

**ARCHAEOLOGICAL SURVEY OF SITE 41SP203, INGLESIDE ON THE BAY,
SAN PATRICIO COUNTY, TEXAS**

By
Robert A. Ricklis

With
Osteological Observations on the Cranial Vault from 41SP203

By
Richard Mahoney

Prepared for
City of Ingleside on the Bay

and
Naismith Engineering, Inc.

Work Performed Under Texas Antiquities Permit No. 2893

Coastal Environments, Inc.

2002

Abstract

On June 28, 2002 a human cranial vault was found by a pipeline construction crew at Ingleside on the Bay, San Patricio County, Texas. Coastal Environments, Inc. was contracted to conduct archaeological investigations to determine if additional human remains or other archaeological materials were present along the pipeline route in the immediate area. This work was carried out under Texas Antiquities Permit No. 2893 issued by the Texas Historical Commission. Backhoe test pits and hand-excavated shovel tests yielded negative results, suggesting that the cranium was an isolated occurrence. Based on comparison of sediment matrix still adhering to the cranial vault with sediments from the original find locus, it is apparent that the bone was resting in a natural stratum of beach sediment. Although osteological analysis was inconclusive on the biological affinity of the specimen, its occurrence in buried natural sediments suggest some age, and it is likely that it represents a prehistoric or early historic Native American adult female. Given the isolated nature of the find, it is recommended that no additional archaeological work should be carried out prior to completion of the pipeline within the surveyed area.

Figure 1. Map showing project location.

Figure 2. Aerial photograph of project area.

Figure 3. Side and top views of cranium.

Figure 4. Hand-dug south access project site.

Figure 5. View north showing location of find.

Figure 6. Backhoe properties backhoe test pit of Test Pit 1.

Figure 7. South wall of Test Pit 1.

Figure 8. Drawing of profile, south wall of Test Pit 1.

Figure 9. North wall of Test Pit 2.

Figure 10. South wall of Test Pit 3.

Figure 11. North wall of Test Pit 4.

Figure 12. South wall of Test Pit 4.

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Robert A. Ricklis
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By
Richard Mahoney
Center for Archaeological Research, The University of Texas at San Antonio

Background

The Cranium Find

On June 28, 2002, in the course of laying a water pipeline, a construction crew for the City of Ingleside on the Bay encountered a human cranial vault. This specimen was seen by workmen on the backdirt pile removed by backhoe operations from a section of pipeline trench near the intersection of Bayshore Drive and Sandpiper Drive at an elevation of 2-3 feet above sea level near the north shoreline of Corpus Christi Bay (see Figures 1 and 2). The crew recognized the find as representing a human skull, and recovered the specimen. Because of heavy rains and massive slumping of trench walls at the time of discovery, the crew decided to backfill the trench in order to prevent uncontrollable slumpage. The cranium find (Figure 3) was reported to the San Patricio County Sheriff's Office, which temporarily took possession of the specimen.

Mr. David Sullivan of Naismith Engineering, Inc., the Corpus Christi-based engineering firm coordinating the project for the City of Ingleside and the Texas Water Development Board, recognized the possibility that the find might be of archaeological significance. Mr. Sullivan phoned the writer at the Corpus Christi office of Coastal Environments, Inc. and described the find. It was agreed that the writer would immediately accompany Mr. Sullivan to the location of the discovery to view the cranium and the find location.

Also present at Ingleside on the Bay was Sargent Jill Andrews, Investigator for the County Sheriff's Office, who had possession of the cranium. The writer inspected the specimen, which appeared to represent a Native American individual and thus to be an archaeological find. On the basis of this assessment, Sargent Andrews decided to turn over the specimen to Coastal Environments, Inc. for temporary curation pending bioarchaeological analysis and a decision for appropriate final disposition of the cranium.

Because of the logistical and financial factors involved in the ongoing but temporarily suspended pipeline work, Mr. Sullivan requested that Coastal Environments make recommendations for a methodology to determine if additional human remains or possibly associated archaeological materials were present within the immediate area of the find. A phone call was placed to Mr. Ed Baker of the Texas Historical Commission by Mr. Sullivan and the writer, during which it was agreed that a survey-level investigation of the locale was needed to ensure that further pipeline construction would not impact any significant cultural resources. Mr.

Sullivan also phoned the Texas Water Development Board, the state agency funding the pipeline project, to report that pipeline construction within the area of the find would be suspended until completion of an archaeological survey. The writer prepared a research design for this work (see below) which was faxed to the Texas Historical Commission along with a Texas Antiquities Permit Application on Monday, July 1. The research design was approved by the THC and Permit No. 2893 was issued to the writer as Principal Investigator. Field work as stipulated in the Research Design was carried out by Coastal Environments, Inc., under the writer's supervision, from July 2 through July 4, 2002.

As will be seen in the following sections, no additional cultural materials were found at the location of the cranium find, nor were any additional human bones observed. Despite the apparent fact that the cranium is an isolated find, the site trinomial 41SP203 has been assigned to the locus, in response to a request from the Texas Historical Commission for a trinomial designation (Ed Baker, pers. comm. July 1, 2002).

Archaeology at Ingleside on the Bay and its Environs

The City of Ingleside on the Bay, a largely residential shoreline community, is situated within an area rich in archaeological sites and prehistoric Native American cultural remains. Research carried out to date in the area has established a sequence of occupation going back several thousand years, and has shown that this bay shore location saw intensive use as a major fishing station, especially during the last 2,000 years. Time diagnostic stone artifacts reported from the area, most notably projectile points, span the Early-to-Middle Archaic (ca. 5,000-4,000 years b.p.) through the Late Archaic (ca. 3,000-1,000 b.p.) and into the Late Prehistoric period (ca. 1,000-300 b.p.) when relative large, thick dart points were replaced by small, thin arrow points (see Corbin 1963; Story 1968; Ricklis 1995, 1996).

Particularly abundant in the area are remains of the Late Prehistoric Rockport Phase, dated to between ca. 1250/1300 and the eighteenth century Spanish Colonial period. The archaeological material culture of the Rockport Phase is dominated by a lithic assemblage including Perdiz arrow points (see Turner and Hester 1999), small unifacial end scrapers, bifacially flaked knives, cylindrical and expanded-base flake drills, a variety of bone and shell tools and highly distinctive sandy paste pottery commonly bearing coating and/or painted designs of applied asphaltum.

The Rockport Phase can be linked to the historic Karankawa tribes of the central Texas coast, based on similar geographic ranges and on the presence of European-made artifacts on certain Rockport Phase sites and, significantly, the abundance of diagnostic native pottery at the Karankawan missions of Nuestra Senora del Rosario at Goliad and Nuestra Senora del Refugio (see Gilmore 1974; Ricklis 1999; Perttula 2002). The Karankawan occupation of the immediate area is well documented in the written account of Jean Beranger, a French explorer who visited nearby Aransas Pass in the fall of 1720 and documented a large fishing camp inhabited by Indians who spoke a Karankawa dialect (Caroll 1983).

Important archaeological sites in the immediate area are:

The McGloin Bluff Site (41SP11). This is a large Rockport Phase site situated along McGloin's bluff, a natural sand dune that parallels the Corpus Christi Bay shoreline (see Corbin 1963). Numerous pieces of Rockport ware pottery, arrow points and other stone and shell tools have been found along the bluff in a linear distribution that extends for at least 500 meters. The

western end of the site, as its boundaries are presently known, is situated along the east side of Sea Gull Drive, near the present project area (see Figure 2).

Sites along Ingleside Cove (41SP120, 41SP43 and the Kinney Bayou Sites Nos. 1 and 2, 41SP39 & 41SP40). In combination, these sites constitute an almost continuous archaeological zone some two kilometers long on the eastern and northern shore of Ingleside Cove. Surface finds at the Kinney Bayou sites (Corbin 1963) indicate a major Archaic shell midden as well as occupation during the Late Prehistoric Rockport phase. Excavations conducted at 41SP43 (Story 1968; Ricklis 1996) revealed stratified Late Archaic and Late Prehistoric (Rockport Phase) shell midden deposits containing abundant artifacts and faunal bones, including profuse remains of various fish species. At 41SP120, the writer's investigations revealed thick midden deposits dated on the basis of radiocarbon assays and time-diagnostic artifacts to between 4,530 b.p. and the Late Prehistoric period (Ricklis 1995, 1996).

41SP78. This site consisted of a small number of human burials located near the eastern shoreline of Live Oak Peninsula, approximately two km east of 41SP203. Five or six individuals were exposed at approximately two feet above mean sea level, resting in extended body position with the heads to the south. Associated grave goods included an Ensor dart point, incised bone pins, a shell-bead necklace and a stack of bivalve shells. The Ensor point indicates a Late Archaic time period (site file, Texas Archeological Research Laboratory, The University of Texas at Austin). No camp debris was observed in the immediate area, suggesting that the burials represent a distinct mortuary precinct.

41NU250. This site is a Rockport Phase site located along the northern shoreline of Shamrock point, a sand-and-shell-hash spit that extends from Mustang Island eastward into Corpus Christi Bay. The site lies at and within two feet of sea level, and consists of a dense shell midden deposit that is undergoing erosion by wave action (site files, Texas Archeological Research Laboratory, UT-Austin). The writer visited the site in 1989 and observed numerous sherds of Rockport ware pottery, scattered chert debitage, and shell tools eroding from the shell midden. Numerous fish bones and otoliths were observed in association with these materials, and this fact, in conjunction with the site's location, leave little doubt that the site was a fishing station. E. R. Mokry (pers. comm. 1988) reported finding at least two burials exposed by wave action. These appeared to be in extended position and a brass arrow point was found in association with one of the burials, suggesting that at least part of the site occupation occurred during colonial times.

Discussion of sites. The camp sites on the mainland near the presently reported project area are located on relatively high ground above shoreline beaches. The McGloin Bluff site, 41SP11, is on the crest of a east-west trending sand dune at approximately 30 feet above sea level, while the Ingleside Cove sites (41SP120, 41SP43 and the Kinney Bayou site) are within sandy matrices that rest on Pleistocene clay of the Ingleside facies of the Beaumont Formation (Brown et al. 1976) at approximately 15 feet above sea level. No cemeteries or burials are known to be associated with any of these sites.

In contrast, 41NU250 is an occupation site situated within two feet of present mean sea level. The presence of burials exposed along the shoreline by wave action indicates that Rockport Phase folk did inter their dead, at least at times, in low-lying beach shoreline sediments. Similarly, the cemetery site, 41SP78, is at a low elevation of only about two feet above sea level.

Field Investigations at 41SP203 and its Immediate Vicinity

The cranial specimen found during pipeline construction came from sediments at or very close to modern sea level. This is topographically in contrast to the known prehistoric and early historic Native American occupation sites around the project area. However, the observations of occupation debris and burials at 41SP250, and burials at 41SP78, indicate that aboriginal burials may be found on low ground along shorelines. Thus, a primary goal in the fieldwork at Ingleside on the Bay was to determine if archaeological materials in the form of human burials and/or associated occupational debris were present at or near the location of the cranium.

To realize these goals, two procedures were employed. First, a series of backhoe trenches, designated as Test Pits, was excavated near the find location. The decision to employ a backhoe was based on (a) the fact that most of the area in question underlay asphaltum street pavement that could only be efficiently penetrated with heavy machinery, and (b) the fact that hand excavation could not efficiently remove sufficient sediment to effectively evaluate whether or not additional human remains were present in the area (especially in view of the time constraints imposed by the pipeline construction schedule).

The second procedure was hand excavation of shovel tests parallel to and near the eastern edge of Sea Gull Drive, up slope from the location of the cranium find (Figure 5). The purpose in this was to determine if archaeological deposits or burials were immediately up slope such that they might have been the source location from which the cranium might have eroded to be redeposited in lower-lying sediments.

The Backhoe Test Pits

A total of six backhoe test pits was excavated. The locations of these pits are shown in Figure 2. With the exception of Test Pit 2, which was only two meters long due to constraints imposed by old buried drainage pipes, all were between three and four meters long. The first of these consisted of re-opening the section of pipeline trench that produced the cranium. The remaining five test pits were located more or less close by. All were placed along the proposed pipeline route, as indicated on engineering plans provided by Naismith Engineering, Inc., in order to determine if further pipeline trenching would impact archaeological deposits or materials.

A section of one wall of each test pit was cleaned with spades and trowels in order to clearly reveal sedimentary stratigraphy (see Figures 6-12). Digital and color slide photographs and scale drawings were made of each cleaned wall profile. Due to ground water saturation resulting from recent heavy rains, as well as the fact that all pits penetrated the natural water table, observations and records had to be made under tight time constraints, as pits rapidly filled with water and walls became dangerously unstable. Fortunately, it was possible to match the color and texture of sediment still adhering to the cranial bone with a stratum of sediment in Test Pit 1 and thus establish the probable stratigraphic context of the find. This enabled us to focus efforts on examining this stratum and possibly analogous strata in nearby test pits to determine if additional human bones or cultural materials were present. This was accomplished by careful troweling of the pertinent sediment in wall profiles and examination of samples of the sediment, plus screening of samples of the sediment that were extracted for the purpose before a given test pit became filled with water and the walls began to collapse.

The sediments in all six test pits consisted of natural, stratified beach or near-shore deposits under approximately 40-50 cm of modern fill (consisting of sand, shell hash and crushed caliche gravel). The natural deposits consisted of layers of sand, clayey sand and shell hash.

The stratigraphic details in the different pits were variable. In general, only two strata could be identified that extended throughout the tested area. These strata were:

1. A layer of gray sand with a minor amount of fine shell hash and inclusive lumps or lenses of green gleyed clay. This was some 20-50 cm thick and was consistently found at between 40 and 60 cm below the modern surface. As the ground surface is presently approximately only some 40 cm above sea level, the top of this stratum is at, or just below, sea level.

2. A massive deposit of sand and shell hash was consistently found in the basal portion of all test pits. Due to water saturation and extreme instability of the sediment, the thickness of this stratum could not be determined. However, the top to the stratum was consistently found at approximately 0.8 and 1.2 meters below the surface. This stratum appears to represent sand and shell deposition along an old, now buried beach.

Due to a complete absence of recovered archaeological remains in the test pits, it is unnecessary to describe the stratigraphy in each test pit in detail. The reader may refer to Table 1 and Figures 6 through 11 for tabular and visual representation of stratigraphies. At this point, it is advisable to explicate the inferred stratigraphic position of the cranium.

The Stratigraphic Context of the Cranium in Test Pit 1

As noted above, the re-opened section of the pipeline trench that contained the human cranium was designated as Test Pit 1. The stratigraphy found in T.P. 1 can be seen in Figures 7 and 8. As is evident, an old 16-inch drainage pipe (stopped with concrete after its abandonment) was transected by the pipeline trench at this point. The natural sediments consisted of six stratigraphic units, as follows:

1. Modern fill of mixed sand, shell hash and gravel, generally about 60 cm thick but thicker where it contained the aforementioned drainage pipe.
2. A thin layer of dark gray clayey sand.
3. The layer of gray sand and green gleyed clay found throughout the area of the test pits.
4. A thin stratum of light gray sand and oyster hash
5. A moderately thick layer of slightly clayey dark gray sand.
6. A moderately thick stratum of light gray sand.
7. Massive sand and shell hash.

In color and texture, the only sediment matching that still adhering to the cranium was that of 5 above, the dark gray, slightly clayey sand. This was designated as Stratum 4 in the field (the modern fill was not given a stratigraphic number designation). A large fish fin bone was found in this stratum. Given the absence of any additional faunal materials or artifacts in Stratum 4, this is not considered indication of cultural activity and likely is simply a natural occurrence in the shoreline sediments.

Stratum 4 was carefully examined for osteological and cultural materials (in situ and by screening some 45 liters of the sediment). None were found. Additionally, re-opening of the trench was monitored and re-excavated fill was examined and probed with the result that no

additional human bones or cultural materials were found. Given that the cranium is in a very good state of preservation, it is likely that post-cranial elements would have been equally well preserved and it is thus considered highly improbable that at least some of these would not have been observed during monitoring. To this it may be added that shortly after the wall profiles in Test Pit 1 were recorded, the pit walls began to slump due to water saturation, and freshly exposed profiles were thus created. Examination of the new wall profiles also failed to reveal any evidence of human bone.

Negative Findings in Test Pits 2, 3 and 6 (see Figures 9-11)

As may be seen in Figure 2, these three test pits were located within several meters of Test Pit 1. As might be expected, the stratigraphy in these pits was similar to that seen in T. P. 1. However, while the dark grey clayey sand stratum (Stratum 4 in T.P. 1) in T.P. 3 was of comparable thickness (approx. 15 cm) to that seen in T. P. 1, this layer was very thin (approx. 5 cm) in T.P. 2 and T.P. 3. In any case, this stratum was carefully examined in wall profiles and samples were screened through 1/4-inch mesh hardware cloth. Results were negative: No evidence of human bone or other archaeological materials was found.

Hand-Excavated Shovel Tests

Six shovel tests were excavated by hand on the slope immediately to the north of the area of the cranium find and the backhoe test pits. These were placed at 10-meter intervals parallel to and within 1 meter of the western edge of Sea Gull Drive along the proposed pipeline route (see map, Figure 2). Each shovel test was 30 cm in diameter and was excavated to a depth of 1 meter below the surface. Excavation was controlled in 20-cm arbitrary levels and all soil/sediment was screened through 1/4-inch hardware cloth.

Typically, the stratigraphy in the shovel tests was comprised of an upper layer of modern fill consisting of sand, shell hash and scattered crushed stone/gravel underlain by the natural eolian sand that comprises the dune formation known as McGloin's Bluff. In places the upper part of the natural sand deposit exhibited light organic staining suggesting the presence of a weakly developed A horizon soil. The sole exception was found in Shovel Test 1, where a zone of dark brown-to-gray sand and fine shell hash was found at 55-60 cm below the surface and extending to the base of the shovel test at 100 cm. Since the ground surface at this point is approximately three feet above sea level, this stratum is at and just slightly higher than sea level and presumably represents an old beach line deposit that has been covered by more recent sand dune deposition.

No evidence of human remains or other archaeological materials was found in the shovel tests, with the possible exception of a bovid molar and small bone fragment in S. T. 5. These items were found within a water-saturated, gray sand matrix at 80-100 cm below the surface, and may be faunal remains associated with aboriginal occupation of the bluff. In any case, the absence of any other possible or definite archaeological materials in the shovel tests indicates that this portion of the bluff slope does not contain any significant density of cultural remains.

Osteological Analysis of the Cranial Vault from 41SP203

By Richard Mahoney

Introduction

The Center for Archaeological Research, The University of Texas at San Antonio (CAR) was contracted to perform osteological analysis on human skeletal remains recovered by Coastal Environments, Inc. (CEI) during CEI's field investigations at 41SP203, City of Ingleside on the Bay, San Patricio County, Texas. The CAR analysis was conducted by the Staff Osteologist at the CAR Osteology Laboratory on 20 July 2002. Several published and non-published methodologies were applied in osteological analysis of metric and non-metric skeletal traits.

Elements

An articulated, partial human cranium (calotte) was recovered via mechanical excavation of Test Pit 1 in Stratum 4 (see Figure XX). The calotte consists of a complete right parietal, about 80% of the frontal, approximately 70% of the left parietal, and roughly 65% of the occipital. Whereas the condition of the extant elements is in generally good condition, specific element absence and taphonomic forces have precluded the majority of metric aspects relevant to mensuration and, hence, comprehensive interpretation. However, several non-metric traits are discernable and will be discussed, below.

Taphonomy

Although the precise origin for the remains cannot be proven empirically, post-depositional indices suggest a locus other than Test Pit 1 at 41SP203. Specifically, postmortem alteration consistent with aquatic taphonomic forces is evident. Notably, and by definition of the term, the calotte lacks elements of the splanchnocranium (face) and the basal portion of the neurocranium (base). The individual bones in these portions of the cranium lack the robust nature of bones of the calotte and, hence, are more susceptible to post-depositional forces. In a marine environment, Sorg et al. (1997) proffer wave action and resultant "tumbling" adequate forces to disarticulate these relatively fragile elements from the remainder of the cranium.

All of the individual elements present exhibit chemical weathering, with the left parietal and left margin of the frontal sustaining the greatest deterioration therefrom. Each element possesses weathering cracks with associated exfoliation of the periosteal surfaces. Together, these aspects suggest the calotte, if not the entire cranium, was subject to elemental exposure for some time prior to secondary deposition within Stratum 4 at 41SP203. The extensive deterioration of the left parietal and left margin of the frontal indicate differential weathering, possibly from lateral orientation subjecting that portion to localized abrasion via sand either fluvial or aeolian in origin. Coarse sediments such as sand have been demonstrated a prime constituent as an abrasion agent affecting skeletal material in an aquatic environment (Nawrocki et al. 1997).

Metric Traits

Established protocols in human skeletal mensuration were employed during the analysis (Buikstra and Ubelaker 1994; Moore-Jansen et al. 1994). Unfortunately, due to the incomplete nature of the remains, only three metric traits were available for the study. Measurements were

limited to (1) Maximum Cranial Length (the distance between the Glabella and the Opisthocranium along the mid-sagittal plane [176mm]); (2) Frontal Chord (the distance from nasion to bregma along the mid-sagittal plane [108mm]); and (3) Parietal Chord (the distance from bregma to lambda along the mid-sagittal plane [116mm]). Craniometric discriminant analysis via FORDISC 2.0 (Ousley and Jantz 1996) suggests that the individual was a female. However, due to the low number of measurements available for this statistical analysis, the following morphologic observations should be considered in concert with this limited multivariate interpretation.

Non-Metric Traits

Several morphological traits were apparent on the ectocranial and endocranial surfaces of the calotte that prove instrumental in distinguishing various determinates. Most notably, frontal and parietal bossing (Bass 1995:86), lack of prominent brow ridges, and a relatively diminutive nuchal crest all suggest this individual was a female. The presence of endocranial Pacchionian depressions (Krogman and I_ can 1986) in concert with complete obliteration of endocranial sutures, advanced obliteration of ectocranial sutures, and deep-cut meningeal arterial grooves suggest this to be an individual in excess of 45 years of age.

In addition, non-metric traits of "Primary Importance" (Buikstra and Ubelaker 1994:87) were recorded. Supraorbital structures, foramina located along the superior horizontal aspect of the margin, were noted on the right and left sides of the frontal. Obelionic foramina, located on the parietal along the sagittal suture at obelion and extending from the ectocranial through the endocranial, were noted on the right and left parietals. No other morphological traits falling within Buikstra and Ubelaker's (1994) primary importance category of non-metric traits were noted during the analysis.

Pathology

No pathological conditions of unequivocal nature were evident. Of note, though, are the extremely weathered portions of the left parietal and left margin of the frontal, described above. At first blush, porotic hyperostosis was a consideration. However, in its active state, the pathology occurs primarily in developmental (immature) bone of the cranium, as opposed to the degenerative (mature) bone of the specimen from 41SP203. Further, no evidence of bone resorption (healing) is evident in the diploë as exposed along the left parietal and left margin of the frontal. This condition most commonly occurs in the anterolateral quadrant of the orbital roofs (cribra orbitalia). Although, when encountered in other regions of the cranium, the condition is typically bilaterally symmetrical (White 1991). The other regions of the cranial vault wherein the condition primarily occurs include areas along the sagittal and lambdoid sutures; rarely is this condition encountered along the coronal suture (Buikstra and Ubelaker 1994). Regardless of location, this pathology characteristically causes enlargement and thickening of the diploë and deposition of vertically oriented spicules atop the periosteal surface in the region of infection (Steele 1987). Thickening and enlargement of the diploë was not evident in the outer table surrounding the area of wear. Similarly, albeit to loss of the majority of the periosteal surface in the area, no deposits of spicules were noted. As such, porotic hyperostosis is an unlikely agent of bone alteration, rather abrasive taphonomic forces that have (1) completely removed the left temporal; (2) worn the periosteal surface of the left parietal,

exposing the diploë; and (3) without that protective outer surface, eroded the cancellous structure of the diploë. The combination of the post-depositional factors has obscured those portions of the individual elements critical in confident diagnosis of bone pathology.

Racial Affinity

Unfortunately, due to the incomplete state of the remains, standard measurements requisite in the determination of racial affinity based on metric traits is not possible. Correspondingly, no morphological traits consistent with racial identification were present on the extant remains. It can be conjectured, however, based solely upon the context of recovery and extensive taphonomic forces evident, that this individual was of Native American in origin.

Summary

This study has attempted, by means of non-destructive analysis, to determine the identity of the individual represented by the partial remains recovered at 41SP203. Racial affinity via craniometry is typically relegated to analysis of the splanchnocranium, which was absent; as such, no affinity can be determined. Similarly, stature is inestimable due to the lack of any associated post-cranial elements. To summarize, this analysis has determined that this individual was probably a female in the waning stages of life (over 45 years of age) at the time of her death.

Conclusions and Recommendations

Despite careful examination of sediments in wall profiles and screening of the dark gray clayey sand sediment believed to be the matrix of the human cranium, no evidence of additional human bone or other cultural materials were found during the survey. It is concluded, therefore, that the cranium is an isolated find. It does not appear to be part of an *in situ*, intact burial, much less an aboriginal cemetery. There is no evidence upon which to infer how a human cranium came to rest within a buried, sealed stratum of shoreline sediment. Hypothetically, it could have been dislodged by slope erosion from a burial originally placed up slope along McGloin's Bluff. If this was the case, it is apparent that no major cemetery exists along the pipeline route on the slope adjacent to Sea Gull Drive, since our shovel tests should have found some evidence of such. The possibility that scattered or isolated graves exist within this area cannot be ruled out, however. Also possible is the presence of an aboriginal cemetery up slope but not within the pipeline route, or that aboriginal graves were placed along the beach and were subsequently extensively disturbed by wave action. The latter possibility is suggested by the fact that aboriginal burials in the area (at 41SP78 and 41NU250) have been documented within two feet of mean sea level. Finally, the possibility that the cranium represents a disarticulated skeleton that was washed ashore and buried in beach sediment cannot be ruled out.

The possibility that the cranium may have been somehow associated with the modern fill deposit that contained the old drainage pipe in Test Pit 1 was considered. However, such an inference is not supported by the facts that (a) the sedimentary matrix still adhering to the cranium is clearly different in color and texture from the modern fill, (b) the matrix adhering to the bone appears to match that of the underlying dark gray clayey sand stratum (Stratum 4 in T. P. 1), and (c) Stratum 4, from which the cranium is believed to have come, lies below the base of the fill deposit (see Figure 8).

Although the cranial specimen was too incomplete to permit confident assessment of biological affinity, the location of the find within natural buried, stratified deposits suggests some age, and it is therefore probable that it represents a Native American. Short of radiocarbon dating of the bone collagen, the time period cannot be determined. Given the abundance of evidence for prehistoric occupation of the area in Late Archaic and Late Prehistoric times, it is not unlikely that the cranium pertains to one of these periods. However, a Protohistoric or Early Historic age cannot be ruled out.

Whatever the precise mechanism by which the cranium came to rest, it is concluded that no significant archaeological deposits or features are likely to be present within the pipeline route in the vicinity of the find. On this basis, it is recommended that no further archaeological work be carried out at this locale, and that pipeline construction be resumed.

The Texas Historical Commission has recommended that the cranium be repatriated to an interested Native American tribe. Although there is no legal statute that demands or recommends repatriation of unaffiliated human remains* or not curated in federally funded institutions, the THC believes such a course would show sensitivity to Native American concerns (James E Bruseth, pers. comm. 9/02). In this case, this decision most likely rests with the legal owner of the cranium fragment, which is the City of Ingleside on the Bay. Thus, the City may wish to consider the final disposition of the specimen and decide if repatriation is the preferred course of action. Alternatively, the specimen could be permanently curated in a professional archaeological repository through a transfer of ownership, as is traditionally the professional scientific procedure with archaeological specimens found on non-federal or non-tribal lands during projects that are not federally funded.

* Remains not from tribal land or not clearly pertaining to a federally recognized tribe.

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Table 1. Summary of Stratigraphic Information in Backhoe Test Pits, Ingleside on the Bay

Test Pit No.	Sediment	Munsell Color	Depth Range (in cm.)
1	Modern fill (sand,shell hash,gravel)	10YR5/2	5-55
	Dark gray clayey sand	10 YR3/2	55-60
	Gleyed clay sand	10YR5/1 and GLEY1 5/10GY	60-75
	Light gray sand/shell	5Y7/1	75-80
	Dark gray clay/sand	5Y5/2	80-100
	Light gray sand	10YR6/1	100-135
	Shell hash	10YR6/2	135-water
2	Modern fill (sand,shell hash,gravel)	10YR5/2	5-32
	Shell hash		32-37
	Pale brown sand	10YR6/2	37-47
	Shell hash, sand	10YR6/1	47-50
	Dary gray clayey sand	10YR5/2	50-57
	Sand with green gleyed clay	10YR5/1 and	57-82
	Dark gray sand with hash	GLEY1 5/10GY 5Y4/1	82-85
	Shell hash	GLEY1 6/N	85-90
	Brown organic staining	10YR4/2	90-95
	Hash, sand	10YR6/2	95-water
3	Modern fill (sand, shell hash)	10YR5/2	5-35
	Light gray sand	10YR6/1	35-40
	Shell hash		40-50
	Sand with green gleyed clay	10YR5/1 and GLEY1 5/10GY	50-75
	Light grayish hash with sand	GLEY1 6/5GY	75-90
	Dark gray clayey sand	10YR4/2	90-107
	Light gray sand	10YR6/1	107-122
	Shell hash		122-water
4	Humus	10YR3/2	0-5
	Modern fill (sand, shell)	10YR7/3	5-25
	light gray sand and hash	10YR7/1	25-40
	Sand with green gleyed clay	10YR5/1 and GLEY1 5/10GY	40-65
	Dary gray clayey sand, small shell frags.	10YR5/1	65-72
	Oyster shells, hash	GLEY1 6/5GY	72-84
	Gray sand, shell hash	10YR6/2	84-water

Table 1, concl. Summary of Stratigraphic Information in Backhoe Test Pits, Ingleside on the Bay

Test Pit No.	Sediment	Munsell Color	Depth Range (in cm.)
5	Humus	10YR3/2	0-5
	Modern fill (light brown sand, hash, rock)	10YR6/3	5-35
	Pale brown sand, shell hash	10YR7/2	35-65
	Gray sand with green gleyed clay	sand: 10YR5/1 clay: Gley1 5/10GY	65-90
	Gray clay	Gley1 6/10Y	90-95
	Oyster hash	GLEY1 6/5GY	95-100
	Light brown sand/shell hash	10YR4/1	100-water
6	Modern fill (sand,shell hash,gravel)	10YR6/3	5-27
	Light brown sand	10YR 6/3	27-39
	Gray sand, oyster hash	GLEY1 6/N	39-47
	Gray sand with green gleyed clay	GLEY1 5/10GY	47-55
	Lens of brown sand	10YR4/1	55-56
	Gray sand with green gleyed clay	GLEY1 5/10GY	56-86
	Gray sand with oyster hash	GLEY1 6/N	86-101
	Gray sand	10YR5/1	101-111
	Brown sand, fine shell hash	10YR4/2	111-121
	Gray sand	10YR6/1	121-136
	Black organic lens	10YR2/1	136-139
	Pale brown sand, shell hash	10YR5/3	139-water

Table 2. Summary of findings in Shovel Tests, Ingleside on the Bay

S. T.	Level	Sediment	Color	Inclusions
1	1 (10-20 cm.)	sand	brown, 10YR4/2	sparse oyster hash, roots, gravel heavy oyster hash, 20-35 cm. oyster, sparse cross-barred Venus shell fine oyster shell hash, cross-barred Venus shell
	2 (20-40 cm.)	sand	light brown, 10YR6/3	
	3 (40-55 cm.)	sand	light brown, 10YR5/2	
	3 (55-60 cm.)	sand, fine shell	dark brown, grades to gray 10YR3/2-6/2	
	4 (60-80 cm.)	fine shell hash, sand	gray, 10YR6/2	
2	5 (80-100 cm.)	fine shell hash, sand	gray, 10YR6/2	caliche, crushed oyster hash oyster hash, several Rangia cuenata shell hash sparse shell, rusted nail, small charcoal fragment small bone fragments, bovid tooth at 80-85 cm.
	1 (0-20 cm.)	sand	light brown, 10YR6/3	
	2 (20-40 cm.)	sand	light brown, 10YR6/3	
	3 (40-60 cm.)	sand	light brown, 10YR6/3	
	4 (60-80 cm.)	sand	gray, 10YR7/1	
3	5 (80-100 cm.)	wet sand	gray, 10YR7/1	gravel, shell hash oyster hash mostly fine oyster hash scattered shell fragments scattered smallish shell hash scattered smallish shell hash
	1 (0-20 cm.)	clayey sand, shell hash	light brown, 10YR6/3	
	2 (20-40 cm.)	clayey sand	light brown, 10YR5/2	
	3 (40-60 cm.)	sand	light brown, 10YR5/2	
	4 (60-80 cm.)	sand (old A-horizon?)	dark brown, 10YR4/2	
4	5 (80-100 cm.)	sand	dark brown, 10YR4/2	grass, rocks. shell hash, gravel sparse shell fragments, A-Horizon stripped off? sparse shell sparse shell
	5 (90-100 cm.)	sand	light brown, 10YR5/2	
	1 (0-20 cm.)	sand	dark brown, 10YR4/2	
	2 (20-40 cm.)	sand	brownish gray, 10YR6/2	
	3 (40-60 cm.)	sand	brownish gray, 10YR6/2	
	4 (60-80 cm.)	sand	brownish gray, 10YR6/2	
	5 (80-100 cm.)	sand	brownish gray, 10YR6/2	

Table 2, concl. Summary of findings in Shovel Tests, Ingleside on the Bay

S.T.	Level	Sediment	Color	Inclusions
5	1 (0-10 cm.)	humus, sand	dark brown, 10YR3/2	shell, gravel, roots shell, gravel, roots fine shell hash, sparse caliche, pre-1980 beer can small gravel, shell hash, modern clear & brown glass scattered shell, a few caliche nodules very sparse shell fragments, prevalent oxidation
	1 (10-20 cm.)	humus, sand	brown, 10YR5/3	
	2 (20-40 cm.)	sand	light brown, 10YR6/2	
	3 (40-60 cm.)	sand	light brown, 10YR5/2	
	4 (60-80 cm.)	sand	light brown, 10YR5/2 with yellow/orange stains, 5YR5/8	
6	5 (80-100 cm.)	sand	light brown, 10YR5/2 mottled w/ orange, 10YR5/6	gravel, roots, scattered oyster shell fragments gravel, sparse shell sparse shell (oyster and small cross-barred Venus) very little shell, a few small translocated road gravel almost no shell
	1 (0-20 cm.)	sand	dark grayish brown, 10YR4/2	
	2 (20-40 cm.)	fine sand	10YR4/2 grades to 10YR6/2	
	3 (40-60 cm.)	sand	10YR6/2 with lenses of orange, 5YR6/6-5/8	
	4 (60-80 cm.)	sand	10YR6/2 with lenses of orange, 5YR6/6-5/8	
	5 (80-100 cm.)	sand	10YR6/2 mottled with orange, 5YR6/6-5/8	

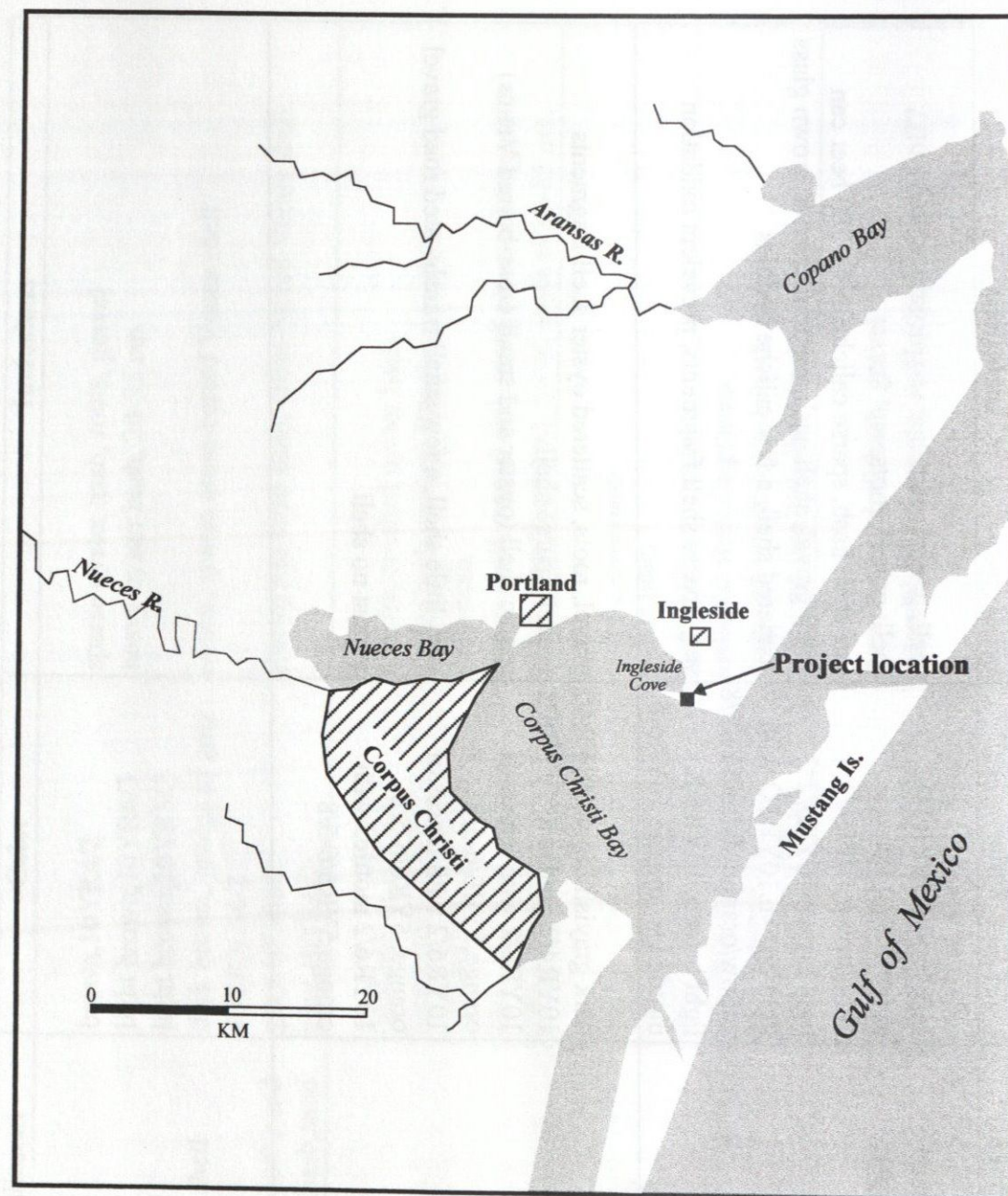


Figure 1. Map of part of the central Texas coast area, with Ingleside on the Bay project location and major area sites indicated.

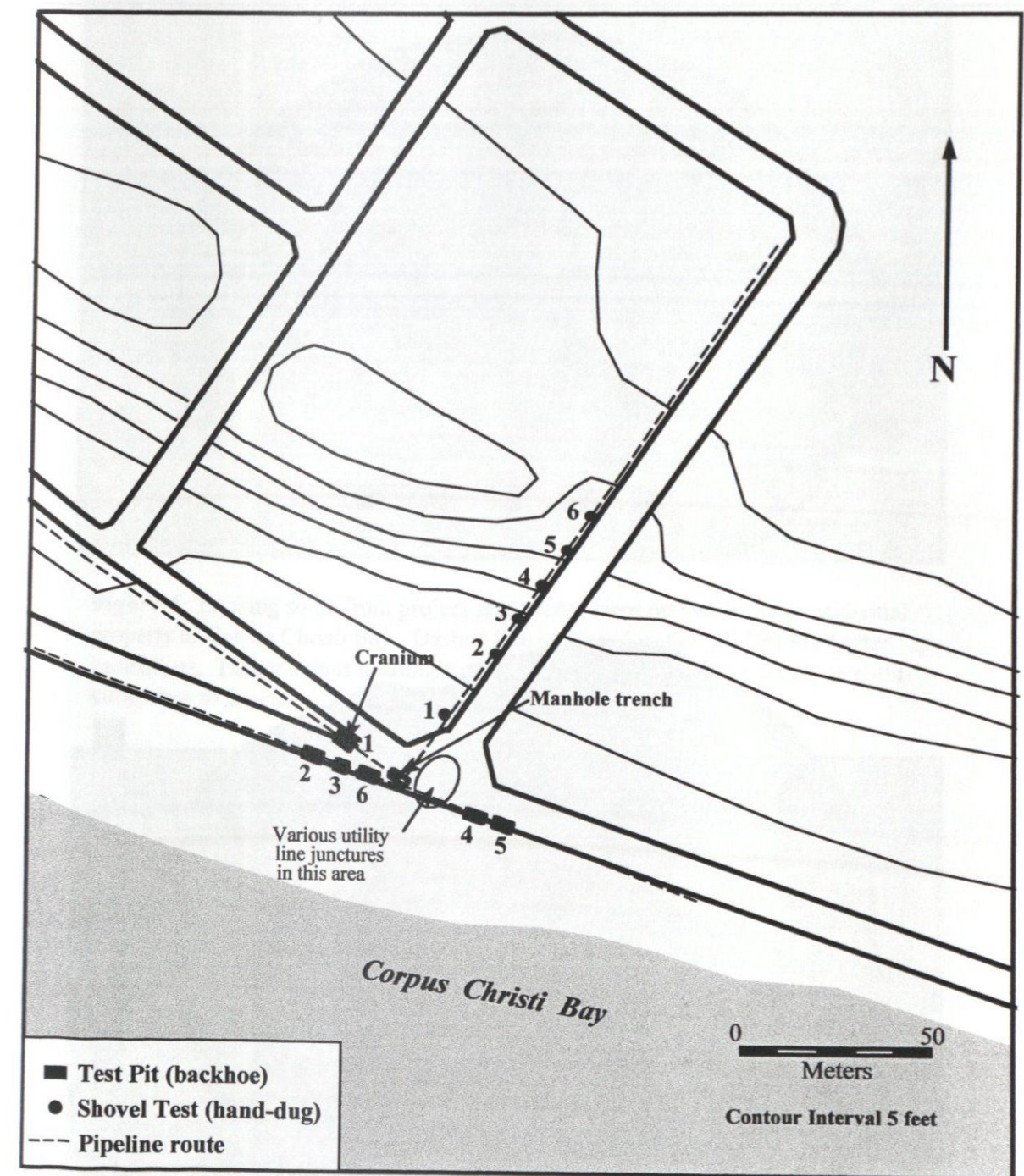


Figure 2. Map of project area, showing locations of backhoe trench test pits, hand-dug shovel tests, pipeline route and streets.

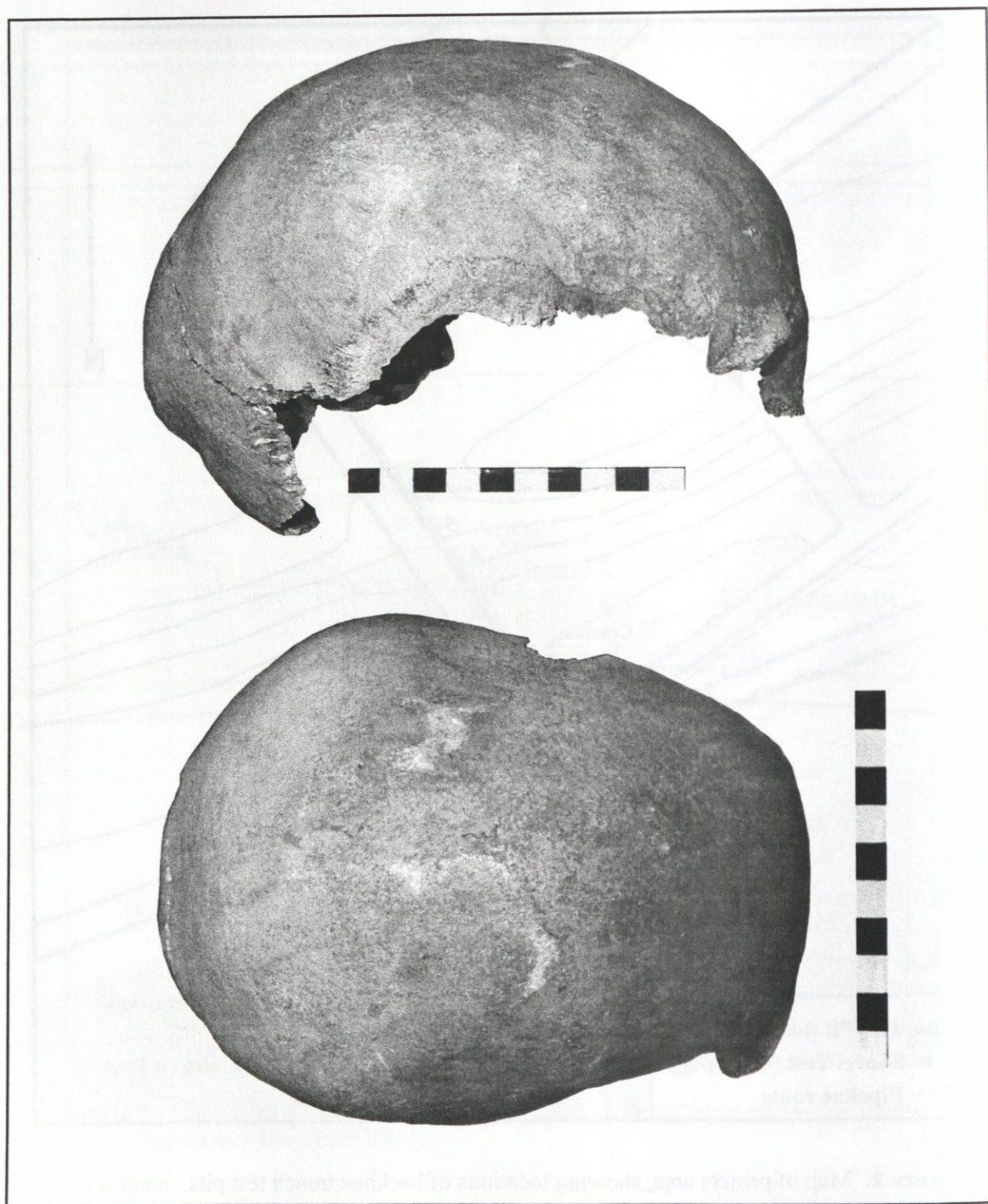


Figure 3. Side and top views of cranium from locus of Test Pit 1. Scale is in centimeters.



Figure 4. Looking south from project area across lawn on beach-front residential property to Corpus Christi Bay. Dashed line outlines location of Test Pit 4 after backfilling. Tanker ship is heading toward Aransas Pass ship channel some eight kilometers to the east.

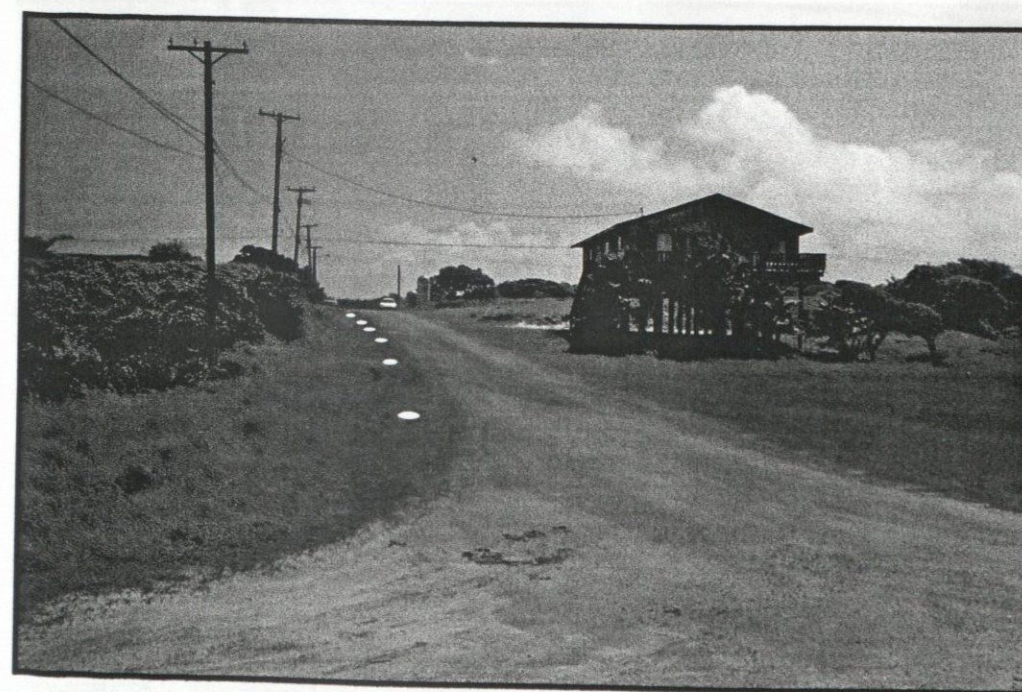


Figure 5. View north from near Test Pit 1. White dots show locations of hand-dug shovel tests along pipeline route. McGloin Bluff site (41SP11) is on high ground behind house and extends eastward for at least 500 meters.



Figure 6. Backhoe reopening backfilled section of pipeline trench where human cranium was uncovered. This reopened section was designated as Test Pit 1, which marks the location of 41SP203.

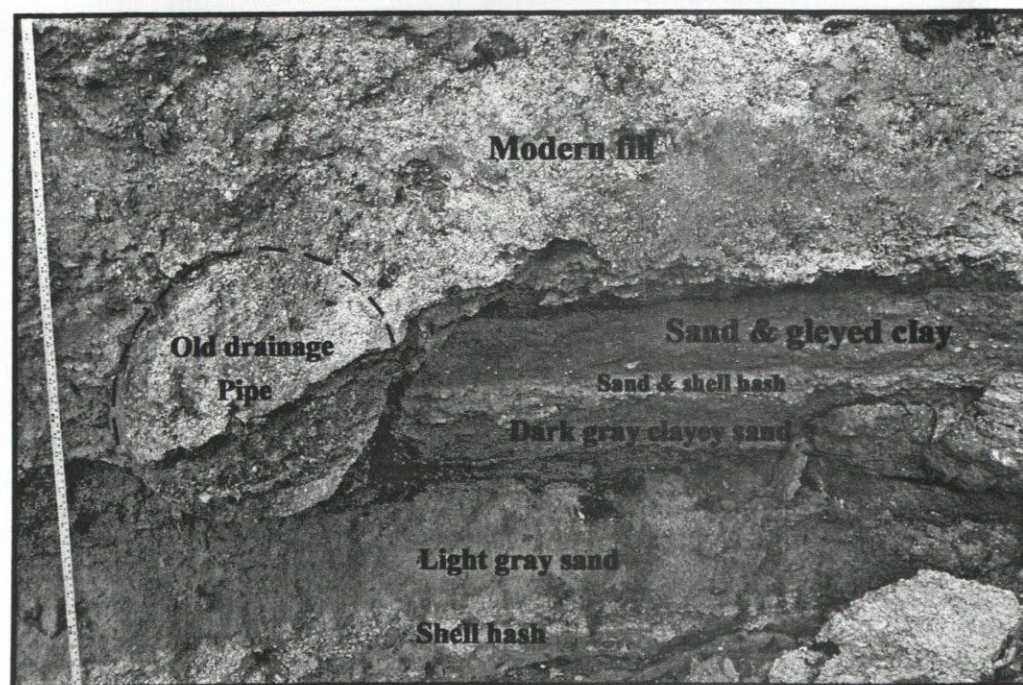


Figure 7. South wall of Test Pit 1, showing modern fill and old drainage pipe overlying natural stratified shoreline sediments. Human cranial section found during pipeline excavation at this location is believed to have come from the dark gray clayey sand layer about midway down the profile shown here.

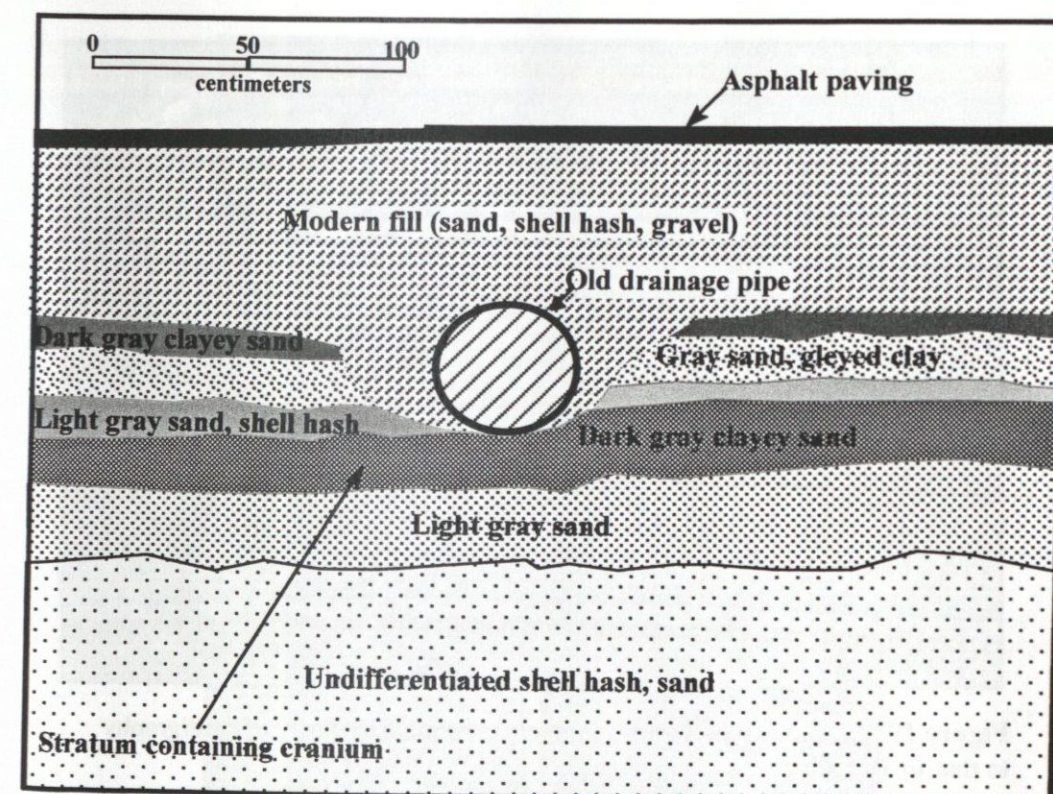


Figure 8. Drawing of profile of south wall of Test Pit 1.

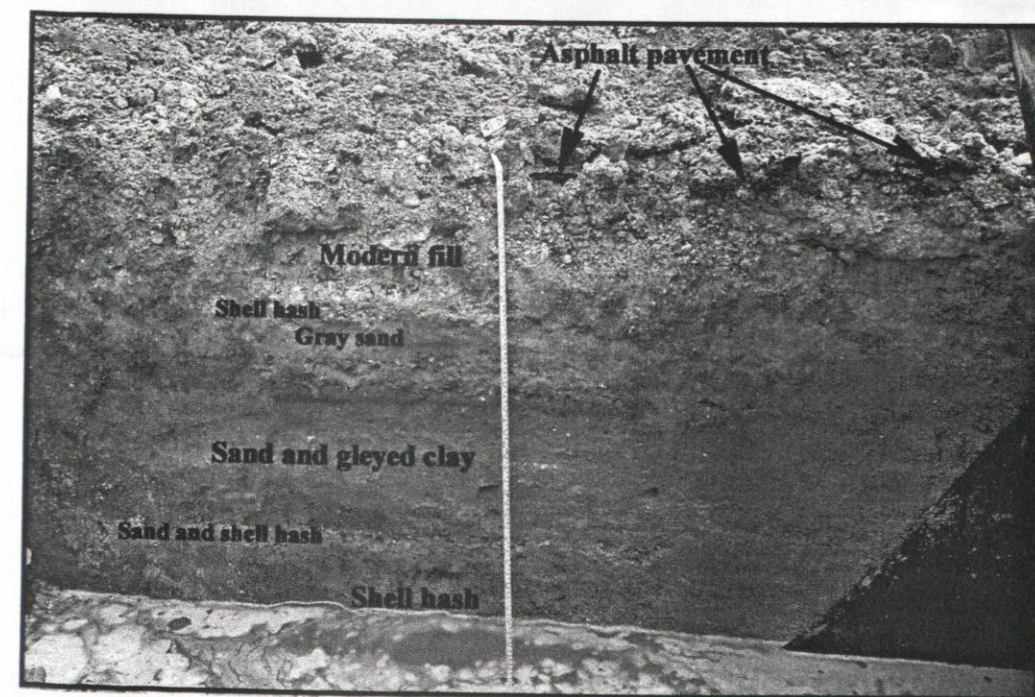


Figure 9. North wall of Test Pit 2, showing stratified natural shoreline sediments under modern fill. Note that dark gray clayey sand layer found in Test Pit 1 is absent, though the sand and gleyed clay layer and the thin sand and shell hash layers are present in both pits. Also note rapidly rising water level in bottom of pit.

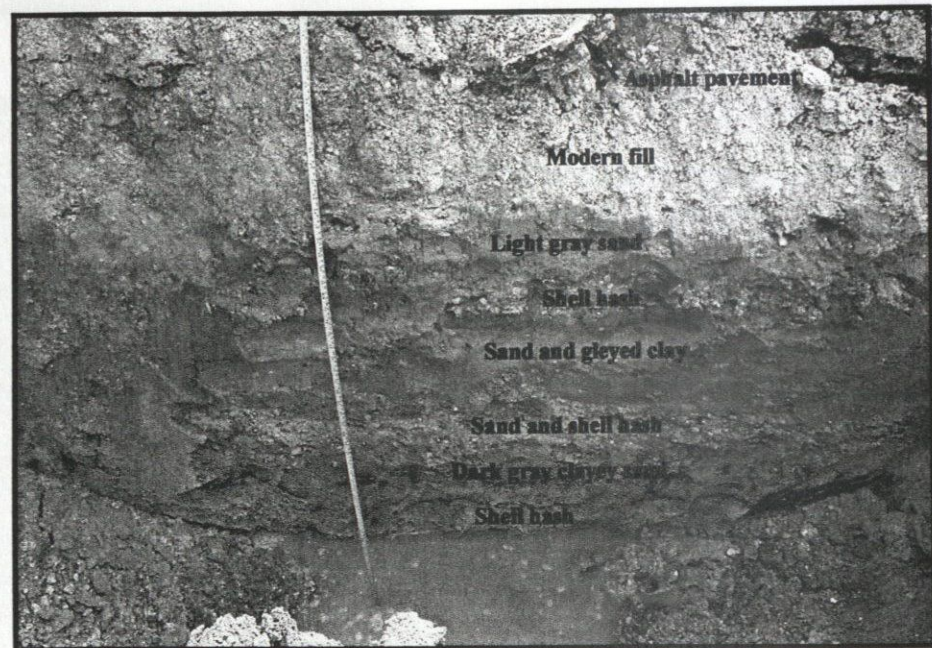


Figure 10. North wall of Test Pit 3. Note essential similarity of stratigraphy to that in Test Pit 1.

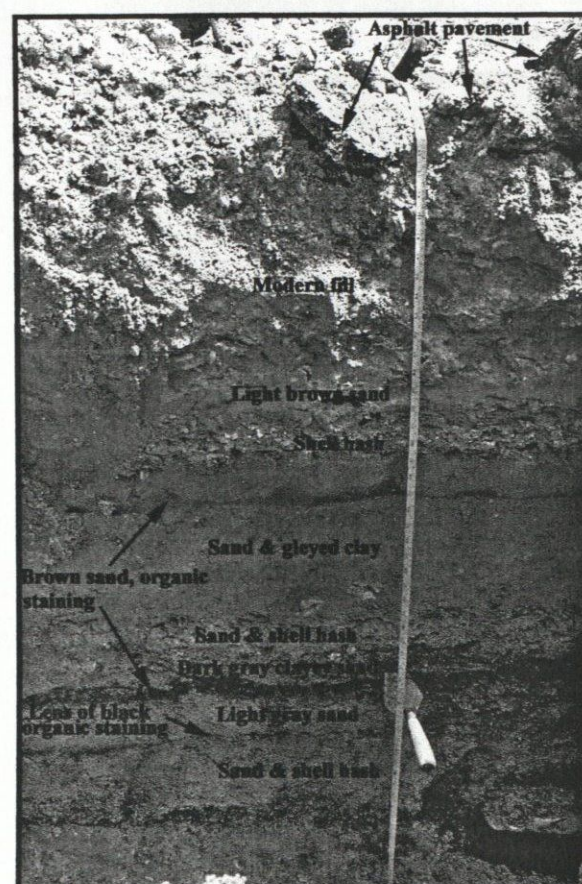


Figure 11. North wall of Test Pit 6. Note that stratigraphy is similar to that in Test Pit 1, but that dark gray clayey sand layer (marked by trowel) is thinner.

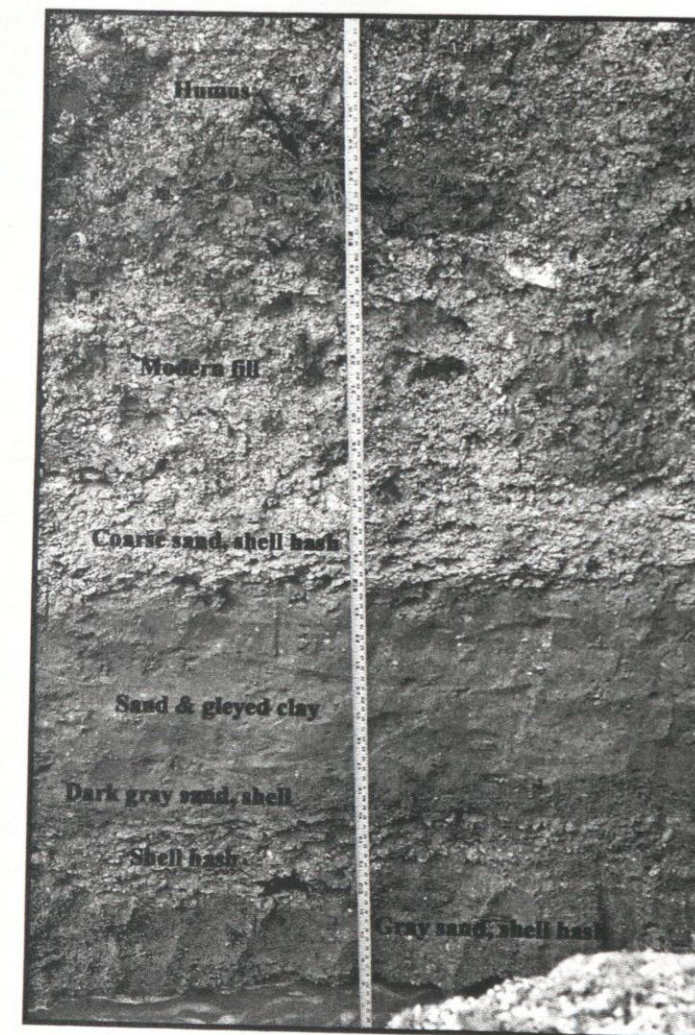


Figure 12. South wall of Test Pit 4. Note that stratigraphy differs from that in Test Pit 1, but that relatively thick sand & gleyed clay layer is present.