

7. CULTURAL RESOURCES

7.1 Existing Conditions

An offshore cultural resources evaluation performed for Port Dolphin was prepared and conducted in compliance with Section 106 of the National Historic Preservation Act (NHPA), Florida State requirements, and MMS requirements. The offshore cultural resources report is included as Appendix A of the Archaeological, Engineering, & Hazard Study Proposed 36-Inch Gas Pipeline Reroute, Tampa Bay, Florida (*Confidential Attachment B.1*).

7.1.1 Prehistoric Resources Background

The entire *Port Dolphin* project area is situated on the broad Gulf inner continental shelf off the west coast of Florida and extends into the shallow estuary of Tampa Bay, which comprises a system of interconnected bays and lagoons bordered by coastal barrier islands (Brooks and Doyle 1998). The present day coastal configuration has been determined by pre-Holocene geologic history (Hine 1997; Hine et al. 2001). Tampa Bay occupies a local structural depression that has most probably resulted from the dissolution of underlying limestones within the Florida Platform during the late Paleogene and early Neogene (Hine 1997). Seismic reflections indicate that a major east-west paleofluvial channel extended from beneath modern Tampa Bay, flowing north of Egmont Key, across the inner continental shelf to approximately ~24 miles (40 kilometers) seaward of the present day coastline at Tampa Bay (Willis 1988; Duncan 1992; Hine 1997; Hine et al. 2001). Buried relict channeling in profiles from within the Bay appears extensively truncated with cut and fill structures (Brooks and Doyle 1998). Sediments near the modern coastline are predominantly quartz-sands that have contributed to the formation of the coastal barrier island system. Sediments that occupy the lower end of Tampa Bay are predominantly carbonate-rich, marine-derived sands and gravels derived from Pleistocene terrace deposits and biogenic carbonates that formed in situ or were transported in from the Gulf of Mexico (Doyle and Brooks 1998).

Previous geological and archaeological studies have examined the sea level fluctuations of the late Pleistocene and early Holocene epochs (Curry 1960; Coleman and Smith 1964; Scholl et al. 1967; Colquhoun and Brooks 1986; Coastal Environments, Inc. 1977, 1982, 1986; Garrison 1992). While complexities and differences occur between models based on local studies (Colquhoun et al. 1981; Colquhoun and Brooks 1986), the Holocene marine transgression is generally summarized as a rapid rise from 14,000 years B.P. to 6,000 B.P., with a slower transgression marked by periodic fluctuations from 6,000 B.P. to the present. Dunbar et al. (1991) and Faught and Donoghue (1997) suggest that the approximately 130-foot (40-meter) isobath offshore the western coast of Florida (outside of the survey area) represents a Paleo Indian or “Clovis Shoreline.” By about 3,000 B.P., sea level reached its current stand.

Between 5,000 and 3,000 B.P., in response to the declining rate of sea level rise, the barrier islands across the mouth of Tampa Bay began to take on their present configurations. The regional west coast study reported on by Hine et al. (2001) showed that the barriers essentially

exhibit the same basic stratigraphy, that of development by initial upward shoaling on a Holocene bedrock foundation dating to about 4,000 B.P., followed by the aggradation of sediments, and in some areas, by the progradation of sediments.

Predictive models based on correlations between prehistoric archaeological sites and geomorphic landforms, which have been proposed by Coastal Environments, Inc. (1977, 1982, 1986), Colquhoun et al. (1981), Aten (1983), Kraft et al. (1983), Gagliano (1984), Dunbar et al. (1989a,b 1991), Faught (2003, 2004), Stright (1986, 1987, 1990) and others, suggest that submerged Paleo Indian and Archaic period sites in Florida may be associated with natural levees, margins, point bars, and terraces of alluvial streams; margins of bays, lakes and estuaries; sinkholes; and relict beach ridges. Numerous reports on investigations of Paleo Indian, Archaic, and later cultural occupations of now submerged landforms have examined these early land-man relationships off the coasts of Florida (Goggin 1964; Ruppe 1980; Stright 1987; Dunbar 1983, 1991; Dunbar et al. 1989; Murphy 1990; Milanich 1994). The identification of these or related landforms in presently submerged areas would represent high probability areas for the occurrence of prehistoric archaeological sites.

The archaeological culture history of Tampa Bay and offshore Florida has been presented in depth by numerous sources (e.g., Bense 1994; Milanich 1994; and others), with one of the earliest cultural syntheses provided by Willey (1949), and for an introduction to inundated site potential, by Goggin (1947). More recent frameworks of the Paleo Indian and Archaic stages, whose artifact assemblages would be represented off the present west Florida Gulf of Mexico coast, have been described by Ruppe (1980), Stright (1987), Dunbar et al. (1989), and Murphy (1990), among others. Because sea level reached its current stand about 3,000 B.P., archaeological cultural complexes younger than this date are unlikely to be present in the now submerged area of Tampa Bay. However, it is possible that isolated finds of dugout canoes or artifacts used for exploiting marine resources by more recent cultures could be present.

The Paleo Indian stage is dated roughly to the period between about 12,000 and 8,000 B.P. The late Pleistocene period was characterized geographically by greatly lowered sea levels, with the Florida Gulf coastline located some 40 to 85 miles west of its present site (Faught 1996). Arid conditions prevailed with much lower groundwater tables. Many Paleo Indian sites in Florida are situated adjacent to Tertiary Karst and Marginal Karst water sources represented by deep springs and still water retention basins, and a model for this settlement pattern, the Oasis model, has been proposed by James Dunbar and S. David Webb (Dunbar 1983, 1991; Webb et al. 1984; Dunbar et al. 1989), which built upon the earlier premise of Wilfred T. Neill (1964). Resources found at these sinks would have included chert sources and fauna. Clovis, Suwannee, and Simpson lanceolate projectile points are typical diagnostic tools, and are sometimes associated with the remains of Pleistocene megafauna. Evidence of now inundated sites dating from the Paleo Indian and Archaic stages has been found on the continental shelf off of the Big Bend region of Florida (Anuskiewicz 1988; Dunbar et al. 1989). Possible Paleo Indian shell middens in Tampa Bay have been reported by Goodyear with others in 1972, 1980, and 1983. A prominent excavation of a Paleo Indian site in the Tampa Bay area was conducted at Harney Flats (Daniel and Wisenbaker 1987).

The Archaic stage defines the cultures that adapted to the post-Pleistocene environmental changes and economic strategies necessitated by climatic shifts. Three stages have been defined: early Archaic from about 8,000 to 7,000 B.P., the middle Archaic from 7,000 to about 4,500 B.P., and the late Archaic from about 4,500 to about 3,200 B.P. (Bense 1994; Milanich 1994). Climatic conditions became wetter as a result of postglacial warming, and marine transgression inundated the continental shelf, reaching its current position some 3,000 years ago during the late Archaic stage. Pollen analyses reflect variations in local ecologies and the shift in coastal environments. With stabilizing and more easily accessible water sources, an increase in population occupying established base camps is associated with the early Archaic stage. In Florida, as elsewhere, the archaeological convention ends this tradition characterized by hunting and gathering with the development of more complex technologies, including ceramics; however, hunting and gathering strategies persisted along the Florida coast through later prehistoric cultures until European contact.

New technologies introduced during the Archaic Period reflect a more settled population, and include the use of more diverse lithic assemblages used for a multitude of tasks (Milanich 1994). Noted in the Archaic artifact assemblages are milling implements, hearths and baking pits, polished stone artifacts, mortuary rituals with cemeteries, including the earliest mound building, horticulture, textiles for clothing, nets, and baskets, and, at the end of the period during the transition to Late Prehistoric or Woodland period, the introduction of ceramics around 2,100 B.P. (Purdy 1981; Bense 1994; Mistovich 1994). Diagnostic lithic artifacts of the Early Archaic period include Bolen-Kirk, Dalton, and Kirk projectile points, while those of the Middle Archaic include Newnan and Eva points. The ceramic sequence on the upper northwest Florida coast begins about 2,100 B.P. with fiber tempered wares assigned to the Norwood series (Bense 1994; Mistovich 1994).

7.1.2 Historic Cultural Resources

Tampa Bay and its offshore approaches are the primary locations for possible shipwrecks, and many wrecks have been reported and documented in the bay and along the west Florida coast that are representative of vessels dating from the Spanish and British periods of European colonization, the American period of colonization and immigration of the 19th century, through the present day. Colonial and historic period shipping routes commonly traversed this area, typically hugging the coast to provide access to trade and provisioning centers such as those developed in Tampa, Pensacola, Mobile Bay, Biloxi, and Galveston (Coastal Environments, Inc. 1977; Garrison et al. 1989). Overland transport of goods and materials was difficult until the mid and late 19th century when railroad and canal networks were established and the early 1900's when roads were improved.

Settlers were dependent upon a variety of different vessel types to support their transportation needs. For more than 200 years, many versions of canoes, skiffs, and flatboats were used for lightering goods and people in shoaled waters. Caravels, galleons, and frigates were the principal vessel types of the Spanish and British colonial periods. During the late 18th century and early 19th century, schooners were the principal sailing rigs used for fishing and the

transport of passengers and freight and were popular as pleasure craft. By the 1830's, steamboats were becoming increasingly common offshore, as well as on the inland waterways.

Garrison et al. (1989) presented a regional historic framework for the northern Gulf of Mexico outlining historic and technological changes in their synthesis of archaeological, environmental, and geographic data relevant to shipwreck occurrence in the Gulf of Mexico. These periods include the New Spain Period (1500-1699), the Colonial period (1700-1803), the American Period (1803-1865), the Victorian Period (1866-1899), and the 20th Century Period (1900-present). They have been well described in regional literature pertinent to the west coast of Florida (Works Progress Administration 1939; Dovell 1952; Tebeau 1987; Gannon 1996), as well as on a broader scale (Coastal Environments, Inc. 1977; Weddle 1985, 1991, 1995; Hoffman 1980). The Geographic and Cultural Context Section in the Archaeological Assessment submitted to the USCG as part of Data Gap Responses 64 and 81 (31 August 2007) addresses the historic period and incorporates particular references to the Tampa Bay area.

Modern cultural features identified along the route include the Gulfstream 36-inch pipeline (Segment No. 12373) and artificial reef sites established by the Gulfstream Natural Gas System as mitigation for impacts incurred during pipeline installation, the Pinellas County Department of Environmental Protection Artificial Reef Program, and the Florida Fish and Wildlife Conservation Commission. Rubble derived from the old Sunshine Skyway Bridge demolition is a prominent feature within the project area in Tampa Bay.

An archival search was conducted to determine the presence or reported incidence of shipwrecks within or adjacent to the project area. No sites listed on the National Register of Historic Places are in the project area. Reference to lists and charts published by the U.S. Department of Transportation, USCG Local Notices to Mariners, National Ocean Service (NOS) Navigation Charts, the NOS Automated Wreck and Obstruction Information System (AWOIS) database (2007), Berman (1972), Marx (1985), Potter (1988), Singer (1992), and the MMS shipwreck database (Pearson et al. 2003) indicates that there have been numerous vessels reported from the colonial, historic, and modern periods off the coast of Florida, as well as in Tampa Bay, whose wreck sites remain undetermined.

Possible 19th and 20th century wrecks in the project vicinity in Tampa Bay include the following: the *Isis*, burned in 1842; the *Eugene Batty*, sunk through collision in 1906; the *Wave*, burned in 1908; the *Davy Crockett*, stranded in 1909; the *Water Boy*, sunk in 1911; the *City of Sarasota*, foundered in 1919; the *Thomas B. Garland*, stranded in 1921; the *Bon Temps*, sunk in 1921; the *Gwalia*, foundered in 1925; the *Stranger*, burned in 1927; the *Belmont*, sunk in 1940; the *Kim Too*, stranded in 1955; *Barge No. B-29*, foundered in 1955; the *Miss Powerama*, stranded in 1962; the *Buhnday*, sunk in 1966; and the *Ranger III*, sunk in 1966.

Four obstructions are listed in the AWOIS files in the survey area of the Revised Preferred Route in Tampa Bay: Nos. 10318, 9833, 10310, and 10312. These obstructions were confirmed in the geophysical data set. No. 10318 was reported to be a cylindrical tank. No. 9833 was a metal-hulled watercraft identified as similar to an aluminum SeaArk boat. No. 10310 was found to represent several chunks of concrete, and No. 10312 represents a metal tank.

7.1.3 Geophysical Survey of Nearshore Portion of the Revised Preferred Route

Port Dolphin conducted a comprehensive high-resolution geophysical survey of the nearshore portion of the Revised Preferred Route in Tampa Bay in September 2007. The geophysical instrumentation included an echo sounder, a side-scan sonar (100 and 500 kHz frequencies collected simultaneously), a marine magnetometer, and a subbottom profiler. Water column velocity data were gathered and a heave sensor was utilized. Navigation software was integrated with a global positioning system that provided horizontal control at a reported accuracy of ± 3 meters.

The survey grid covering the proposed pipeline realignment corridor was run in four sections and was designed to provide complete geophysical coverage (3,000 feet wide) of the seafloor when supplemented by the survey data collected along the Original Preferred Route.

7.1.4 Summary of Cultural Resource Findings

7.1.4.1 Objectives

The objective of the cultural resource evaluation was to locate and identify cultural resources that exist in the project site area that potentially could be physically disturbed by project activities within the survey area of the nearshore portion of the Revised Preferred Route in Tampa Bay. Any potentially significant submerged cultural resources that might be eligible for listing on the National Register of Historical Places (NRHP) will require avoidance or additional archaeological investigation.

7.1.4.2 Prehistoric Resources

Water depths along the nearshore portion of the Revised Preferred Route range from 29 to 6 feet (~8.8 to 1.8 meters) Mean Lower Low Water. Seafloor slope is variable across the area, but decreases notably to the east in Tampa Bay.

Across much of the area the seafloor exhibits a generally smooth seafloor interrupted by migrating sands and shoals and hard bottom zones. These features were corroborated in the side-scan sonar data. Possible remnant shoals exhibit heights from 2 to 3 feet (0.6 to 1 meters), extending over areas up to 1,000 feet (304 meters). Acoustic penetration of the subbottom profiler below the seafloor ranged from little or no penetration (where hard limestone occurs at or very near the seafloor or where consolidated sandy sediments attenuate the acoustic signal) to very good penetration (about 32 feet below mud line [BML]). Strong seafloor multiples, indicating hard seafloor, occur throughout the data set. No fluvial channels, possible sinkholes, or other geomorphic features that could represent high probability areas for prehistoric archaeological sites were recorded in the data set.

7.1.4.3 Historic Cultural Resources

A total of 920 magnetic anomalies were recorded, of which 788 magnetic anomalies remain unidentified. The majority of these unidentified anomalies occur in the vicinity of the old demolished Sunshine Skyway Bridge, the new Sunshine Skyway Bridge, and known dredge spoil deposits. Most of these anomalies are low amplitude, short duration features representing small ferrous debris that is densely scattered within the surveyed area. In addition, Debris from storm damaged infrastructure and property in communities around the Bay has been commonly swept into the Bay, most recently from Hurricane Wilma in 2005. Of these magnetic anomalies, 31 occur along or within 50 feet (approximately 15 meters) of the nearshore portion of the Revised Preferred Route.

Thirteen unidentified individual sonar contacts and two sonar contact zones were recorded during the survey. Twelve of the sonar contacts corresponded with unidentified magnetic anomalies.

The Phase 1 cultural resources evaluation for the nearshore portion of the Revised Preferred Route identified one feature of potential cultural significance in the side scan-sonar and magnetometer data, comprising one unidentified side-scan sonar contact and three unidentified magnetic anomalies. This feature is situated about 1,100 feet (335 meters) north of the proposed route. An avoidance zone of 500 feet (152 meters) has been designated around this site (**Figure 7-1**).

7.2 Analysis of Potential Consequences

Adverse impacts to cultural resources occur when an activity is likely to damage or disturb a unique feature such as an historic site (shipwreck) or prehistoric site (former human occupation areas). The nature of any impacts to cultural resources as a result of project activities would be direct, in that the consequence of offshore installation/decommissioning activities could have an immediate affect upon the resource. In all cases, the duration of environmental consequences to cultural resources resulting from project activities would be long-term or permanent, as opposed to temporary. In addition, any impacts to cultural resources may be irreversible.

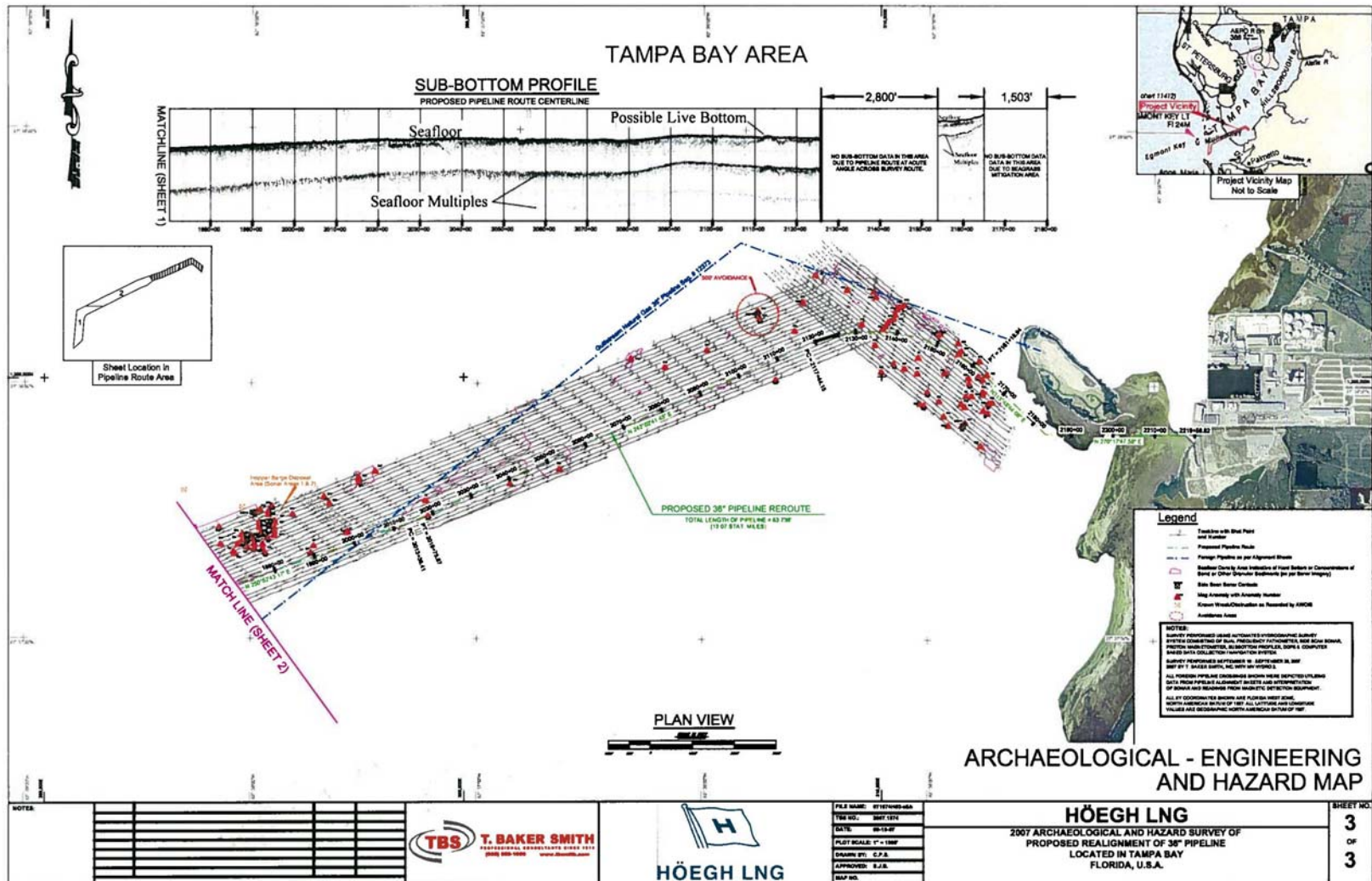
Impacts were evaluated based on consequence-producing factors related to the following phases of the project.

7.2.1 Construction

The primary potential impacts to cultural resources associated with offshore construction activities would be potential impacts to prehistoric and historic sites. Construction of the pipeline would involve derrick/lay barges, anchor handling tug support vessels, and other such vessels. Potential disturbance of historic and prehistoric sites could only occur from anchors used by these vessels if used within the designated avoidance zones.

Deepwater Port License Application
Port Dolphin Project

Figure 7-1
Avoidance Zone Around Unidentified Feature



The Phase 1 geophysical survey along the nearshore portion of the Revised Preferred Route revealed no geomorphic features representing high probability areas for prehistoric archaeological sites.

One unidentified side-scan sonar contact associated with three unidentified magnetic anomalies was identified about 1,100 feet (335 meters) north of the nearshore portion of the Revised Preferred Route. An avoidance zone of 500 feet (152 meters) has been designated around this feature (**Figure 7-1**).

The Phase I geophysical survey completed in January 2007, in and around the proposed DWP terminal location, revealed the presence of buried fluvial channels in St. Petersburg Area Blocks 545 and 589 that retain geomorphic features representing high probability areas for prehistoric archaeological sites. One avoidance area was established with a 250-foot wide buffer zone around one area of relict channels located northwest of the south buoy. Project installation activities, specifically Anchor 8 of the modified south buoy anchoring arrangement, would be located about 5,600 feet (1,707 meters) southeast of this prehistoric resources avoidance area.

In the event that any cultural resources are discovered during construction, the details and procedures for handling these unanticipated discoveries are outlined in an Unanticipated Discoveries Plan, which was submitted with the archaeological assessment.

7.2.2 Operations

Once the offshore pipeline is installed, there should be no further contact with the seafloor. Since no potentially significant prehistoric or historic resources would be located within 1,000 feet (304 meters) of the pipeline, there would be no impacts on cultural resources by routine operations.

7.2.3 Decommissioning

Impacts on historic and prehistoric sites from decommissioning activities are not anticipated because the pipeline would be more than 1,000 feet (304 meters) from any potentially significant targets, and disturbance to the seabottom from decommissioning activities would be minimal.

The pipeline would be decommissioned by filling it with seawater and leaving in place subject to MMS guidelines and the terms of the submerged lands lease to be obtained from the State of Florida. Pipeline decommissioning procedures should have no impact on prehistoric or historic cultural resources.

7.2.4 Accidents and Upsets

It is not anticipated that releases of LNG, natural gas, or other petroleum products from vessels or operations would impact the seafloor. Therefore, cultural resources are not expected to be impacted by upsets or accidents.

7.3 Summary of Impacts and Mitigation Measures

The proposed STL buoy site and Revised Preferred Route have been designed to avoid prehistoric and historic cultural resources. Installation, operation, and decommissioning activities would avoid impact to resources, if found. If avoidance of these areas of potential resources is not possible, then these resources would be retrieved and curated at a state or federally recognized facility in accordance with applicable procedures.

The main objective of the cultural resource evaluation was to locate and identify cultural resources that exist in the project site area that potentially could be physically disturbed by project activities. Any potentially significant submerged cultural resources that might be eligible for listing on the NRHP would require avoidance or additional archaeological investigation.

7.3.1 Prehistoric Resources

In the west-central portion of the mooring area, buried fluvial channels were recorded that do not appear significantly affected by erosion. The upper channel margins are buried by a sediment cover of about 10 feet (3 meters). Axial depths were noted from 16 to 18 feet (4.9 to 5.5 meters) BML, and channel fill sediments are amorphous. The profiles indicate that overbank deposition may remain undisturbed. These features are identified as high probability areas for prehistoric archaeological sites.

No geomorphic features that could represent high probability areas for prehistoric archaeological sites were recorded along the Revised Preferred Route.

7.3.2 Historic Cultural Resources

A total of 2,066 magnetic anomalies was recorded, of which, 1,688 magnetic anomalies remain unidentified. Of these, 105 occur in Federal waters, and the remainder are in Florida waters. Twenty-three unidentified sonar contacts and two sonar contact zones were recorded during the surveys. Three occurred in Federal waters, and the others are in Florida waters.

The Phase 1 geophysical survey magnetometer and side-scan sonar data cultural resources evaluation identified a number of features of potential cultural significance. Four unidentified side-scan sonar contacts, one of which is in Federal waters, and 18 unidentified magnetic anomalies, all but one of which is in Florida waters, were interpreted as possible historic shipwreck remains.



Deepwater Port License Application
Port Dolphin Project

Addendum
(Public)

In the event of unanticipated discovery of cultural resources, Port Dolphin would follow an Unanticipated Discoveries Plan, which was submitted to the USCG as part of Data Gap Response 65 (3 August 2007). Under this Plan, all activity in the area of work would be halted immediately, and an avoidance zone of at least 1,000 feet for further work in that area would be established. Within 48 hours of the discovery, the Regional Supervisor, Leasing and Environment, and archaeologists at the MMS office in New Orleans, as well as the USCG and the appropriate Florida State Historic Preservation Officer (SHPO) with the Florida Division of Historical Resources would be notified.