5 and Hue 5Y Chroma/1), Munsell Color, Inc., Baltimore, Maryland, 1979.

2. Munsell Soil Chart. (Hue 2.5YR, Chroma 8.5 to and including Hue 10YR, Chroma 8.5), Munsell Color, Inc., Baltimore, Maryland, 1973.

In order to use these charts to classify the paste color of our specimens, it was necessary to remove a small chip from each sherd. Once this was done, the fresh surface area was compared to the color chips on the chart and the color classified in accordance with the following Munsell system:

> The Munsell notation for colors consists of separate notations for hue, value, and chroma, which are combined in that order to form the color designation. The symbol for hue is the letter abbreviation of the color of the rainbow (R for red, YR for yellow-red, Y for yellow) preceded by numbers from 0 to 10. Within each letter range, the hue becomes more yellow and less red as the numbers increase. The middle of the letter range is at 5; the zero point coincides with the 10 point of the next redder hue. Thus 5YR is in the middle of the yellow-red hue, which extends from 10YR (zero YR) to 10YR (zero Y). The notation for value consists of numbers from 0, for absolute black, to 10, for absolute white. Thus a color of value 6/ is slightly less dark, 60 percent of the way from black to white, and midway between values of 5/ and 7/. The notation for chroma consists of numbers beginning at 0 for neutral grays and increasing at equal intervals to a maximum of about 20. For absolute achromatic colors, (pure grays, white and black), which have zero chroma and no hue, the letter N (neutral) takes the place of a hue designation. (Munsell Soil Chart, 1973).

Using this method, a sample of sherds from the Welcome Plantation site was classified as to paste color.

Figure B-1 lists the paste color for each sherd by provenience. Figure B-2 summarizes the paste color results for each ceramic ware. As would be expected the yellow ware, soft-paste earthenwares, and stonewares all have

Figure B-1: Munsell Color Chart Values for the Ceramic Collection From the St. Alice Revetment Study Area Listed by Individual Specimens (Provenience follows Castille 1979: 4-3, 4-7).

Provenience	Munsell Color Chart Values (Hue value/Chroma)
Earthenware (Soft Paste)	
Lead-enameled Earthenware	
D-5	10YR 4/6
C-3	2.5YR 6/8
B-12	5YR 6/8
B-10	7.5YR 6/4
D-12	5YR 6/8
Plain Earthenware	
B-15	2.5YR 5/8
G-1	5YR 5/8
D-9	5YR 7/7
C-1	5YR 5/8
C-6	5YR 5/8
Rockingham Glaze	
C-4	5Y 8.75/1
D-5	10YR 8/4
E-10	5Y 8.75/1
Creamware Locality	5Y 9.25/1
Earthenware (Medium-Hard Paste)	
Creamware	
Creamware Area A	5Y 9.5/1
Conc. A	5Y 9.5/0.5
Creamware Area A	5Y 9.5/0.5
D-10	5Y 9.5/0.5
Creamware Area A	5Y 9.25/0.5
Creamware Area A	5Y 9.5/0.5
Creamware Area A	5Y 9.5/0.5
Creamware Area B	5Y 9.25/0.5
G-1	5Y 9.25/1
Creamware Area A	5Y 9.25/1
Trench F Cultural Zone	5Y 9.5/0.5
Pearlware	
Annular	
B-12	5Y 9.5/0.5
E-7	5Y 9.5/1
D-1	10YR 8/2

Figure B-1 (con't)

Provenience	Munsell Color Chart Values (Hue value/ Chroma)
Earthenware (Medium-Hard Paste, con't)	
Pearlware (con't)	
Annular (con't)	
D-7	5Y 9.5/0.5
D-16	5Y 9.25/1
D-13	5Y 9.5/1
E-9	2.5Y 8/2
E-8	5Y 9.5/0.5
D-10	5Y 9.0/1
D-5	5Y 9.5/0.5
Blue-edged	
D-10	5Y 9.5/0.5
D-12	5Y 9.5/0.5
B-5	5Y 9.5/0.5
G-1	5Y 9.5/1
E-9	5Y 9.5/0.5
G-4	5Y 9.5/1
Green-edged	
Spot find	5Y 9.25/0.5
D-13	N 9.0/
D-13	5Y 9.5/0.5
G-1	5Y 9.5/0.5
E-4	5Y 9.5/0.5
Handpainted	
C-4	5Y 9.5/1
D-5	5Y 9.25/1
Handpainted Blow Blue	
Conc. K	5Y 9.5/0.5
C-1	5Y 9.5/0.5
D-13	5Y 9.5/0.5
Polychrome	
B-14	5Y 9.5/0.5
E-5	5Y 9.5/0.5
B-12	5Y 9.5/0.5
D-9	5Y 9.5/0.5
B-3	5Y 9.25/0.5
D-12	5Y 9.5/1
E-10	5Y 9.0/1
Creamware Area B	5Y 9.25/0.5
D-15	5Y 9.5/0.5
D-13	5Y 9.25/0.5
Trench F privy fill	5Y 9.25/0.5
F-20	5Y 9.5/0.5

Figure B-1 (con't)

Provenience	Munsell Color Chart Values (Hue values, Chroma)
Earthenware (Medium-Hard Paste con't)	
Pearlware (con't)	
Transfer Print	
Creamware Area A	5Y 9.5/0.5
D-12	N 9.25/
D-13	5Y 9.5/0.5
E-7	N 8.5/
D-1	5Y 9.5/0.5
Creamware Area B	5Y 9.5/0.5
E-5	5Y 9.5/0.5
D-13	5Y 9.5/0.5
Undecorated	
Conc. K	5Y 9.5/0.5
G-1	5Y 9.0/1
B-14	5Y 9.5/0.5
E-9	5Y 9.5/0.5
H-5	N 9.5/
H-2	N 9.5/
Conc. A	5Y 9.5/0.5
B-12	Not determinable
Trench K	N 9.5/
Profile F	N 9.5/
E-9	N 9.5/
D-2	Not determinable
Trench D	5Y 9.5/0.5
D-6	N 9.5/
D-9	N 9.25/
D-8	N 9.25/
G-1	5Y 9.5/0.5
H-4	N 9.5/
E-12	N 9.5/
Trench F privy fill	5Y 9.5/0.5
E-2	N 9.0/
D-5	N 9.25/
Profile F	N 9.25/
Trench F cultural zone	5Y 8.5/0.5
G-4	5Y 9.5/0.5
F-17	N 9.5/
Trench M	5Y 9.5/0.5
C-6	5Y 9.5/0.5
E-1	5Y 9.5/0.5
D-3	N 9.5/
E-3	5Y 9.5/0.5
B-13	5Y 9.5/0.5
Creamware Area A	5Y 9.5/1
Creamware Area A	5Y 9.5/0.5
C-6	N 9.5/

Figure B-1 (con't)

Provenience	Munsell Color Chart Values (Hue value, Chroma)
Earthenware (Medium-Hard Paste con't)	
Whiteware	
Spatterware (cut sponge)	
B-15	5Y 9.5/0.5
D-2	5Y 9.5/0.5
D-9	5Y 9.5/0.5
D-13	N 8.5/
Spatterware (Sponge)	
D-15	5Y 9.5/0.5
D-13	5Y 9.5/0.5
B-13	5Y 9.5/0.5
D-6	5Y 9.5/0.5
H-6	5Y 9.5/0.5
Undecorated	
Creamware Area A	5Y 9.5/0.5
H-7	N 9.5/
Trench S	5Y 9.5/0.5
Creamware Area B	5Y 9.25/0.5
B-10	5Y 9.0/0.5
Trench M	5Y 9.25/0.5
Creamware Locality	5Y 9.5/1
Creamware Area B	5Y 9.25/0.5
Creamware Locality	5Y 9.25/0.5
H-3	5Y 9.5/0.5
E-7	N 9.25/
Creamware Area A	5Y 9.5/0.5
Trench S	5Y 9.25/0.5
Trench F privy fill	5Y 9.5/0.5
H-7	5Y 9.5/0.5
Trench T	5Y 9.5/0.5
Creamware Locality	5Y 9.5/0.5
Creamware Area A	5Y 9.5/1
Trench F privy fill	5Y 9.5/0.5
Creamware Locality	5Y 9.25/0.5
H-5	5Y 9.0/1
E-4	5Y 9.5/1
Trench F	5Y 9.5/0.5
Yellow ware	
Conc. A	10YR 8/4
B-13	10YR 8/3
D-13	10YR 8/3
E-8	10YR 8/3
G-4	2.5Y 8/4
C-4	2.5Y 8/2
D-6	2.5Y 8/2

Figure B-1 (con't)

Provenience	Munsell Color Chart Values (Hue value, Chroma)
Earthenware (Medium-Hard Paste con't)	
Yellow ware (con't)	
Creamware Area A	5Y 9.5/1
B-8	2.5Y 8/2
H-4	2.5Y 8/2
D-1	2.5Y 8/4
Trench D	2.5Y 8/2
C-8	2.5Y 8/2
D-1	2.5Y 8.2
E-10	2.5Y 8/4
D-2	5Y 9.5/1
C-3	5Y 8.75/1
E-2	2.5Y 8/2
Stoneware	
Lead glazed	
Spot find	5Y 8.75/1
G-1	10YR 6/1
Salt glazed	
E-5	N 6/
C-1	10YR 7/2
H-7	10YR 8/1
Creamware Area A	2.5YR 8/1
B-9	N 6/
C-1	2.5YR 4/4
D-9	5Y 6/1
F-20	10YR 8/4
C-4	10YR 7/1
B-10	2.5YR 7/4
D-13	N 6/
C-5	2.5Y 7/2
B-11	2.5Y 6/2
B-10	N 5/
Porcelain	
E-3	N 9.5/
D-4	N 9.5/
E-7	N 9.5/
E-5	N 9.5/

Figure B-2

Munsell Colors By Ware

	Porce-lain	White-ware	Pearl-ware	Cream-ware	Yellow ware	Soft Earthen-ware	Stone-ware	Totals
2.5YR 4/4							1	1
2.5YR 5/8						1		1
2.5YR 6/8						1		1
2.5YR 8/2					1			1
5YR 5/8						3		3
5YR 6/1							1	1
5YR 6/8						2		2
5YR 7/7						1		1
7.5YR 6/4						1		1
10YR 4/6						1		1
10YR 6/1							1	1
10YR 7/1							1	1
10YR 7/2							1	1
10YR 8/1							1	1
10YR 8/2			1		1			2
10YR 8/3					3			3
10YR 8/4			1		1	1	1	4
2.5Y 6/2							2	2
2.5Y 7/2							1	1
2.5Y 7/4							1	1
2.5Y 8/2			1		8			9
2.5Y 8/4					3			3
5Y 8.75/1		1	2	1	1	2	1	8
5Y 9.0/0.5		3						3
5Y 9.0/1		1	7					8
5Y 9.25/0.5		20	9	2				31
5Y 9.25/1		7	3	1		1		12
5Y 9.5/0.5		52	51	3				106
5Y 9.5/1		25	8	7	2			42
N5/							1	1
N6/							3	3
N8.5/		1	3					4
N8.75/		2						2
N9.0/		3	2					5
N9.25/		5	6					11
N9.5/	7	1	13					21
Not determined			2					2
Totals	7	121	109	14	20	14	16	301

off-white paste colors whereas porcelain, whiteware, pearlware, and creamware are more nearly white. The most common paste color is 5Y 9.5/0.5 with 35 percent of all the readings. The second most common color is the adjacent 5Y 9.5/1 with 14 percent. In order to analyze variations in paste color more closely, the paste colors were tabulated along each of the three color dimensions: hue, value, and chroma.

Figure B-3 shows the results for each ware by hue. Porcelain is uniformly neutral (N) in hue. Whiteware is uniformly either 5Y or N. Pearlware, on the other hand, ranges from 10YR to N. The percentage of pearlware which is neutral is greater than the percentage for whiteware (22 percent for pearlware, but only 10 percent for whiteware). The nineteenth century ceramics from the White Castle Gap Revetment indicated that a greater proportion of the whiteware sherds had neutral paste hues (Bryant et al 1982: 375-381). The results from the two sites together suggest that paste colors for pearlware and whiteware overlap completely. This is actually not surprising since the major discriminating attribute for the two wares is glaze tint (Castille 1979: 5-17, 5-18).

The creamware sherds tend to be off-white. All of them fell into the 5Y hue. Hues for yellow ware range from 10YR to 5Y with half of the specimens falling into the 2.5Y category. Soft-paste earthenwares range from 2.5YR to 5Y with nearly half falling into the 5YR category. The stoneware specimens are quite diverse although the bulk of them range from 10YR to N.

Figure B-4 shows the wares arranged by value. High values indicate light shades while low values indicate dark shades. Porcelain again falls uniformly into one category, 9.5. Whiteware ranges from 8.5 to 9.5 while pearlware ranges from 8 to 9.5. A somewhat larger percentage of the whiteware sherds fall into the two highest categories (91 percent whiteware, 84 percent pearlware). The two wares overlap substantially, however. Creamware ranges from 8.75 to 9.5 and 93 percent of the creamware sherds fall into the two highest categories. Yellow ware ranges from 8 to 9.5 with 85 percent falling into the 8 category. The soft-paste earthenwares range from 4 to 9.25 and are quite diverse. Values 5 and 6 together contain 57 percent of the specimens. Stoneware is intermediate in value between yellow ware and the soft-paste earthenwares. Stoneware ranges from 4 to 8.75 and values 6 and 7 contain 69 percent of the specimens.

Figure B-5 shows the wares arranged by chroma. A chroma of 0 is equivalent to a neutral hue (N). Higher chromas indicate brighter colors.

Figure B-3

Hue by Ware

	2.5YR	5YR	7.5YR	10YR	2.5Y	5Y	N	Total
Porcelain							7	7
Whiteware						109	12	121
Pearlware				2	1	80	24	107
Creamware						14		14
Yellow ware	1			5	11	3		20
Soft Earthenware	2	6	1	2		3		14
Stoneware	1	1		5	4	1	4	16
Totals	4	7	1	14	16	210	47	299

Figure B-4

Value by Ware

	4	5	6	7	8	8.5	8.75	9.0	9.25	9.50	Total
Porcelain										7	7
Whiteware						1	3	7	32	78	121
Pearlware					3	3	2	9	18	72	107
Creamware							1		3	10	14
Yellow ware					17		1			2	20
Soft Earthenware	1	4	4	1	1		2		1		14
Stoneware	1	1	7	4	2	—	1	—	—	—	16
Totals	2	5	11	5	23	4	10	16	54	160	299

Figure B-5

Chroma by Ware

	0	.5	1	2	3	4	5	6	7	8	Total
Porcelain	7										7
Whiteware	12	75	34								121
Pearlware	24	60	20	2		1					107
Creamware		5	9								14
Yellow ware			3	10	3	4					20
Soft Earthenware			3			2		1	1	7	14
Stoneware	4	—	5	4	—	3	—	—	—	—	16
Totals	47	140	74	14	3	10	0	1	1	7	299

Porcelain is uniformly a chromatic. Whiteware ranges from 0 to 1 with a mode of 0.5 (62 percent). Pearlware is more variable, ranging from 0 to 4 with a mode of 0.5 (56 percent). Creamware ranges from 0.5 to 1 with a mode of 1 (64 percent). Yellow ware ranges from 1 to 4 with a mode of 2 (50 percent). The soft paste earthenwares are very variable and range from 1 to 8 with a mode of 8 (50 percent). The stonewares are also quite variable and range from 0 to 4 with a mode of 1 (31 percent).

In conclusion, paste color can assist in sorting off-white wares (stoneware, soft-paste earthenware, yellow ware) from white wares (porcelain, whiteware, pearlware, creamware). However, paste color alone is insufficient to classify ceramics within these broad categories. For this reason historical archeologists traditionally rely on additional attributes such as glaze, water permeability, and surface decoration.

APPENDIX C: Soil Mineral Content for St. Alice Privy Matrix Samples

Subsamples from all 69 of the matrix samples from the Trench F privy and the plank privy were submitted to the United States Department of Agriculture Extension Services Soil Testing Laboratory located on the campus of Texas A & M University. The results of their analyses are reported in Appendix C.

The pH of all of the samples was mildly to moderately alkaline with a pH ranging from a high of 8.2 to a low of 7.5. All samples were also low in nitrogen content, high in amounts of available magnesium and quite high in levels of available calcium (average amount above 7,000 ppm). Most of the samples also contained fairly high concentration (greater than 300 ppm) of potassium and low amounts of organic matter.

The chemical composition of the soils from The Trench F privy and the plank privy conform to the limits normally seen in the soil types recorded for the soils in the areas of the Mississippi floodplain of central Louisiana (Cockerham et al 1973: pp. 40-41). The soil composition of the samples from these privies is also quite similar in chemical structure to the soil samples recovered from the Lucy Wells site in St. John the Baptist Parish (Murry 1981) and the soils found in the deposits tested for pollen contents at the Tally Ho site near the community of Bayou Goula, Louisiana (Bryant et al 1982). Given the uniformity of the privy deposit soils and their similarity to naturally deposited soils in the area, these test results were of limited help in determining past depositional patterns.

The soil sample results do, however, provide some interesting information regarding soil pretesting for pollen. Repeated tests from areas of the arid southwest have shown that when soils contain less than one percent organic content, there is generally insufficient fossil pollen present to conduct a statiscally reliable for analysis (Bryant 1978). The data for the Welcome Plantation site indicate that fossil pollen should not be preserved in these deposits, however, nearly all of the samples contained sufficient pollen for analysis. These results suggest that the previous assumptions concerning pollen pretesting should be re-examined before they are extended to the much wetter soils of the Mississippi River valley.

Soil Mineral Content of St. Alice Privy Matrix Samples

MATRIX SAMPLE NUMBER	% ORGANIC MATTER	PH ACIDITY	NITROGEN	PHOSPHOROUS	POTASSIUM	CALCIUM	MAGNESIUM
#1	.60	7.0 Neutral	Low	>150 Very High	276 High	3560 Very High	>500 High
#2	.23	7.5 Mildly Alkaline	Low	>150 Very High	320 Very High	>4000 Very High	>500 High
#3	.46	7.2 Mildly Alkaline	Low	117 Very High	292 High	3640 Very High	>500 High
#4	.55	7.6 Mildly Alkaline	Low	>150 Very High	308 Very High	3640 Very High	>500 High
#5	.72	7.1 Mildly Alkaline	Low	>150 Very High	336 Very High	3600 Very High	>500 High
#6	.36	7.5 Mildly Alkaline	Low	>150 Very High	304 Very High	3560 Very High	>500 High
#7	.30	7.3 Mildly Alkaline	Low	141 Very High	272 High	3400 Very High	>500 High

"Available" form of elements measured in PPM; test results from Texas Agricultural Extension Service.

Soil Mineral Content of St. Alice Privy Matrix Samples

MATRIX SAMPLE NUMBER	% ORGANIC MATTER	PH ACIDITY	NITROGEN	PHOSPHOROUS	POTASSIUM	CALCIUM	MAGNESIUM
#8	.46	7.3 Mildly Alkaline	Low	>150 Very High	392 Very High	3520 Very High	>500 High
#9	.76	7.2 Mildly Alkaline	Low	>150 Very High	352 Very High	3880 Very High	>500 High
#10	.28	7.6 Mildly Alkaline	Low	>150 Very High	304 Very High	3760 Very High	>500 High
#11	.51	6.6 Mildly Acid	Low	>150 Very High	320 Very High	3400 Very High	>500 High
#12	.28	7.6 Mildly Alkaline	Low	>150 Very High	316 Very High	3880 Very High	>500 High
#13	.55	5.9 Moderately Acid	Low	125 Very High	380 Very High	3400 Very High	>500 High
#14	.39	7.6 Mildly Alkaline	Low	150 Very High	332 Very High	3760 Very High	>500 High

Soil Mineral Content of St. Alice Privy Matrix Samples

MATRIX SAMPLE NUMBER	% ORGANIC MATTER	PH ACIDITY	NITROGEN	PHOSPHOROUS	POTASSIUM	CALCIUM	MAGNESIUM
#15	.36	7.2 Mildly Alkaline	Low	>150 Very High	320 Very High	3560 Very High	>500 High
#16	.39	6.2 Mildly Acid	Low	>150 Very High	344 Very High	3200 Very High	>500 High
#17	.30	6.5 Mildly Acid	Low	>150 Very High	336 Very High	3240 Very High	>500 High
#18	.26	7.1 Mildly Alkaline	Low	>150 Very High	328 Very High	3720 Very High	>500 High
#19	.30	7.5 Mildly Alkaline	Low	>150 Very High	308 Very High	3760 Very High	>500 High
#20	.13	7.6 Mildly Alkaline	Low	>150 Very High	276 High	3320 Very High	>500 High
#21	.14	7.5 Mildly Alkaline	Low	99 Very High	220 High	2640 Very High	>500 High

"Available" form of elements measured in PPM; test results from Texas Agricultural Experiment Station.

Soil Mineral Content of St. Alice Privy Matrix Samples

MATRIX SAMPLE NUMBER	% ORGANIC MATTER	PH ACIDITY	NITROGEN	PHOSPHOROUS	POTASSIUM	CALCIUM	MAGNESIUM
#22	.68	8.0 Moderately Alkaline	Low	>150 Very High	300 High	>4000 Very High	>500 High
#23	.46	7.9 Mildly Alkaline	Low	>150 Very High	320 Very High	>4000 Very High	>500 High
#24	.36	8.0 Moderately Alkaline	Low	>150 Very High	352 Very High	>4000 Very High	>500 High
#25	.91	7.7 Mildly Alkaline	Low	>150 Very High	384 Very High	>4000 Very High	>500 High
#26	.42	8.0 Moderately Alkaline	Low	>150 Very High	352 Very High	>4000 Very High	>500 High
#27	.55	7.8 Mildly Alkaline	Low	>150 Very High	344 Very High	>4000 Very High	>500 High
#28	2.30	7.9 Mildly Alkaline	Low	>150 Very High	380 Very High	>4000 Very High	>500 High

"Available" form of elements measured in PPM; test results from Texas Agricultural Extension Service.

Soil Mineral Content of St. Alice Privy Matrix Samples

MATRIX SAMPLE NUMBER	% ORGANIC MATTER	PH ACIDITY	NITROGEN	PHOSPHOROUS	POTASSIUM	CALCIUM	MAGNESIUM
#29	.64	8.0 Moderately Alkaline	Low	150 Very High	336 Very High	4000 Very High	500 High
#30	.55	8.0 Moderately Alkaline	Low	150 Very High	332 Very High	4000 Very High	500 High
#31	.55	7.9 Mildly Alkaline	Low	150 Very High	372 Very High	4000 Very High	500 High
#32	.55	8.0 Moderately Alkaline	Low	150 Very High	328 Very High	3880 Very High	500 High
#33	.76	8.0 Moderately Alkaline	Low	150 Very High	352 Very High	4000 Very High	500 High
#34	.72	8.1 Moderately Alkaline	Low	150 Very High	364 Very High	4000 Very High	500 High
#35	.68	7.9 Mildly Alkaline	Low	150 Very High	376 Very High	4000 Very High	500 High

"Available" form of elements measured in PPM; test results from Texas Agricultural Extension Service.

Soil Mineral Content of St. Alice Privy Matrix Samples

MATRIX SAMPLE NUMBER	% ORGANIC MATTER	PH ACIDITY	NITROGEN	PHOSPHOROUS	POTASSIUM	CALCIUM	MAGNESIUM
#36	.64	8.2 Moderately Alkaline	Low	>150 Very High	364 Very High	>4000 Very High	>500 High
#37	.39	8.0 Moderately Alkaline	Low	>150 Very High	368 Very High	>4000 Very High	>500 High
#38	.64	8.1 Moderately Alkaline	Low	>150 Very High	416 Very High	>4000 Very High	>500 High
#39	.60	7.9 Mildly Alkaline	Low	>150 Very High	408 Very High	>4000 Very High	>500 High
#40	.39	8.1 Moderately Alkaline	Low	>150 Very High	380 Very High	>4000 Very High	>500 High
#41	.60	7.9 Mildly Alkaline	Low	>150 Very High	408 Very High	>4000 Very High	>500 High
#42	.64	8.1 Moderately Alkaline	Low	>150 Very High	420 Very High	>4000 Very High	>500 High

"Available" form of elements measured in PPM; test results from Texas Agricultural Extension Service.

Soil Mineral Content of St. Alice Privy Matrix Samples

MATRIX SAMPLE NUMBER	% ORGANIC MATTER	PH ACIDITY	NITROGEN	PHOSPHOROUS	POTASSIUM	CALCIUM	MAGNESIUM
#43	.80	8.1 Moderately Alkaline	Low	>150 Very High	460 Very High	>4000 Very High	>500 High
#44	.72	8.2 Moderately Alkaline	Low	>150 Very High	476 Very High	>4000 Very High	>500 High
#45	.55	7.7 Mildly Alkaline	Low	>150 Very High	420 Very High	3920 Very High	>500 High
#46	.36	8.1 Moderately Alkaline	Low	>150 Very High	412 Very High	>4000 Very High	>500 High
#47	.46	7.7 Mildly Alkaline	Low	>150 Very High	400 Very High	>4000 Very High	>500 High
#48	.55	7.9 Mildly Alkaline	Low	>150 Very High	412 Very High	3960 Very High	>500 High
#49	.30	7.8 Mildly Alkaline	Low	>150 Very High	412 Very High	>4000 Very High	>500 High

"Available" form of elements measured in PPM; test results from Texas Agricultural Extension Service.

Soil Mineral Content of St. Alice Privy Matrix Samples

MATRIX SAMPLE NUMBER	% ORGANIC MATTER	PH ACIDITY	NITROGEN	PHOSPHOROUS	POTASSIUM	CALCIUM	MAGNESIUM
#50	.30	8.0 Moderately Alkaline	Low	>150 Very High	356 Very High	>4000 Very High	>500 High
#51	.23	7.8 Mildly Alkaline	Low	>150 Very High	332 Very High	3920 Very High	>500 High
#52	.18	7.9 Mildly Alkaline	Low	>150 Very High	268 High	3400 Very High	>500 High
#53	.25	7.9 Mildly Alkaline	Low	>150 Very High	0 Very Low	>4000 Very High	>500 High
#54	.15	7.9 Mildly Alkaline	Low	>150 Very High	220 High	2880 Very High	>500 High
#55	.36	7.7 Mildly Alkaline	Low	>150 Very High	284 High	3760 Very High	>500 High
#56	.10	7.9 Mildly Alkaline	Low	117 Very High	212 High	2880 Very High	>500 High

"Available" form of elements measured in PPM; test results from Texas Agricutural Extension Service.

Soil Mineral Content of St. Alice Privy Matrix Samples

MATRIX SAMPLE NUMBER	% ORGANIC MATTER	PH ACIDITY	NITROGEN	PHOSPHOROUS	POTASSIUM	CALCIUM	MAGNESIUM
#57	.16	7.5 Mildly Alkaline	Low	56 Very High	276 High	2960 Very High	>500 High
#58	.28	7.8 Mildly Alkaline	Low	125 Very High	264 High	3280 Very High	>500 High
#59	.39	7.5 Mildly Alkaline	Low	>150 Very High	384 Very High	3400 Very High	>500 High
#60	.42	8.0 Moderately Alkaline	Low	>150 Very High	368 Very High	>4000 Very High	>500 High
#61	.85	7.8 Mildly Alkaline	Low	>150 Very High	384 Very High	>4000 Very High	>500 High
#62	.36	7.7 Mildly Alkaline	Low	>150 Very High	364 Very High	3720 Very High	>500 High
#63	.36	7.8 Mildly Alkaline	Low	>150 Very High	332 Very High	3920 Very High	>500 High

"Available" form of elements measured in PPM; test results from Texas Agricutural Extension Service.

Soil Mineral Content of St. Alice Privy Matrix Samples

MATRIX SAMPLE NUMBER	% ORGANIC MATTER	PH ACIDITY	NITROGEN	PHOSPHOROUS	POTASSIUM	CALCIUM	MAGNESIUM
#64	.33	8.0 Moderately Alkaline	Low	>150 Very High	336 Very High	>4000 Very High	>500 High
#65	.28	7.7 Mildly Alkaline	Low	>150 Very High	348 Very High	3960 Very High	>500 High
#66	.55	7.6 Mildly Alkaline	Low	>150 Very High	404 Very High	3640 Very High	>500 High
#67	.28	7.8 Mildly Alkaline	Low	>150 Very High	356 Very High	>4000 Very High	>500 High
#68	.33	8.1 Moderately Alkaline	Low	>150 Very High	408 Very High	>4000 Very High	>500 High
#69	.36	7.6 Mildly Alkaline	Low	>150 Very High	392 Very High	3920 Very High	>500 High

"Available" form of elements measured in PPM; test results from Texas Agricultural Extension Service.

APPENDIX D: St. Alice Privy Matrix Sample Soil Particle Size Graphs

Soil particle analyses of the 69 matrix samples from the Trench F and plank privies were conducted at the request of the Department of the Army, U. S. Army Engineer District, New Orleans. It was hoped that the information from these samples would offer insights into past deposition patterns and/or information relating to past cultural occupation. These analyses were conducted by Soil Mechanics, Inc., Bryan, Texas.

Subsamples of the 69 matrix samples were oven dried, weighed and sieved in accordance with sieve analysis standards (American National Standard ANSI/ ASTM D 422-63-1972). A standard series of 12 sieve sizes was employed. The U. S. Standard sieves used were:

U. S. Standard Sieve Number	Size of Sieve Opening
1/2	12.5 mm
3/8	9.5 mm
4	4.75 mm
10	2.00 mm
16	1.18 mm
20	850 microns
30	600 microns
40	425 microns
50	300 microns
80	180 microns
100	150 microns
200	75 microns

The sample results are presented in chart form (Appendix D) for each of the 69 matrix samples. The percentage (by weight) of the sample passing through each sieve is illustrated on the charts. Also the percentage of the sample finer than the 75 micron, #200 sieve, is summarized along with the total sample weight in the lower left hand corner of each chart.

Most samples contained 90 percent or more of fine silts and clays which passed through the #200 sieve (smaller than 75 microns). Such high proportions of fine particles (clays and file silts) are common for most soils found in the general study area we examined. Soil tests similar to the ones we performed for our matrix samples have been conducted by the Louisiana Department of Highways on soils from nearby areas in St. James and St. John the Baptist Parishes, Louisiana. The results of those soil studies have showed that with some soils, such as the Convent Silty Loam Soil type, as much as 98% of the

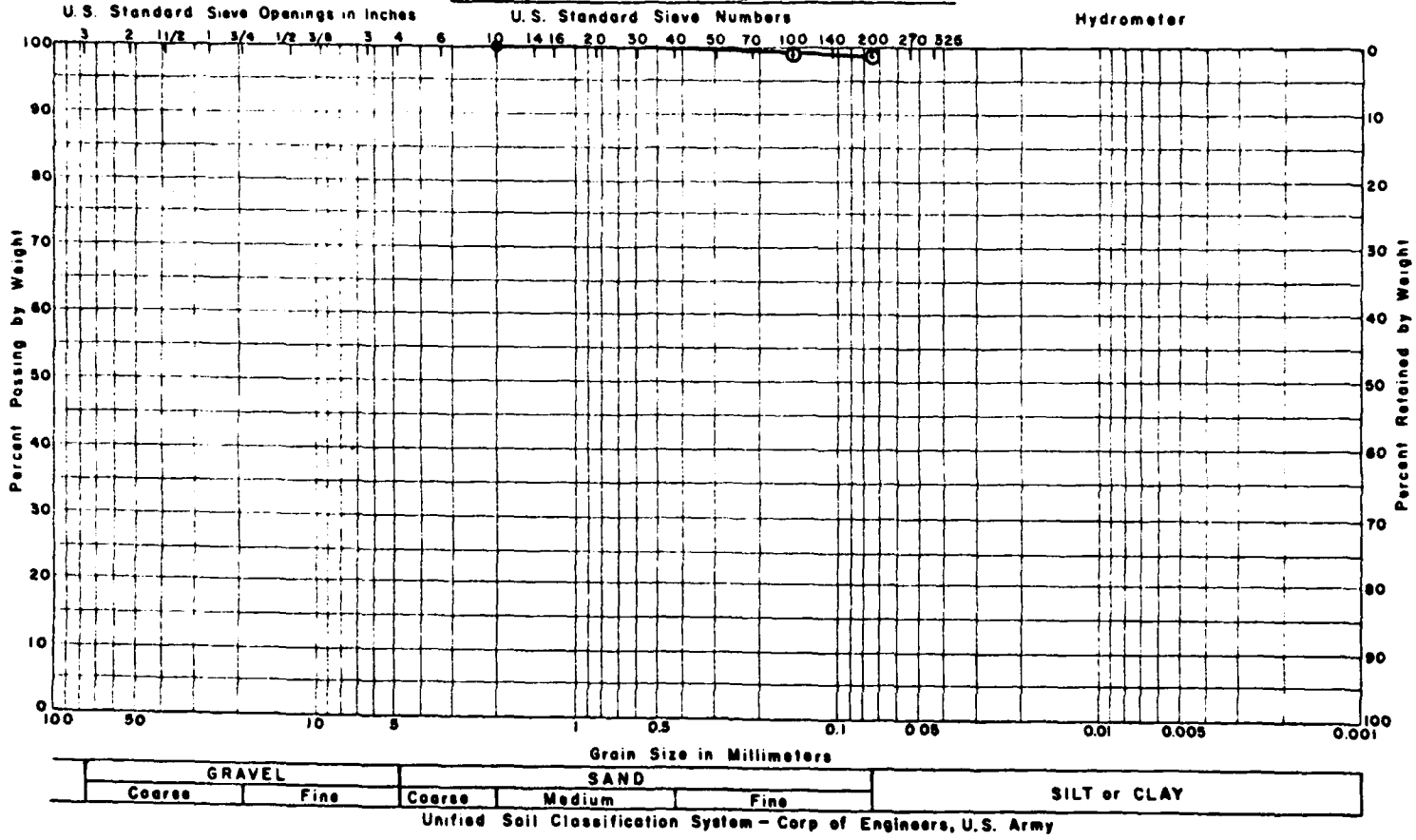
material passes through the #200 sieve (Cockerham et al 1973: 26). Other soils found in the region near the St. Alice privy sites, such as the Commerce Silty Clay Loam Soil type, sometimes record as high as 97.5% passage through the #200 sieve and the greatest amount of fine particle contents (passage through the #200 sieve) is recorded for the Sharkey Clay Soil type which is also found in the same general geographical region (Cockerham et al 1973: 26).

Soil testing to determine sediment sizes below 75 microns (the #200 sieve) requires additional testing with hydrometer readings at a substantial increase in the cost per sample. The additional costs were not written into the original budget and additional funds were not sought because of the limited usefulness of the additional information.

The variations in grain size between any of the 69 samples examined were minor in most cases, especially in the lower levels of the privies. It is felt that this represents a combination of factors caused in part by flooding and by the addition of brick mortar, and other artifact debris to the privy sediments. The slightly different soil grain size recorded for many of the upper levels in the privies were possibly the result of larger quantities of brick and mortar fragments present. This is, however, only a hypothesis since under natural conditions larger grained sediments can occur in soil types that are normally very fine. An example of such a condition is noted by Cockerham et al (1973: 26) in two samples of Convent Silt Loam from St. John the Baptist Parish where the percentage of fine grained particles ranged from 56% in one sample to 98% in the other sample.

The absence of samples containing substantial proportions of coarser sized particles (sand and coarse silt) suggests that flood deposited sediments were not present in the privy fill. This conclusion supports the hypothesis suggested by Coastal Environments, Inc. (1979b) that the privies were relatively rapidly filled in.

MECHANICAL ANALYSIS CHART



Provenience: Cultural Zone Above Privy, E Profile of Trench, Zone 2

Sample No: 1

Depth: None

98.85% Finer

235 g Sample

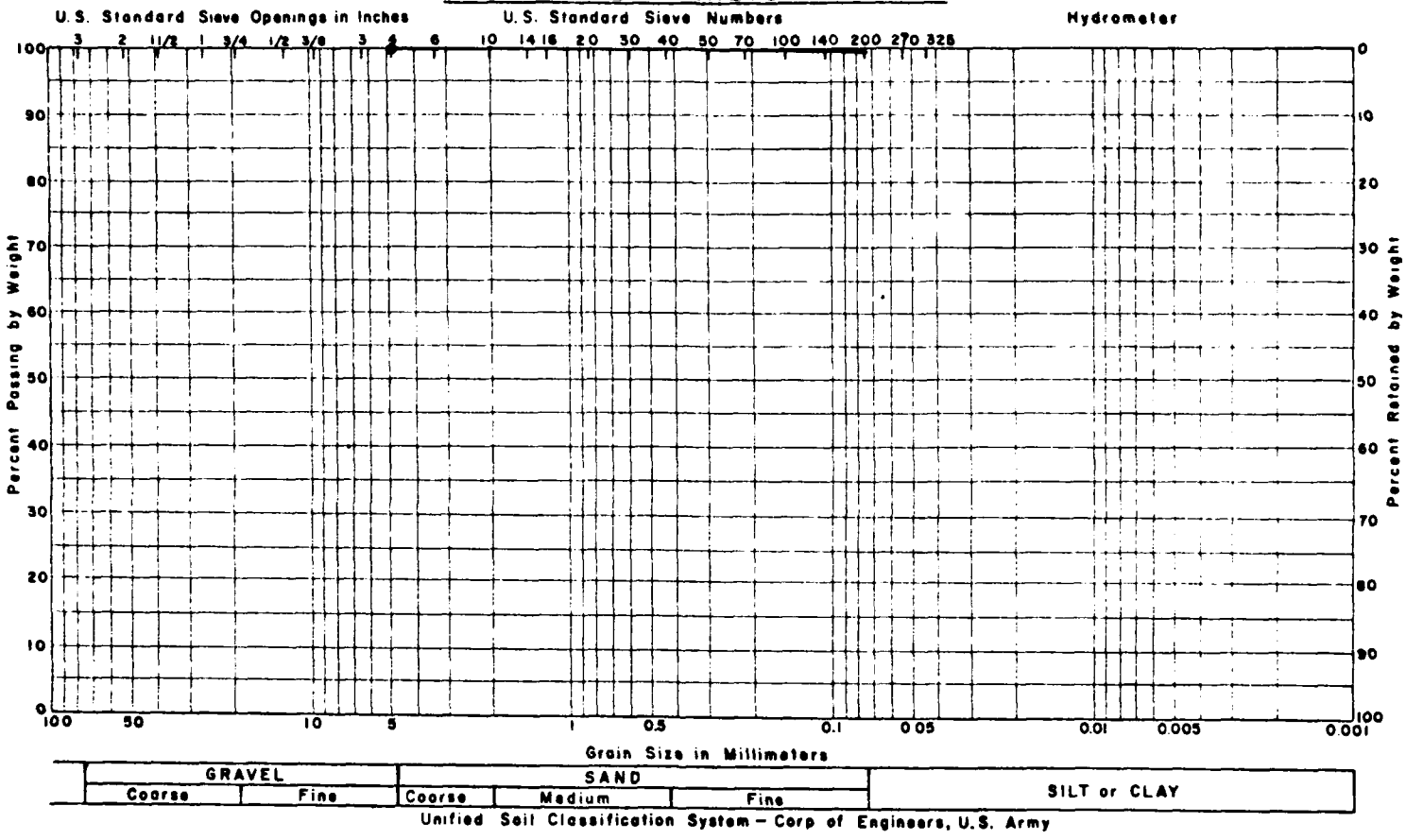
ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

February 28, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Zone 4 on Drawing, E Profile Wall

Sample No: 2

ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

Depth: None

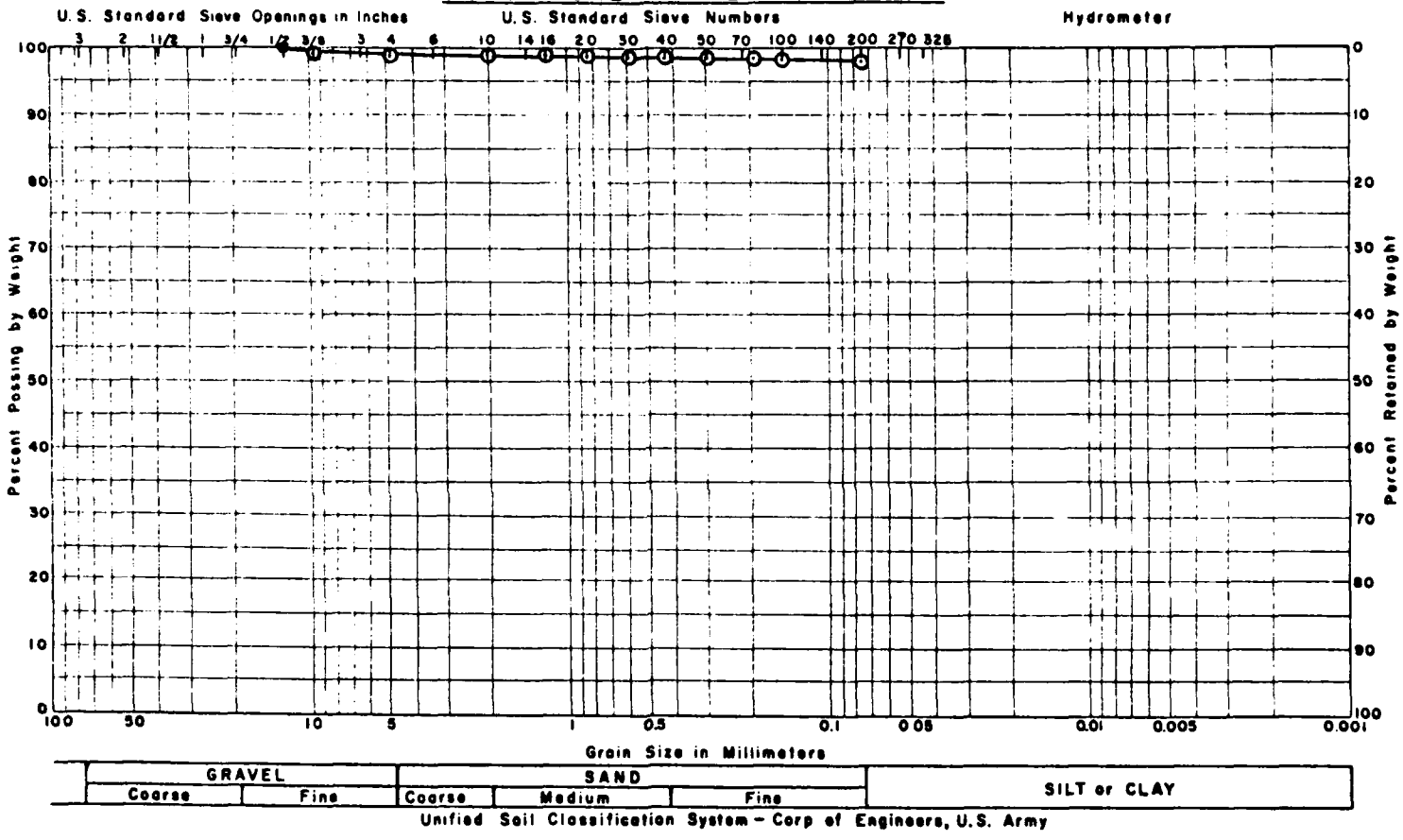
February 28, 1981

99.68% Finer

223 g Sample

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level CC

Sample No: 3

ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

Depth: 25-30 cm Below Upper Stake

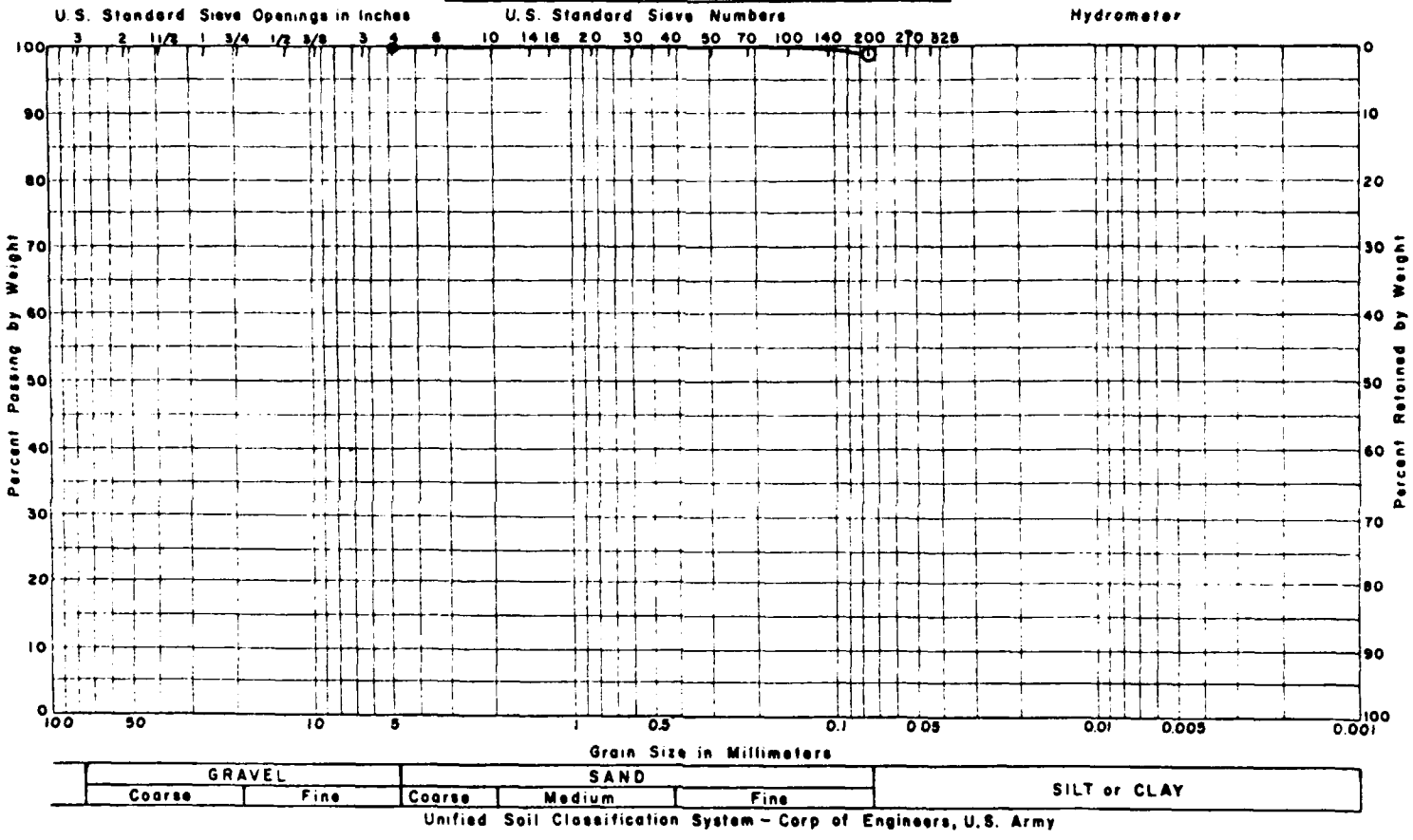
February 28, 1981

98.25% Finer

247 g Sample

SOIL MECHANICS INCORPORATED

MECHANICAL - ANALYSIS CHART



Unified Soil Classification System - Corp of Engineers, U.S. Army

Provenience: Level CC

Sample No: 4

Depth: 25-30 cm Below Upper Stake

99.27% Finer

263 g Sample

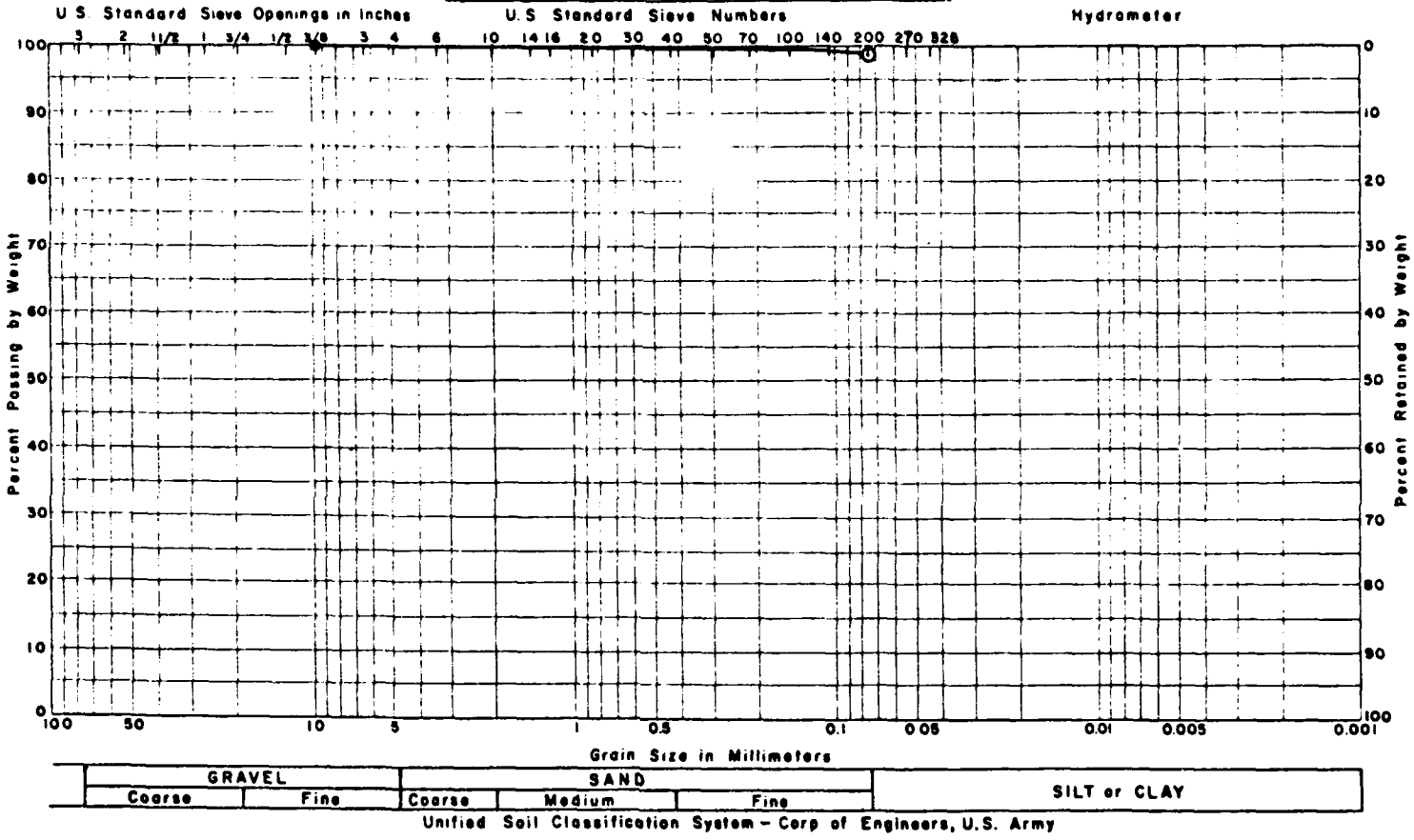
ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

February 28, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level DD

Sample No: 5

ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

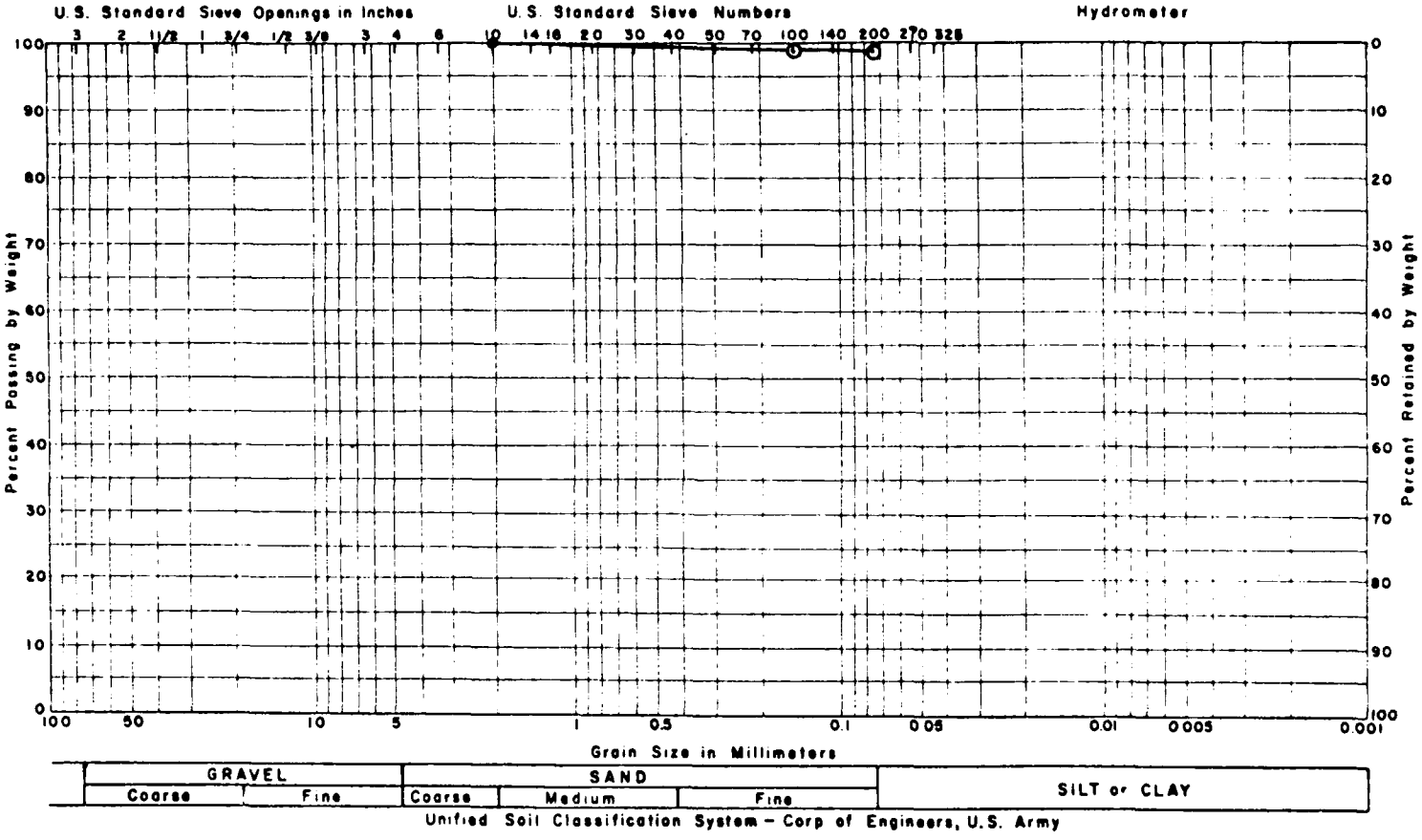
Depth: 30-35 cm Below Upper Stake

February 28, 1981

98.95% Finer
248 g Sample

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level DD

Sample No: 6

ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

Depth: 30-35 cm Below Upper Stake

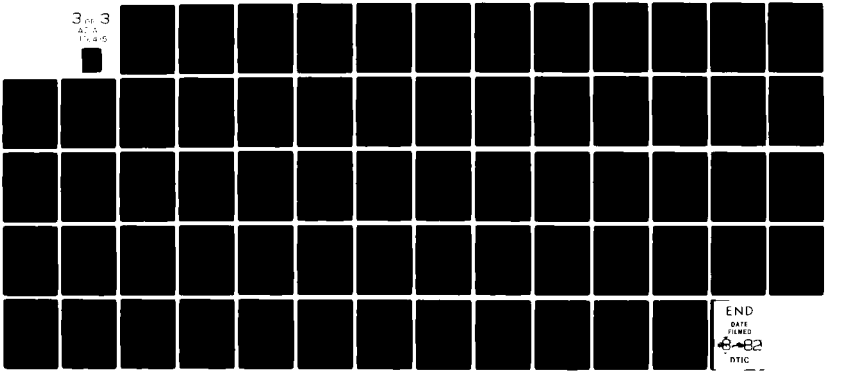
February 28, 1981

98.75% Finer

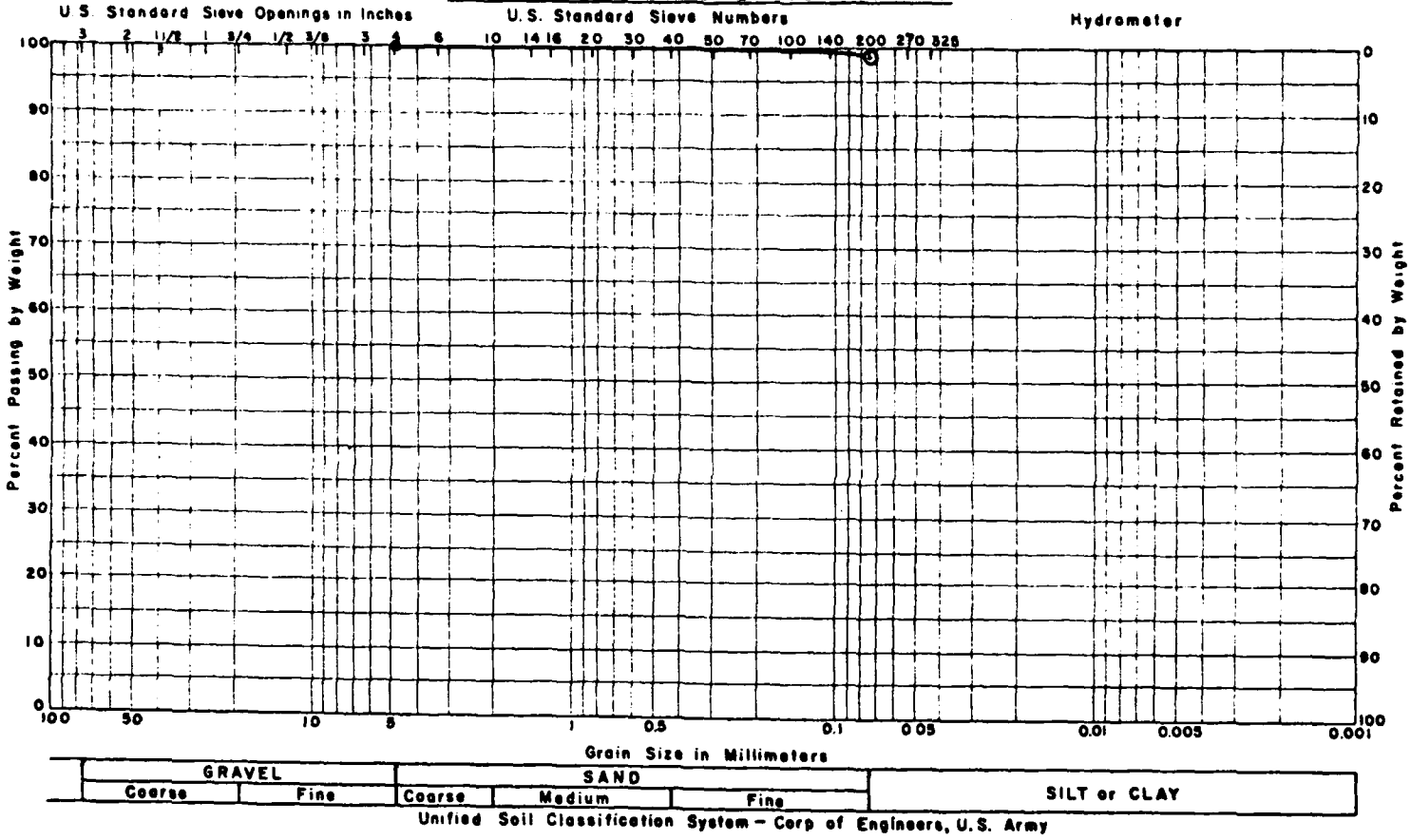
264 g Sample

SOIL MECHANICS INCORPORATED

AD-A116 415 TEXAS A AND M UNIV COLLEGE STATION CULTURAL RESOURCES LAB F/G 5/6
ARCHEOLOGICAL AND PALYNOLOGICAL ANALYSIS OF SPECIMENS AND MATER--ETC(U)
JAN 82 V M BRYANT, D L CARLSON, C ASSAD DACW29-81-C-0054
UNCLASSIFIED CRL-17 NL



MECHANICAL ANALYSIS CHART



Provenience: Level EE

Sample No: 7

Depth: 35-40 cm

99.15% Finer

284 g Sample

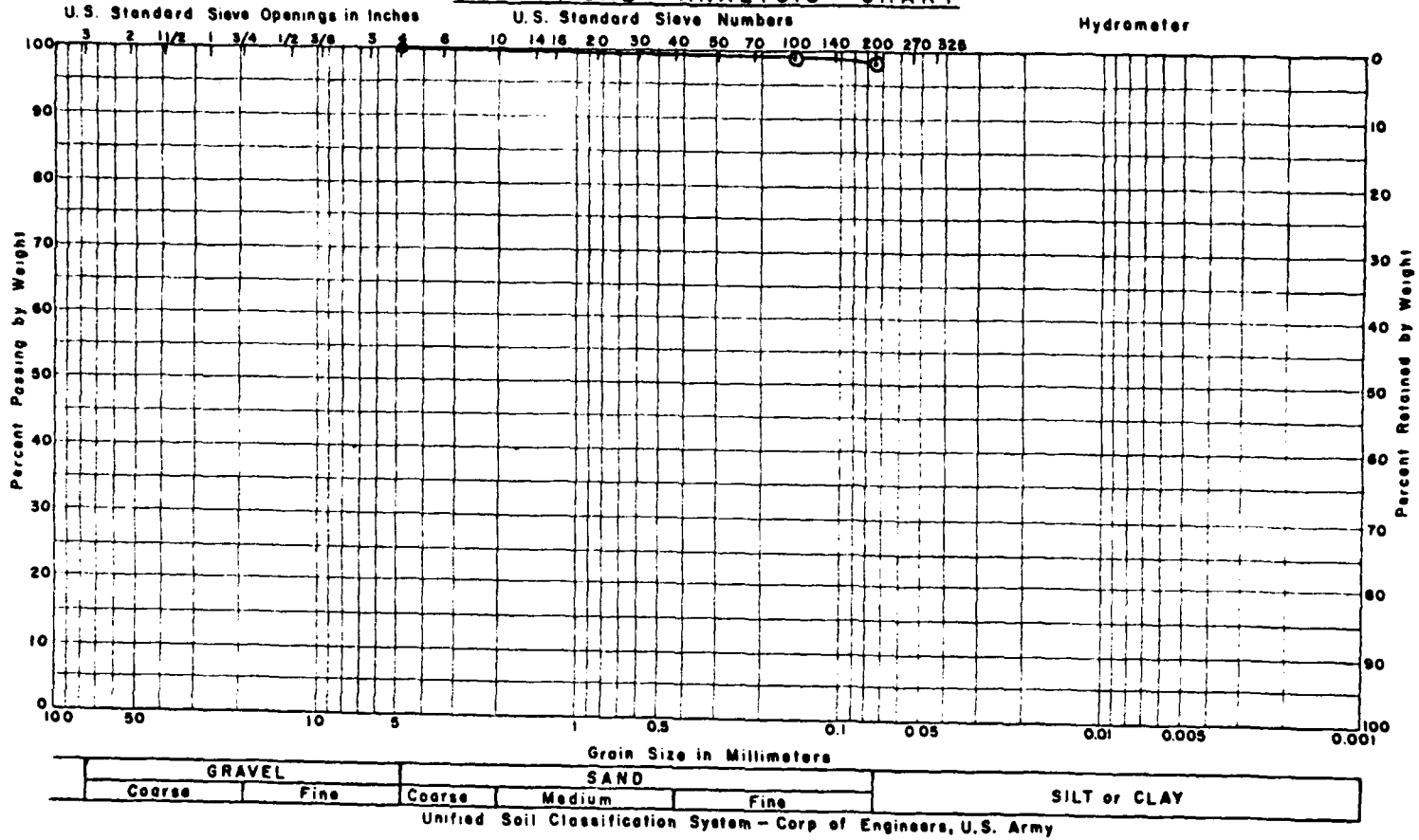
ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

February 28, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level EE - "Soil"

Sample No: 8

Depth: 35-40 cm

98.64% Finer

273 g Sample

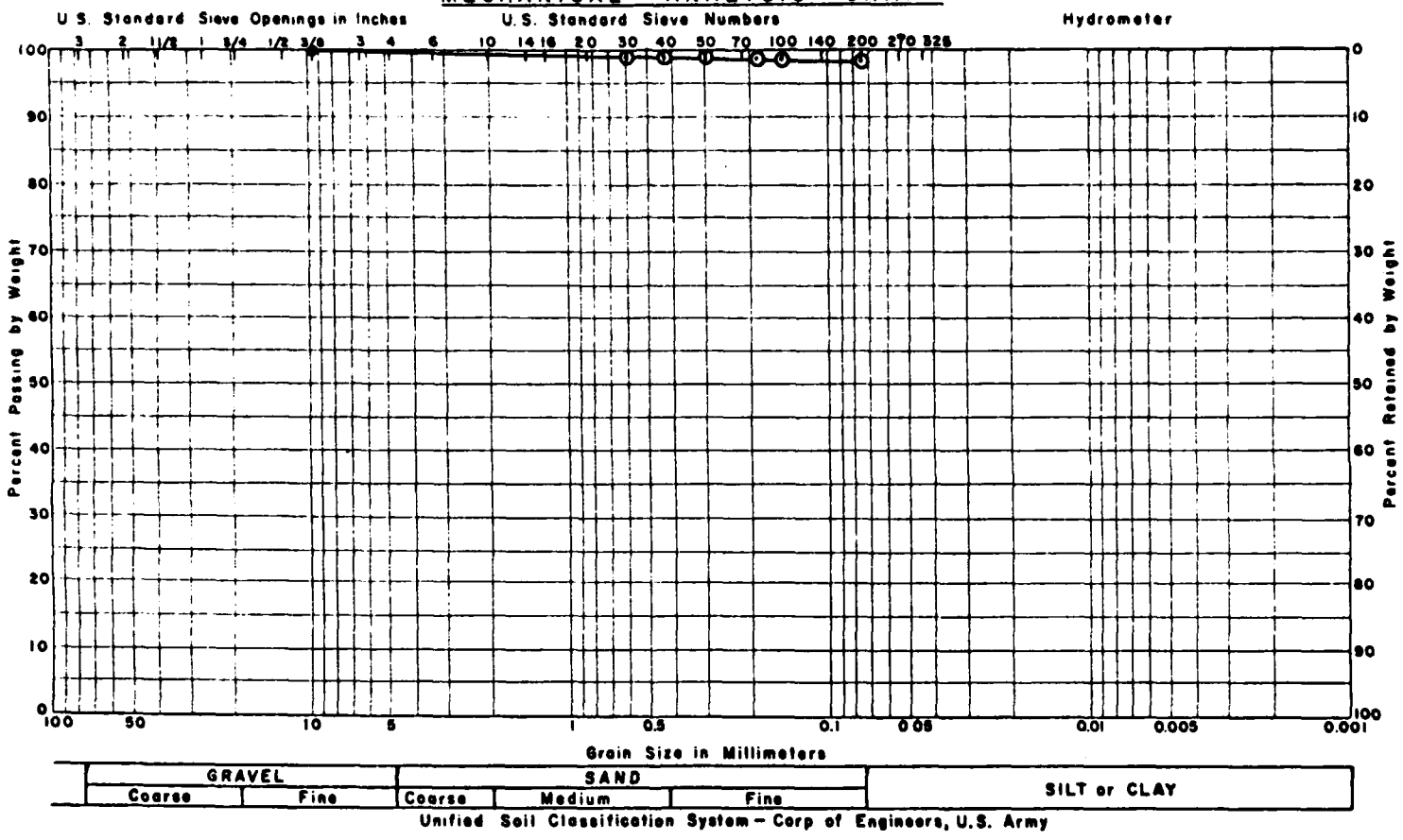
ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

February 28, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Unified Soil Classification System – Corp of Engineers, U.S. Army

Provenience: Level FF

Sample No: 9

Depth: 40-45 cm Matrix

98.79% Finer

258 g Sample

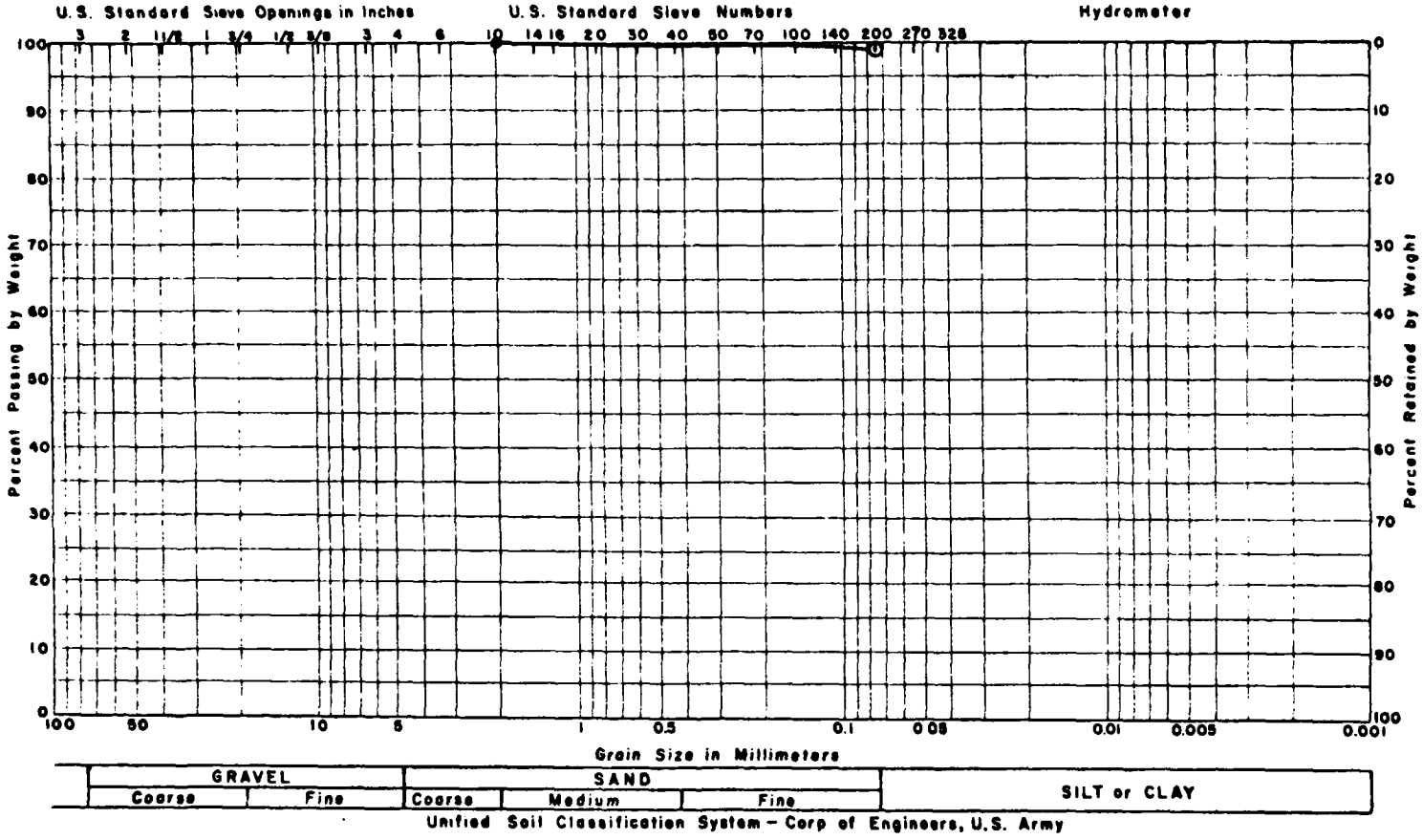
ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

February 28, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level FF

Sample No: 10

ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

Depth: 40-45 cm Matrix

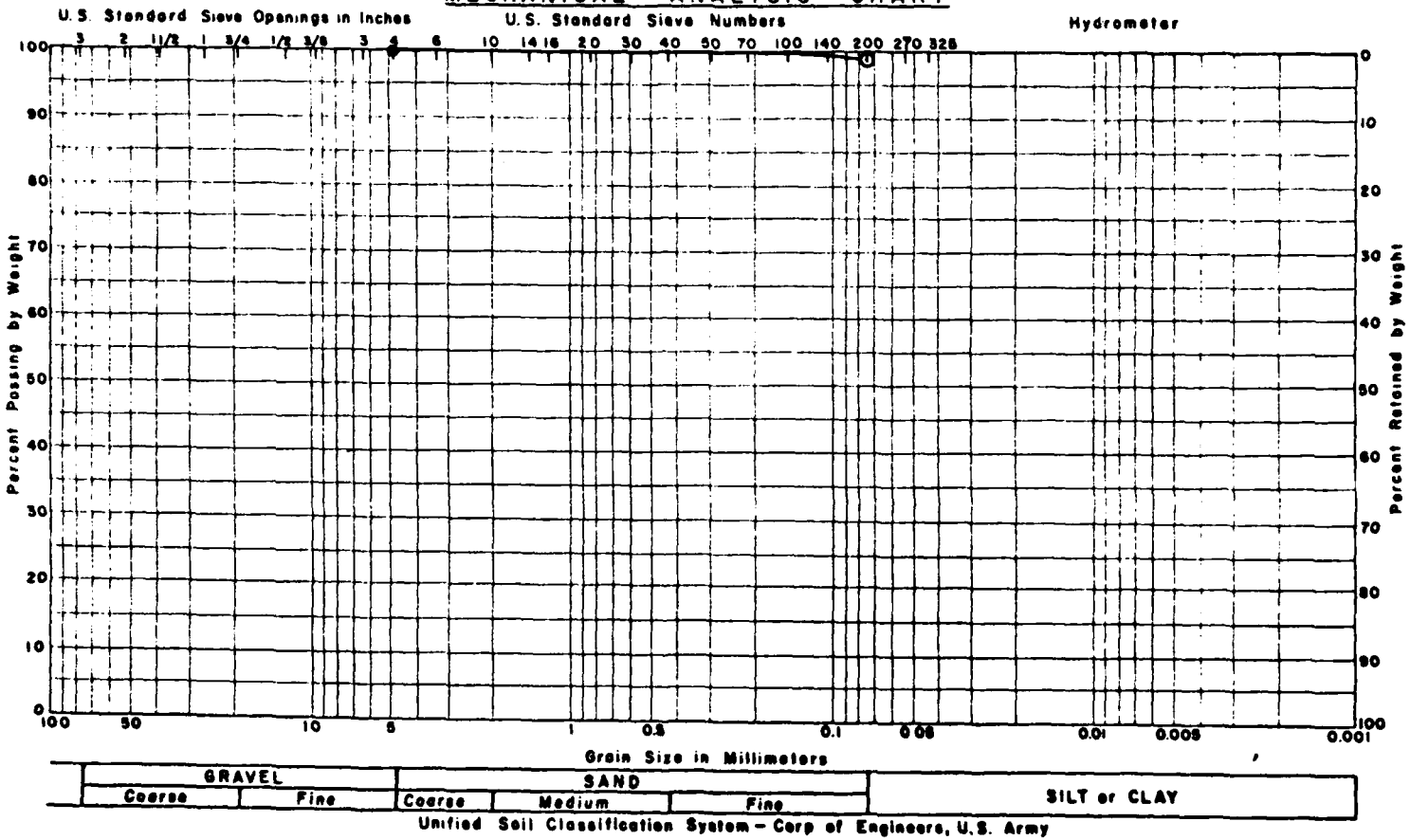
February 28, 1981

99.43% Finer

230 g Sample

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level GG, Matrix
Outer Privy Fill

Sample No: 11

Depth: 45-50 cm

98.97% Finer

234 g Sample

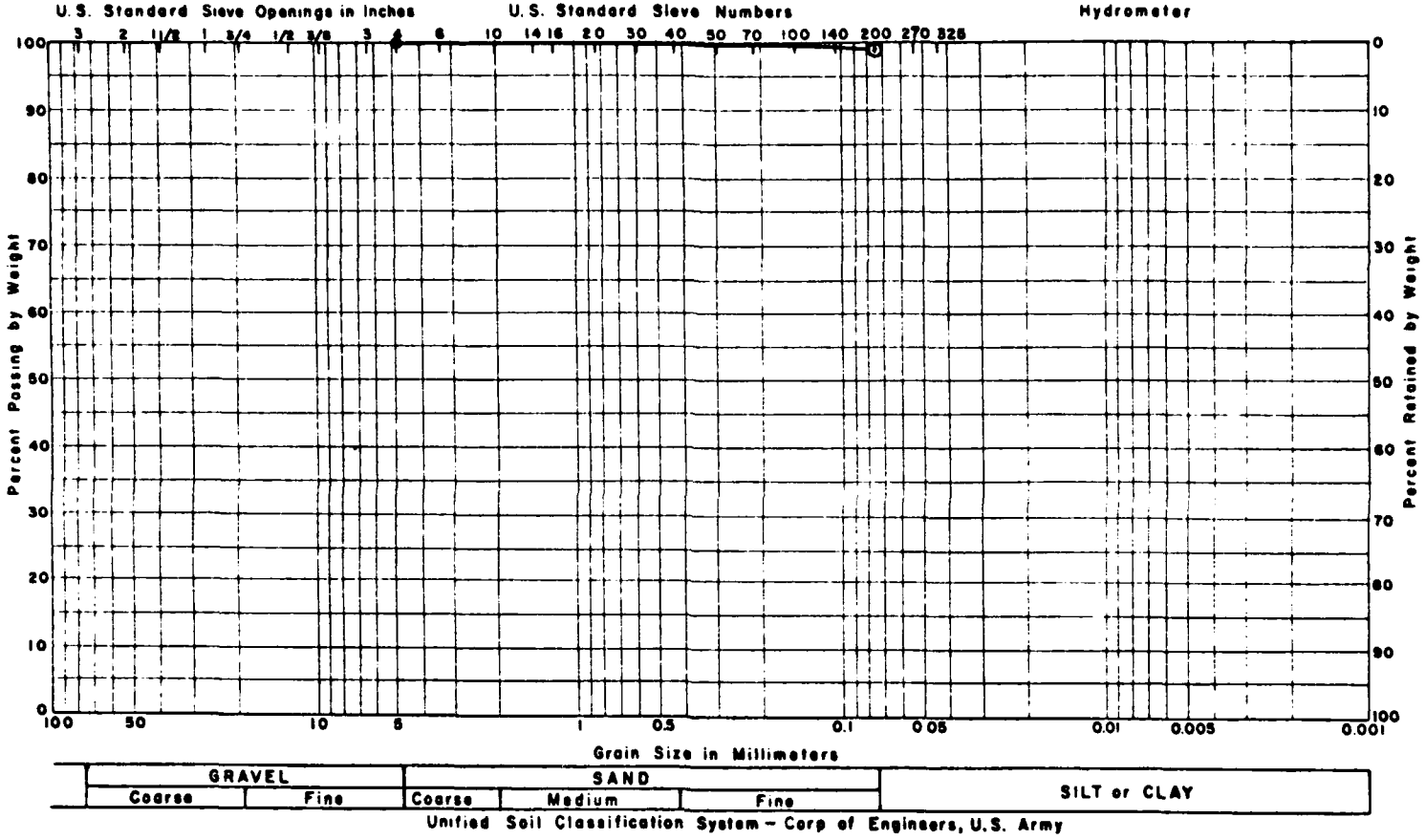
ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

February 28, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level GG, Matrix

Sample No: 12

Depth: 45-50 cm

99.28% Finer

224 g Sample

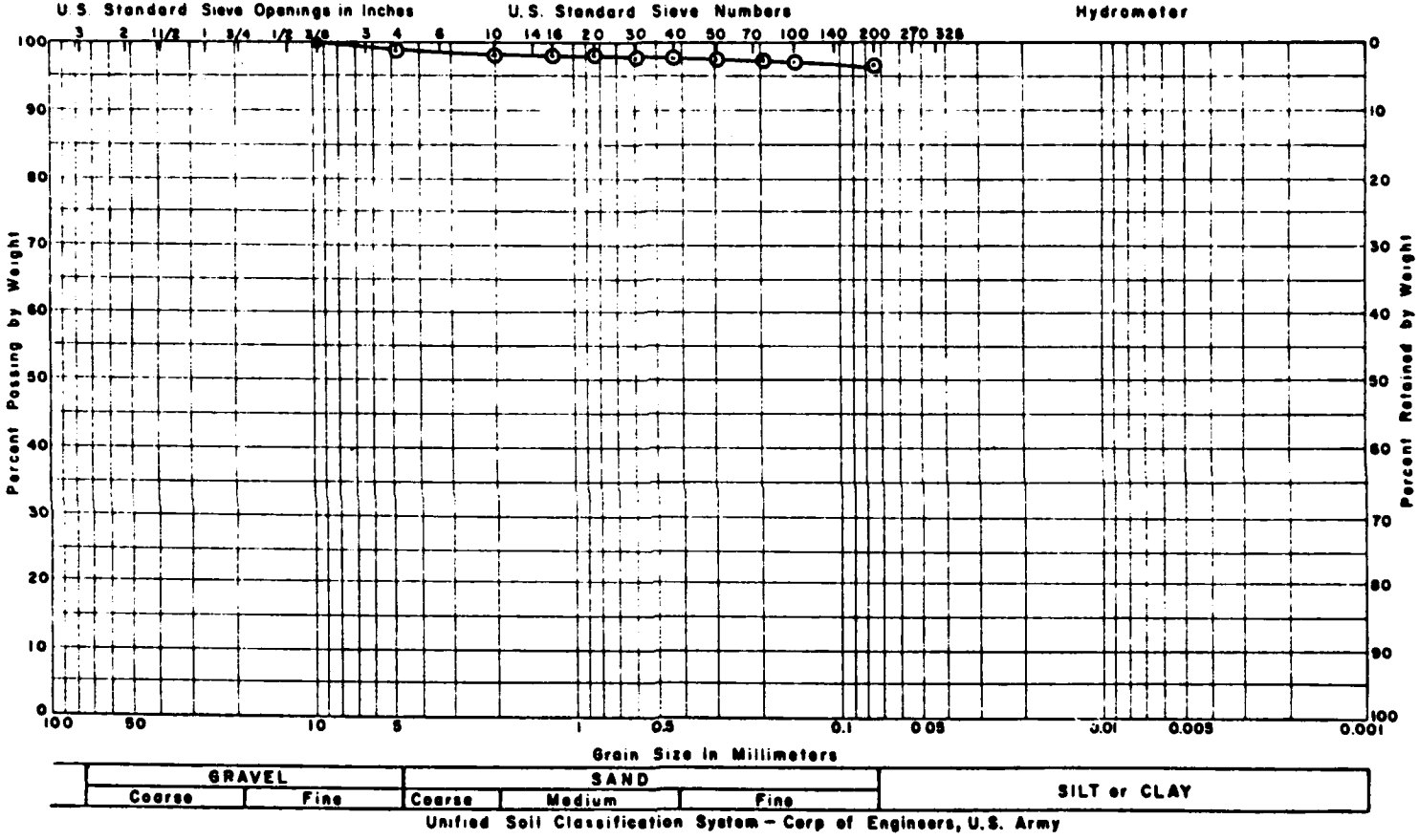
ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

February 28, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level GG, Matrix, Inner Privy Fill

Sample No: 13

Depth: 45-50 cm

96.50% Finer

106 g Sample

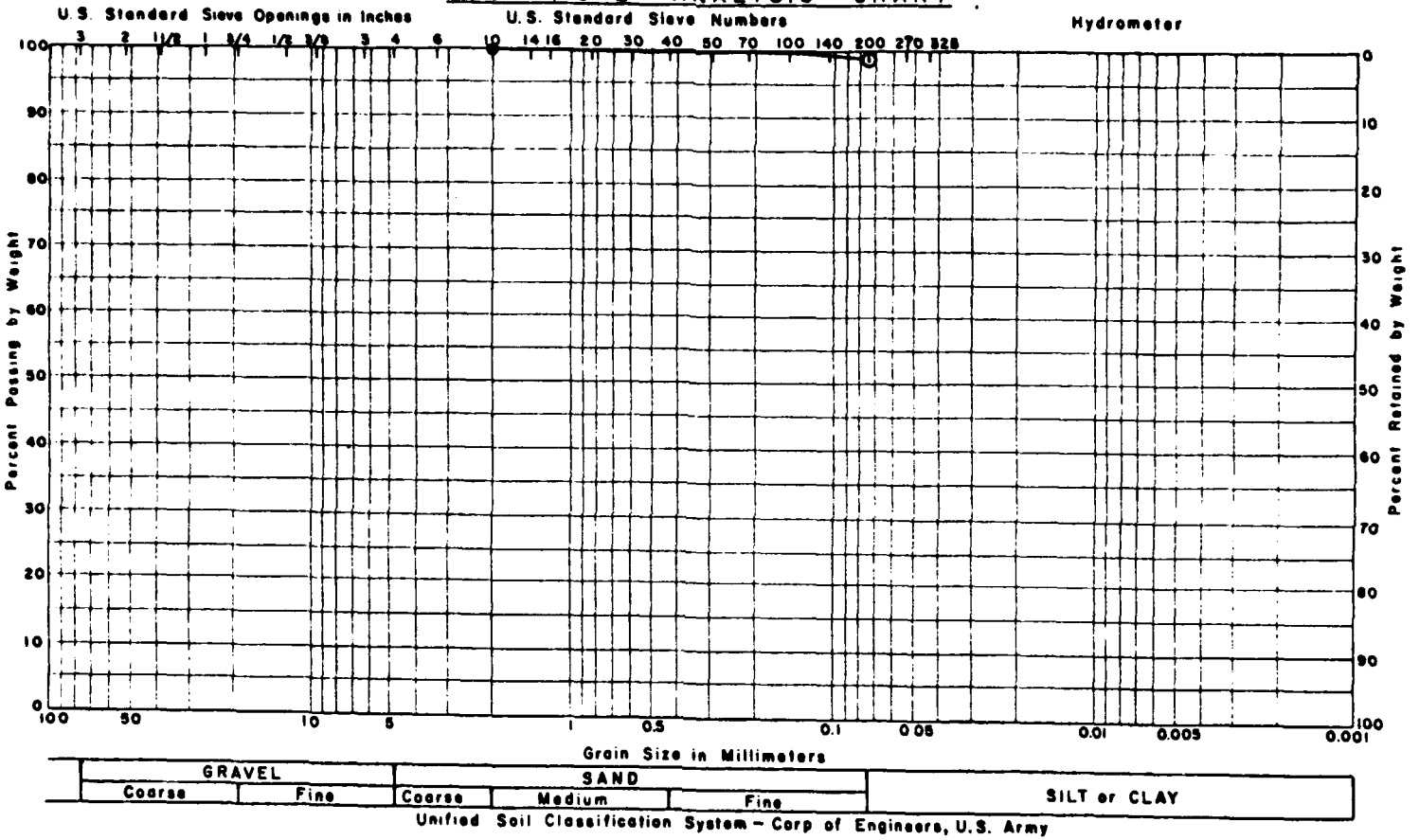
ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

February 28, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level HH, Outer Privy Fill

Sample No: 14

Depth: 50-55 cm

99.36% Finer

237 g Sample

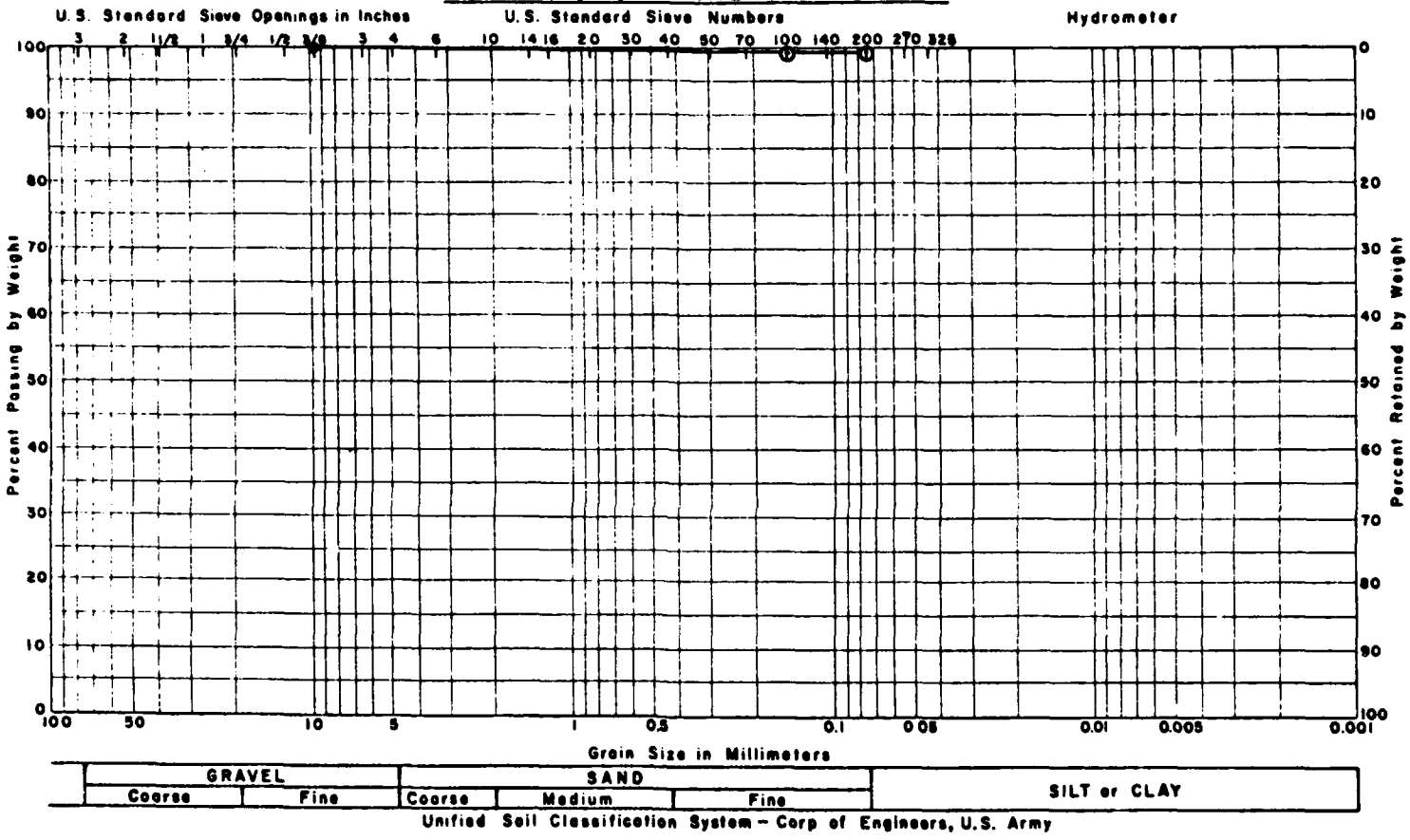
ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

February 28, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level HH, Outer Privy Fill

Sample No: 15

Depth: 50-55 cm

99.50% Finer

220 g Sample

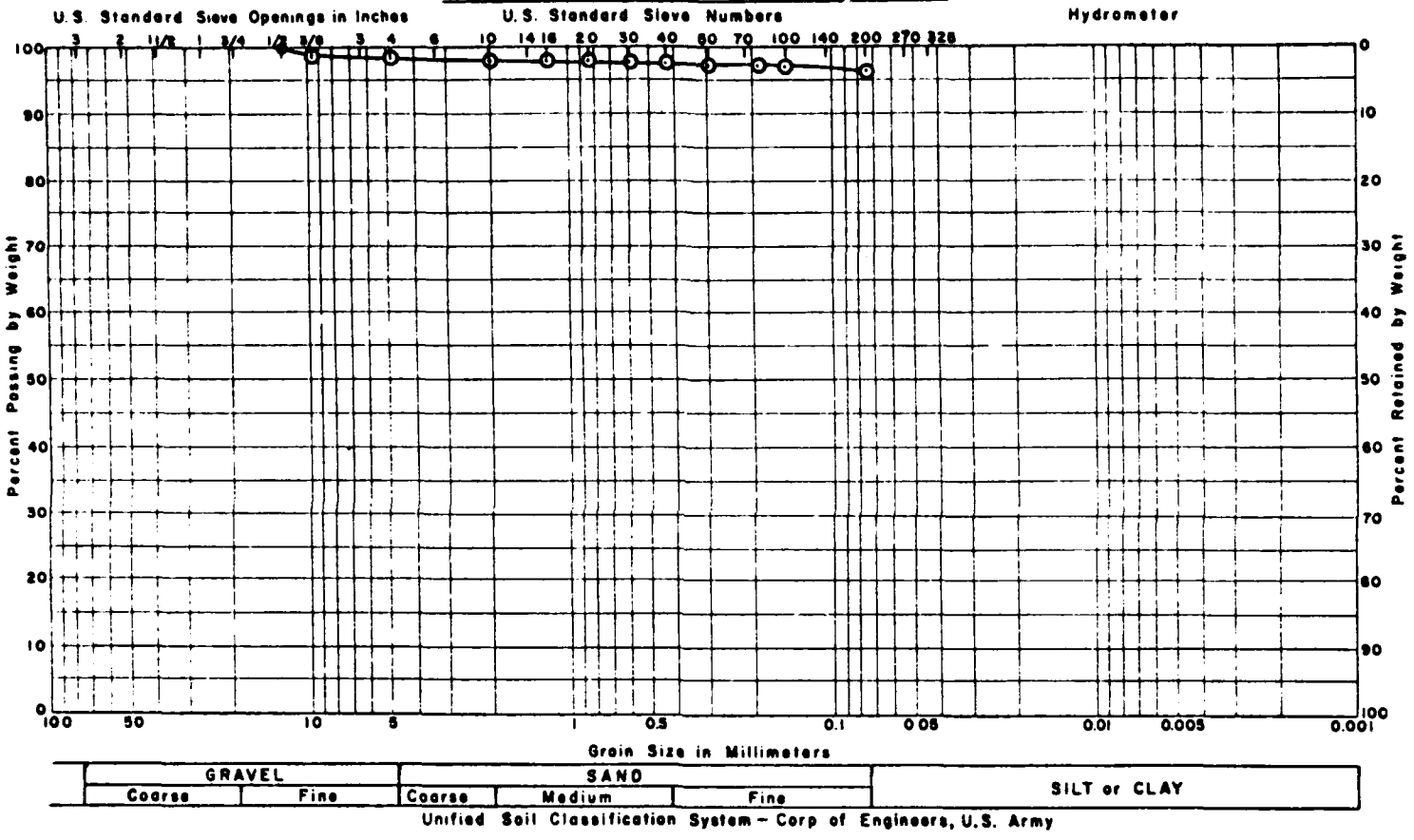
ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

February 28, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Unified Soil Classification System – Corp of Engineers, U.S. Army

Provenience: Level HH, Matrix, Soil Sample

Sample No: 16

ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

Depth: 50-55 cm

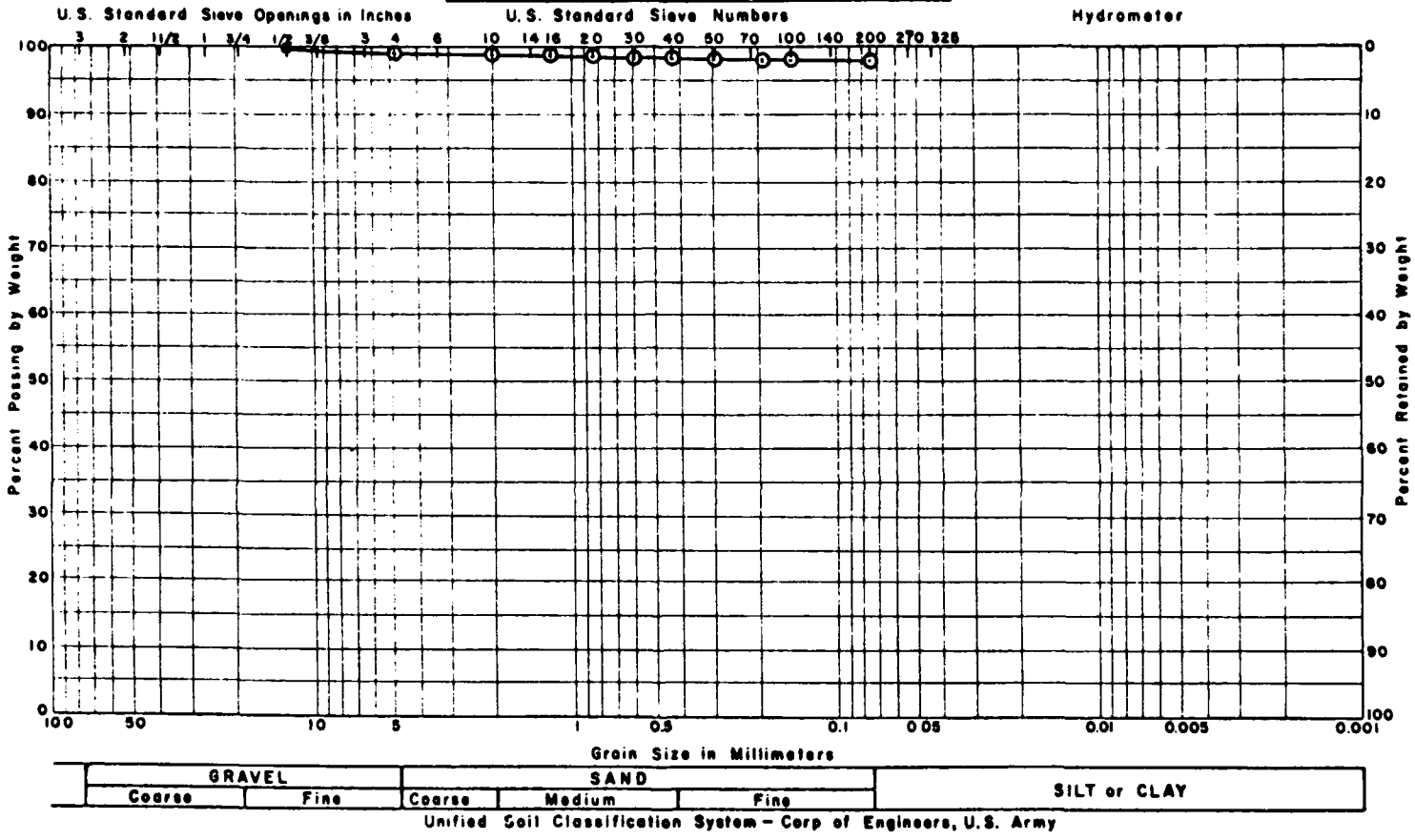
February 28, 1981

96.07% Finer

280 g Sample

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level A (Screen)

Sample No: 17

Depth: 55-60 cm

97.68% Finer

268 g Sample

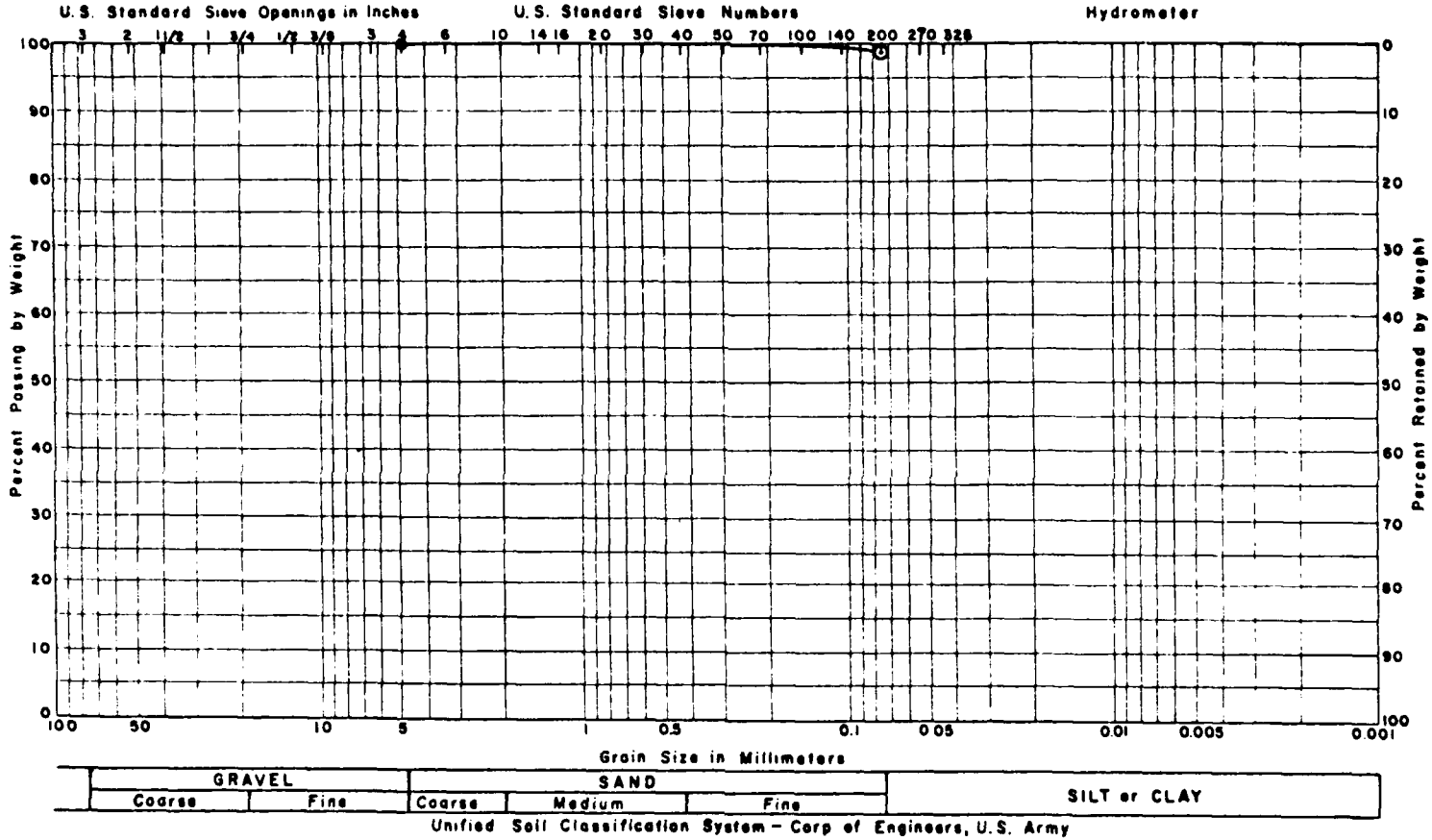
ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

February 28, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level L, Matrix

Sample No: 18

Depth: 110-115 cm

99.17% Finer

217 g Sample

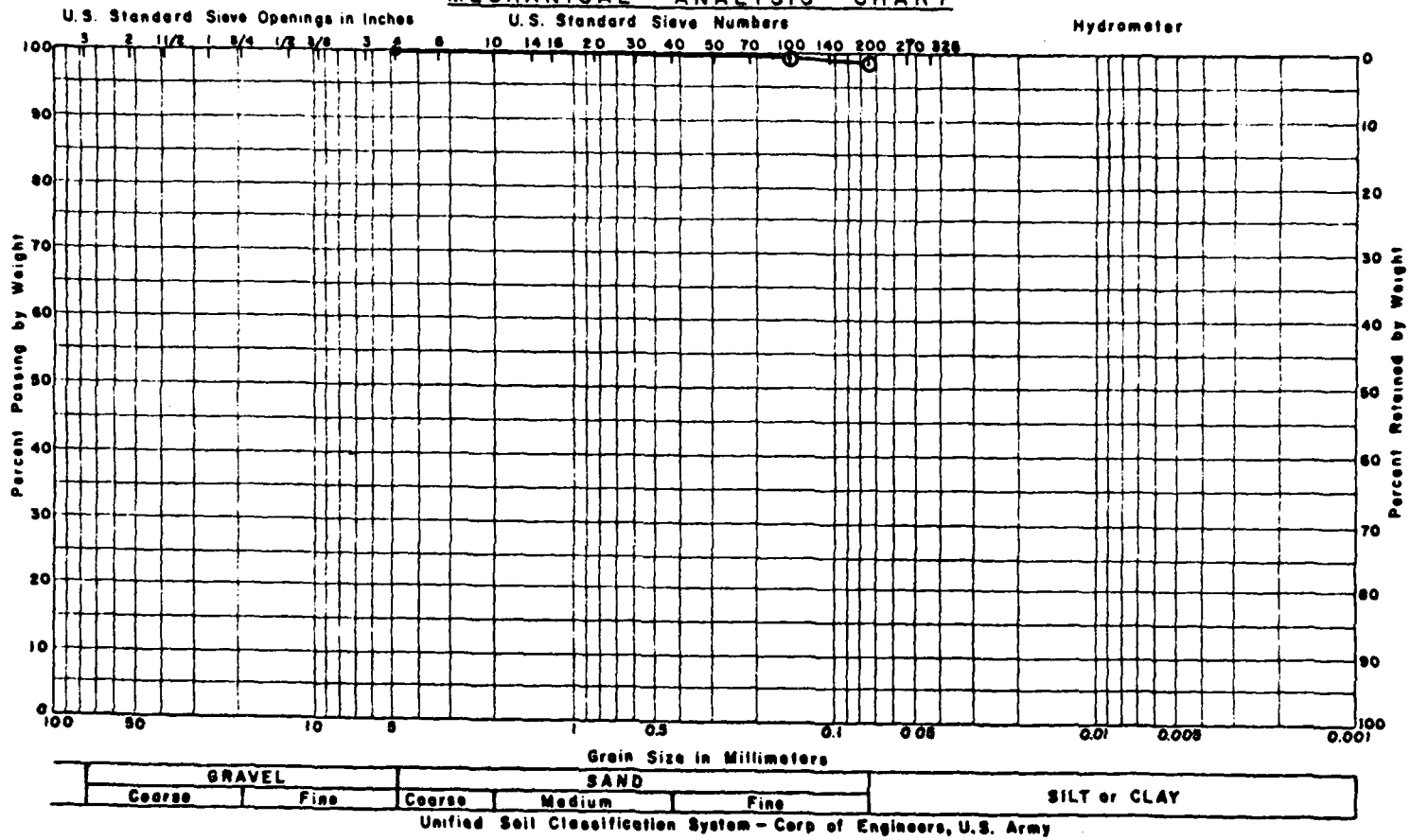
ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

February 28, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level K, Matrix Soil Sample

Sample No: 19

Depth: 140-145 cm

98.79% Finer

273 g Sample

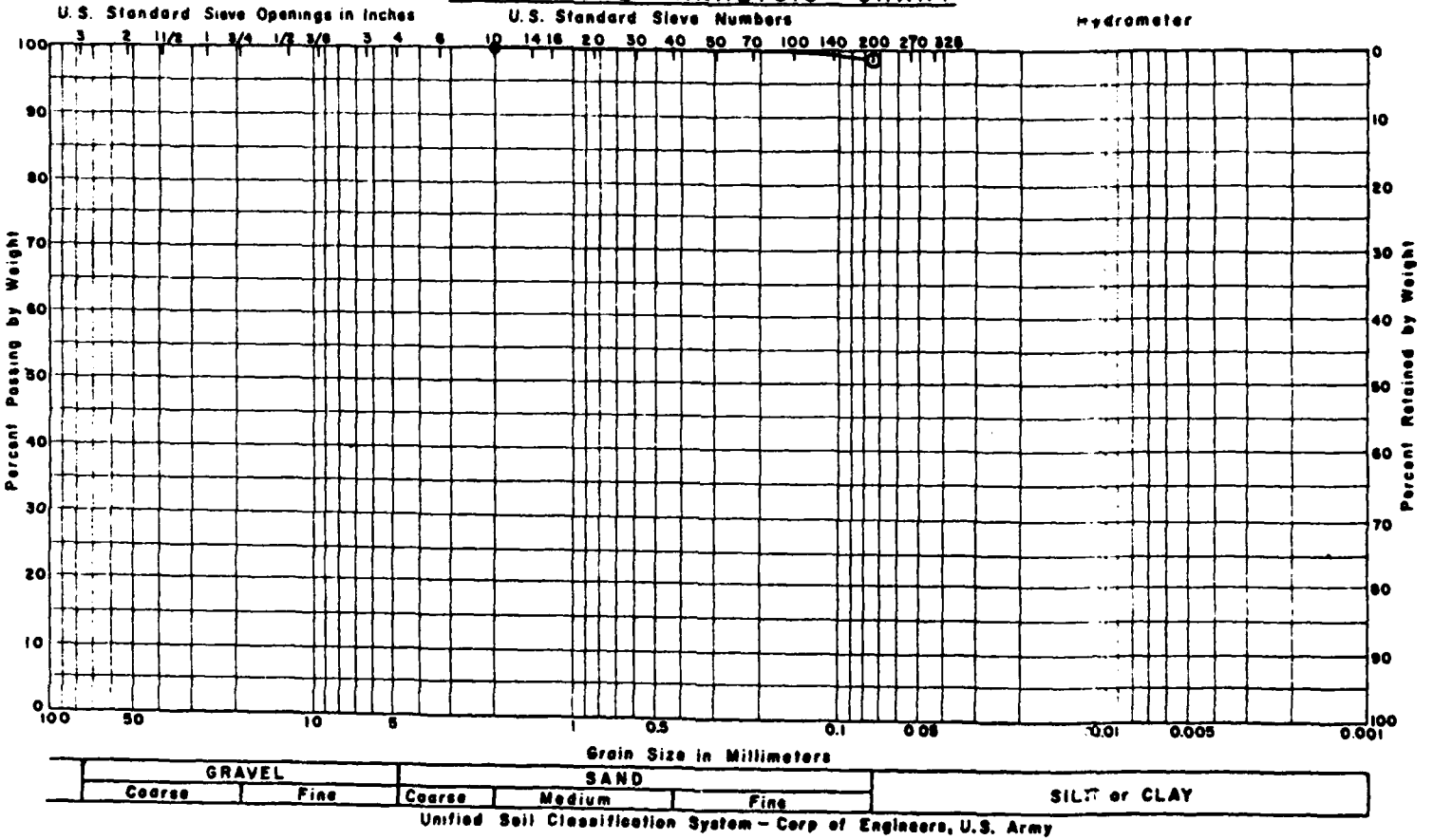
ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

February 28, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level V, Matrix Sample

Sample No: 20

Depth: 160-165 cm

98.76% Finer

250 g Sample

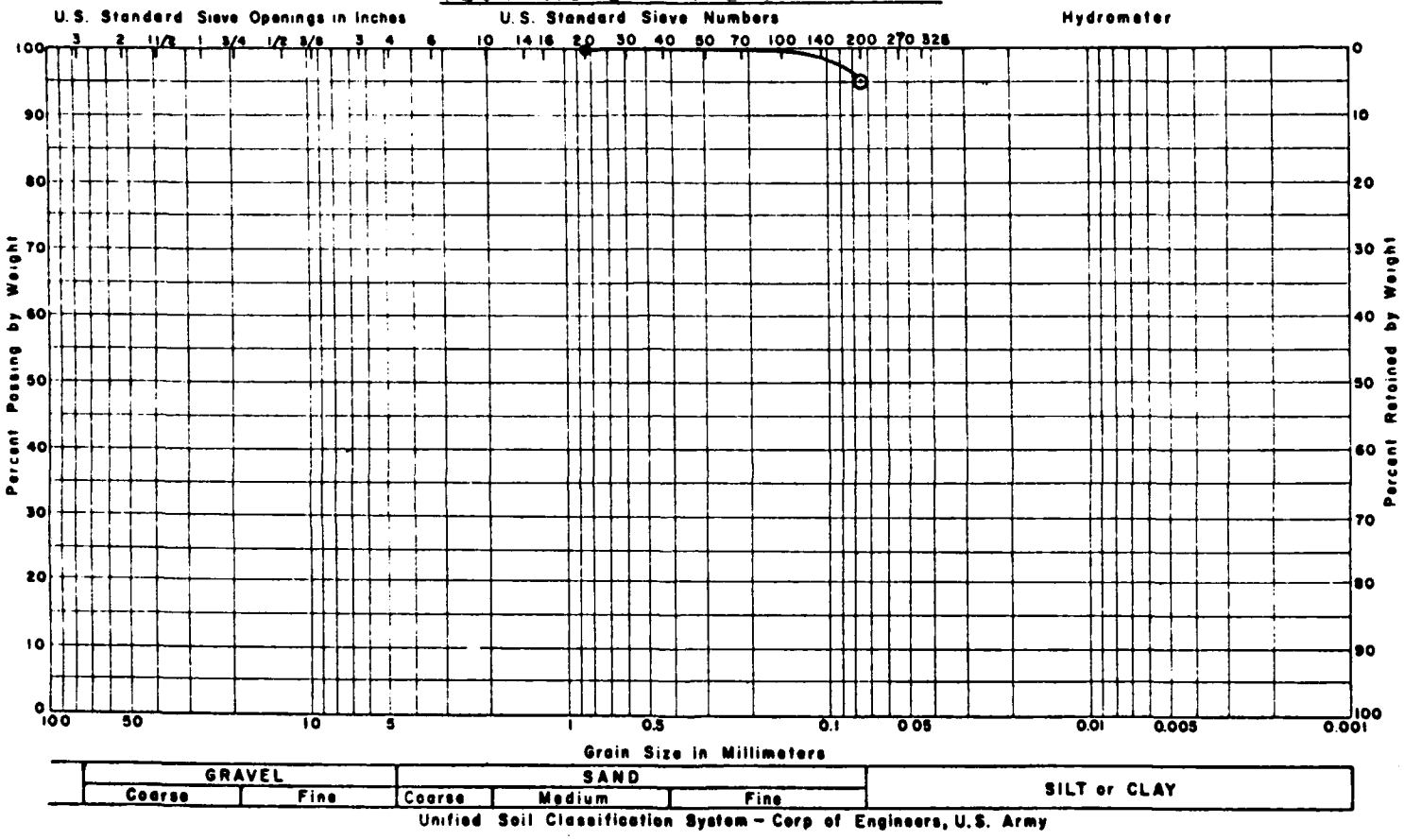
ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

February 28, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Unified Soil Classification System – Corp of Engineers, U.S. Army

Provenience: Level Y, Matrix Sample

Sample No: 21

Depth: 175-180 cm

95.20% Finer

286 g Sample

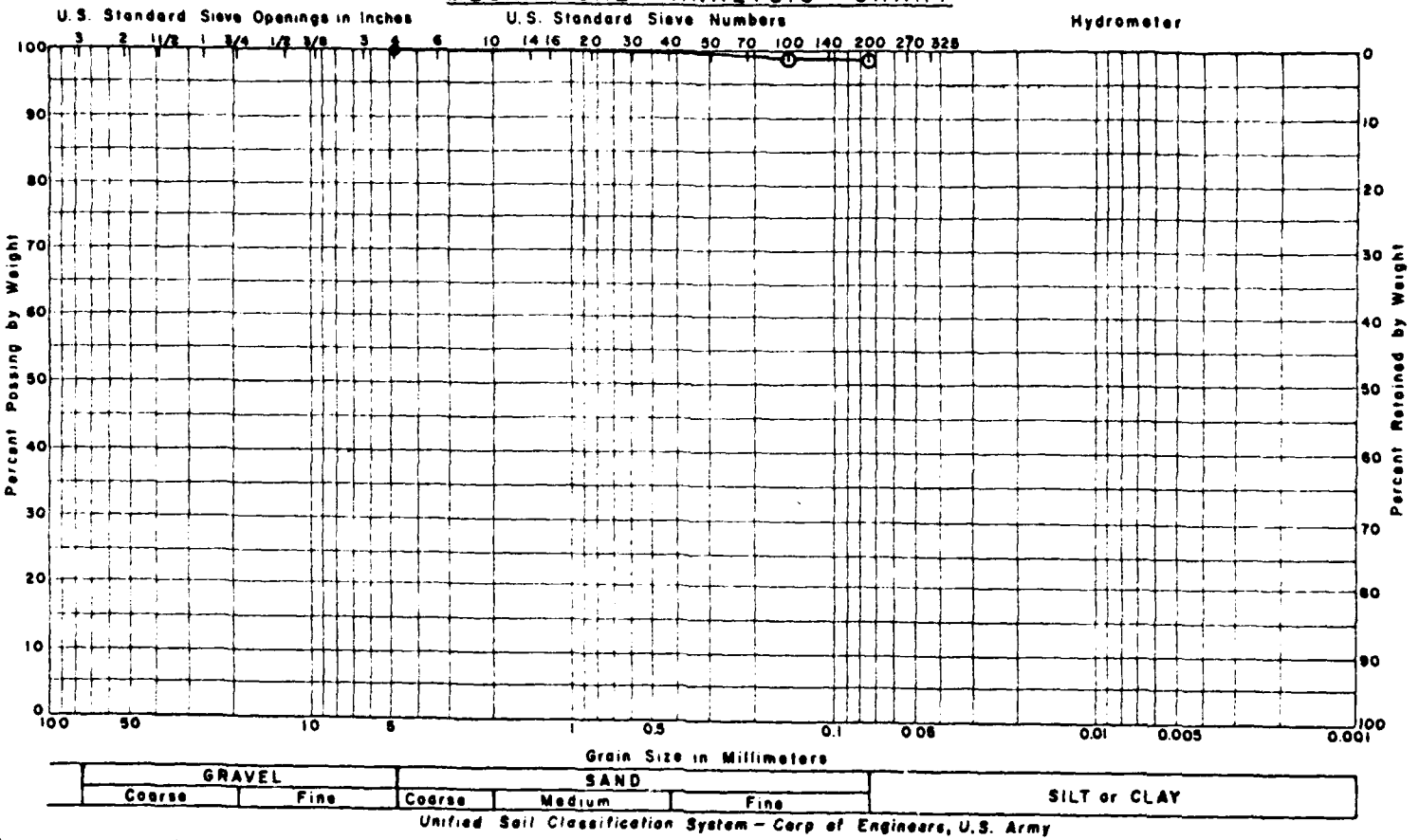
ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

February 28, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level BB

Sample No: 69

Depth: 20-25 cm

98.84% Finer

250 g Sample

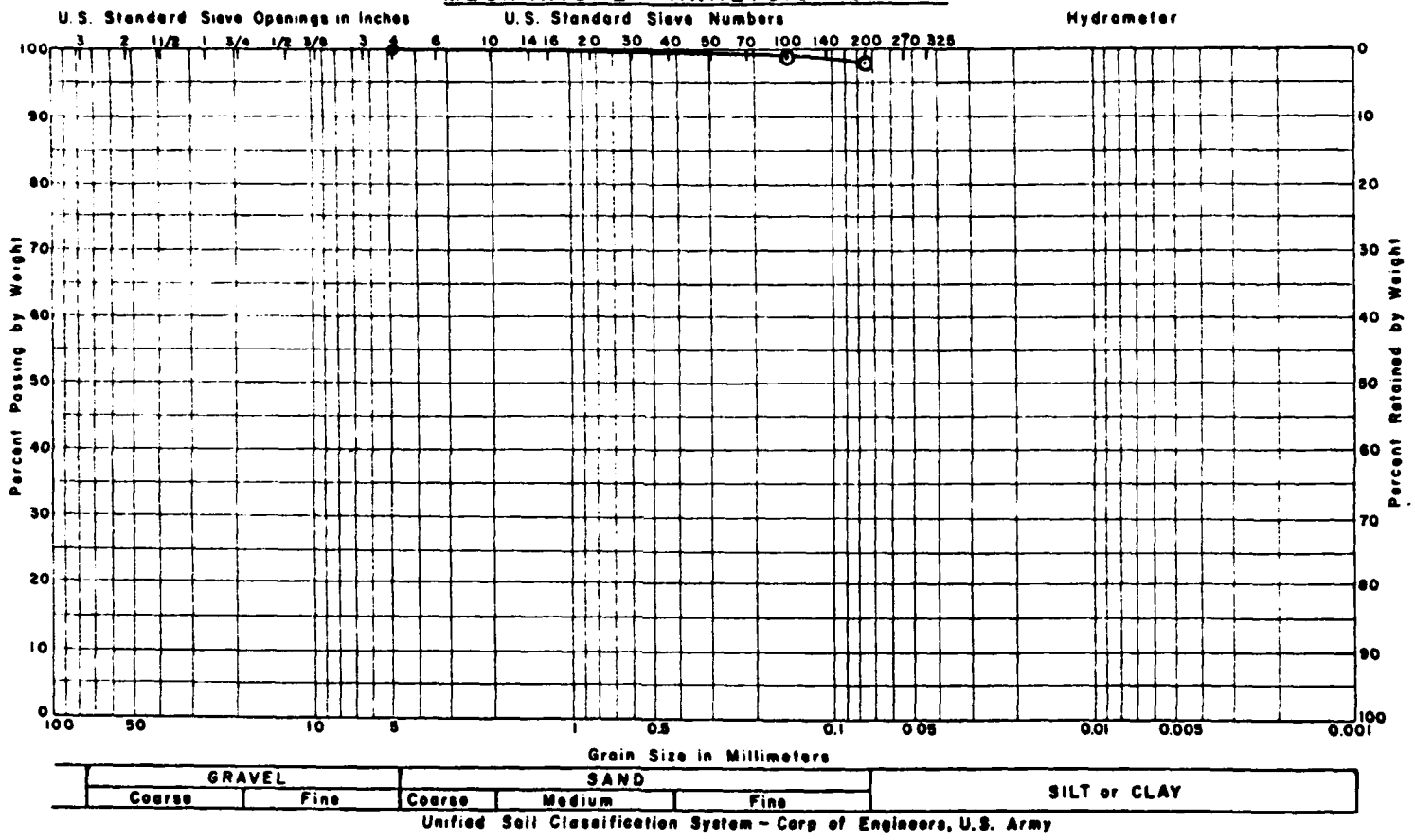
ST. ALICE F TRENCH PRIVY

SMI Job No. 281-054

February 28, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Natural Level 1, Cultural Zone

Sample No: 22

Depth: None

97.99% Finer

259 g Sample

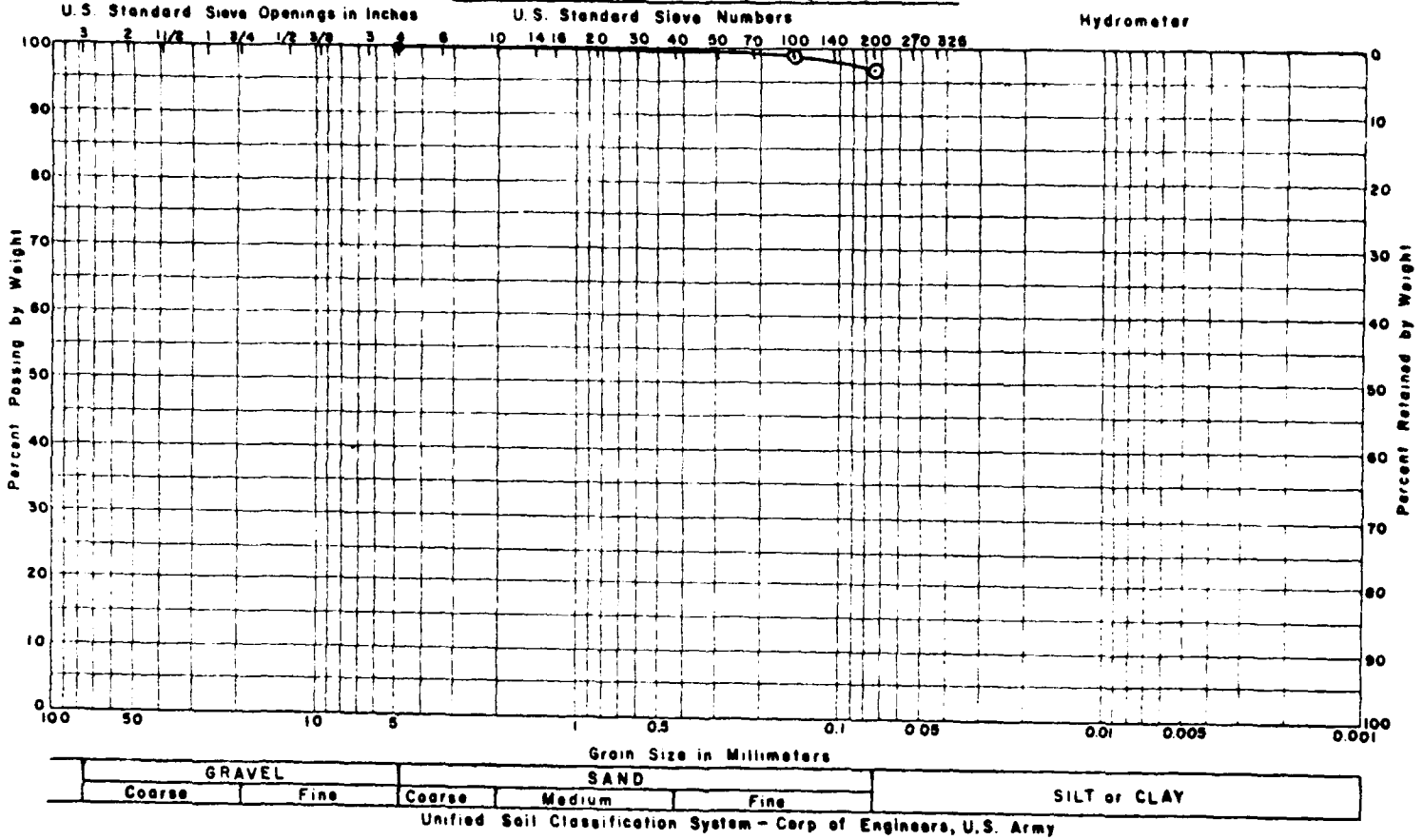
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Zone 2A, Below C2
Uppermost Privy Fill

Sample No: 23

Depth: None

97.19% Finer

214 g Sample

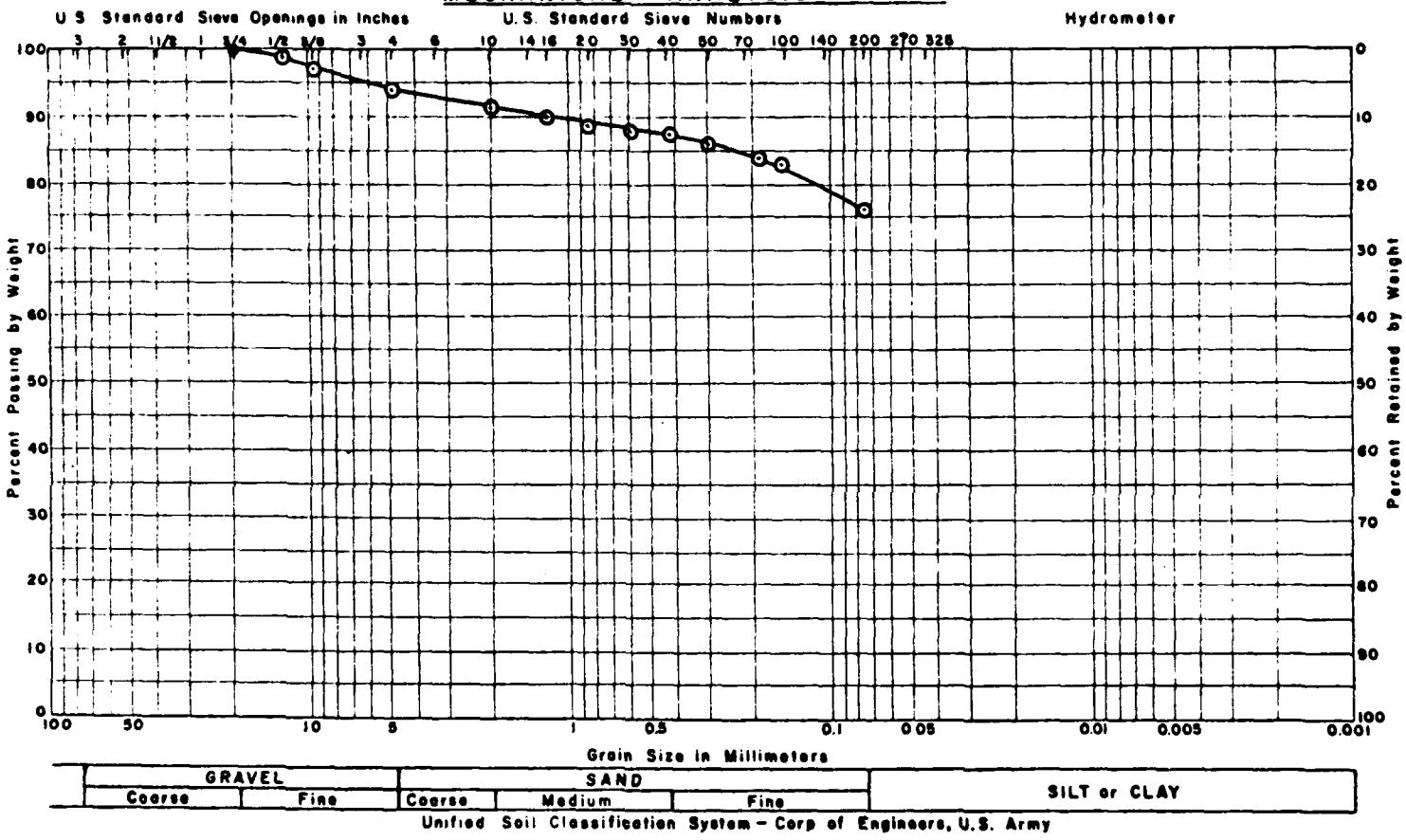
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Unified Soil Classification System – Corp of Engineers, U.S. Army

Provenience: Zone 3

Sample No: 24

Depth: None

76.03% Finer

247 g Sample

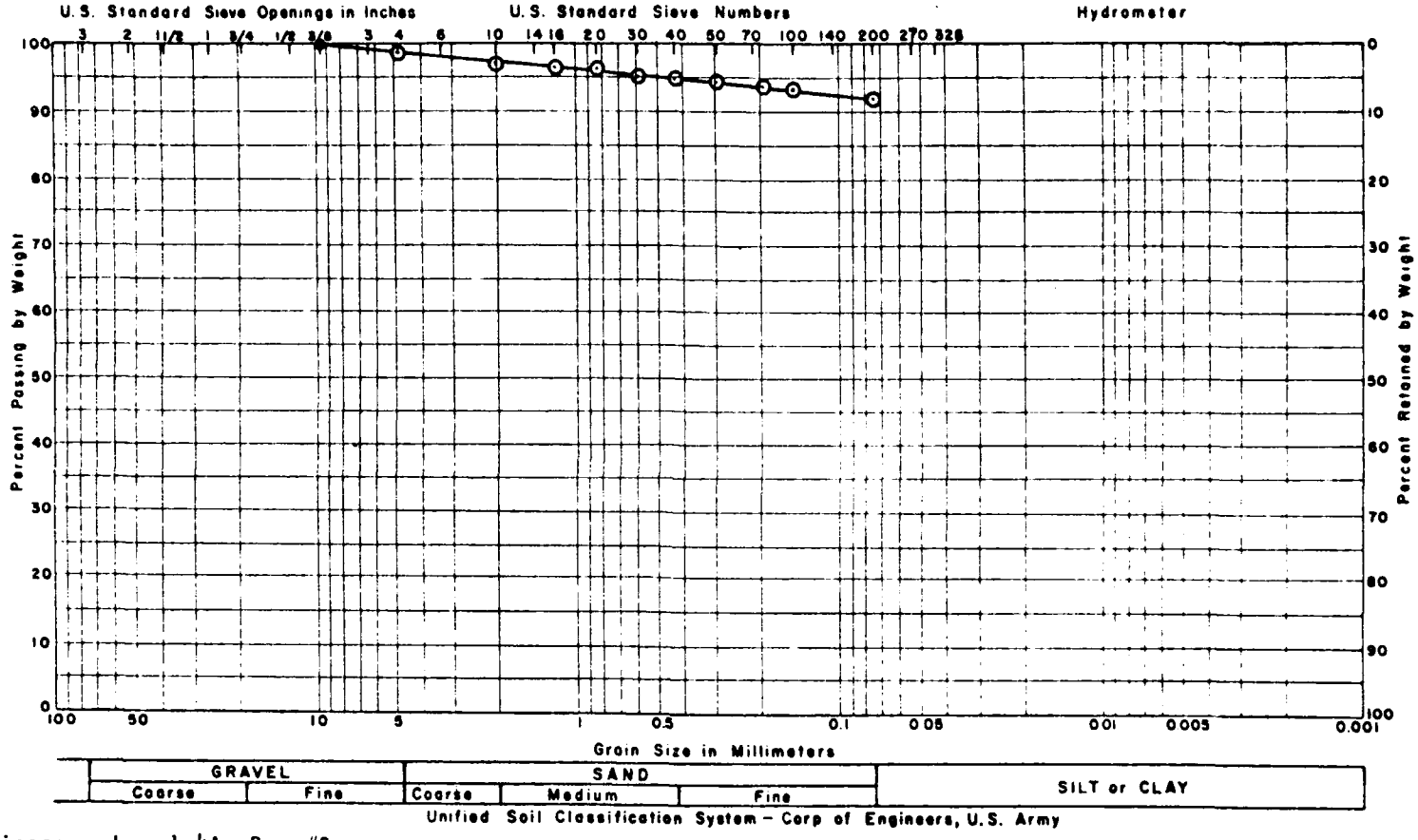
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level 4A, Bag #2

Sample No: 25

Depth: None

92.00% Finer

270 g Sample

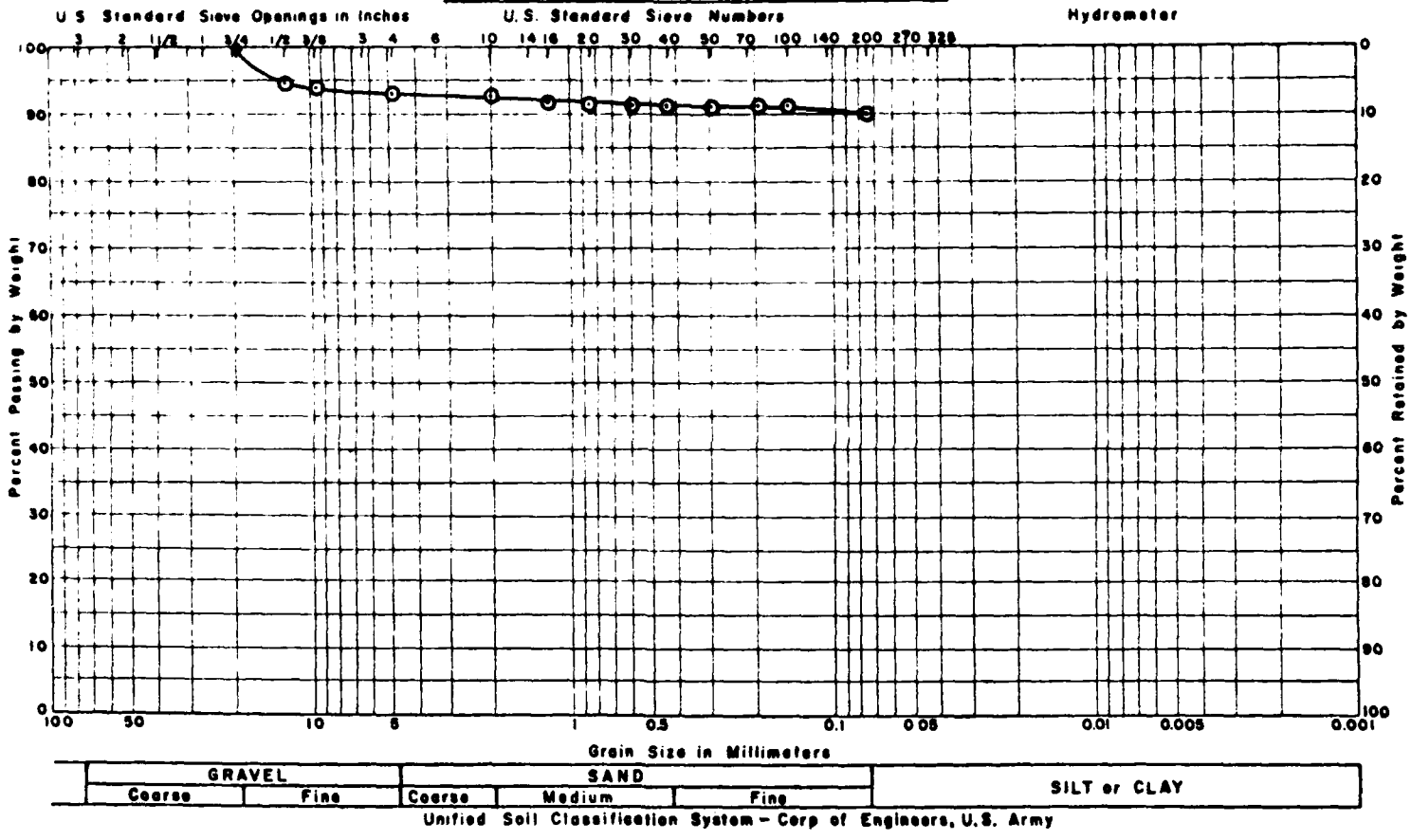
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Unified Soil Classification System – Corp of Engineers, U.S. Army

Provenience: Level 4A, Also Bag #2

Sample No: 26

Depth: 25-30 cm

90.30% Finer

259 g Sample

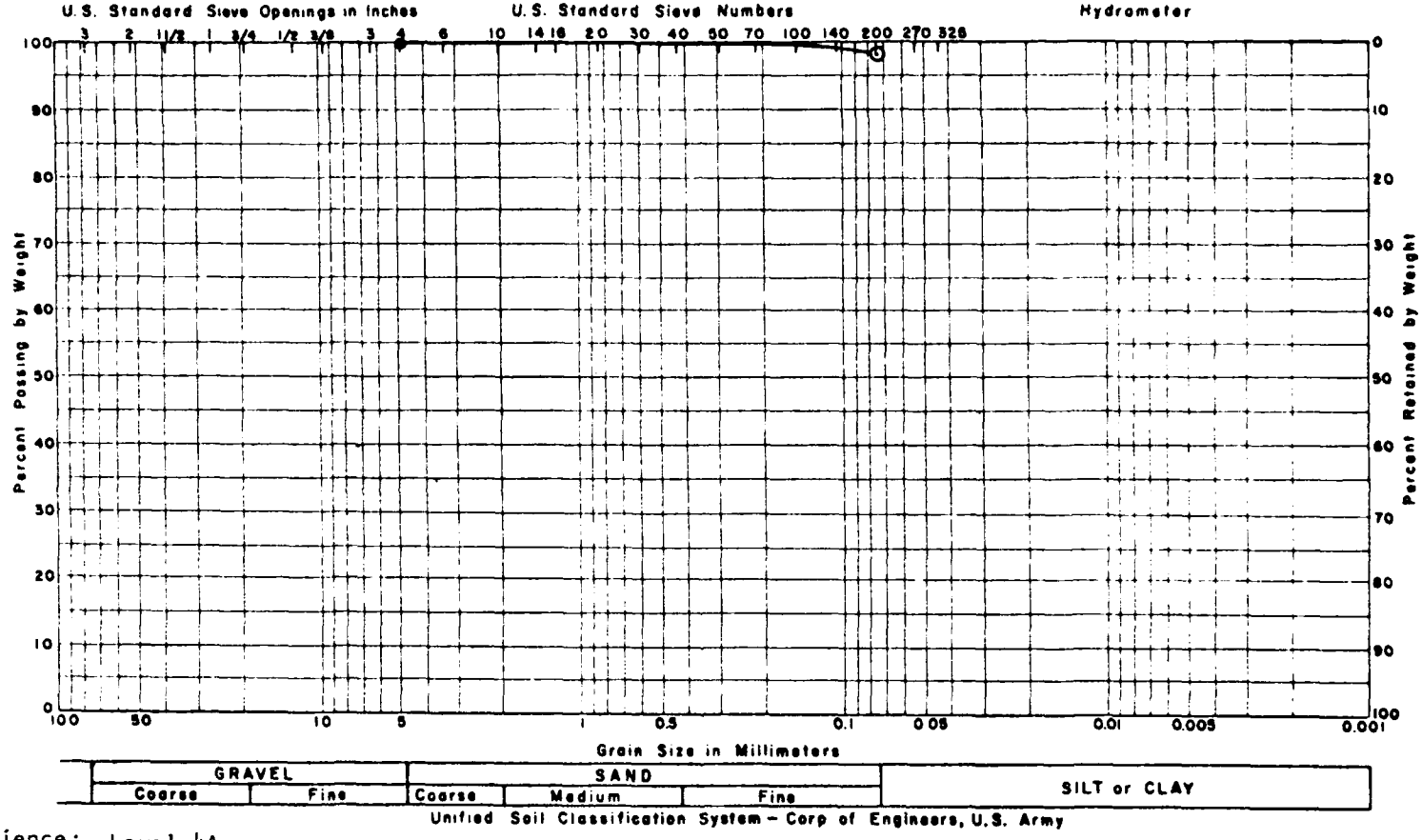
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level 4A

Sample No: 27

Depth: None

98.62% Finer

270 g Sample

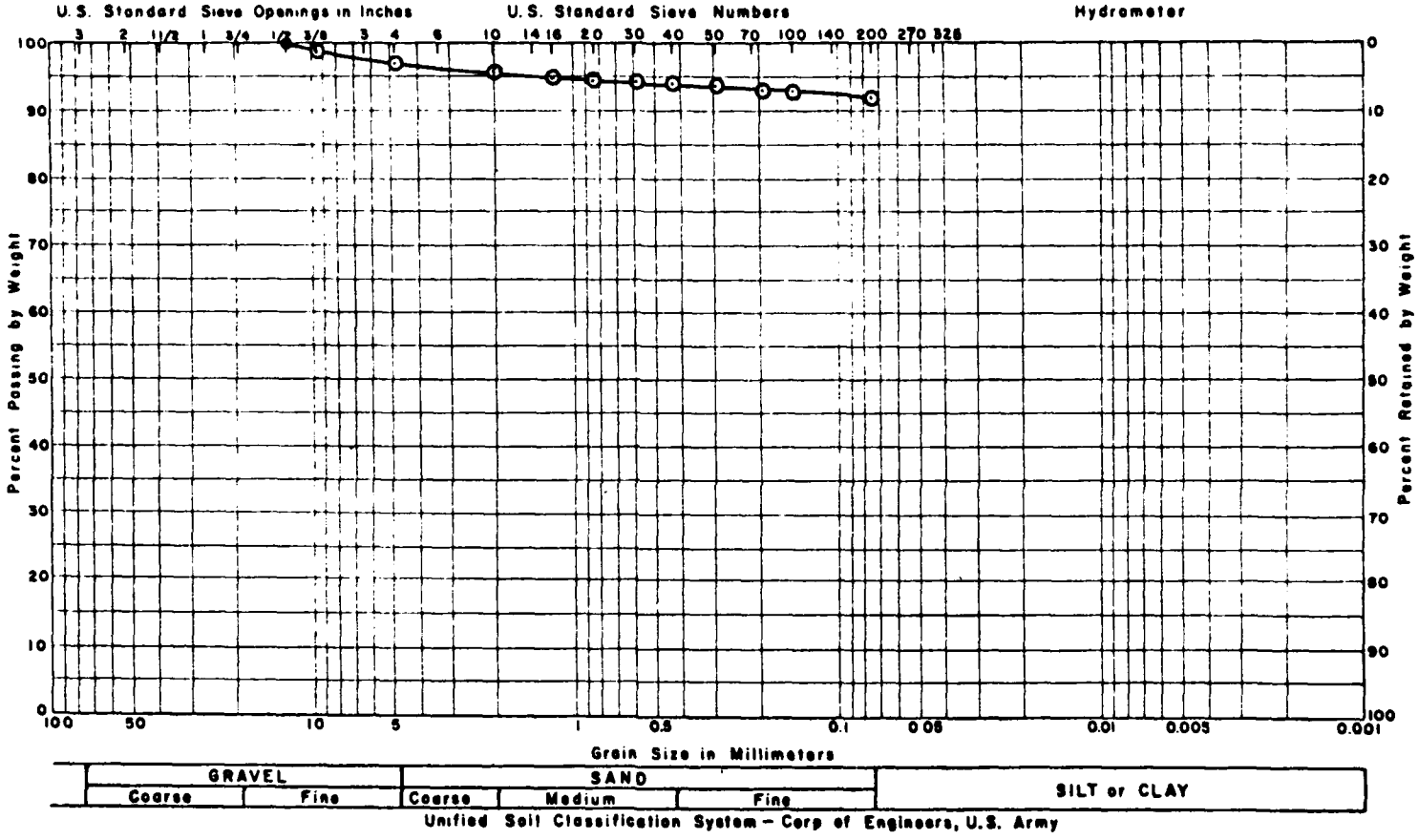
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level 4B, Matrix

Sample No: 28

Depth: 25-30 cm

91.72% Finer

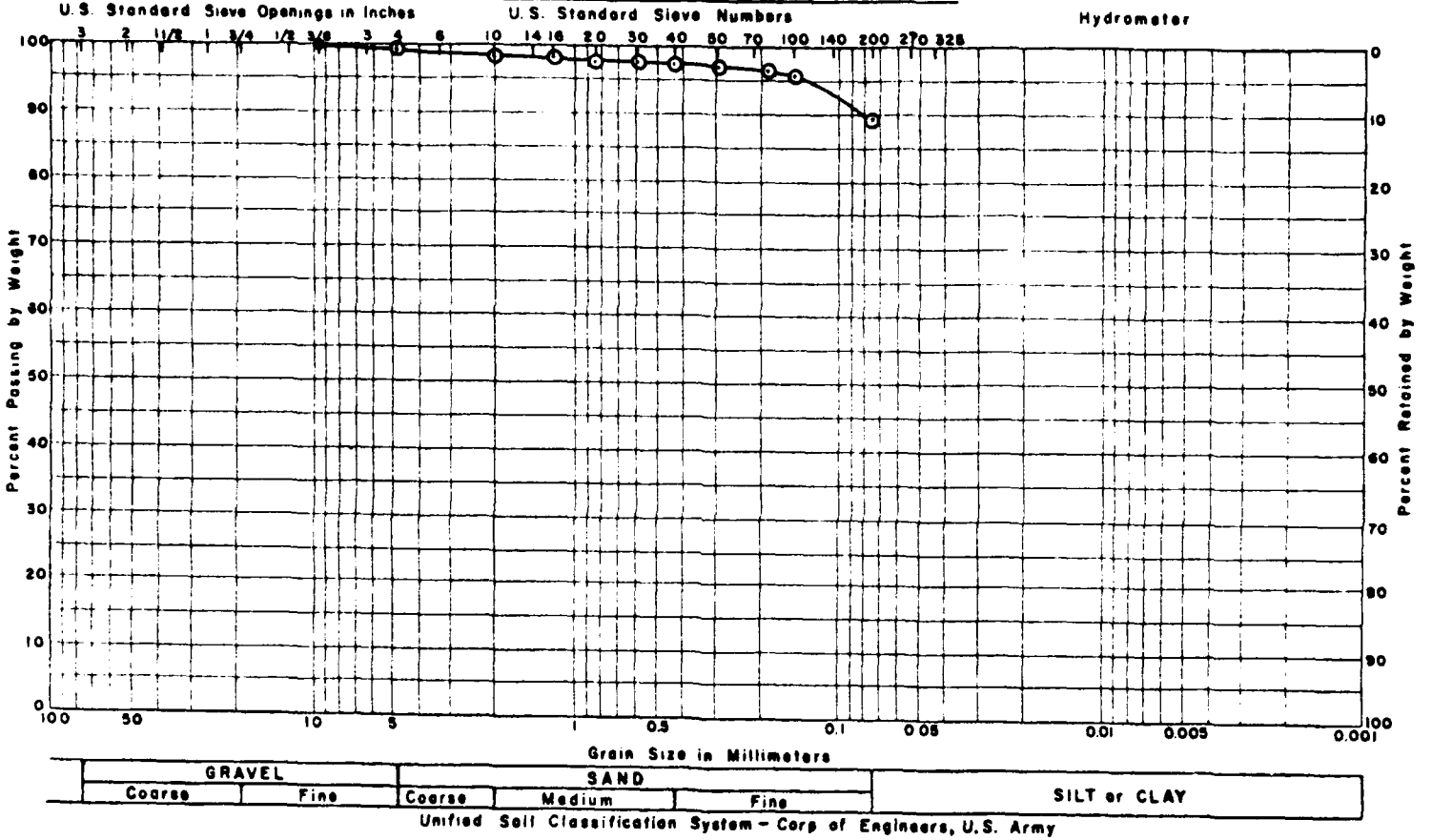
273 g Sample

ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

MECHANICAL ANALYSIS CHART



Provenience: Level A

Sample No: 29

Depth: 0-5 cm

89.46% Finer

278 g Sample

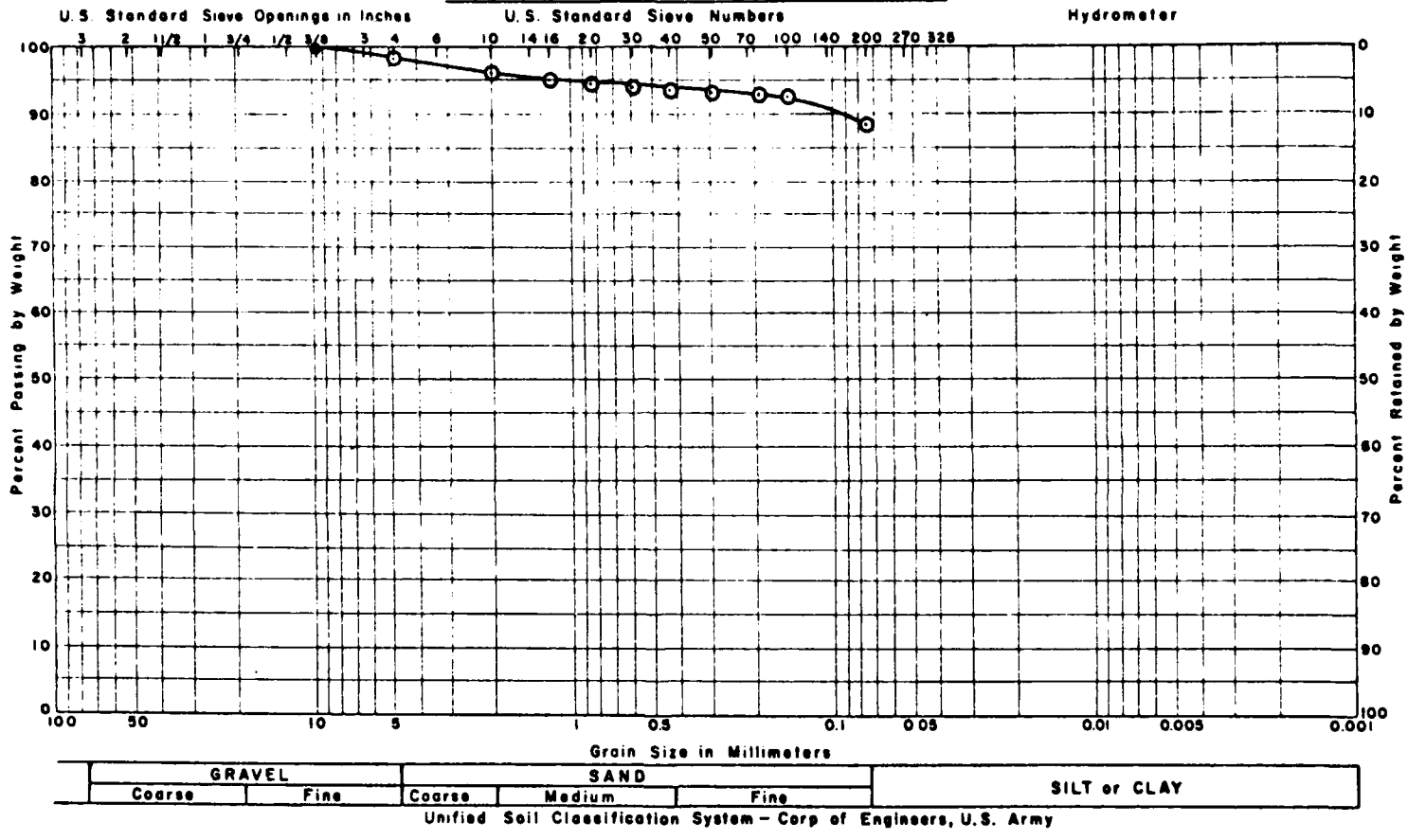
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level B

Sample No: 30

Depth: 5-10 cm

88.74% Finer

262 g Sample

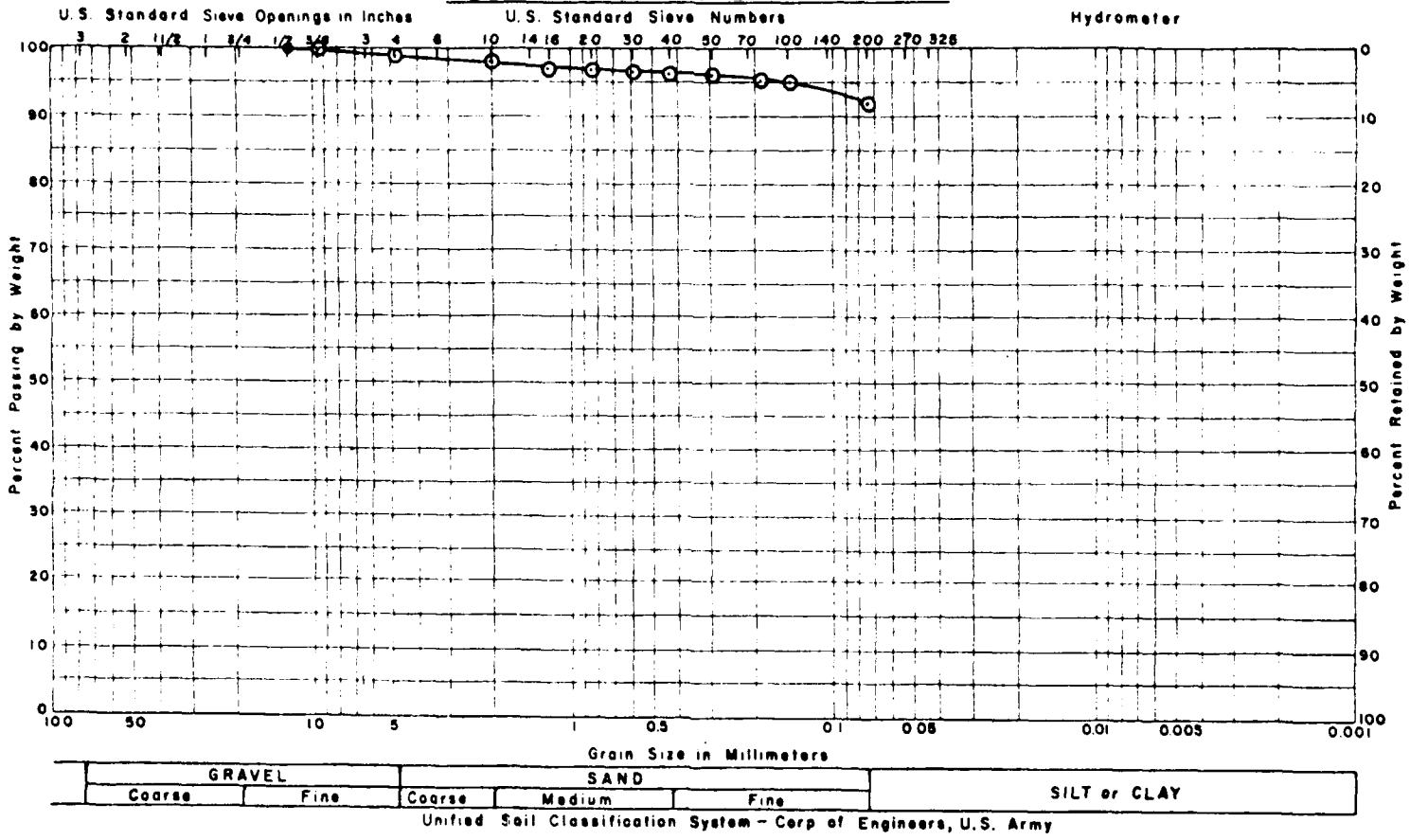
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level C

Sample No: 31

Depth: 10-15 cm

91.85% Finer

286 g Sample

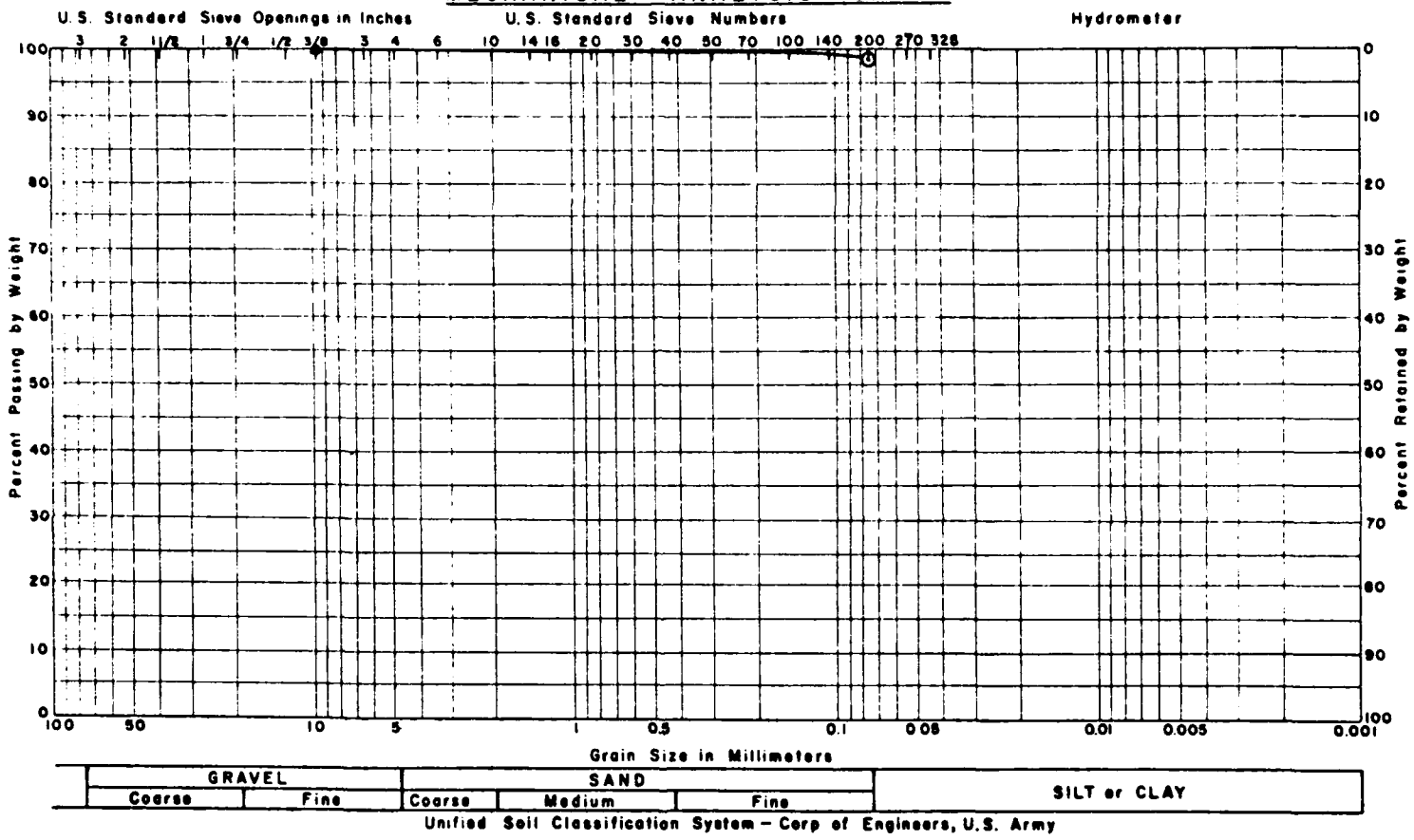
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Privy Hole Fill, Outside Privy Board

Sample No: 32

Depth: 10-30 cm

98.69% Finer

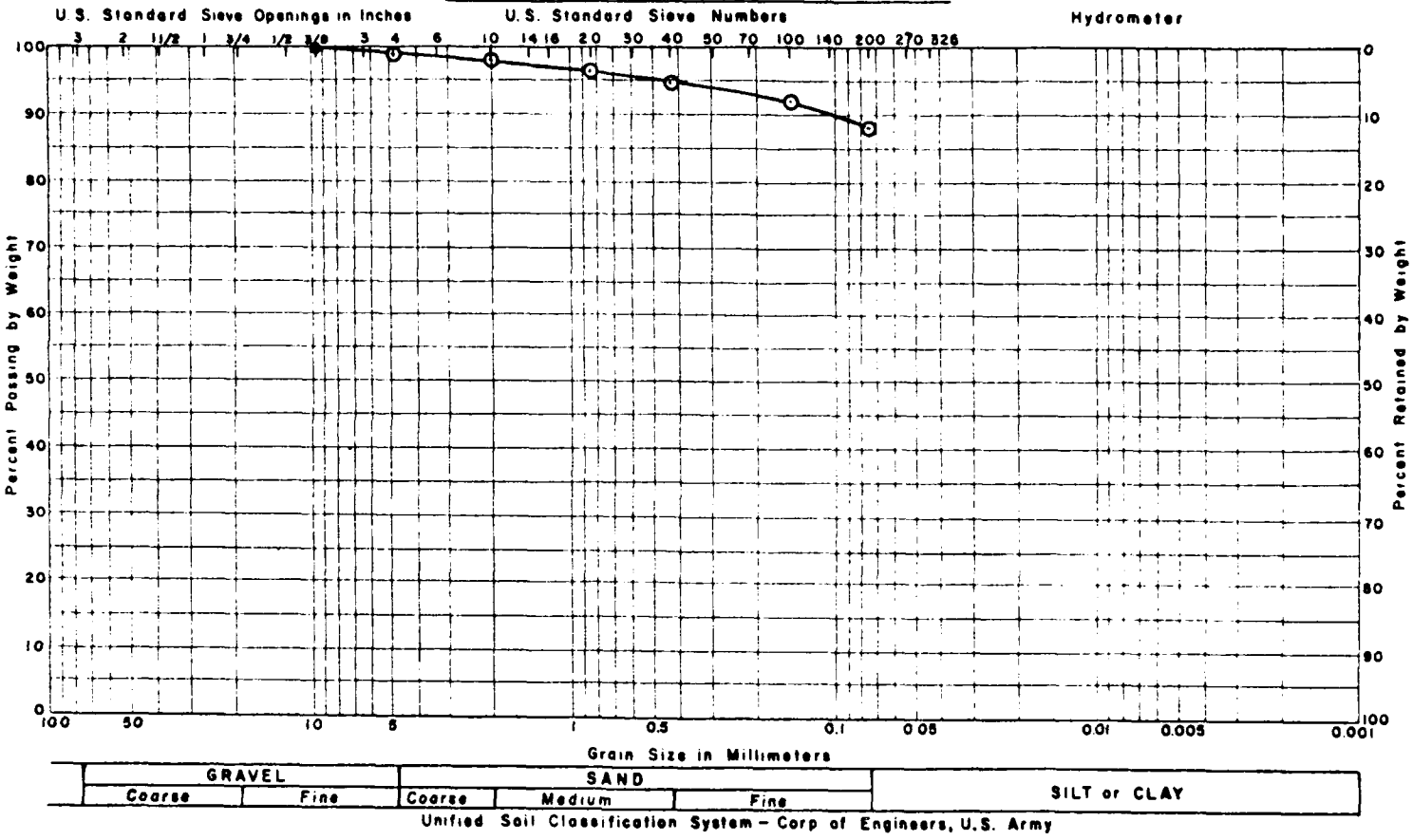
283 g Sample

ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

MECHANICAL ANALYSIS CHART



Provenience: Level D

Sample No: 33

Depth: 15-20 cm

88.44% Finer

270 g Sample

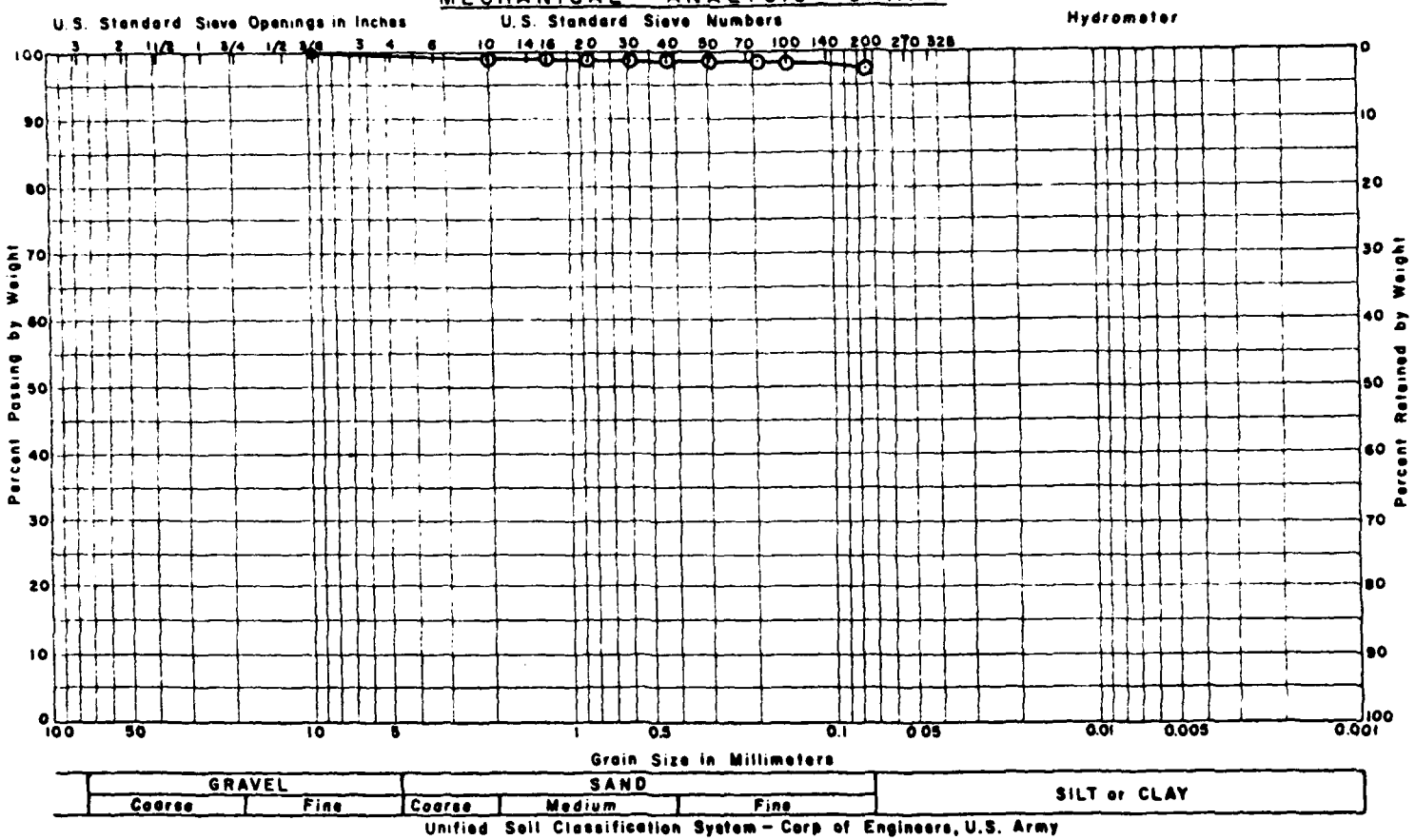
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level E

Sample No: 34

Depth: 20-25 cm

97.47% Finer

273 g Sample

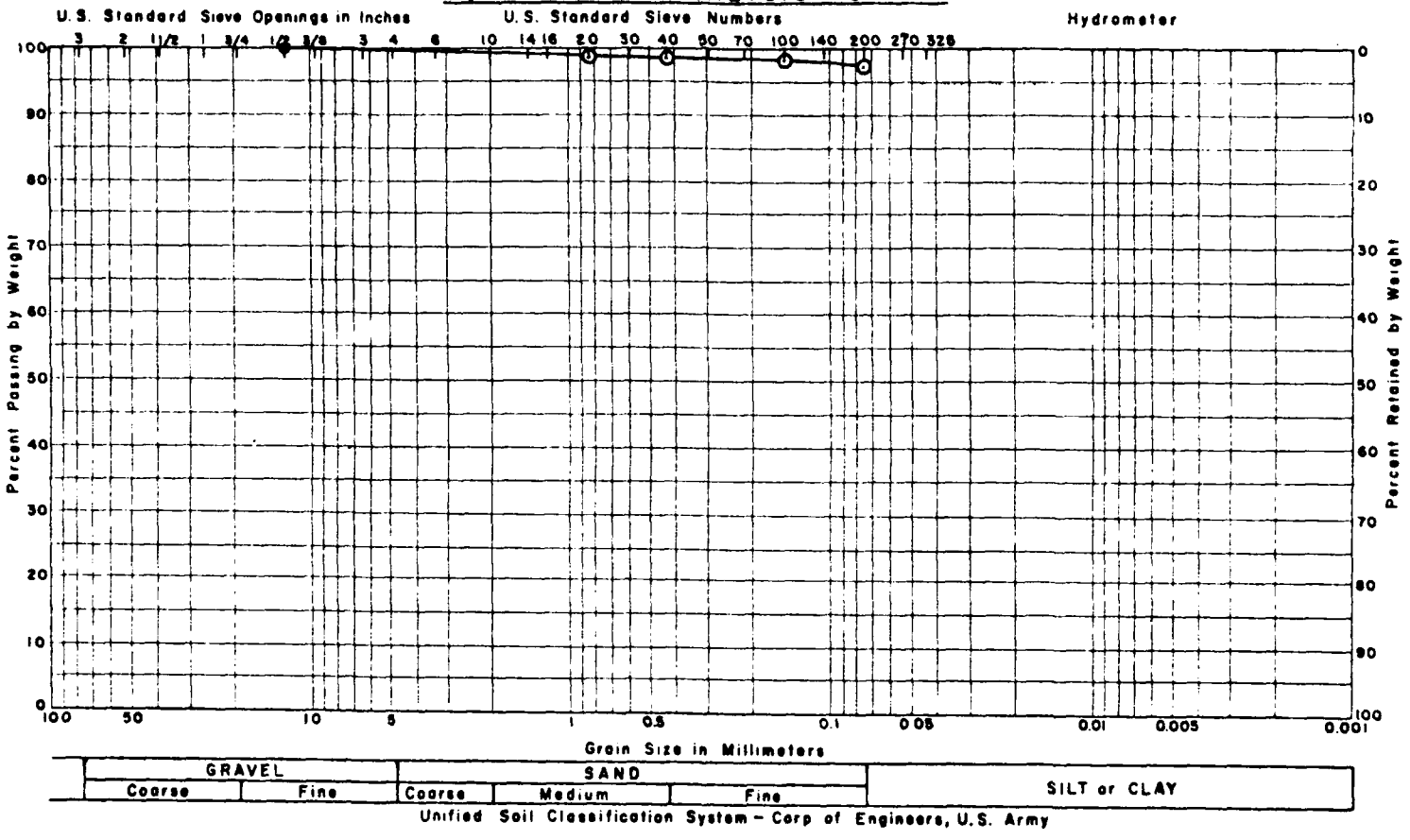
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level F

Sample No: 35

Depth: 25-30 cm

97.38% Finer

264 g Sample

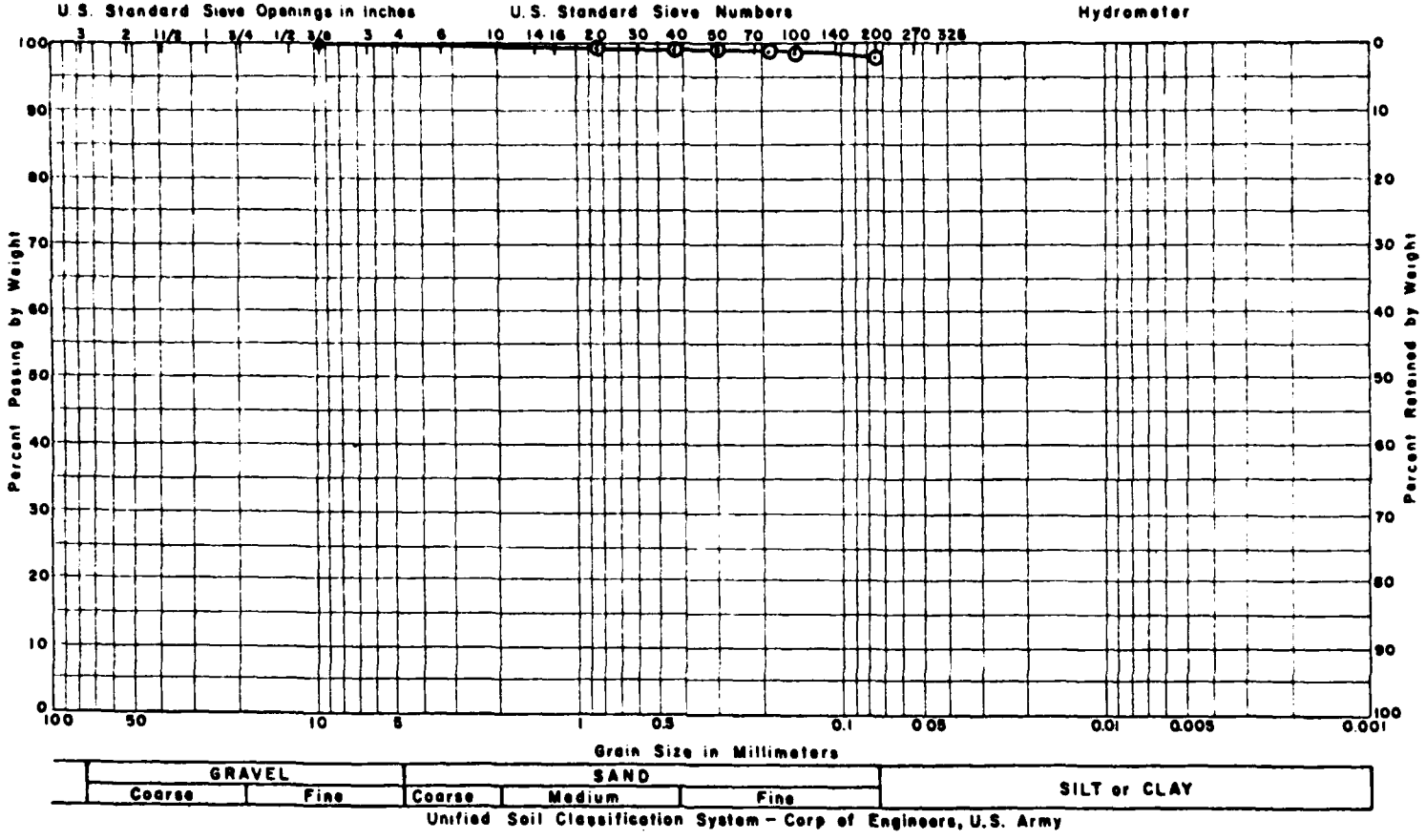
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Level G

Sample No: 36

Depth: 30-35 cm

97.70% Finer

275 g Sample

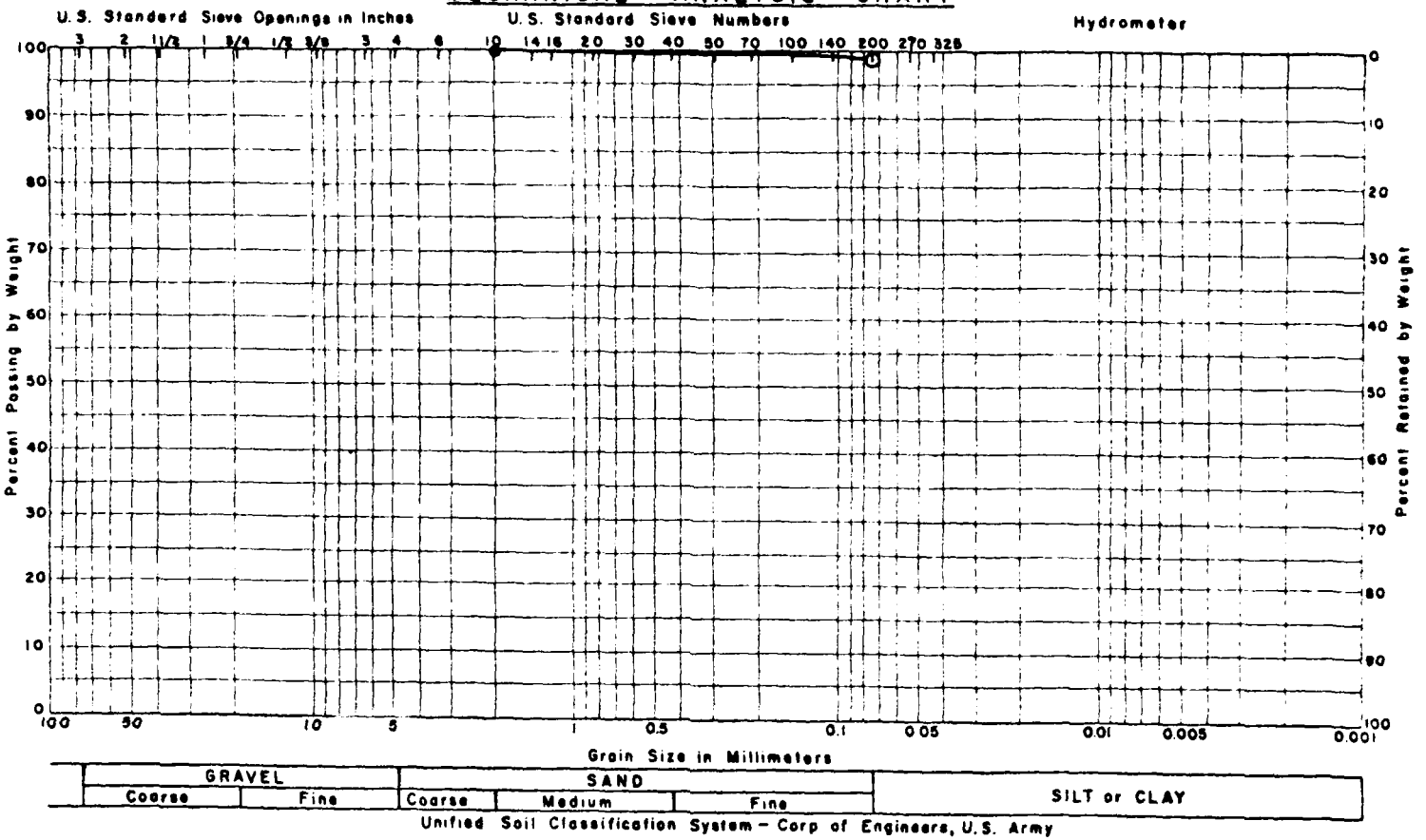
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Zone 5, 10-15 cm from Gray Area along South Wall

Sample No: 37

Depth: 30-35 cm below Nail

99.29% Finer

240 g Sample

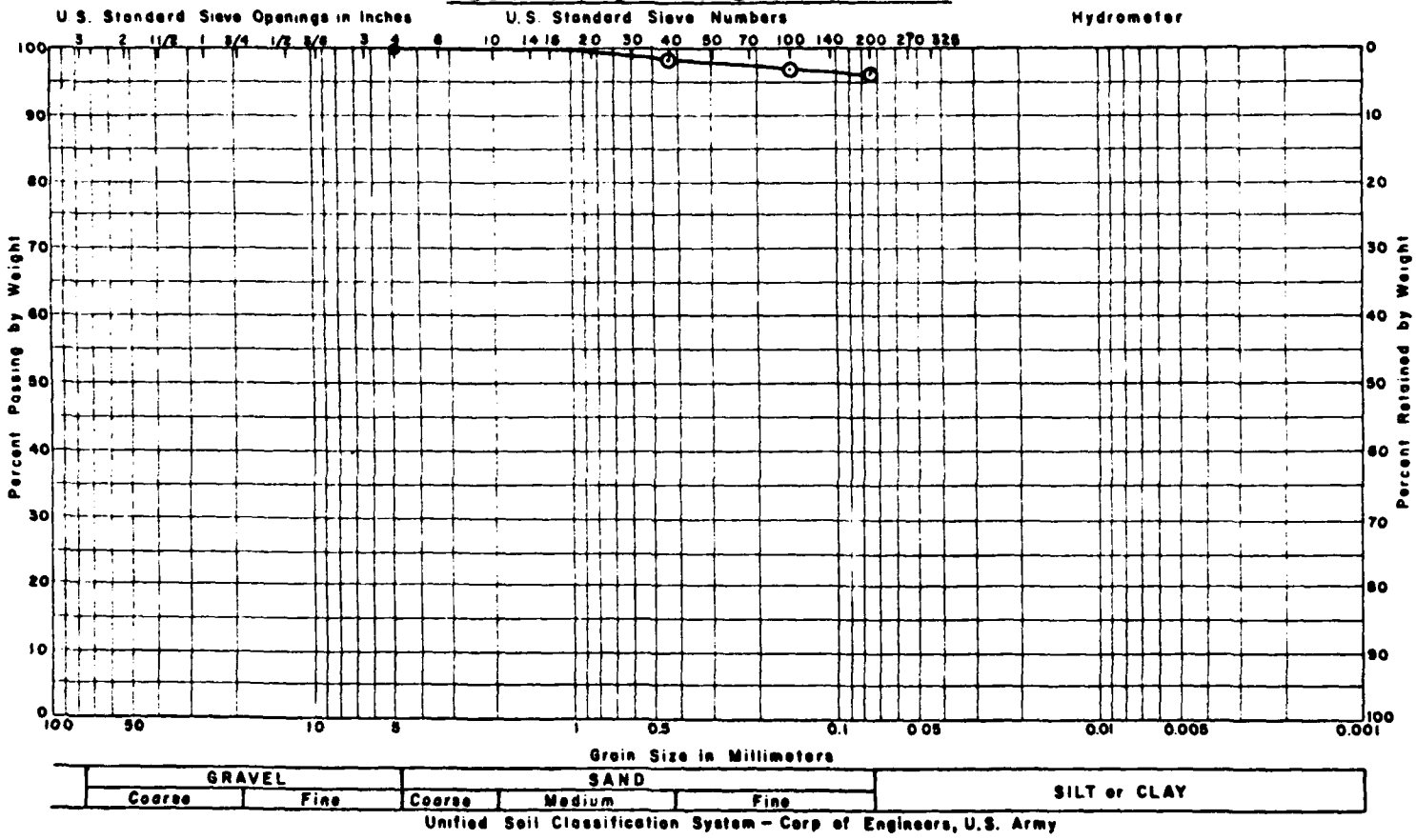
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Zone 5, Level 1

Sample No: 38

Depth: 40-45 cm

95.86% Finer

232 g Sample

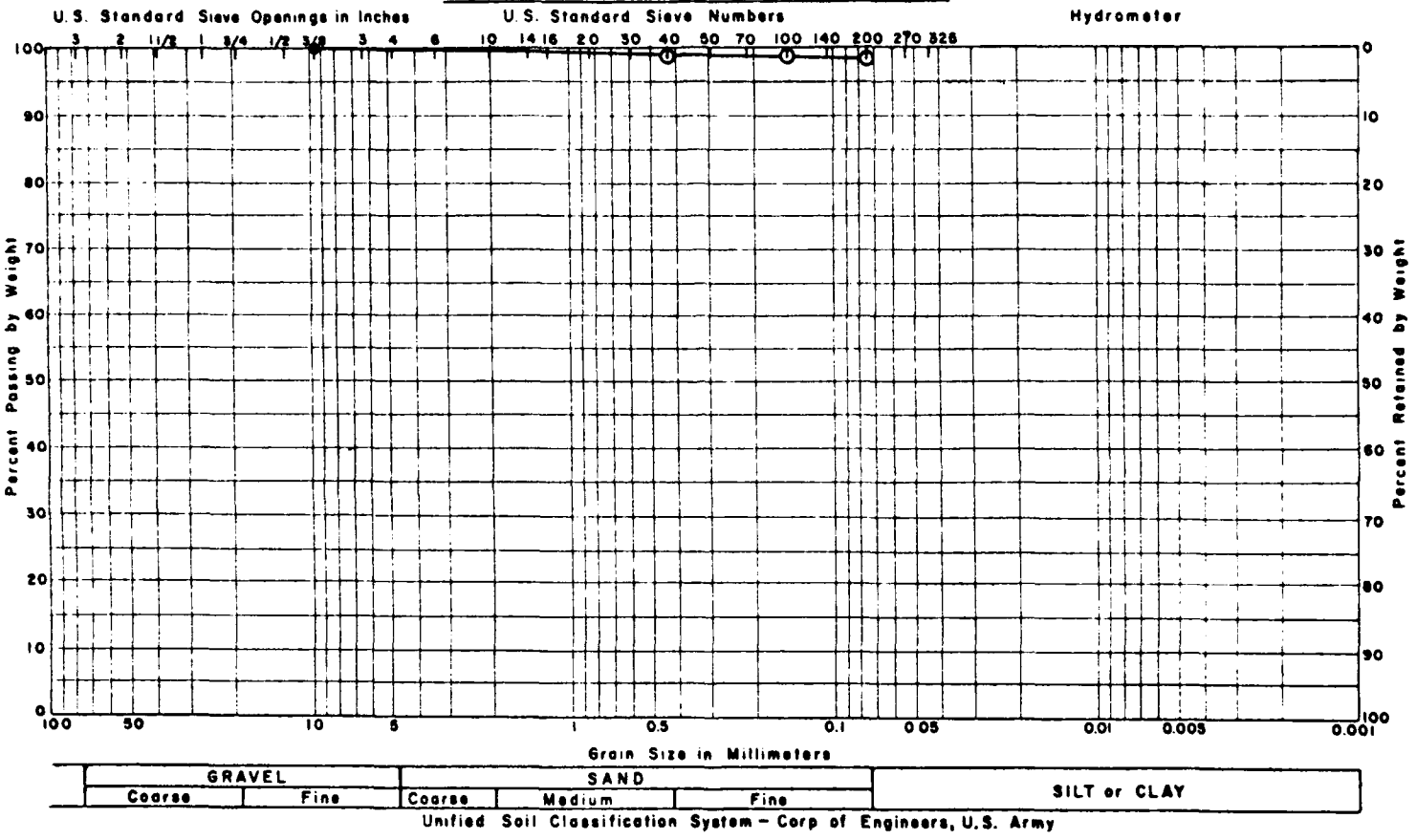
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Zone 5

Sample No: 39

Depth: 45-50 cm

98.53% Finer

273 g Sample

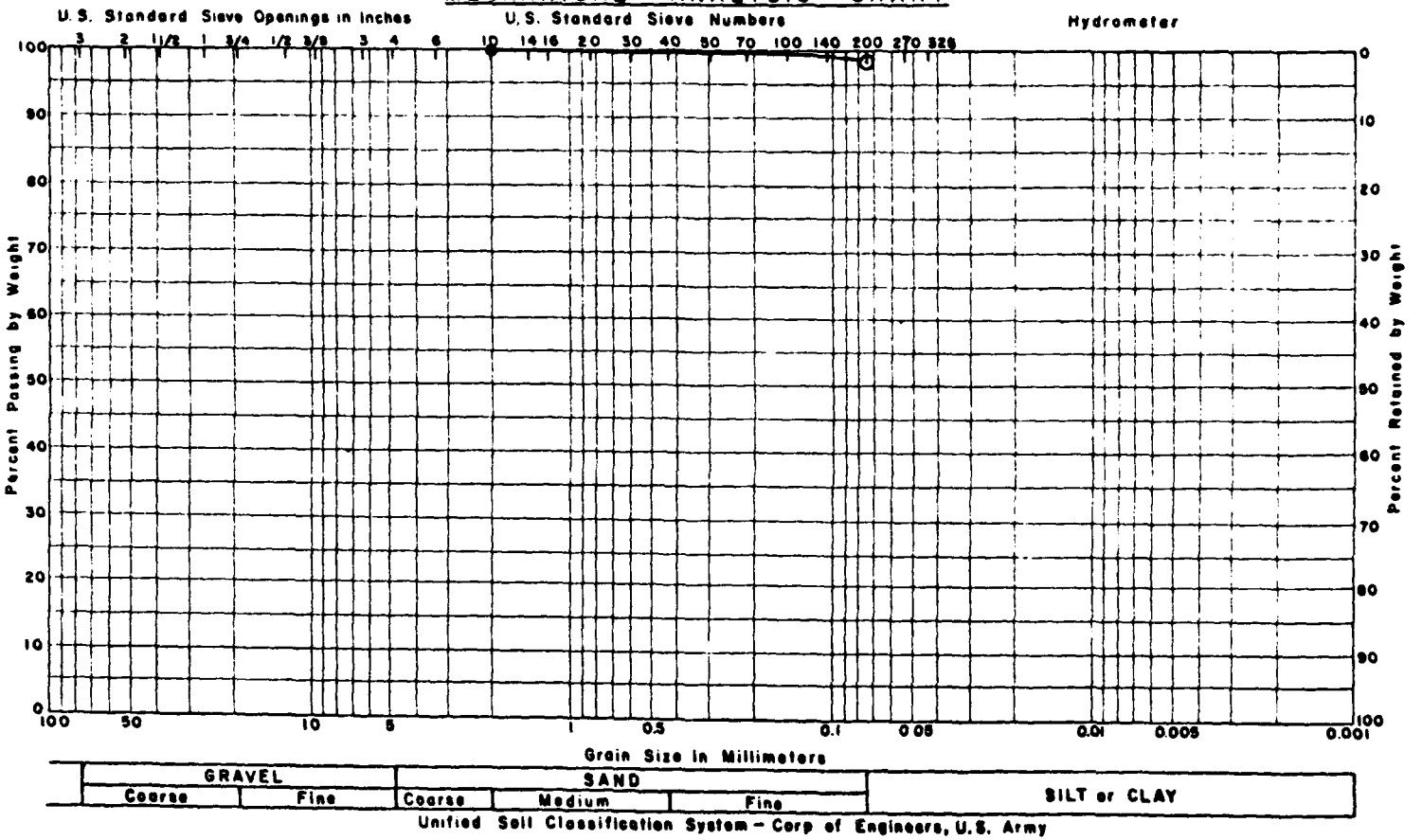
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Zone 5, Level K

Sample No: 40

Depth: 50-55 cm

98.68% Finer

250 g Sample

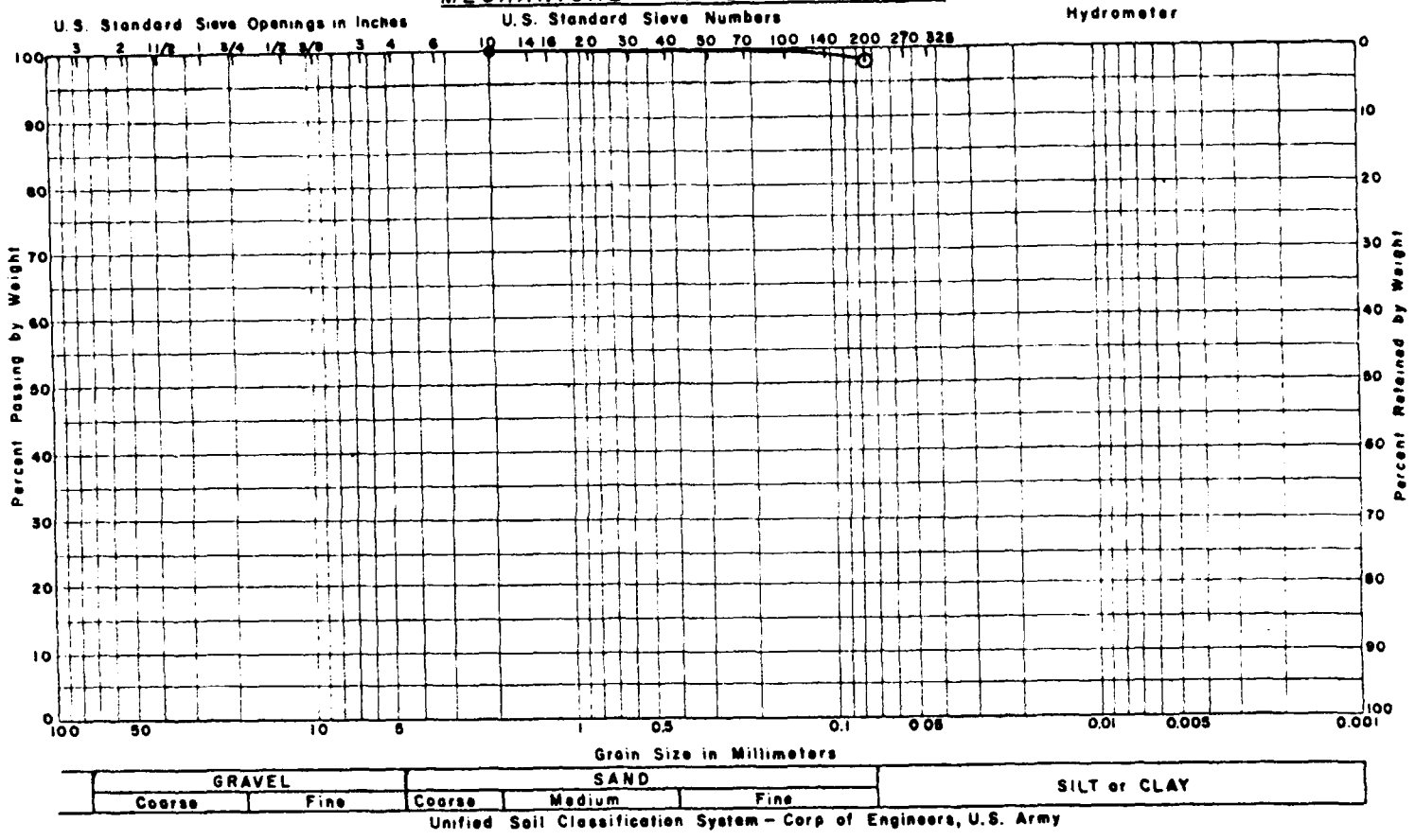
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Zone 5, Level L

Sample No: 41

Depth: 55-60 cm

98.21% Finer

274 g Sample

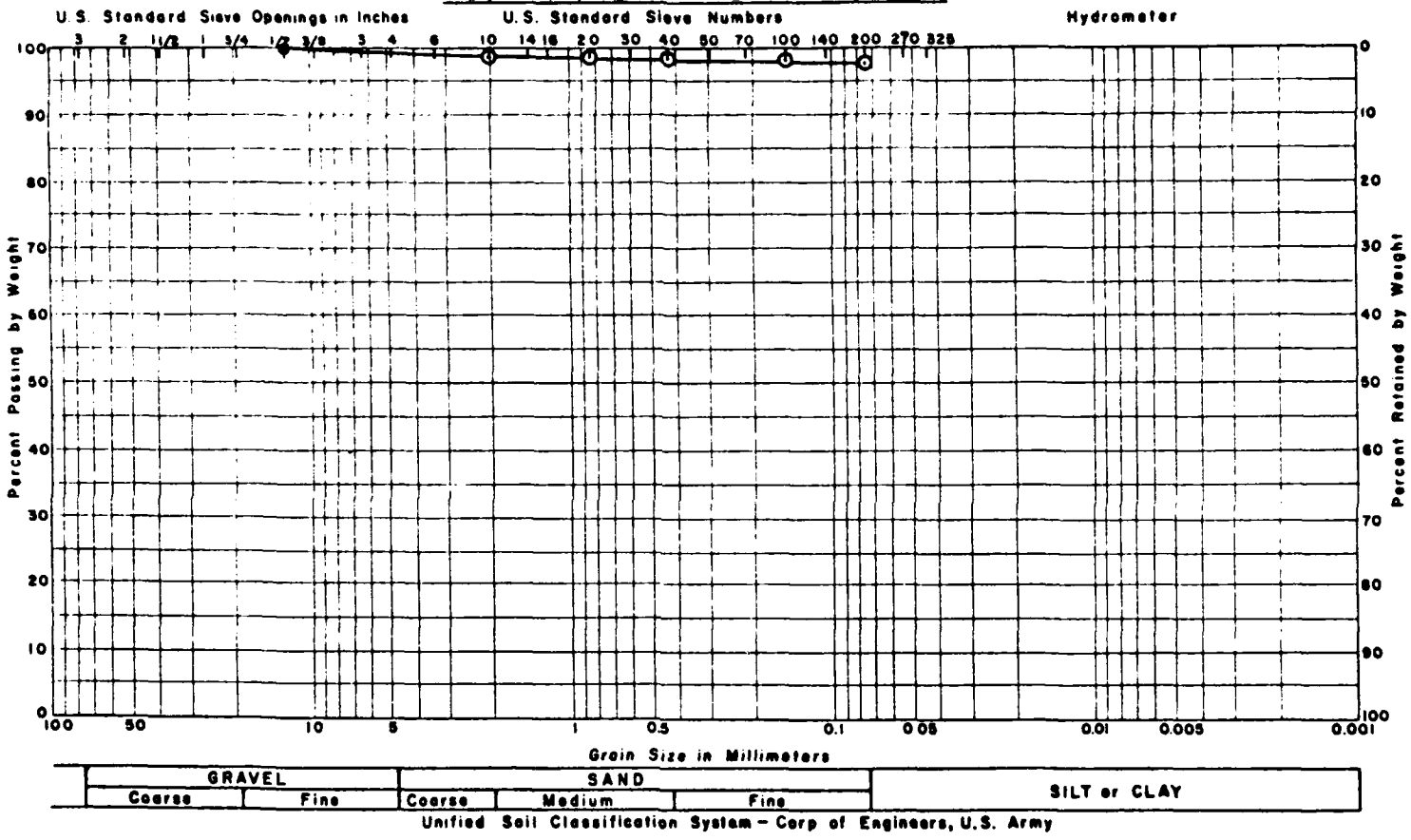
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Zone 5, Level M

Sample No: 42

Depth: 60-65 cm

97.68% Finer

281 g Sample

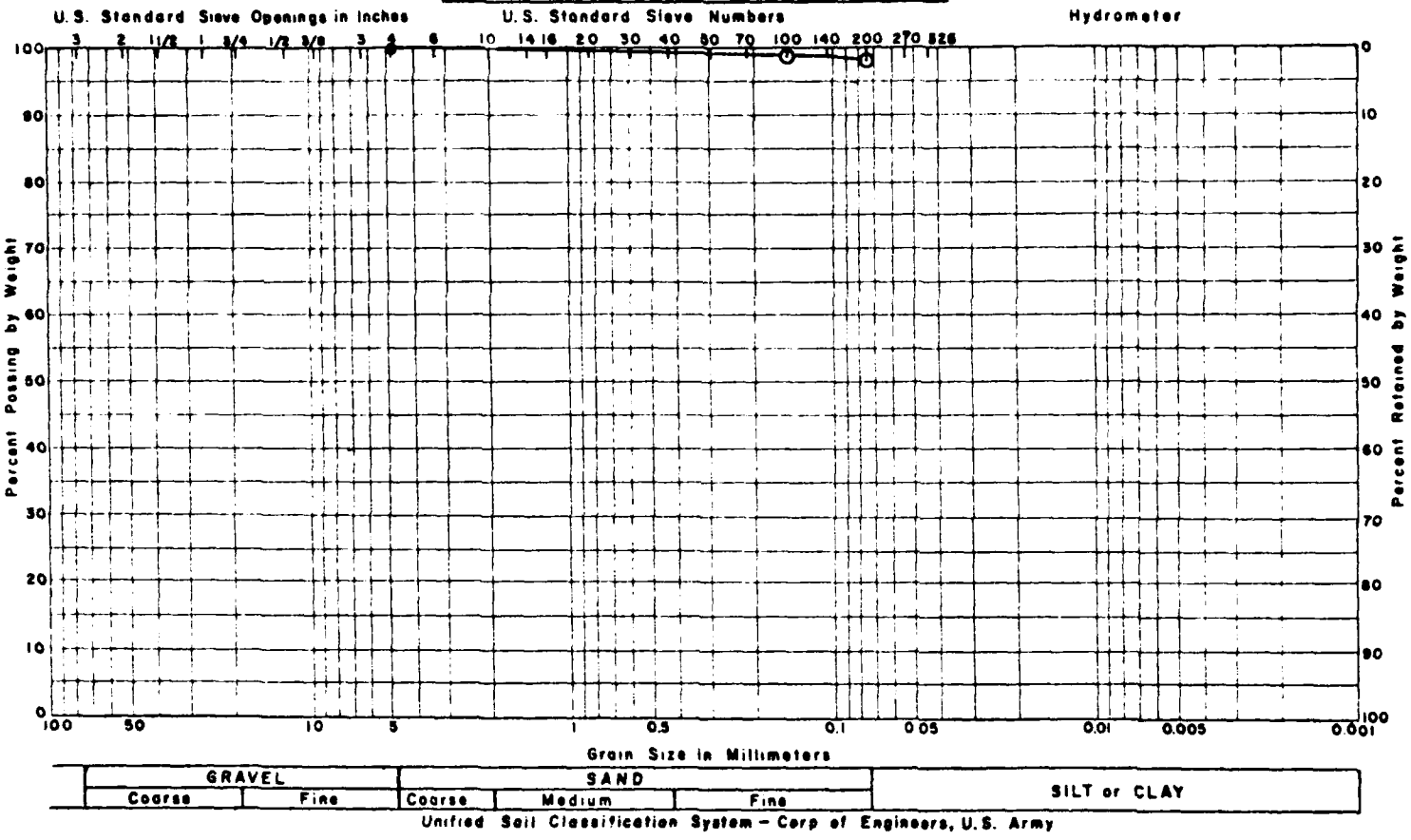
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Zone 5, Level N

Sample No: 43

Depth: 65-70 cm

98.46% Finer

280 g Sample

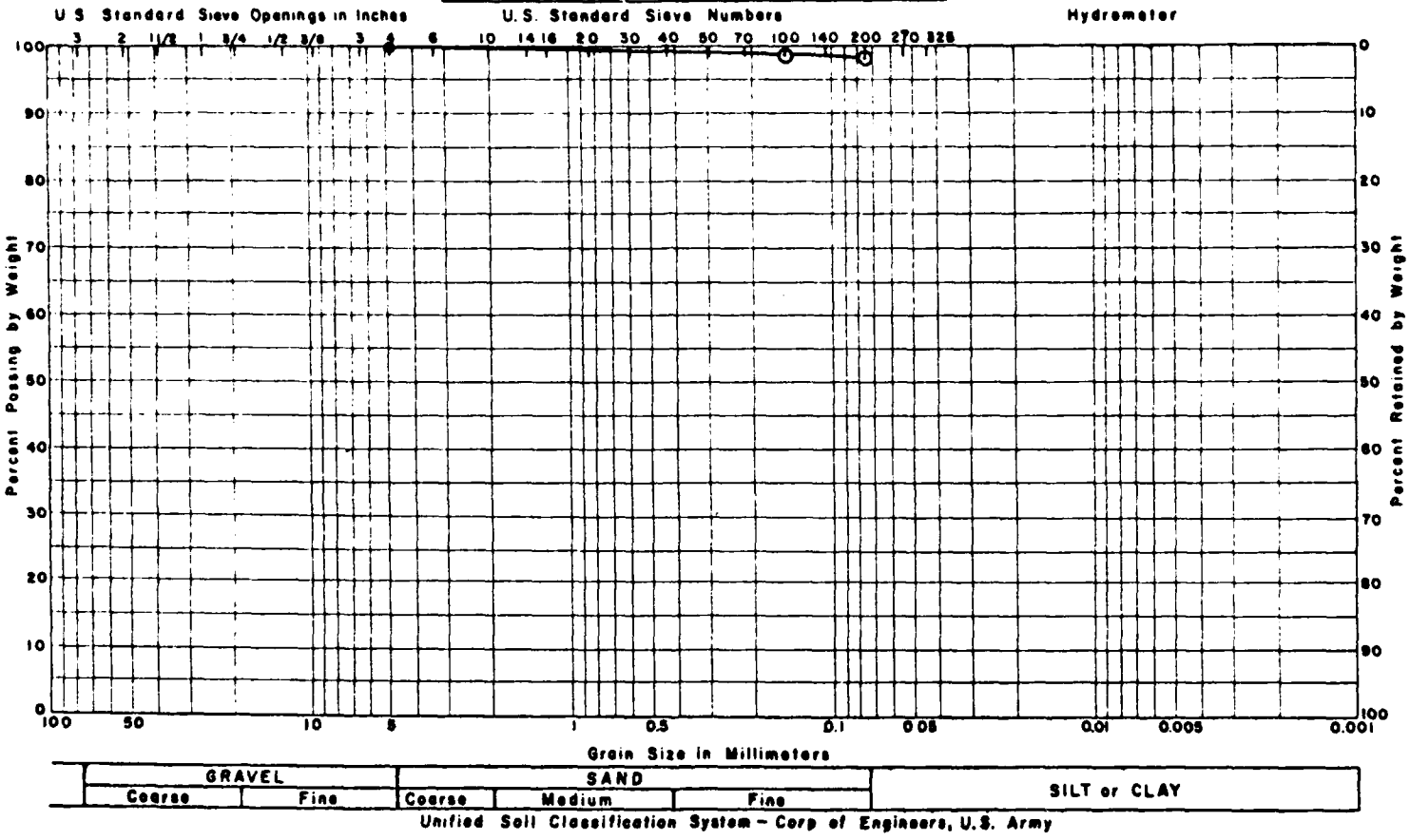
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Unified Soil Classification System – Corp of Engineers, U.S. Army

Provenience: Zone 5, Level 0

Sample No: 44

Depth: 70-75 cm

98.38% Finer

217 g Sample

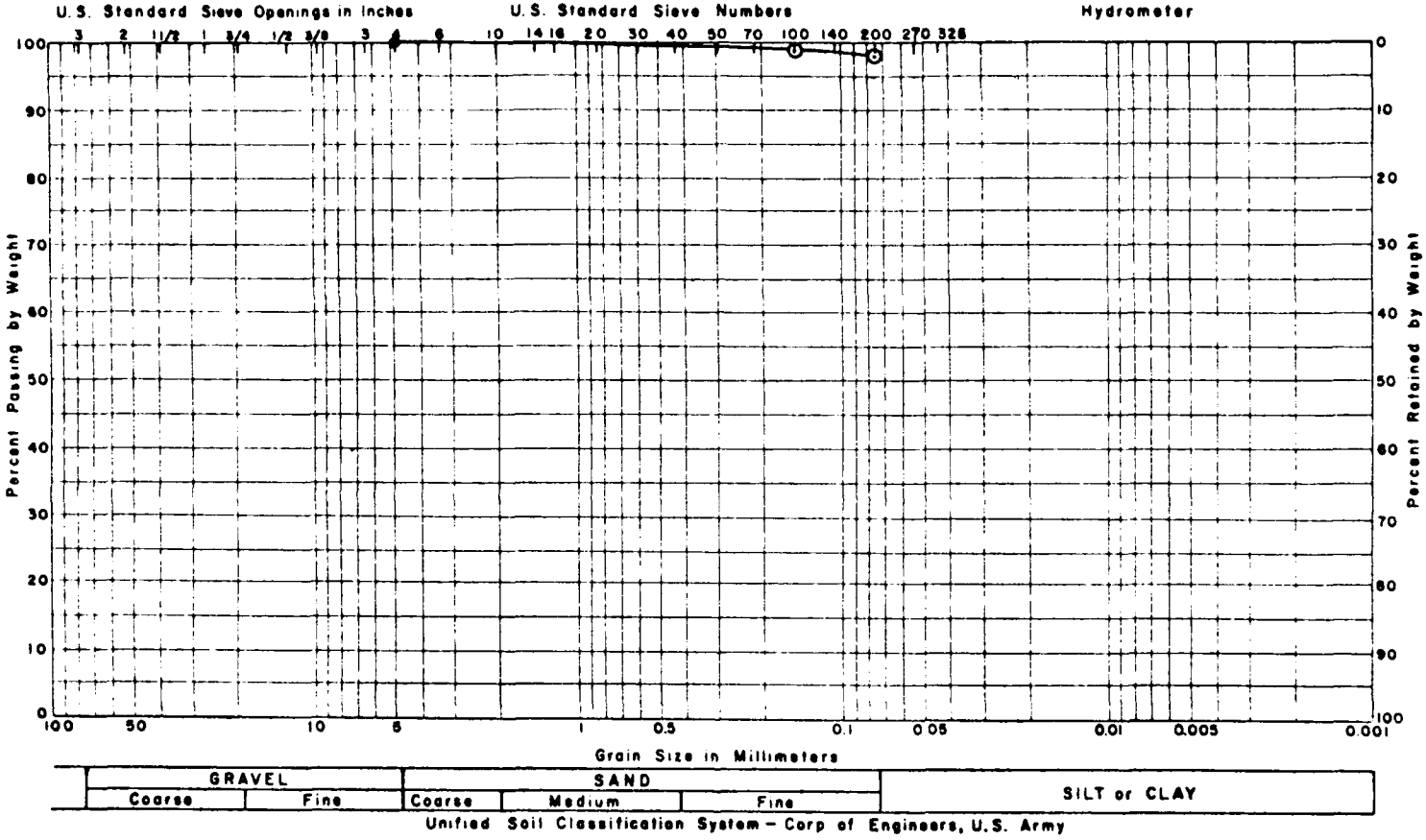
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Zone 5

Sample No: 45

Depth: 85-90 cm

98.49% Finer

273 g Sample

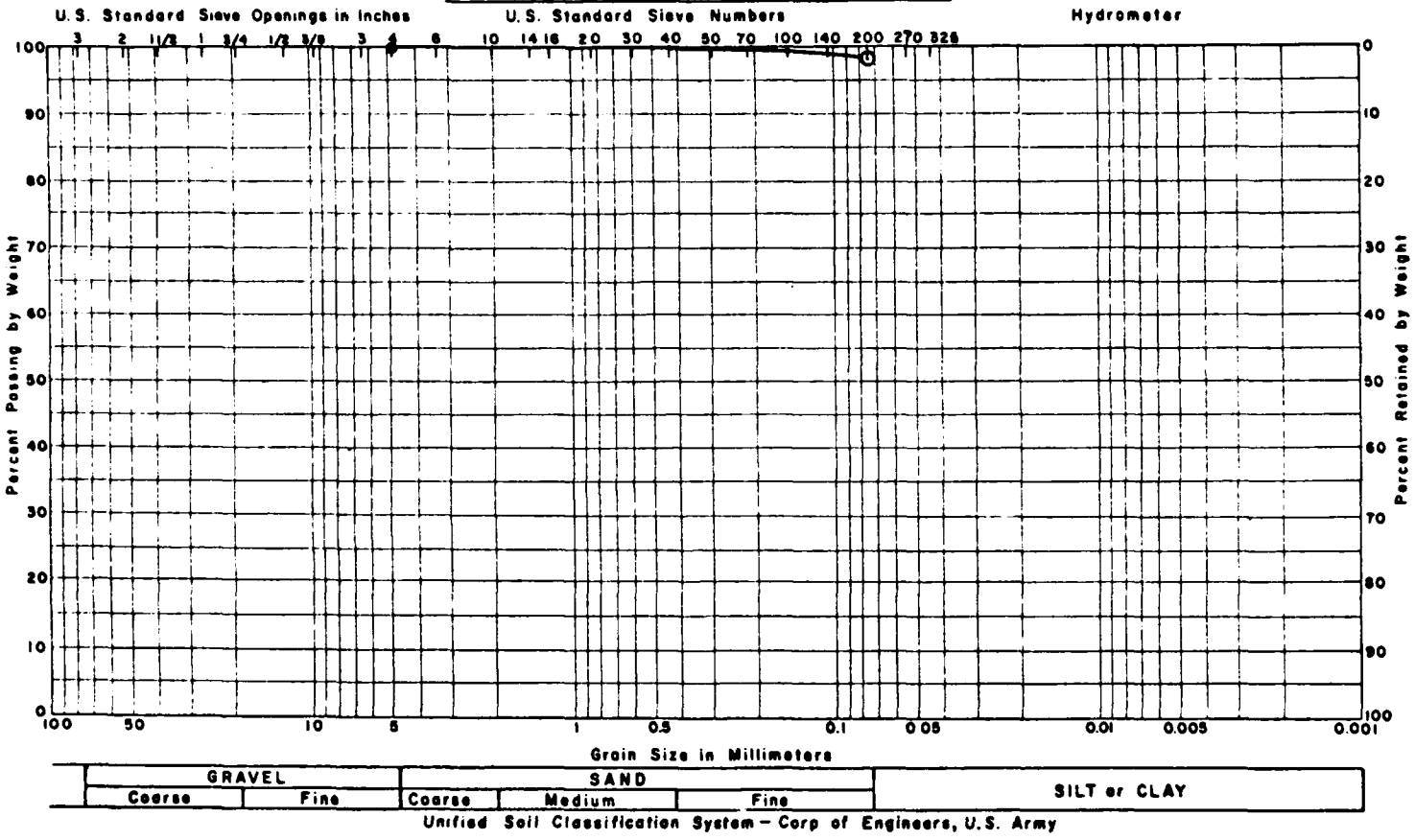
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Zone 6

Sample No: 46

Depth: 90-95 cm

98.56% Finer

258 g Sample

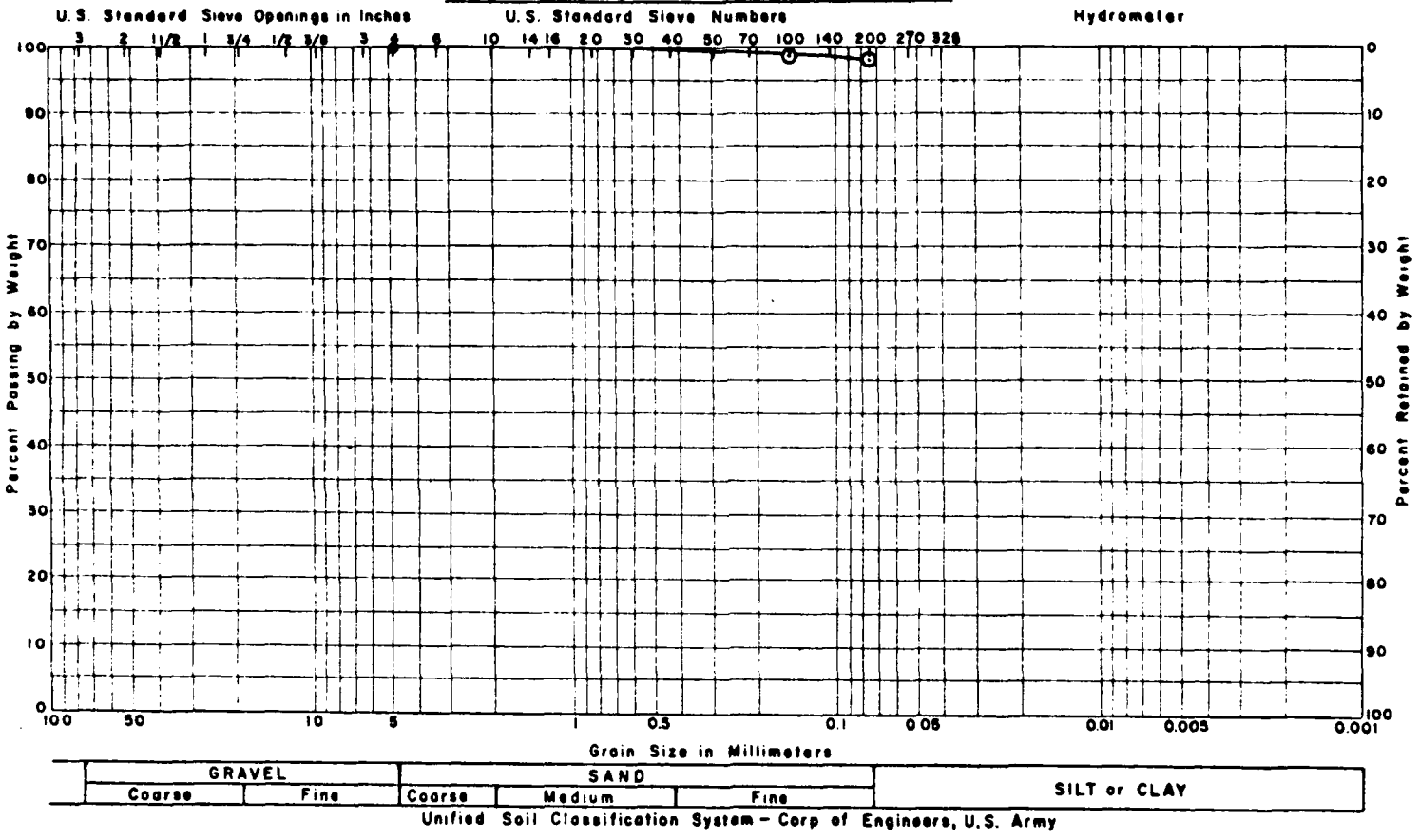
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience:

Sample No: 47

Depth: 100-105 cm

98.58% Finer

275 g Sample

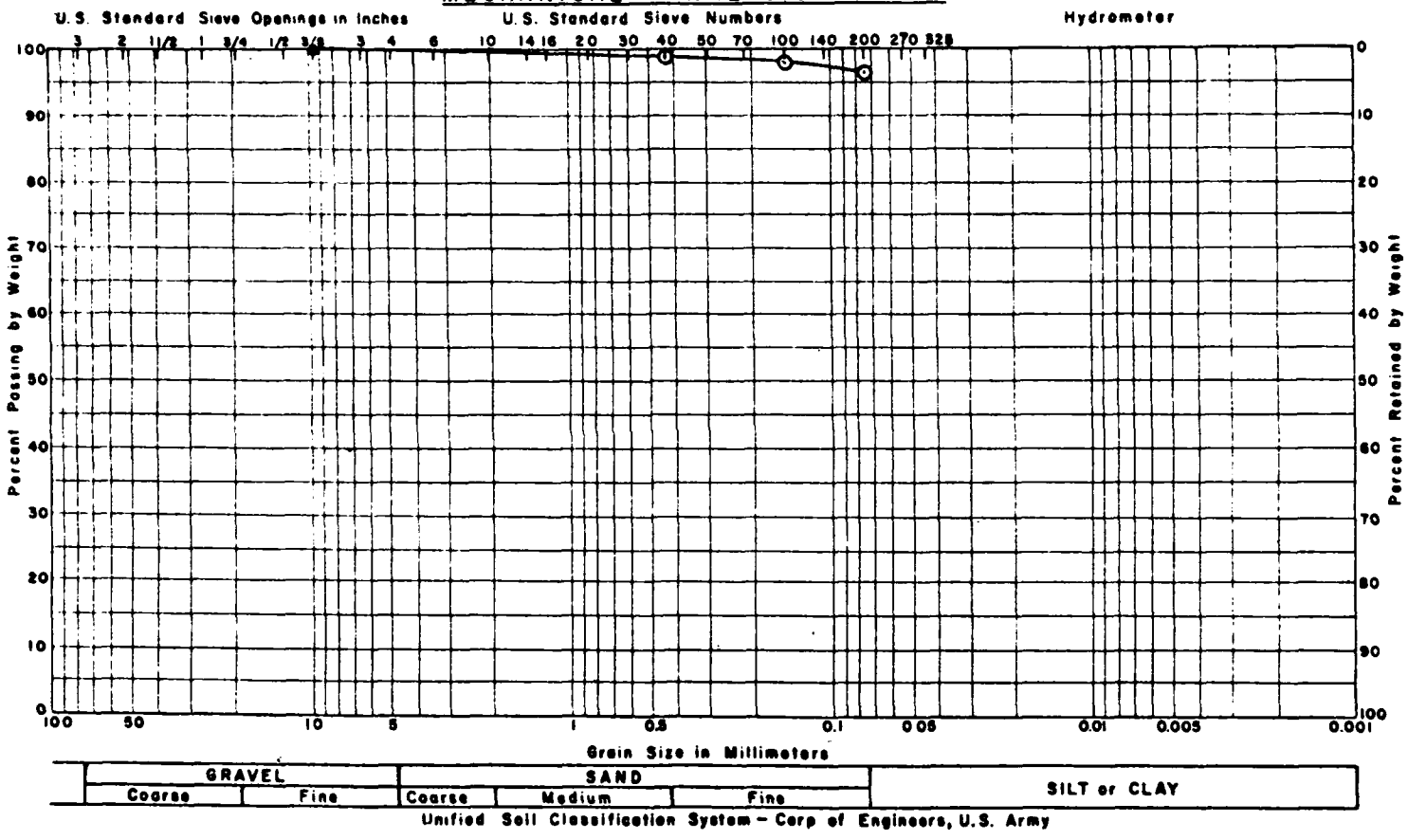
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Unified Soil Classification System – Corp of Engineers, U.S. Army

Provenience:

Sample No: 48

Depth: 100-105 cm

96.46% Finer

300 g Sample

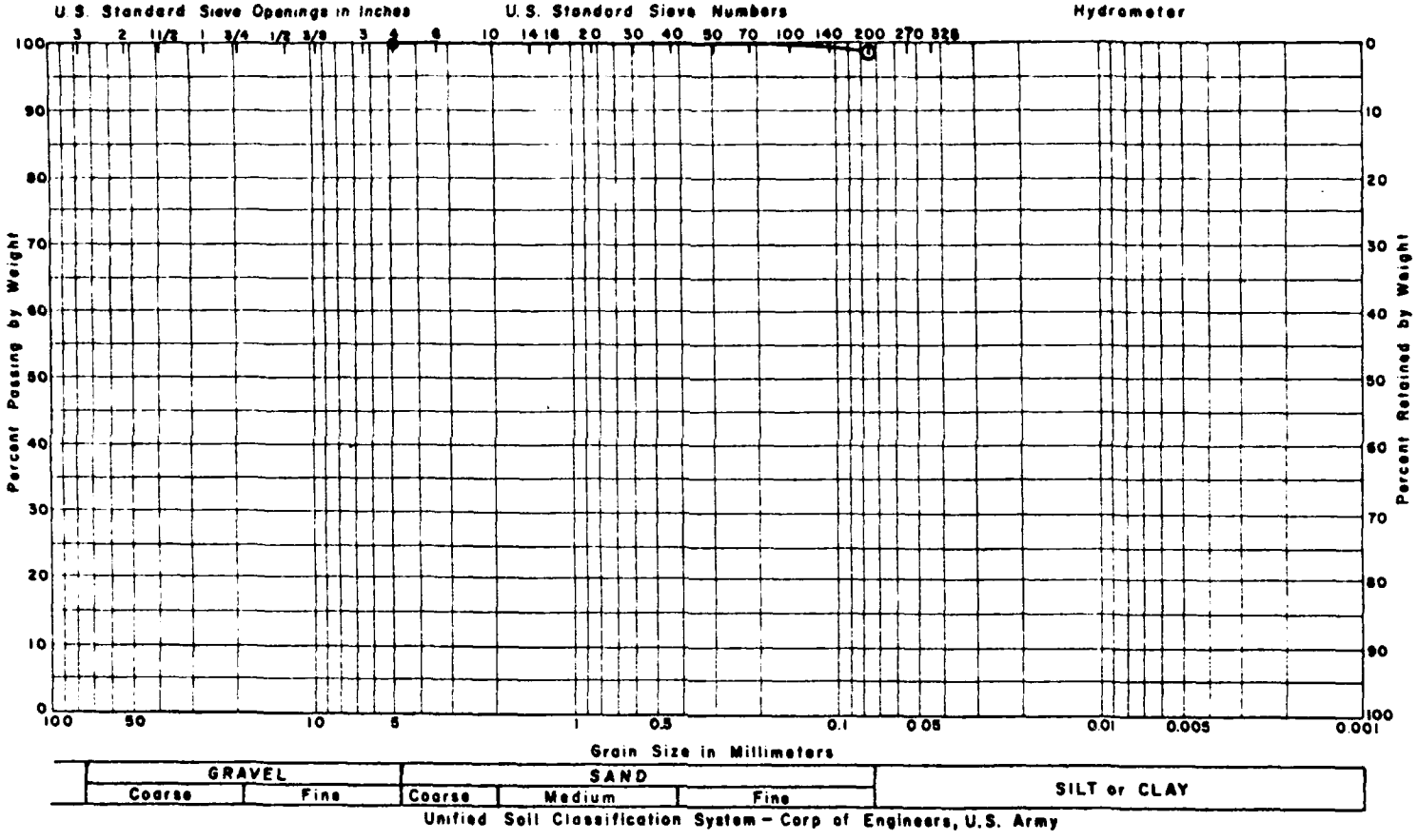
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience:

Sample No: 49

Depth: 105-110 cm

99. % Finer

294 g Sample

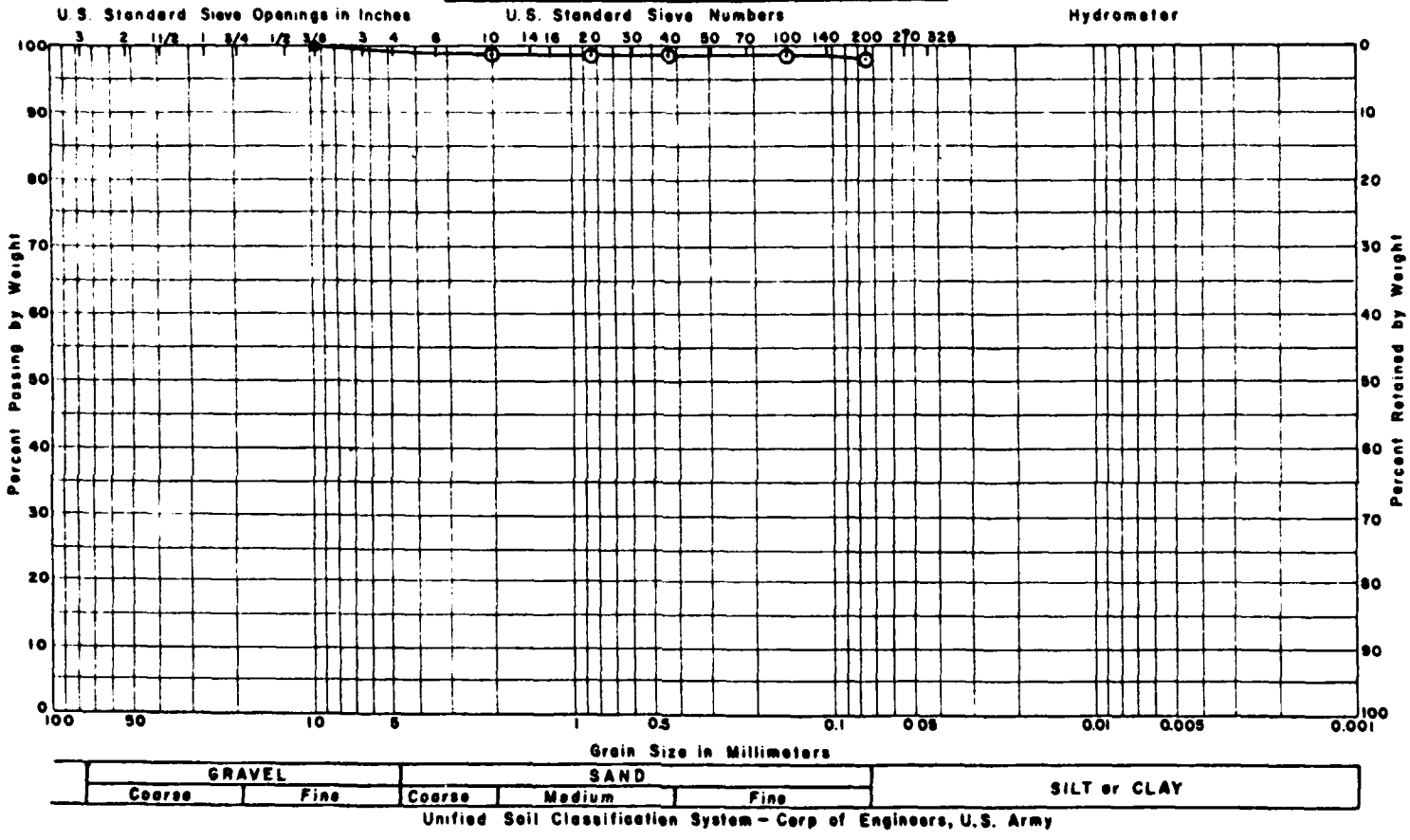
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Matrix

Sample No: 50

Depth: 120-125 cm

98.20% Finer

296 g Sample

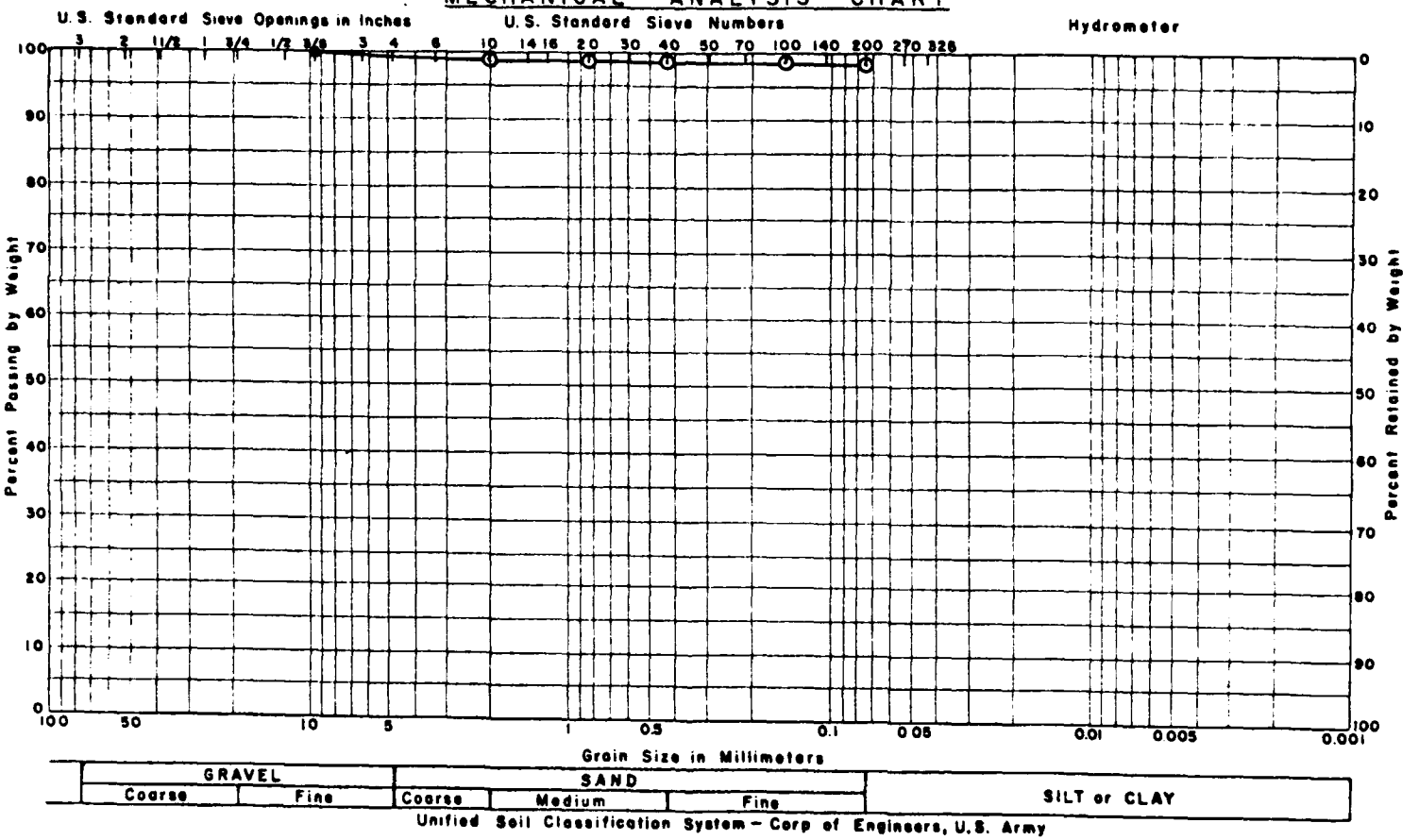
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Soil Matrix

Sample No: 51

Depth: 140-145 cm

98.74% Finer

271 g Sample

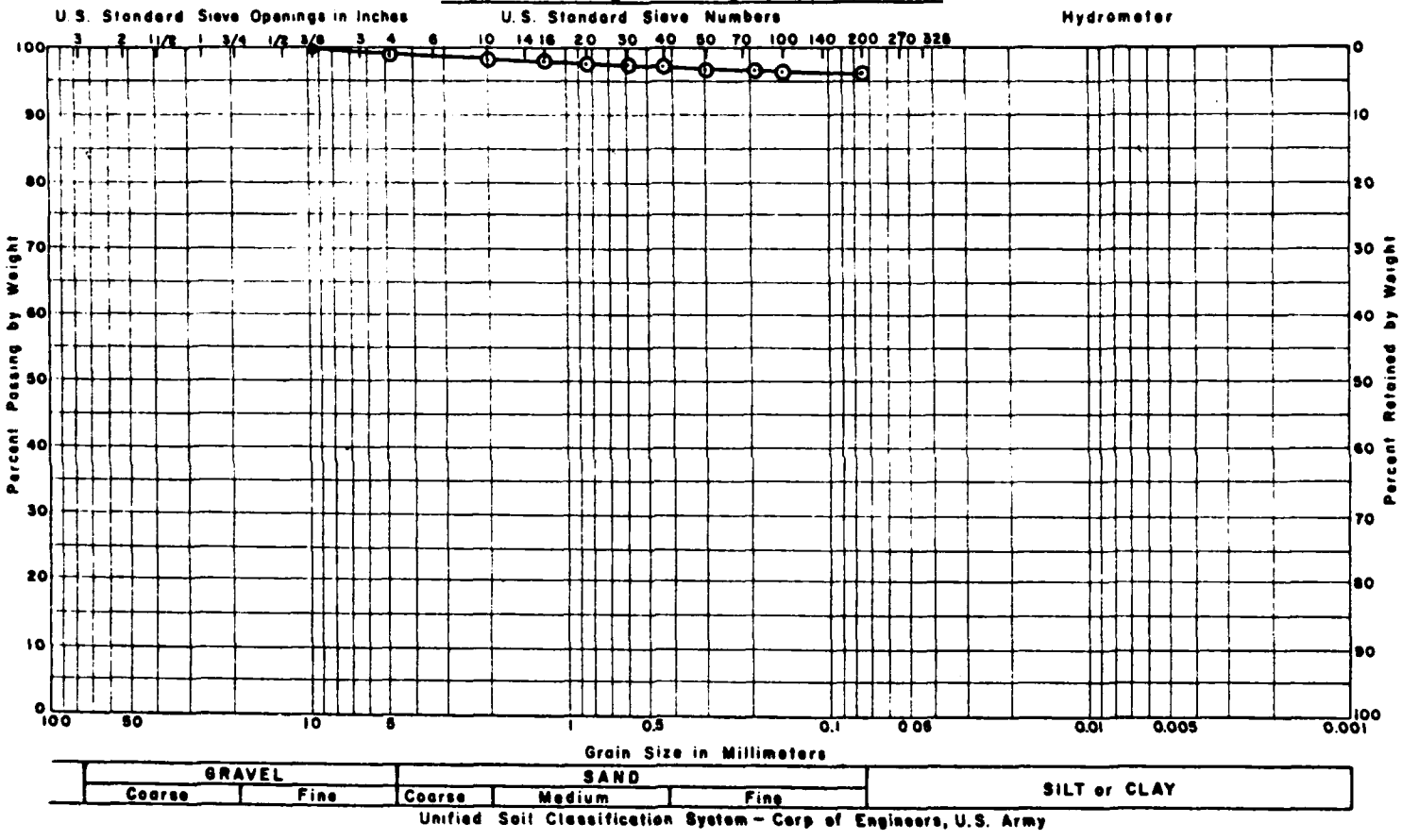
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Zone 8

Sample No: 52

Depth: 145-170 cm

95.80% Finer

210 g Sample

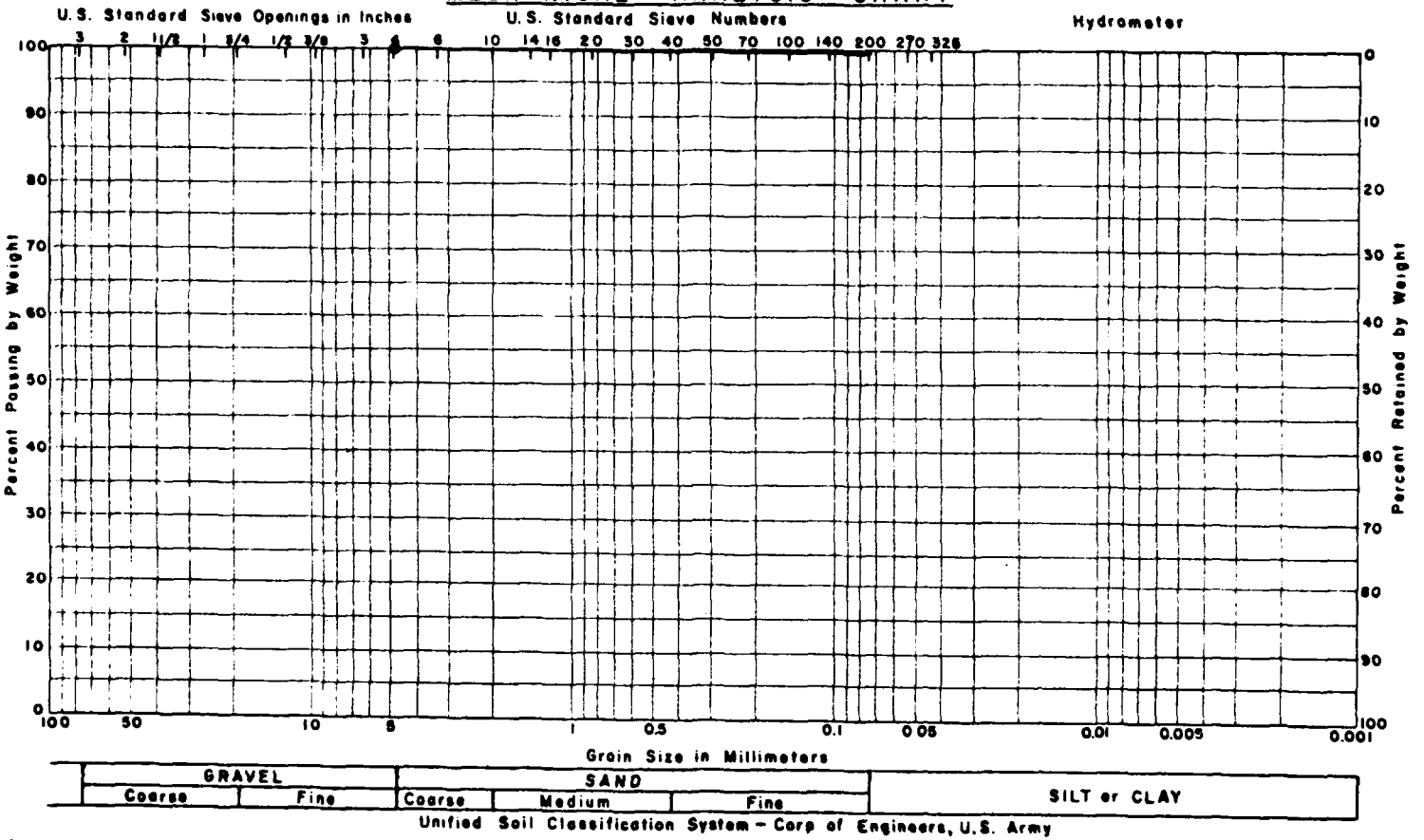
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Zone 8, Soil Matrix

Sample No: 53

Depth: 155-160 cm

99.60% Finer

300 g Sample

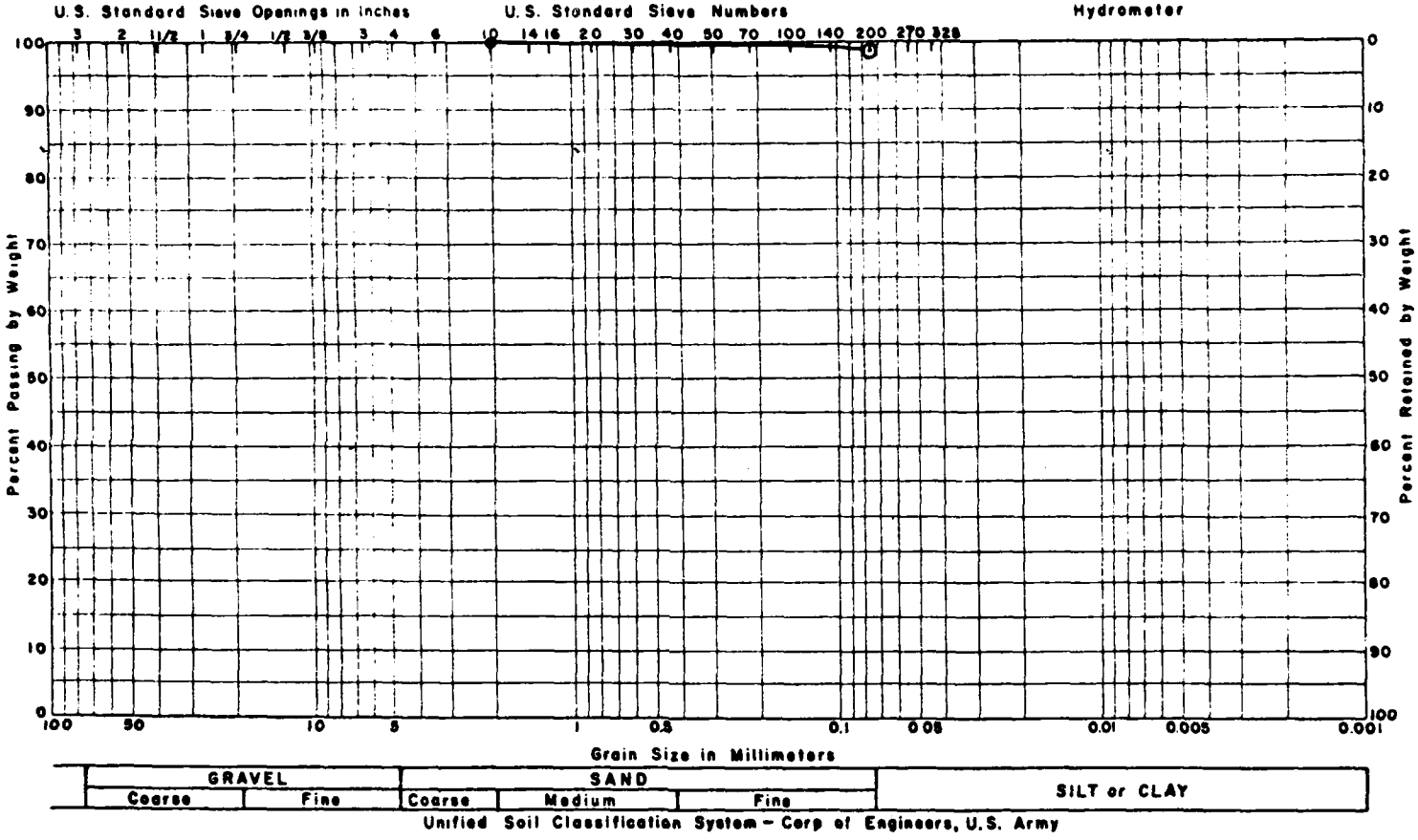
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Zone 9

Sample No: 54

Depth: 170-175 cm

99.05% Finer

275 g Sample

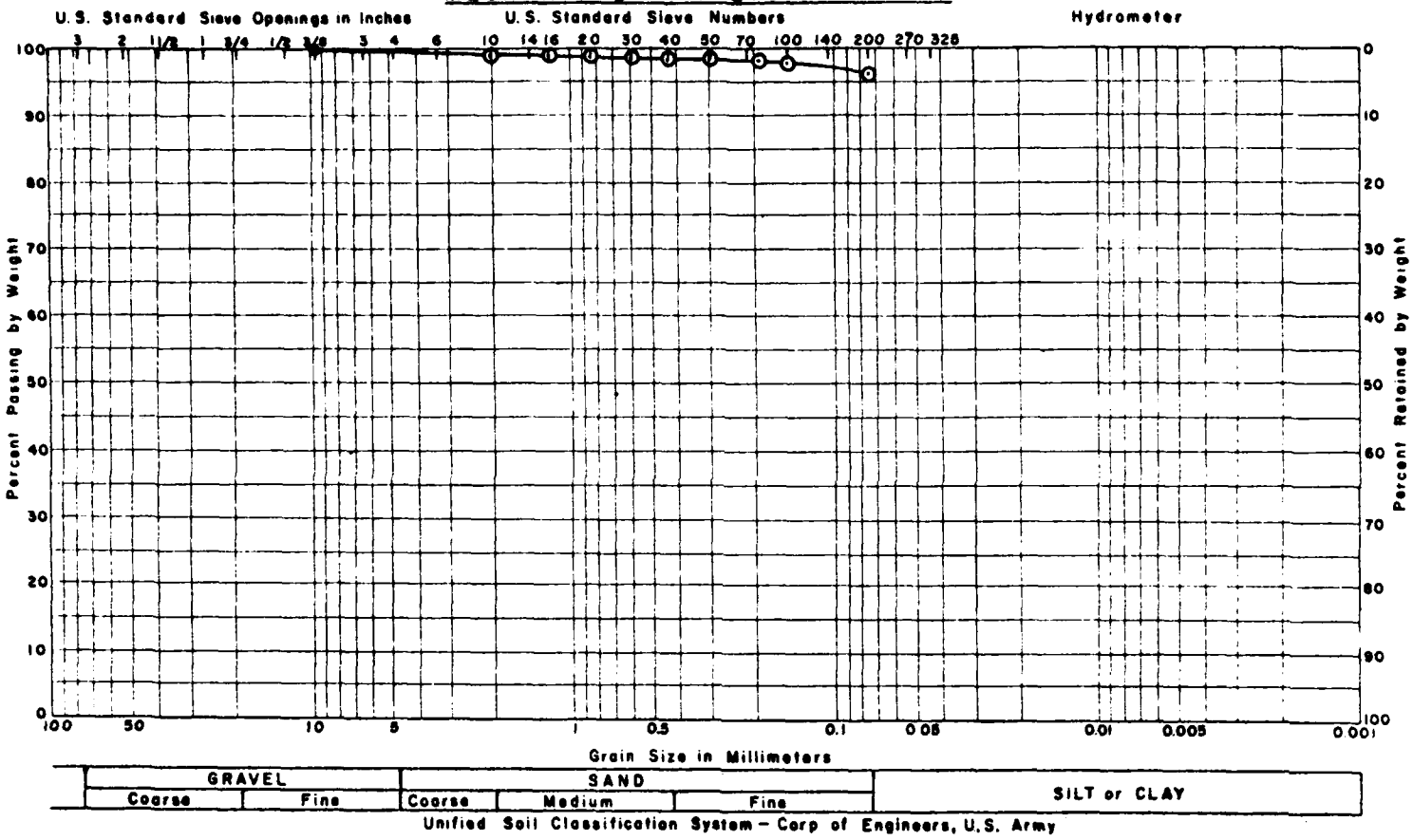
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Zone 10

Sample No: 55

Depth: 175-180 cm

96.20% Finer

300 g Sample

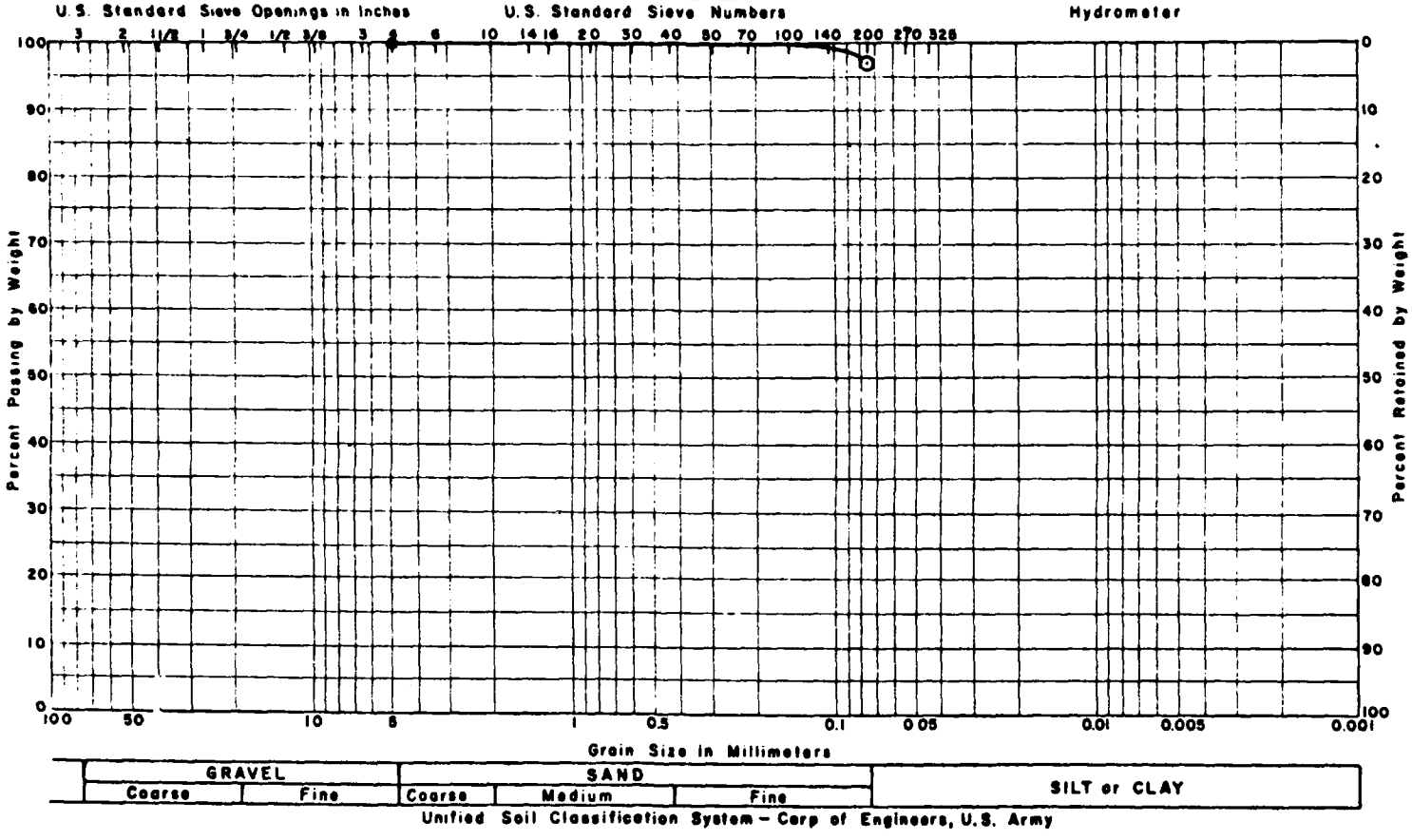
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Zone 11

Sample No: 56

Depth: 180-200 cm

97.23% Finer

300 g Sample

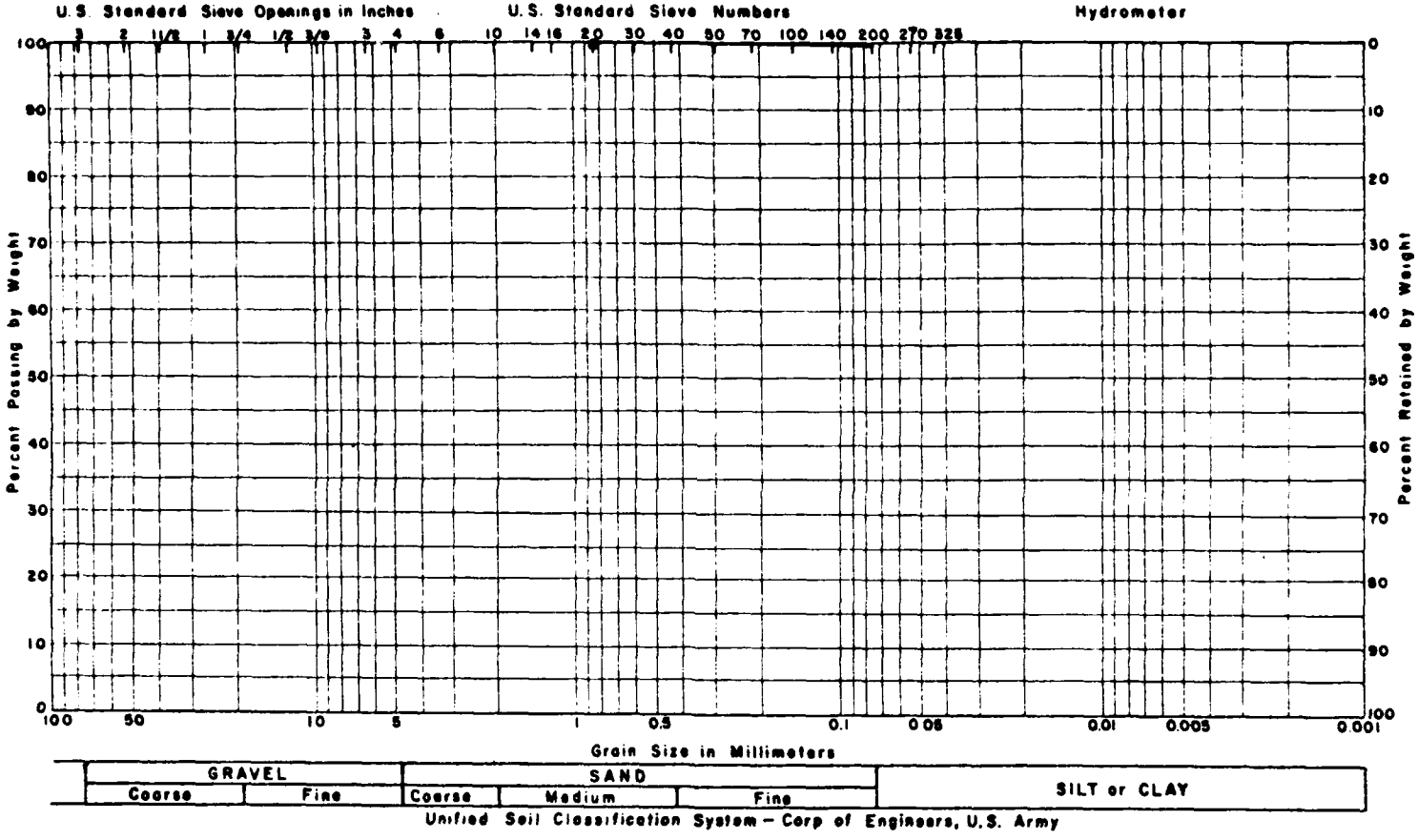
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Base of Privy

Sample No: 57

Depth: Below 210 cm

99.80% Finer

150 g Sample

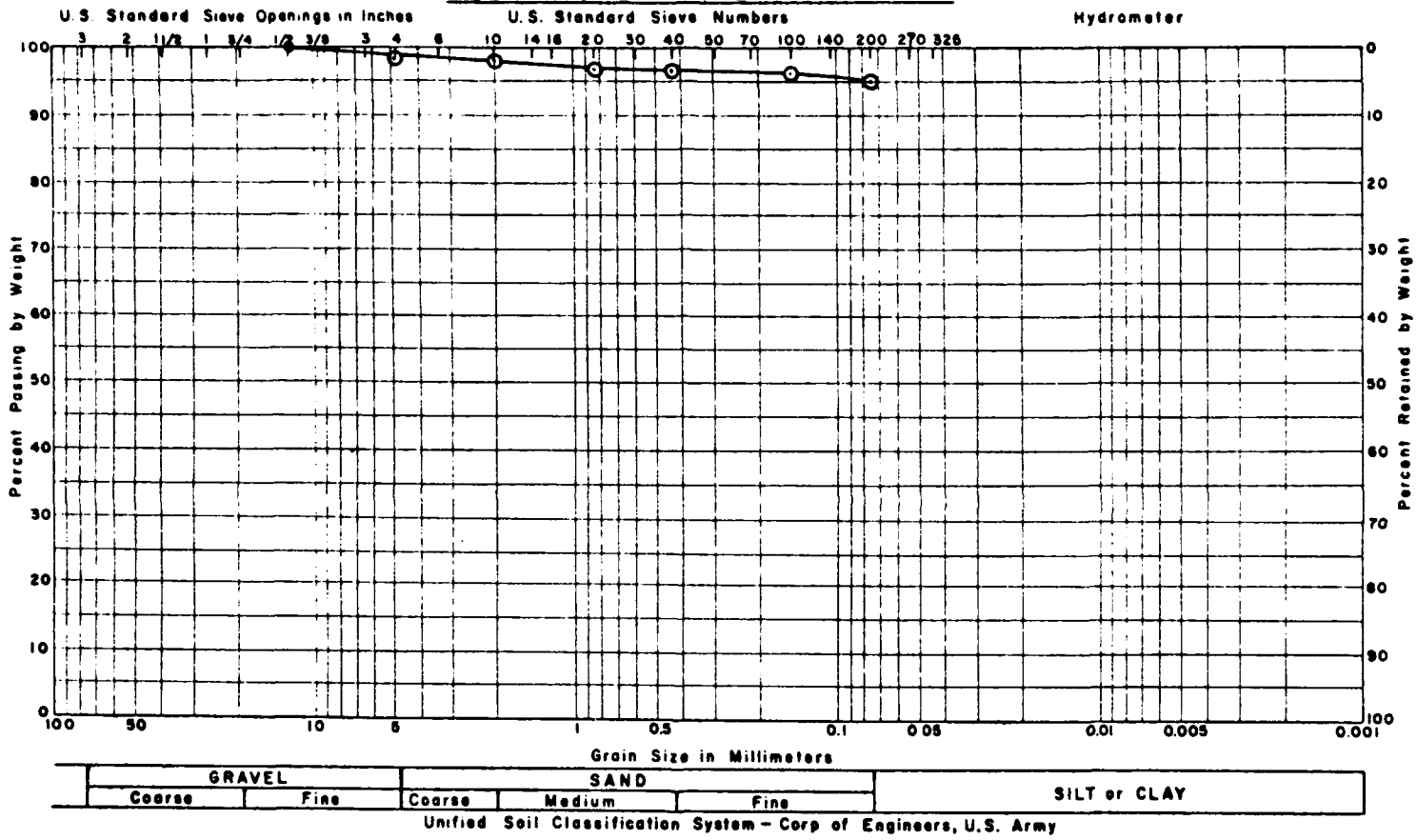
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Unified Soil Classification System – Corp of Engineers, U.S. Army

Provenience: Plank Privy, General Slump

Sample No: 58

Depth: None

95.02% Finer

245 g Sample

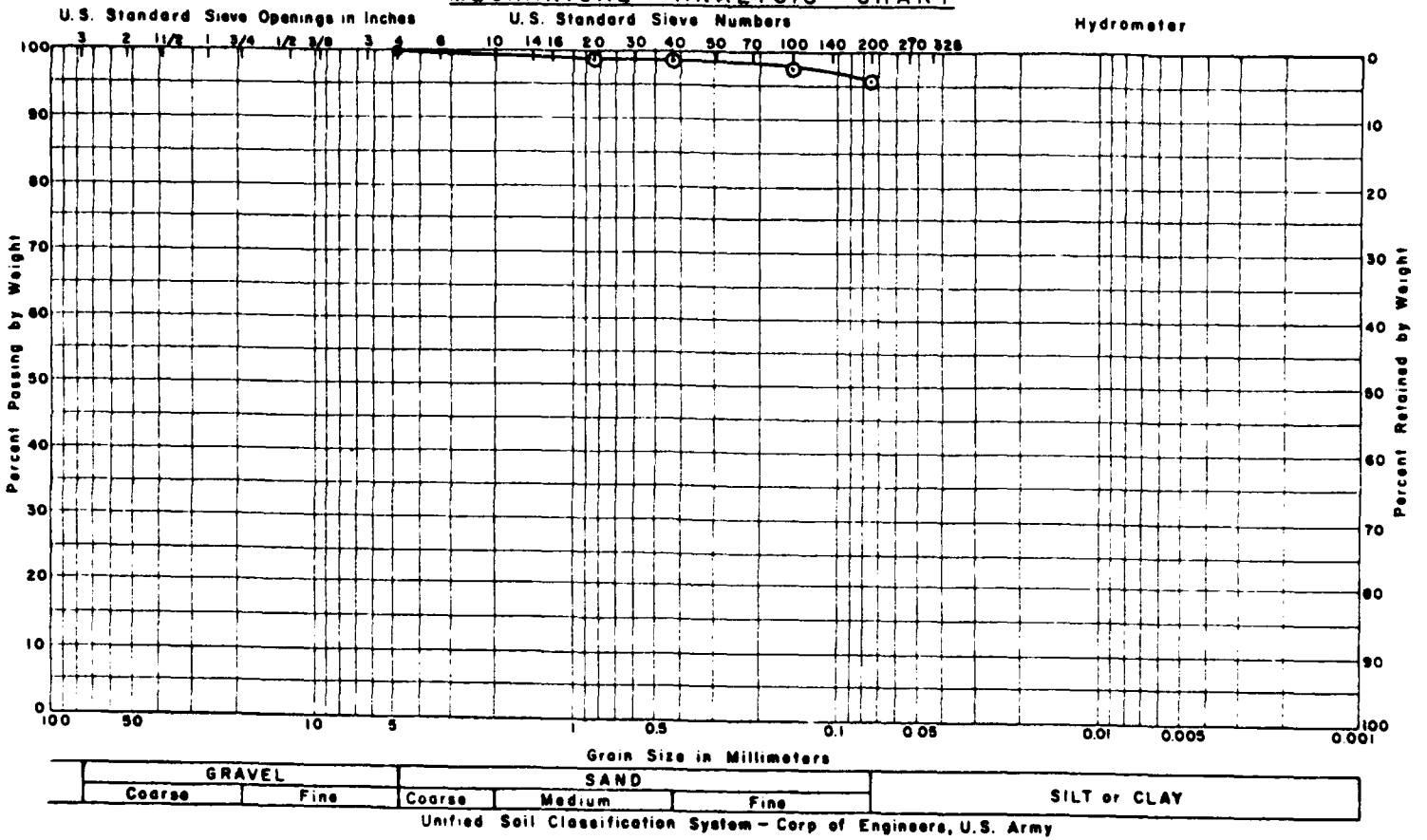
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Plank Privy Slump

Sample No: 59

Depth: None

95.52% Finer

250 g Sample

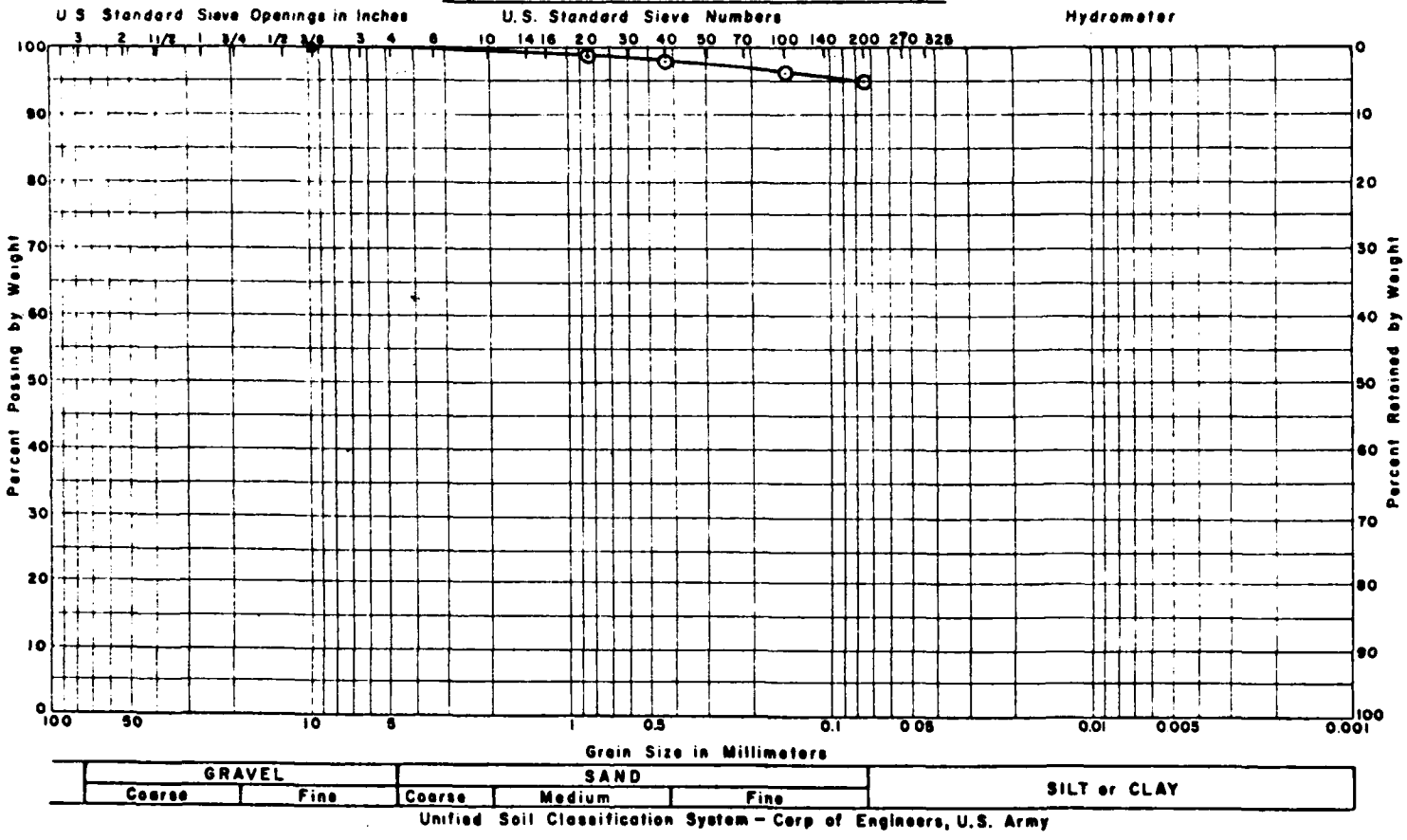
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Plank Privy Slump

Sample No: 60

Depth: None

94.76% Finer

250 g Sample

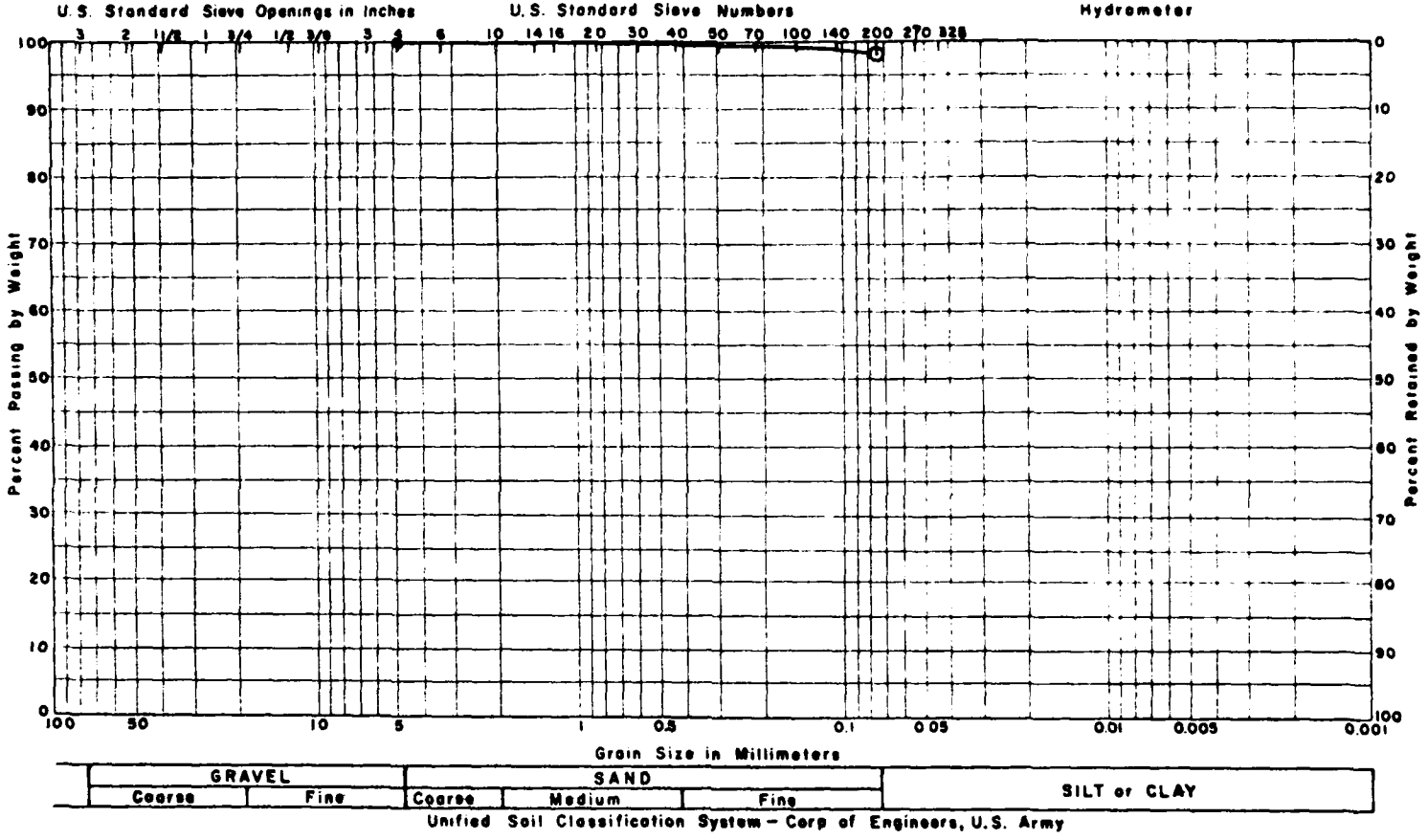
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Unified Soil Classification System – Corp of Engineers, U.S. Army

Provenience: Plank Privy Slump

Sample No: 61

Depth: None

98.54% Finer

255 g Sample

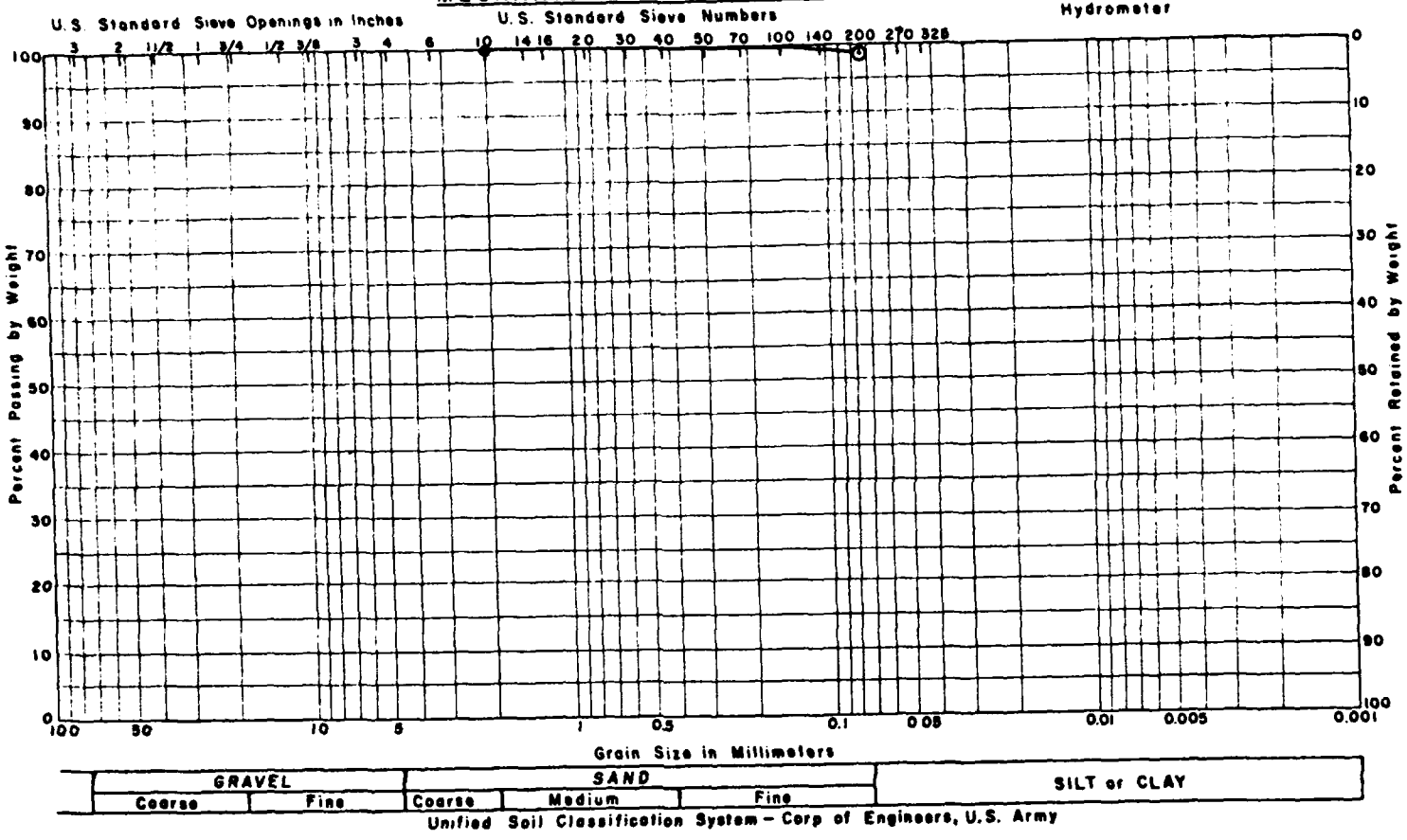
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Plank Privy Slump

Sample No: 62

Depth: None

99.40% Finer

300 g Sample

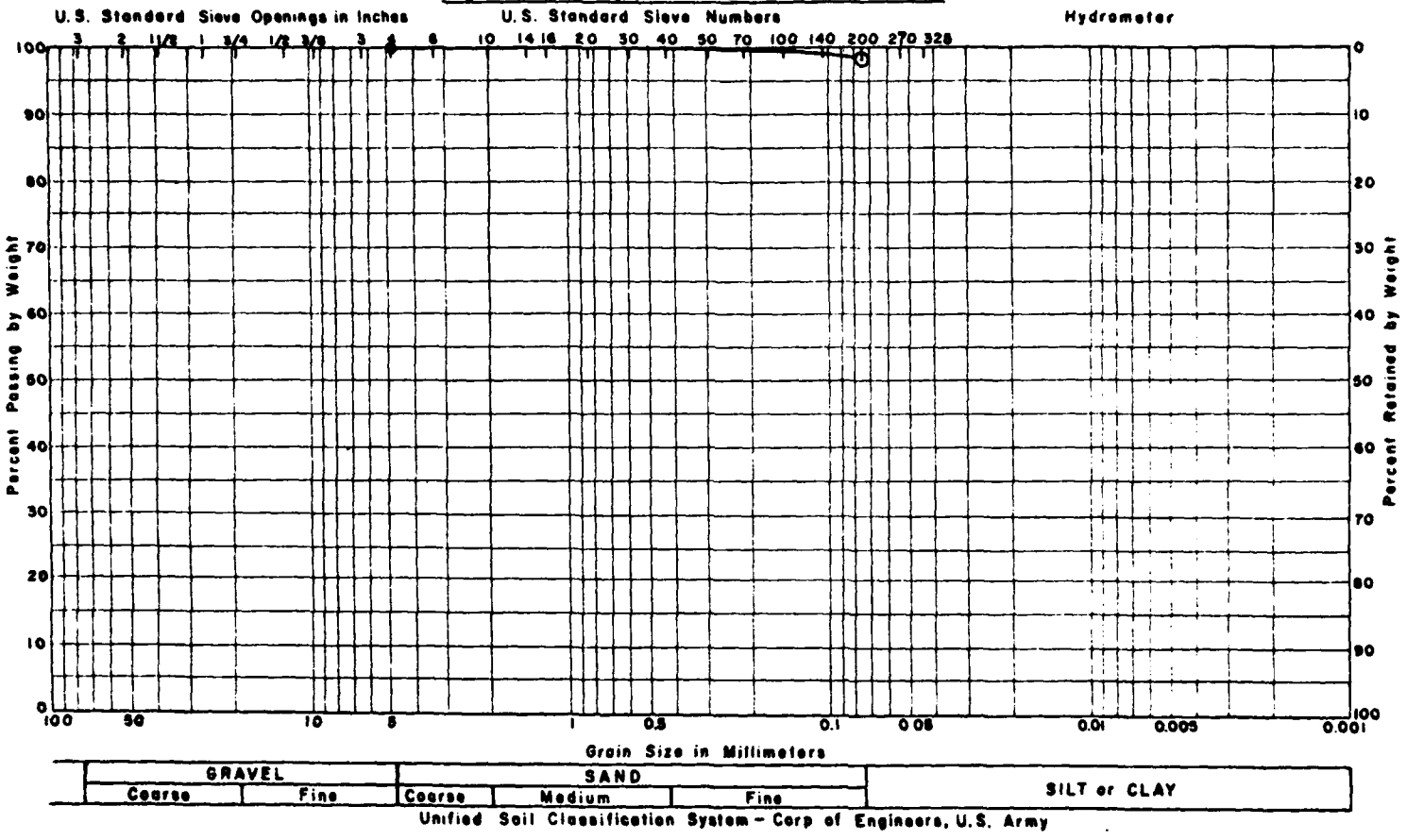
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Plank Privy Slump

Sample No: 63

Depth: None

98.66% Finer

300 g Sample

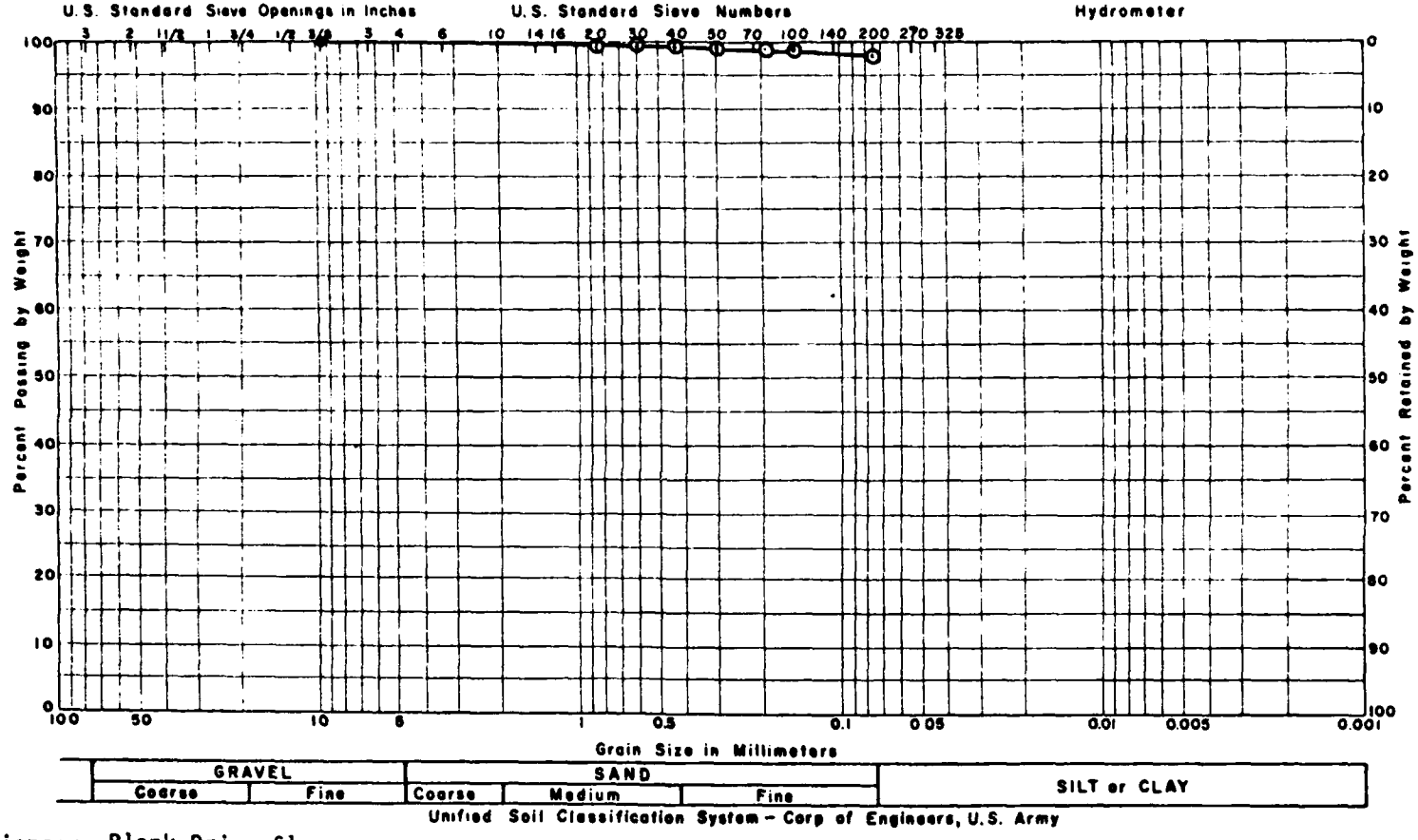
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Plank Privy Slump

Sample No: 64

Depth: None

98.23% Finer

300 g Sample

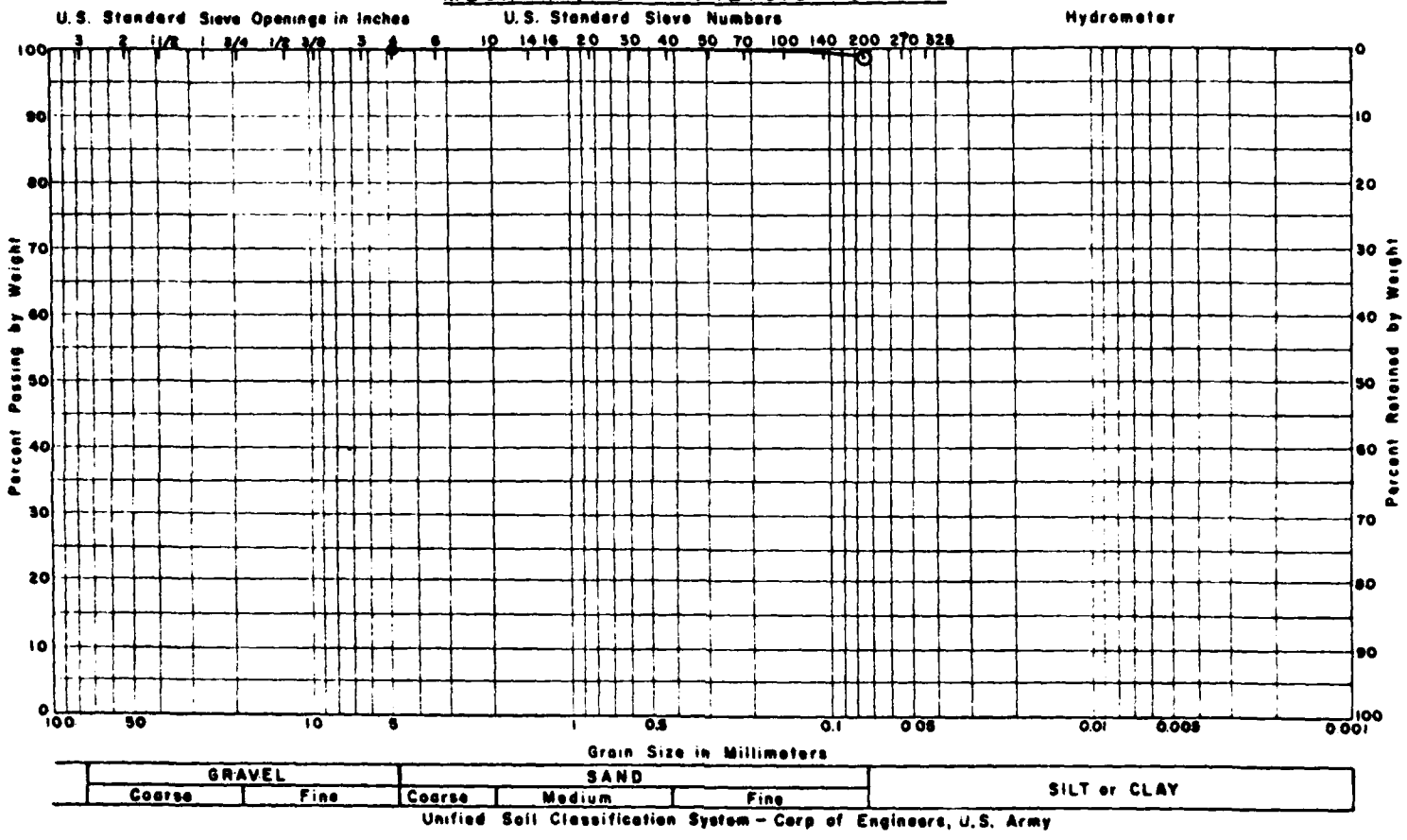
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Plank Privy Slump

Sample No: 65

Depth: None

99.18% Finer

259 g Sample

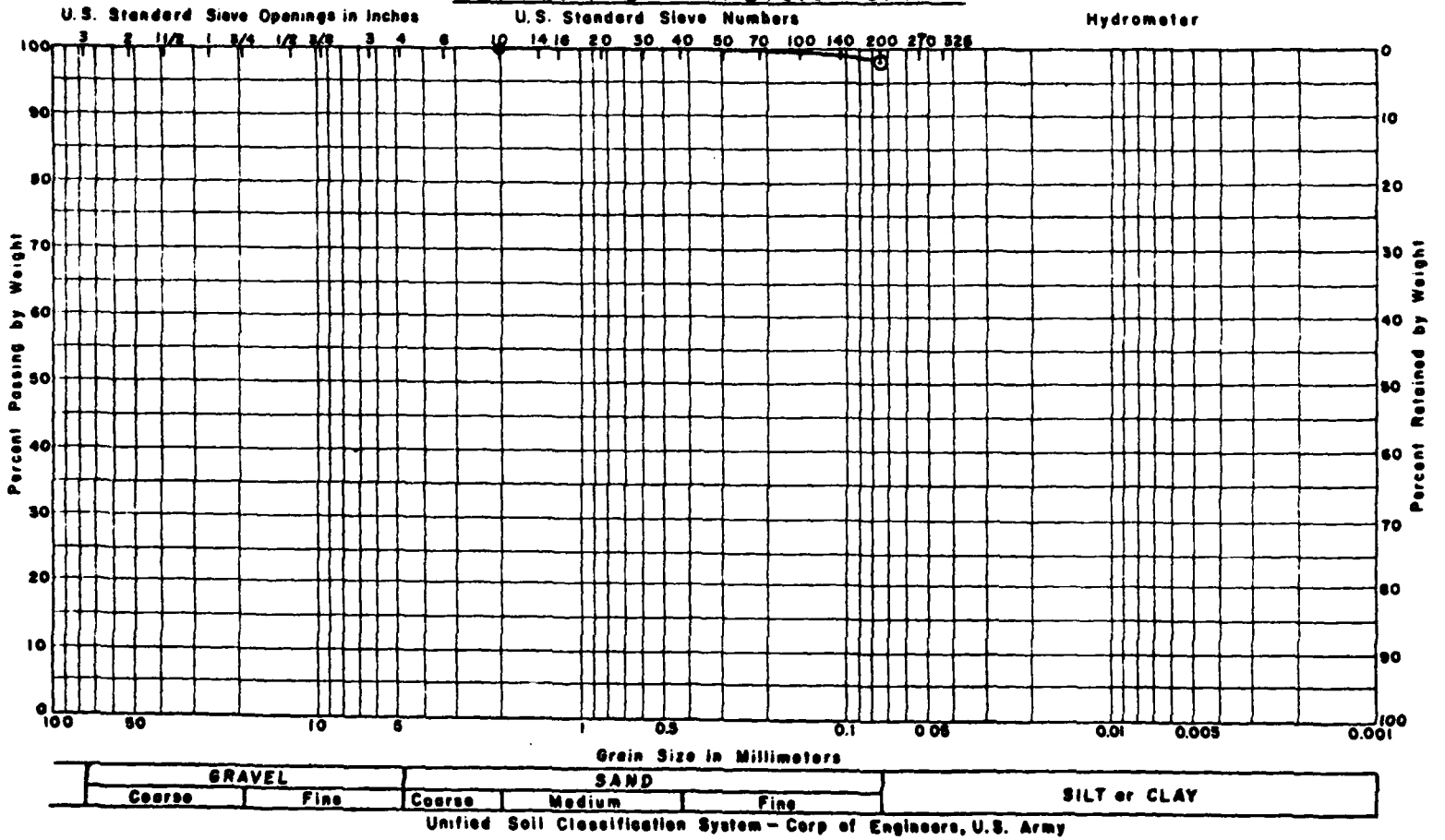
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Provenience: Plank Privy Slump

Sample No: 66

Depth: None

98.62% Finer

240 g Sample

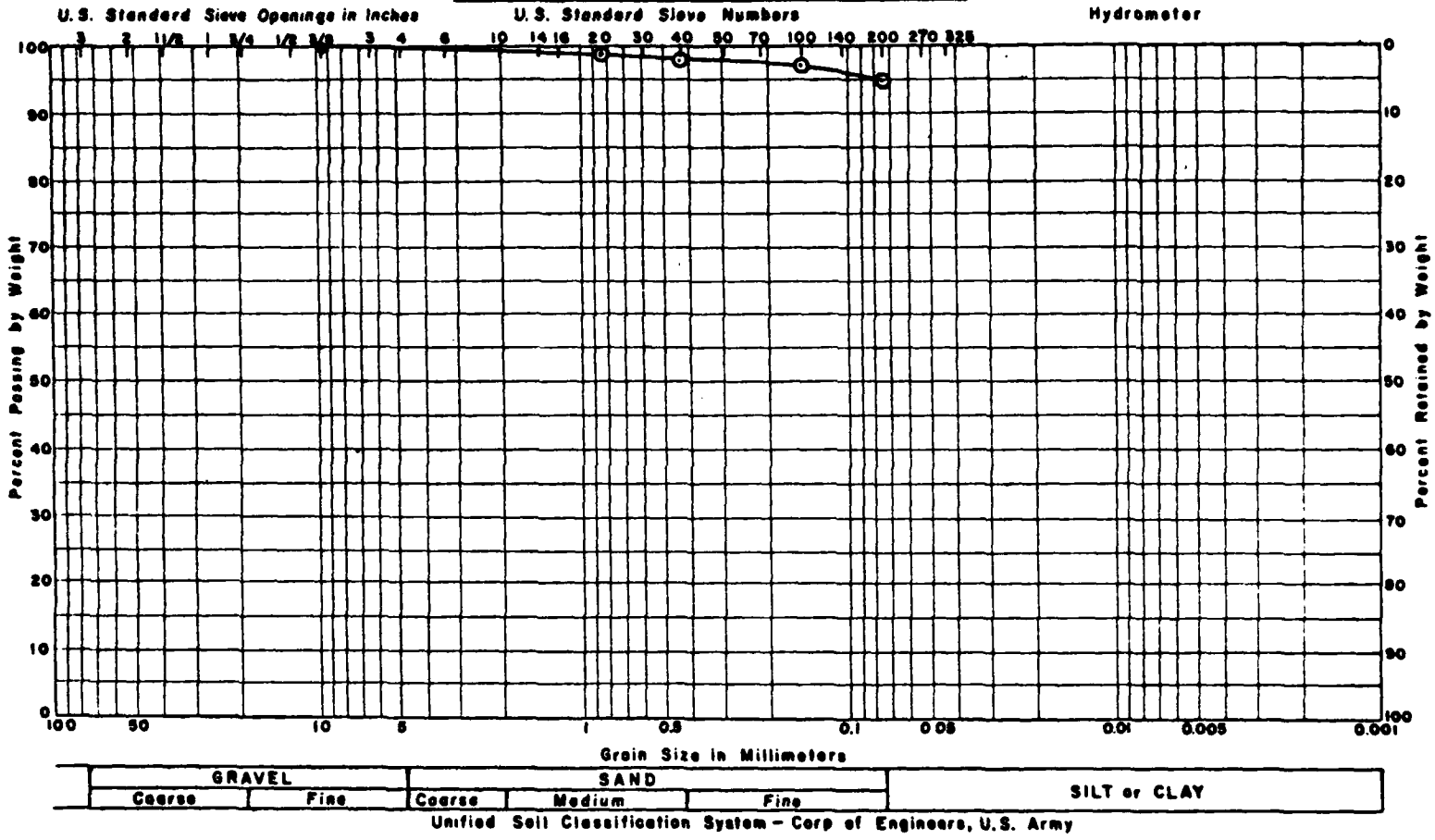
ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

MECHANICAL ANALYSIS CHART



Unified Soil Classification System – Corp of Engineers, U.S. Army

Provenience: Plank Privy Slump

Sample No: 67

Depth: None

94.83% Finer

300 g Sample

ST. ALICE PLANK PRIVY

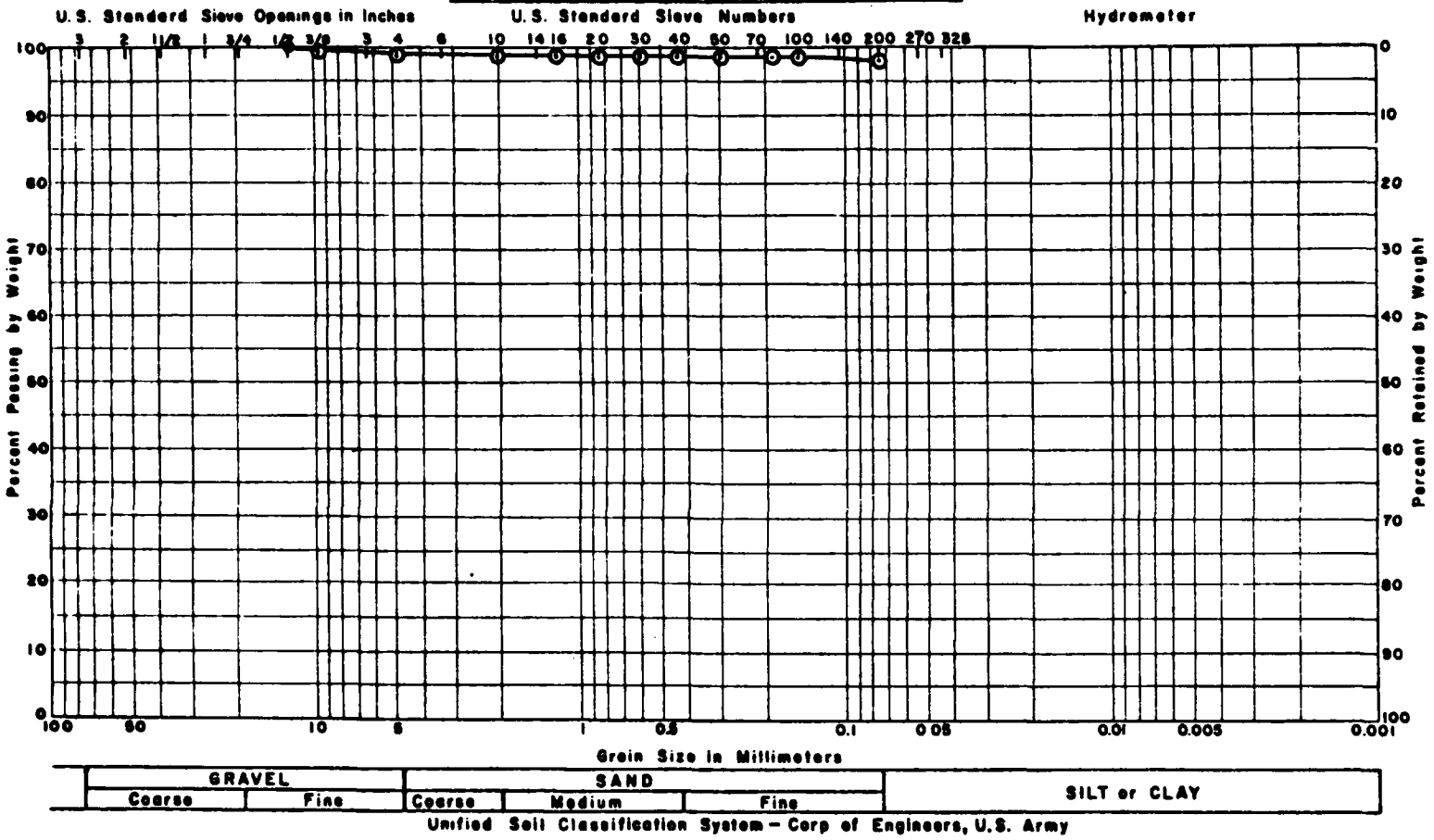
SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

252

MECHANICAL ANALYSIS CHART



Provenience: Plank Privy Slump

Sample No: 68

Depth: None

98.07% Finer

260 g Sample

ST. ALICE PLANK PRIVY

SMI Job No. 281-054

February 27, 1981

SOIL MECHANICS INCORPORATED

APPENDIX E: Corps of Engineer Scope of Work Study Requirements for This Project

1. Prepare plan and profile drawings, provided from the St. Alice privies field investigations, showing relevant cultural and natural features, including test excavations, in situ artifact concentrations, architectural features, and other evidence of human activity.

2. Conduct an historical overview for the purpose of assessing site integrity, age and historical association. The overview should have a regional orientation, as well as site specific research, that can be integrated with the archeological data.

3. Prepare an analysis of all materials recovered from the St. Alice privy excavations. Analysis of all artifactual data shall include a complete description, documented age manufacturer, social affiliation, and functional interpretation to the fullest extent possible.

a. In addition to standard analysis procedures, the Contractor shall perform on all ceramics hardness tests on the paste using a standard materials hardness test. Recorded for each sherd should be its type, glaze treatment, whether the test was made on a body, base or rim sherd (on more complete remains tests should be made on the rim body and base portions. Unless it can be determined from tests that the paste hardness is homogeneous throughout an object). Paste color on all ceramics should be described in terms of Munsell color gradations. Color photographs of a representative sample of pottery types will be made. In addition to analyzing the ceramics from the St. Alice privies, a statistically representative sample of each ceramic "type" from the St. Alice surface collections will be tested in the same manner as the ceramics from the St. Alice privies. A type collection will be prepared from the St. Alice surface collections for use by the New Orleans District. The Contractor shall catalogue all artifacts, samples, and specimens. All numbered artifacts will have a layer of clear protective varnish or nail polish over the number. All collections studied and put into storage will be placed in sturdy bags and boxes minimizing the chances of the contents breaking out. The catalogue system should include site and provenience designation. All notes, diagrams, maps, profiles and photographs will be appropriately catalogued. The cataloguing system utilized should conform

to the format currently used by the Louisiana Archeological Survey and Antiquities commission. All artifacts and other material data maintained by the Contractor will the expressed understanding that the contracting agency may require all or a portion of that material for its own use after completion of the investigation. Final disposition of artifacts will be in accord with the applicable Federal and state laws, and unless otherwise specified, will be permanently housed with the Louisiana Archeological Survey. Existing private archeological collections from the project area that will be used in the analyses will remain in private ownership. The Contractor shall be responsible for delivery of the analysed archeological materials to the repository designated by the Government following acceptance of the Final Report.

b. The 69 soil matrix samples from the St. Alice privies will be analyzed in accordance with standard pedological analyses (pH, grain size, constituents) and Flotation analysis. The 43 pollen samples will be analyzed for content and interpreted.

4. Report. Prepare a written report relating the results of the analyses of the St. Alice privies materials to the St. Alice site proper. Utilize data from the existing St. Alice report and archival sources as well as the regional overview data generated during the regional overview for the White Castle Gay Study, for this purpose. The written report shall follow the format requirements set forth in the attached MIL-STD-847A with the following exception: (1) instead of Report Documentation page, DD Form 1473, Use Report Documentation Page, Department of Commerce Optional Form 242 (4-77); (2) separate, soft, durable, wraparound covers with the specific format/layout to be provided by the Contracting Officer's Representative will be used instead of soft covers; (3) page size shall be 8 1/2 x 11 inches with a 1 1/2 inch binding margin and 1 inch margins; (4) the reference format of American Antiquity will be used. Spelling shall be in accordance with the U. S. Government Printing Office Style Manual dated January, 1973. The body of the report shall generally include the following: (1) introduction-study area; (2) review and evaluation of previous archeological investigations; (3) environmental setting of the study area; (4) methodology, statement of project objectivies, implementation and effectiveness of methods; (5) data analysis and cultural material inventories; (6) data interpretations; (7) data integration; (8) conclusions; (9) references; (10) bibliography; and (11) appendices, if appropriate. While B/W photographs and plates will be used in the report for

illustration, one set of color plates illustrating the type collection prepared from the St. Alice ceramic collection should be submitted with the draft report. Pages and sections on management, such as source funding, shouldbe arranged so that they may be simply deleted from the study, should it be published for popular consumption. The Contractor shall submit 10 copies of the draft report to the Contracting Officer with 210 days after completion of the White Castle Gap fieldwork. Upon receipt of the review, comments on the draft report, the Contractor shall incorporate or resolve all comments and submit one preliminary copy of the final report to the Contracting Officer within 30 days. Upon approval of the preliminary final report, the Contractor will submit 20 copies of the final report and one reproducible master copy to the Contracting Officer. In order to preclude vandalism, the final report shall not contain specific locations of the archeological sites. Site specific information, including site forms and maps, shall be included in an appendix from the main report. The Contractor shall submit 10 copies of this separate appendix with the draft reports, and 20 copies with the final report.